181 FERC ¶ 61,122
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Richard Glick, Chairman;
James P. Danly, Allison Clements,
Mark C. Christie, and Willie L. Phillips.

PacifiCorp Project Nos. 2082-063
14803-001

Klamath River Renewal Corporation
State of Oregon
State of California

ORDER MODIFYING AND APPROVING SURRENDER OF LICENSE AND REMOVAL OF PROJECT FACILITIES

(Issued November 17, 2022)

1. On September 23, 2016, and supplemented on November 17, 2020, February 26, 2021, December 14, 2021, May 2, 2022, and September 16, 2022, the Klamath River Renewal Corporation (Renewal Corporation) and PacifiCorp filed an application to surrender the license for the Lower Klamath Project No. 14803 (Lower Klamath Project) and remove the four project developments.[1] The Lower Klamath Project is located on the Klamath River in Klamath County, Oregon, and Siskiyou County, California.

2. For the reasons discussed below, we approve the surrender of the Lower Klamath Project license and the proposed removal of the four project developments, subject to the terms and conditions discussed below.[2]

---

[1] As discussed further below, the Commission previously approved the transfer of the Lower Klamath Project from PacifiCorp to the Renewal Corporation, the State of Oregon, and the State of California as co-licensees, provided that the Renewal Corporation and the States accept license transfer and co-licensee status within 30 days of any Commission order approving surrender. Any reference in this order to co-licensees means the Renewal Corporation, the State of Oregon, and the State of California. *See infra* P 20.

[2] A licensee requests surrender of a Commission-issued license when it decides it no longer wishes to hold that license, which can happen for a variety of reasons. To protect the environment and public, a license may only be voluntarily surrendered upon agreement between the licensee and the Commission. When a licensee voluntarily decides to surrender its license, the Commission's regulations require the licensee to file a surrender

I. Background

3. The Lower Klamath Project was formerly part of the 169-megawatt (MW) Klamath Hydroelectric Project No. 2082 (Klamath Project), located on the Klamath River in Klamath County, Oregon, and Siskiyou County, California, which included eight developments (from upstream to downstream): East Side, West Side, Keno, J.C. Boyle, Copco No. 1, Copco No. 2, Fall Creek, and Iron Gate. The Klamath Project included federal lands administered by the U.S. Bureau of Reclamation (Reclamation) and U.S. Bureau of Land Management (BLM).[3] The original license for the Klamath Project was issued on January 28, 1954,[4] and was transferred to PacifiCorp on November 23, 1988.[5] The license expired on February 28, 2006, and the Klamath Project has been operating under an annual license since that time.[6]

4. PacifiCorp filed an application to relicense the Klamath Project in 2004. In 2007, Commission staff issued a final Environmental Impact Statement (EIS) for the application analyzing various alternatives, including decommissioning and removing the J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate developments, but ultimately recommending issuing a new license that included those four developments with staff-recommended mitigation and mandatory conditions from the U.S. Fish and Wildlife Service (FWS), the

---

application that includes a decommissioning plan. 18 C.F.R. § 6.1 (2021). Possible forms of decommissioning range from simply shutting down the power operations to removing all parts of the project, including the dam, and restoring the site to its pre-project condition. The Commission will only approve a license surrender once the licensee has fulfilled its obligations under the license or as established by the Commission. *See Project Decommissioning at Relicensing*, FERC Stats. & Regs. ¶ 31,011 (1994) (cross-referenced at 69 FERC ¶ 61,336).

[3] The Lower Klamath Project occupies approximately 400 acres of federal lands administered by BLM.

[4] *The Cal. Or. Power Co.*, 13 FPC 1 (1954). The original license order was for the construction and operation of the Big Bend No. 2 development, also known as the J.C. Boyle development. Later orders incorporated the other project developments into the license.

[5] The original license, issued to the California Oregon Power Company, was transferred to Pacific Power and Light Company on June 16, 1961 (*The Cal. Or. Power Co.*, 25 FPC 1154 (1961)) and then to PacifiCorp on November 23, 1988 (*PacifiCorp*, 45 FERC ¶ 62,146 (1988)).

[6] *See* 16 U.S.C. § 808(a)(1).

National Marine Fisheries Service (NMFS), and Reclamation.[7] However, PacifiCorp concluded that implementing those conditions (specifically, complying with mandatory fishway prescriptions) would mean operating the Klamath Project at a net loss.[8] Thereafter, PacifiCorp entered into negotiations with a number of resource agencies, Tribes, and other entities to evaluate alternatives to relicensing the Klamath Project.

5. In February 2010, PacifiCorp and 47 other parties, including the States of Oregon and California and the U.S. Department of the Interior (Interior), executed the Klamath Hydroelectric Settlement Agreement (Settlement Agreement), which provided for decommissioning and removing the J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate developments, contingent on the passage of federal legislation and approval by the Secretary of the Interior. However, the necessary legislation was never passed.

6. Subsequently, in April 2016, the States of Oregon and California, Interior, PacifiCorp, NMFS, the Yurok Tribe, and the Karuk Tribe executed the Amended Klamath Hydroelectric Settlement Agreement (Amended Settlement Agreement). The Amended Settlement Agreement set forth a process by which PacifiCorp would request Commission approval to transfer the four lower developments to the Renewal Corporation,[9] which would then seek Commission approval to decommission and remove the developments under the Commission's license surrender procedures.[10]

7. On May 6, 2016, PacifiCorp requested that the Commission hold the relicensing proceeding for the Klamath Project in abeyance, in accordance with the Amended Settlement Agreement. On June 16, 2016, the Commission granted PacifiCorp's motion.[11]

---

[7] The staff alternative recommended issuing a new license for the Fall Creek development, decommissioning the East Side and West Side developments, and removing the Keno development from the project license because it is not necessary for power generation.

[8] *See* PacifiCorp, Klamath Hydroelectric Project Agreement in Principle, at 5 (filed Nov. 24, 2008).

[9] The Renewal Corporation is a non-profit public benefit corporation incorporated in the State of California. The Renewal Corporation was established to facilitate implementation of the Settlement Agreement and its primary purpose is to surrender and remove the Lower Klamath Project.

[10] 18 C.F.R. §§ 6.1-6.2 (2021).

[11] *PacifiCorp*, 155 FERC ¶ 61,271 (2016). Upon issuance of this surrender order, the abeyance will no longer be in effect.

8. On September 23, 2016, PacifiCorp and the Renewal Corporation filed an amendment and transfer application with the Commission to: (1) amend the Klamath Project license to place the four developments to be decommissioned into a new license that would become the Lower Klamath Project; and (2) transfer the license for the Lower Klamath Project from PacifiCorp to the Renewal Corporation. On the same day, the Renewal Corporation filed an application to surrender the Lower Klamath Project license and remove the four developments.[12]

9. On October 5, 2017, Commission staff requested additional information on the amendment and transfer application regarding the Renewal Corporation's legal, technical, and financial capacity to accept the new license and to decommission and remove the developments, if authorized. Additionally, given the magnitude of the proposed dam removals, the potential for safety issues, and questions about the adequacy of funding, cost estimates, insurance, and bonding, staff required the Renewal Corporation and PacifiCorp to convene an independent Board of Consultants to review and assess all aspects of the proposed dam removal.[13]

10. On March 15, 2018, the Commission approved the proposed amendment to separate the J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate developments and create the Lower Klamath Project.[14] At the same time, the Commission deferred consideration of the proposed transfer, stating that it needed more information about the Renewal Corporation's financial capability to accept transfer of the license and carry out the decommissioning of the Lower Klamath Project.[15] The March 15 Amendment Order required that the Renewal Corporation provide the Commission with the results of an independent review of much of

---

[12] Because only a licensee may file an application to surrender a license, which the Renewal Corporation was not at the time, the Commission considered the September 23, 2016 surrender application to be filed by both PacifiCorp and the Renewal Corporation.

[13] Letter from David Capka, FERC, to Mark Sturtevant, PacifiCorp, and Michael Carrier, Renewal Corporation (issued October 5, 2017).

[14] *PacifiCorp*, 162 FERC ¶ 61,236 (2018) (March 15 Amendment Order). The other four developments (East Side, West Side, Keno, and Fall Creek) remain in the original Klamath Project No. 2082 license.

[15] *Id.* PP 71-72. The March 15 Amendment Order included an appendix, which listed all the additional information the Commission would require before acting on the September 23, 2016 transfer application.

this additional information, which the Commission noted could be performed by the Board.[16]

11. PacifiCorp subsequently filed a request to stay the effectiveness of the amendment order until such time as the Commission acted on the transfer application, explaining that implementing the amendment would cost an estimated $3.1 million. On June 21, 2018, the Commission granted the stay.[17] In that same order, the Commission noted that PacifiCorp could defer its decision on whether to accept the amended licenses until the Commission acted on the transfer application.[18]

12. On July 16, 2020, the Commission approved the partial transfer of the Lower Klamath Project from PacifiCorp to the Renewal Corporation, contingent on PacifiCorp remaining on as a co-licensee.[19] The Commission found that if it were to ultimately approve the surrender application, it would not be in the public interest for the entirety of the surrender and decommissioning efforts to rest with the Renewal Corporation given "the magnitude of the proposed decommissioning, the uncertainties attendant on final design and project execution, and the potential impacts of dam removal on public safety and the environment."[20] Although the Commission was generally satisfied that the Renewal Corporation had the capacity to carry out its proposed decommissioning, the Commission determined it was appropriate to require PacifiCorp to remain on as a co-licensee because as a co-licensee, PacifiCorp could provide legal and technical support, as well as further assurance that there would be sufficient funding to carry out decommissioning.[21] The Commission also clarified that the March 15 Amendment Order would not be effective until the partial transfer was effective.[22]

13. Following the Transfer Order, PacifiCorp, the Renewal Corporation, the States of Oregon and California, the Karuk Tribe, and the Yurok Tribe began discussions on a mutually agreeable path forward for implementing the Amended Settlement Agreement.[23]

---

[16] *Id.* PP 61, 72 & app.

[17] *PacifiCorp*, 163 FERC ¶ 61,208 (2018).

[18] *Id.* n.7.

[19] *PacifiCorp*, 172 FERC ¶ 61,062 (2020) (July 16 Partial Transfer Order).

[20] *Id.* P 45.

[21] *Id.* P 71.

[22] *Id.* P 76.

[23] January 13, 2021 Transfer Application at 14.

These discussions resulted in the parties entering into a Memorandum of Agreement (MOA) on November 16, 2020.[24] Among other things, the MOA provided that PacifiCorp and the Renewal Corporation would not accept their status as co-licensees under the July 16 Partial Transfer Order, and that instead PacifiCorp, the Renewal Corporation, and the States of Oregon and California would prepare a new license transfer application, whereby PacifiCorp would request to transfer the Lower Klamath Project license to the Renewal Corporation and the States as co-licensees.[25]

14. Pursuant to the MOA, PacifiCorp and the Renewal Corporation filed an amended surrender application on November 17, 2020, and PacifiCorp, the Renewal Corporation, and the States of Oregon and California filed a new transfer application on January 13, 2021. On June 17, 2021, the Commission approved the transfer application, transferring the Lower Klamath Project from PacifiCorp to the Renewal Corporation and the States of Oregon and California as co-licensees.[26] The Commission continued to find that the Renewal Corporation has the capacity to undertake the proposed decommissioning and is qualified to be a co-licensee, and further found that the States as co-licensees "would provide additional legal and technical expertise, as well as further assurance there would be sufficient funding to carry out the surrender proposal if approved."[27]

15. The June 17 Transfer Order gave the Renewal Corporation and the States 30 days following any Commission order on the surrender application to accept license transfer and co-licensee status;[28] thus, PacifiCorp has remained the sole licensee during the Commission's consideration of the surrender application. If surrender was approved and the transfer became effective, PacifiCorp would continue to operate and maintain the Lower Klamath Project until electric operations cease and the powerhouses are physically disconnected from the grid.[29] The June 17 Transfer Order also made the March 15

---

[24] *Id*. at 15.

[25] *Id*. at Ex. 7 (providing MOA).

[26] *PacifiCorp*, 175 FERC ¶ 61,236 (2021) (June 17 Transfer Order).

[27] *Id*. P 31.

[28] *Id*. at ordering para. (C).

[29] *Id*. P 15; *see also* January 13, 2021 Transfer Application at Ex. 6 (providing 2017 Operation and Maintenance Agreement entered into between PacifiCorp and the Renewal Corporation).

Amendment Order, which amended the Klamath Project and created the Lower Klamath Project, effective as of the date of the approval of the transfer application, June 17, 2021.[30]

16. On June 17, 2021, the Commission issued a notice of intent to prepare an EIS for the proposed Lower Klamath Project surrender and removal, requesting comments on environmental issues, establishing a schedule for environmental review, and providing notice of public scoping sessions.[31] The Commission issued a scoping document on the same day, and conducted scoping sessions on July 20, 21, and 22, 2021.

17. On February 22, 2022, Commission staff, with the cooperation of the U.S. Army Corps of Engineers (Corps) and the Environmental Protection Agency (EPA), issued a draft EIS assessing the environmental effects associated with the proposed surrender and decommissioning, including discussion of concerns raised and alternatives submitted by commenters.[32] Commission staff issued a final EIS, with the cooperation of the Corps, EPA, and the Yurok Tribe, on August 26, 2022, addressing the comments received on the draft EIS.[33]

II. <u>Project Description</u>

18. The Lower Klamath Project consists of four developments, J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate, with a combined installed capacity of 163 MW, and currently generates approximately 686,000 MW-hours annually.[34]

19. Specifically, the four developments consist of:

a. The J.C. Boyle development, which consists of: (a) a 68-foot-high by 693-foot-long earthfill and concrete dam with an intake structure and spillway section containing three 36-foot-wide by 12-foot-high radial gates and a two-bay diversion culvert with stoplogs; (b) a 420-acre reservoir; (c) a 24-inch diameter fish screen bypass pipe; (d) a 569-foot-long pool and weir fishway; (e) a 638-foot-long, 14-foot-diameter steel flow line; (f) a

---

[30] *Id.* at ordering para. (D).

[31] June 17, 2021 Notice of Intent to Prepare an Environmental Impact Statement.

[32] In general, a cooperating agency is a federal agency or other entity that has jurisdiction or special expertise regarding the environmental impacts of a proposed action and/or its alternatives.

[33] *See* Final EIS at app. L for a summary of substantive comments on the draft EIS and staff's responses.

[34] A map of the Lower Klamath Project area is included in this order as Appendix F.

two-mile-long concrete power canal; (g) two 956-foot-long by 10.5-foot-diameter steel penstocks; (h) a powerhouse containing two units with an authorized capacity of 98 MW; (i) a 0.24-mile-long, primary transmission line connecting to J. C. Boyle substation; and (j) two three-phase step-up transformers.

b. The Copco No. 1 development, which consists of: (a) a 230-foot-high by 415-foot-long dam with a spillway section containing 13 14-foot by 14-foot tainter gates; (b) a 1,000-acre reservoir (Copco Lake) with approximately 33,724 acre-feet of total storage capacity; (c) three penstocks varying from 8-14 feet in diameter; (d) a powerhouse containing two units with a total authorized capacity of 20 MW; (e) four single-phase step-up transformers; and (f) four associated primary 69-kilovolt (kV) transmission lines as follows: (1) two lines, each approximately 0.07-mile-long, connecting Copco No. 1 powerhouse to the Copco No. 1 switchyard; (2) a 1.29-mile-long line connecting the Copco No. 1 switchyard to Copco No. 2; and (3) a 1.66-mile-long line connecting Copco No 1 switchyard to a tap on the 69-kV line from Fall Creek plant.

c. The Copco No. 2 development, which consists of: (a) a 33-foot-high by 278-foot-long dam with a 130-foot-long spillway section containing five tainter gates; (b) a 40-acre reservoir with a storage capacity of about 73 acre-feet; (c) a flowline consisting of 2,440 feet of concrete-lined tunnel and 1,313 feet of wood-stave pipeline; (d) an additional 1,110 feet of concrete-lined tunnel; (e) a surge tank; (f) two steel penstocks, one 405.5 feet long and one 410.6 feet long, with a diameter ranging from 8-16 feet; (g) a powerhouse containing two units with a total authorized capacity of 27 MW; (h) three single-phase transformers connected to three single-phase step-up transformers; and (i) a 0.4-mile-long, 69-kV primary transmission line connecting to Copco No. 2 switchyard.

d. The Iron Gate development, which consists of: (a) a 173-foot-high by 740-foot-long dam with a 727-foot-long side channel spillway; (b) a 944-acre reservoir with 58,794 acre-feet of storage capacity; (c) an intake structure with a 12-foot-diameter penstock; (d) a powerhouse containing one unit with a total authorized capacity of 18 MW; (e) a single three-phase step-up transformer; (f) one 6.55-mile-long, 69-kV primary transmission line connecting to Copco No. 2 switchyard; and (g) the Iron Gate Fish Hatchery.

III. <u>Proposed Surrender</u>

20. The Renewal Corporation requests surrender and decommissioning of the Lower Klamath Project to improve water quality and address basin-wide limiting factors including lack of fish passage, high summer and fall water temperatures, blue-green algae blooms,

disease incidence, and impaired sediment supply and transport. Specifically, the corporation states that it intends to advance the long-term restoration of the natural fish populations in the Klamath River Basin, with particular emphasis on restoring the salmonid fisheries used for commerce, recreation, subsistence, and Tribal cultural purposes. The Renewal Corporation also intends to improve the long-term water quality conditions associated with the Lower Klamath Project, including mitigating water quality impairments caused by the bacterium *Microcystis aeruginosa* and associated toxins, high water temperature, and levels of biostimulatory nutrients. The proposed surrender and decommissioning is also intended to ameliorate conditions underlying high disease rates among Klamath River salmonids and to restore anadromous fish[35] passage to viable habitat currently made inaccessible by the Lower Klamath Project dams.

21. The Renewal Corporation proposes to decommission and remove most project facilities at the four developments, as described in the Definite Plan included in the surrender application.[36] Most of the work would occur within the project boundary, although road surface improvements and bridge strengthening work would occur outside the boundary.[37] Under the Renewal Corporation's proposal, removal of the project facilities would require 20 months and restoration and monitoring activities would last at least five additional years. Specifically, pre-drawdown activities[38] would occur from March to December 2023, drawdown activities and most of the project removal would occur from January to December 2024, and post-drawdown activities, primarily comprising of reservoir area restoration, would occur in 2025.[39] The Renewal Corporation proposes to implement 16 management plans that specify the procedures that would be used to draw down the four reservoirs, remove the dams and associated facilities, restore lands currently occupied by the dams, reservoirs, and other facilities, improve access for salmon to historical and existing habitat, and minimize adverse effects on environmental resources.[40] The management plans are as follows: (1) Reservoir Drawdown and Diversion Plan; (2) Construction Management Plan; (3) Health and Safety Plan; (4) Remaining Facilities Plan; (5) Erosion and Sediment Control Plan; (6) Waste Disposal and Hazardous Materials

---

[35] Anadromous fish refers to fish that migrate from freshwater rivers to the ocean and back to spawn in their natal streams.

[36] *See* November 17, 2020 Amended Surrender Application at app. A-1.

[37] Final EIS at 2-2.

[38] *See infra* P 22.

[39] Renewal Corporation's July 1, 2022 Final Construction Documents Submittal at 6-7.

[40] PacifiCorp and the Renewal Corporation filed the final management plans on February 26, 2021, and revised management plans on December 14, 2021.

Management Plan; (7) Water Quality Monitoring and Management Plan; (8) Sediment Deposit Remediation Plan; (9) Aquatic Resources Management Plan; (10) Hatcheries Management and Operations Plan; (11) Reservoir Area Management Plan; (12) Terrestrial and Wildlife Management Plan; (13) Recreation Facilities Plan; (14) Historic Properties Management Plan (HPMP); (15) Water Supply Management Plan; and (16) Interim Hydropower Operations Plan.

22. Proposed decommissioning and removal activities include pre-drawdown year activities such as demolition of recreation areas, construction of access roads and bridges, installation of a waterline, removal or relocation of transmission features, excavation of a low-level outlet tunnel through Copco No. 1 Dam, removal of components in the tunnel at Iron Gate Dam, and removal of the Copco No. 2 Dam. Starting in the drawdown year, the Renewal Corporation proposes to lower reservoirs and remove the J.C. Boyle Dam, Copco No. 1 Dam, and Iron Gate Dam. The Renewal Corporation also proposes barricading or plugging the J.C. Boyle, Copco No. 2, and Iron Gate tunnels and the Copco No. 1 Penstock #3 portal. All powerhouses would be demolished and associated structures and equipment would be removed, except for some concrete that would be buried in place. The buildings previously used by project operators and all associated utilities would be removed, except foundations and buried utilities, which would be left in place. All aboveground substation equipment, conduits, transmission lines, and support structures would be removed or relocated. Finally, the Renewal Corporation would conduct grading and filling of the removal areas and channels, and the reservoir footprint areas would be revegetated using native species and exotic weed control.[41]

IV. Public Notice, Interventions, and Comments

23. On December 16, 2020, the Commission issued public notice of the amended surrender application, establishing February 16, 2021,[42] as the deadline for filing comments, interventions, and protests. A number of timely notices of intervention[43] and unopposed

[41] *See* Final EIS at 2-29.

[42] The notice originally identified the deadline for filing comments, interventions, and protests, as February 15, 2021, a federal holiday. The Commission subsequently issued an errata notice, identifying the correct deadline as February 16, 2021.

[43] Under Rule 214(a)(2) of the Commission's Rules of Practice and Procedure, these agencies became parties to the proceeding upon the timely filing of their notices of intervention. 18 C.F.R. § 385.214(a)(2) (2021).

motions to intervene were filed.[44] Several late motions to intervene were also filed and were granted by Secretary's Notices.[45] The final EIS lists intervenors at table 1.4.3.[46]

24. In addition to notices and motions to intervene, the Commission received comments in support of and opposed to the proposed surrender and decommissioning. Commenters in support of the proposal generally note that dam removal would eliminate aquatic resource effects associated with the Lower Klamath Project facilities by opening upstream spawning habitat to anadromous species and alleviating some of the causes of fish mortality.[47] Commenters in support of dam removal also state that the environmental protection, mitigation, and enhancement measures proposed, along with staff's recommendations in the draft and final EIS, would adequately protect environmental resources, restore the landscape of the areas that are currently impounded within the project reach to a more natural state, and help to sustain and restore water quality and the salmon runs.[48] Specifically, the Yurok Tribe and the Karuk Tribe express an urgent need for rapid approval and implementation of dam removal to protect Klamath salmon runs from deteriorating water quality conditions and increased disease incidence.

25. Commenters opposed to surrender and dam removal express concerns about issues including the need for the project reservoirs for irrigation and food production, the loss of flood control and fire protection afforded by the reservoirs, the importance of the reservoirs for sustaining downstream flows and providing flushing flows, the proposal violating the Klamath River Compact,[49] the release downstream of sediments and toxic materials

---

[44] Timely, unopposed motions to intervene are granted by operation of Rule 214(c)(1) of the Commission's Rules of Practice and Procedure. 18 C.F.R. § 385.214(c)(1).

[45] April 29, 2021, May 25, 2021, & November 2, 2021 Notices Granting Late Intervention.

[46] Final EIS at 1-11-13. Patty Vinikow was inadvertently excluded from the list of intervenors.

[47] *See* Final EIS at L-2.

[48] *Id.*

[49] The Klamath River Compact, which became effective with the consent of Congress in 1957, created the Klamath River Compact Commission, with one representative from Oregon, one from California, and one federal representative (Reclamation has been designated to hold that position) to administer the Compact. Pub. L. No. 85-222, 71 Stat. 497 (1957). The purposes of the Compact are to promote the orderly, integrated, and comprehensive development of the water resources of the Klamath River Basin for domestic and industrial use, irrigation, fish and wildlife, recreation, hydropower,

currently held in the reservoirs, and the loss of reservoir-based recreation, including fishing and hunting opportunities.[50] These commenters express concerns about the destruction of wildlife habitat and adverse impacts to threatened and endangered species, the loss of renewable hydroelectric energy, and impacts on soil stability, domestic water supply, property values, and tax revenues.[51] Commenters opposed to dam removal also note the historic blockage of salmon migration above Copco No. 1 reservoir, the potential provision of anadromous fish passage without dam removal, and that salmon runs could be increased through hatchery operations and predator control.[52]

26. The interventions and comments have been fully considered in determining whether, and under what conditions, to approve the surrender of this license and removal of the project facilities.

V. Statutory Compliance

A. Clean Water Act

27. Under section 401(a)(1) of the Clean Water Act (CWA),[53] any applicant for a federal license or permit for an activity that may result in a discharge into United States waters must obtain either a water quality certification (WQC or certification) from the appropriate state pollution control agency verifying that any discharge from the project would comply with applicable provisions of the Clean Water Act or a waiver of such certification.

1. Oregon DEQ's Certification

28. On September 11, 2017, the Renewal Corporation applied to the Oregon Department of Environmental Quality (Oregon DEQ) for certification for the proposed surrender of the Lower Klamath Project license and removal of project facilities. On September 7, 2018, Oregon DEQ issued certification for the project.[54] Generally, Oregon DEQ's certification

---

navigation, and flood protection; and to further intergovernmental cooperation and comity with regard to these resources. *See* Compact art. I.

[50] Final EIS at L-1.

[51] *Id.*

[52] *Id.*

[53] 33 U.S.C. § 1341(a)(1).

[54] On September 1, 2022, Oregon DEQ issued certification for the Renewal Corporation's application to the Corps for a CWA section 404 permit to place approximately 212,000 cubic yards of fill material in the Klamath River during removal of J.C. Boyle dam and related facilities in Oregon. Renewal Corporation's September 30,

conditions require the co-licensees to: (1) notify Oregon DEQ of any modifications to the proposed action; (2) submit a water quality management plan; (3) develop an adaptive management plan if water quality monitoring demonstrates that the project may contribute to exceedances of applicable water quality standards more than 24 months post-drawdown; (4) provide fish passage at all project-related artificial obstructions, mitigate project effects on adult Lost River sucker and shortnose sucker in the J.C. Boyle Reservoir prior to drawdown, conduct western pond turtle abundance and overwintering studies and implement any necessary mitigation prior to drawdown of the J.C. Boyle Reservoir, decommission project septic systems in accordance with applicable state administrative rules, and register for coverage under National Pollutant Discharge Elimination System (NPDES) permit 1200-C before certain construction activities occur; (5) submit a reservoir drawdown and diversion plan; (6) submit a reservoir area management plan that includes performance criteria and monitoring for unobstructed stream continuity, fish passage, sediment stability, and invasive exotic vegetation abatement and native cover establishment; (7) submit a remaining facilities and operations plan describing all project facilities that would not be removed and proposed measures to mitigate the remaining facilities' potential effect on water quality; (8) submit an erosion and sediment control plan; (9) submit a waste disposal and management plan; (10) submit a spill prevention, control, and countermeasure plan; and (11) submit annual compliance reports.

29. Oregon DEQ's certification conditions are set forth in Appendix A to this order and are incorporated as conditions of this surrender order by Ordering Paragraph (D).

2. California Water Board's Certification

30. On September 23, 2017, the Renewal Corporation applied to the California State Water Resources Control Board (California Water Board) for certification for the proposed surrender of the Lower Klamath Project license and removal of project facilities. On April 7, 2020, the California Water Board issued certification for the project. The Renewal Corporation filed a request to amend the certification on September 23, 2022, and on November 3, 2022, the California Water Board issued an amended certification to account for updates made to the proposal since the certification was issued on April 7, 2020. In the amended certification, the California Water Board approved many of the plans that it

---

2022 Letter, attach. A (providing Oregon DEQ's September 1, 2022 certification). The Renewal Corporation notes that although Oregon DEQ did not require additional conditions to protect water quality outside of those already required, the certification imposes additional conditions for the Pioneer Park West Boat Ramp, the Moonshine Falls Boat Ramp, and the Pioneer Park West Dry Hydrant. Renewal Corporation's September 30, 2022 Letter at 1.

previously required the Renewal Corporation to submit pursuant to the 2020 certification. Thus, the amended certification requires implementation of those approved plans.[55]

31. Generally, the California Water Board's amended certification conditions require the co-licensees to: (1) implement the approved water quality management plan; (2) submit, 32 months after drawdown begins, an assessment of whether exceedance of any water quality objectives are anticipated; (3) implement the approved reservoir drawdown and diversion plan; (4) perform an arsenic assessment and any necessary remediation of visible sediment deposits; (5) implement the approved anadromous fish presence monitoring plan; (6) implement certain aquatic resource measures; (7) implement the approved remaining facilities plan that describes all project facilities that would not be removed and proposed measures to mitigate the remaining facilities' potential effect on water quality; (8) implement the approved public drinking water management plan and construct a replacement pipe for the City of Yreka's water supply pipeline, limiting any interruption to water delivery to a maximum of 12 hours; (9) submit a proposal following consultation if chemical vegetation control is proposed to control algae or aquatic weeds; (10) comply with the terms and conditions in the California Water Board's NPDES Construction General Permit and prepare site-specific water quality monitoring plans for any ground-disturbing activities that could impact water quality that are not covered by the Construction General Permit or other certification conditions; (11) implement the approved waste disposal plan; (12) implement the approved hazardous materials management plan; (13) implement the approved hatcheries management and operations plan; (14) implement the approved restoration plan that includes, among other things, additional measures for restoring lands in the reservoir footprints, establishing native vegetation cover, ensuring floodplain connectivity, providing for no net loss of wetland or riparian habitat, protecting water quality during restoration activities, and increasing the abundance of large woody material in the project reaches; (15) implement specified measures to protect water supply and beneficial uses; (16) implement the approved amphibian and reptile rescue and relocation plan; (17) comply with the Eagle Take Permit issued by FWS, discussed below;[56] (18) implement the approved slope stability monitoring plan; (19) implement the approved recreation facilities plan that identifies all recreation facilities to be removed, modified, maintained, or added following dam removal, describes ownership transfer plans, and includes measures to protect water quality, control aquatic invasive species, and provide for water quality impairment signage; (20) submit an interim hydropower operations plan if drawdown activities do not begin 24 months after issuance date of this surrender order; (21) consult with California Water Board staff and comply with applicable state regulations prior to changing any water diversion; (22) submit to the Hoopa Valley Tribe, Karuk Tribe, Resighini Rancheria, and any other Tribe that has obtained treatment-as-a-state status under

---

[55] The certification also requires that several of the approved plans be filed with the Commission within 30 days of the amended certification.

[56] *See supra* P 43.

the CWA and have EPA-approved CWA standards, the 32-month water quality objective assessment (California Water Board Condition 2) and any request to end or modify monitoring under the water quality monitoring plan (California Water Board Condition 1) at the locations closest to or within the Tribe's reservation; and (23) consult with additional parties for any condition that requires consultation with specific agencies.

32. The California Water Board's certification conditions are set forth in Appendix B to this order and are incorporated as conditions of this surrender order by Ordering Paragraph (E).

3. The Corps' Section 404 Permit

33. Section 404 of the CWA requires authorization from the Secretary of the Army, acting through the Corps, for the discharge of dredged or fill material into all waters of the United States, including wetlands.[57] The Renewal Corporation has applied to the Corps for a permit that would authorize the placement of approximately 212,000 cubic yards of permanent or temporary fill material within 20 acres of jurisdictional waters in the Klamath River. The Renewal Corporation's section 404 permit application remains under the Corps' consideration. Pursuant to Ordering Paragraph (K), land-disturbing activities subject to the Corps' jurisdiction under CWA section 404 may not begin until the Corps has issued a permit authorizing such activities.

B. Coastal Zone Management Act

34. Under section 307(c)(3)(A) of the Coastal Zone Management Act (CZMA),[58] the Commission cannot issue a permit for activities within or affecting a state's coastal zone unless the state CZMA agency concurs with the applicant's certification of consistency with the state's CZMA program or the agency's concurrence is conclusively presumed by its failure to act within 180 days of its receipt of the applicant's certification.

35. In Oregon, the Klamath River is not included in the State's coastal watersheds. Therefore, an Oregon coastal zone consistency review is not required.

36. In California, the Klamath River flows into the Pacific Ocean, where the delta and estuary are designated as a Critical Coastal Area within the coastal zone. On February 4, 2022, the Renewal Corporation submitted a request to the California Coastal Commission seeking guidance as to whether a consistency certification was required.[59] On April 15,

---

[57] 33 U.S.C. § 1344 *et seq*.

[58] 16 U.S.C. § 1456(c)(3)(A).

[59] Renewal Corporation's February 7, 2022 Notification of Consistency Certification Request.

2022, the California Coastal Commission notified the Renewal Corporation that it had determined that the proposed action would not have a substantial effect on land or water uses in the coastal zone.[60] Accordingly, the California Coastal Commission determined, and we agree, that federal consistency review is not required.[61]

C. Endangered Species Act

37. Section 7 of the Endangered Species Act of 1973 (ESA)[62] requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of the critical habitat of such species. On August 2, 2021, Commission staff notified FWS and NMFS that staff had reviewed the Biological Assessment (BA) prepared by the Renewal Corporation and adopted it as the Commission's final BA.

38. In the final BA, staff concluded that license surrender and removal may affect and is likely to adversely affect: Southern Oregon/Northern California Coast coho salmon and its critical habitat, southern distinct population segment eulachon and its critical habitat, Lost River sucker, shortnose sucker, and bull trout.[63] Staff concluded that the proposed surrender and removal of the Lower Klamath Project may affect but is not likely to adversely affect: southern distinct population segment green sturgeon and its critical habitat, Southern Resident killer whale and its critical habitat, bull trout critical habitat, Lost River sucker critical habitat, shortnose sucker critical habitat, northern spotted owl and its critical habitat, and the Oregon spotted frog.[64] Finally, staff found the proposed

---

[60] Renewal Corporation's April 18, 2022 Response to Request for Additional Information.

[61] *Id.*

[62] 16 U.S.C. § 1536.

[63] Commission staff's August 2, 2021 Request for Formal Consultation at 2. *See also* Final EIS at B-2.

[64] Commission staff's August 2, 2021 Request for formal consultation at 2. The August 2, 2021 letter incorrectly stated that there would be no effect on critical habitat for Lost River sucker and shortnose sucker. Commission staff clarified in an August 31, 2021 letter that the proposed action may affect but is not likely to adversely affect critical habitat for these species. Commission staff's August 31, 2021 Response to Request to Formal Consultation at 1-2.

surrender and removal of the Lower Klamath Project would have no effect on critical habitat of the Oregon spotted frog.[65]

39. On August 24, 2021, FWS published its final rule to list Franklin's bumble bee as an endangered species under the ESA.[66] FWS did not designate critical habitat for the species. By letter dated August 31, 2021, Commission staff informed FWS of its determination that the proposed surrender and removal of the Lower Klamath Project may affect but is not likely to adversely affect the Franklin's bumble bee and requested to confer with FWS on the species.[67]

40. On December 17, 2021,[68] NMFS issued a biological opinion in which it concurred with the BA's determination that surrender and removal of the Lower Klamath Project may affect but is not likely to adversely affect the green sturgeon and its critical habitat. NMFS also concurred with the BA's determination that the proposed action may affect and is likely to adversely affect the coho salmon evolutionary significant unit (ESU) and its critical habitat, and the eulachon and its critical habitat. However, NMFS did not concur with the effects determination for the killer whale, instead finding that the proposed action may affect and is likely to adversely affect the species and its critical habitat. NMFS concluded that the proposed surrender and decommissioning is not likely to jeopardize the continued existence of any of these species, nor is it likely to destroy or adversely modify their critical habitat. NMFS's biological opinion includes an incidental take statement with reasonable and prudent measures to minimize take of the coho salmon ESU, the eulachon, and the killer whale, along with two general reasonable and prudent measures and terms and conditions to implement the measures. The reasonable and prudent measures and terms and conditions of NMFS's incidental take statement are set forth in Appendix C to this order and are incorporated as conditions of this surrender order by Ordering Paragraph (F). Consistent with reasonable and prudent measure (10), Ordering Paragraph (G) includes a reopener clause providing for the possible amendment of the order or other authorization to incorporate any reasonable and prudent alternatives, reasonable and prudent measures, and terms and conditions resulting from any reinitiated consultation on the authorized action.

41. On December 22, 2021, FWS issued a biological opinion in which it concurred with the BA's determination that the proposed action may affect but is not likely to adversely

---

[65] Commission staff's August 2, 2021 Request for Formal Consultation at 2.

[66] 86 Fed. Reg. 47,221 (Aug. 24, 2021). The listing status became effective on September 23, 2021.

[67] Commission staff's August 31, 2021 Response to Request to Formal Consultation at 2-3. *See also* Final EIS at 3-388 to 3-389; B-2.

[68] Non-substantive corrections were filed on April 18, 2022. *See* NMFS's April 18, 2022 Comments on draft EIS.

affect the northern spotted owl and its critical habitat, Franklin's bumble bee, Oregon spotted frog, and critical habitat for the Lost River sucker, shortnose sucker and bull trout. FWS also concurred with the determinations that the project may affect and is likely to adversely affect the Lost River sucker, shortnose sucker, and bull trout and further concluded that the proposed action is not likely to jeopardize the continued existence of these species. Finally, FWS acknowledged that the proposed action includes minimization measures to reduce effects on the monarch butterfly, a candidate for ESA listing. FWS is currently reviewing the listing status of the little brown bat, western bumble bee, and western pond turtle. Staff evaluated the effects on these species in the final EIS and determined that the proposed surrender and decommissioning plan includes measures to minimize effects to both the little brown bat and the western pond turtle.[69] While the western bumble bee is not likely to be found in the project area, the use of native plants during restoration may benefit this species. In the final EIS, staff noted the Renewal Corporation's proposed measures minimize effects on these species. FWS's biological opinion includes an incidental take statement with reasonable and prudent measures for Lost River sucker and shortnose sucker, along with terms and conditions to implement the measures. The reasonable and prudent measures and terms and conditions of FWS's incidental take statement are set forth in Appendix D to this order and are incorporated as conditions of this surrender order by Ordering Paragraph (H). Consistent with reasonable and prudent measure (2), Ordering Paragraph (I) includes a reopener clause providing for the possible amendment of the order or other authorization to incorporate any reasonable and prudent alternatives, reasonable and prudent measures, terms and conditions, and monitoring requirements resulting from any reinitiated consultation on the authorized action.

42. On April 6, 2022, FWS notified the Commission that the Northern District Court of California had vacated and remanded the FWS's delisting of the gray wolf, restoring the gray wolf's protections under the ESA as a federally endangered species. Commission staff determined that the proposal may affect but is not likely to adversely affect the gray wolf, and, on May 17, 2022, Commission staff requested FWS's concurrence.[70] On June 7, 2022, FWS concurred with Commission staff on its determination for the gray wolf, concluding consultation for the species.

43. The Renewal Corporation submitted a Bald and Golden Eagle Conservation Plan and Incidental Take Permit application to FWS on January 10, 2022, pursuant to the Bald and Golden Eagle Protection Act.[71] The Renewal Corporation requested a five-year incidental

---

[69] Final EIS at 3-370 to 3-372; 3-375; 3-389 to 3-396; B-3.

[70] Commission staff's May 17, 2022 Request for Concurrence at 2. *See also* Final EIS at 3-397; B-3.

[71] 16 U.S.C. § 668.

disturbance take permit for bald and golden eagles for activities associated with the decommissioning of the Lower Klamath Project, and detailed how it proposed to avoid, minimize, and offset effects on eagles. On October 17, 2022, FWS issued an Eagle Take Permit, final Environmental Assessment, and Finding of No Significant Impact for the decommissioning of the Lower Klamath Project. The five-year Eagle Take Permit authorizes 26 incidents of bald eagle take by disturbance and 17 incidents of golden eagle take by disturbance, within two miles of surrender activities.[72] The Eagle Take Permit is included in Appendix E and incorporated in this order by Ordering Paragraph (J).

D. Magnuson-Stevens Fishery Conservation and Management Act

44. Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act[73] requires federal agencies to consult with the Secretary of Commerce regarding any action or proposed action authorized, funded, or undertaken by the agency that may adversely affect Essential Fish Habitat (EFH) identified under the Act. Under section 305(b)(4)(A) of the Magnuson-Stevens Act, NMFS is required to provide EFH conservation recommendations for actions that would adversely affect EFH.[74] Under section 305(b)(4)(B) of the Act, an agency must, within 30 days after receiving recommended conservation measures from NMFS or a Regional Fishery Management Council, describe the measures proposed by the agency for avoiding, mitigating, or offsetting the effects of the agency's activity on EFH. [75]

45. In the area that could be affected by the proposal, NMFS has designated EFH for Chinook salmon, coho salmon, Pacific Coast ground fish, and coastal pelagic species. EFH for Chinook salmon and coho salmon includes the stretch of the Klamath River from its mouth to Keno Dam, and upstream to Lewiston Dam on the Trinity River. EFH for Pacific Coast ground fish and coastal pelagic species includes estuaries.

46. Commission staff initiated EFH consultation in an October 13, 2021 letter to NMFS. Commission staff determined that surrender with dam removal would result in adverse effects on Chinook and coho salmon EFH conditions for adult migration, spawning, egg-to-fry survival, juvenile rearing, and smolt migration habitat downstream of Iron Gate

---

[72] FWS's October 17, 2022 Eagle Take Permit at 2-3.

[73] 16 U.S.C. § 1855(b)(2).

[74] *Id.* § 1855(b)(4)(A).

[75] *Id.* § 1855(b)(4)(B). The measures recommended by the Secretary of Commerce are advisory, not prescriptive. However, if the federal agency does not agree with the recommendations of the Secretary of Commerce, the agency must explain its reasons for not following the recommendations.

Dam in the short term, and result in no adverse effect on estuarine rearing for Chinook and coho salmon. Staff further concluded that, over time, as deposited sediments and sediments that remain in the reservoir footprints are transported or stabilized, respectively, the surrender and dam removal would have no adverse effect on or may benefit Chinook and coho salmon habitat. Regarding the Pacific Coast groundfish and coastal pelagic species EFH, staff determined that surrender and dam removal would have a small and temporary adverse effect due to elevated suspended sediment, but long-term would likely result in no adverse effect.

47. In its December 17, 2021 response, NMFS agreed that there would be adverse effects to EFH for these species but provided no EFH conservation recommendations, explaining that despite there being expected short-term adverse effects, the quality of the EFH for the species will be enhanced over the long term as a result of the proposal. NMFS also noted that the Renewal Corporation proposes to implement a number of measures designed to avoid or minimize short-term adverse effects on aquatic species and habitat.

E. Historic and Cultural Resources

1. National Historic Preservation Act

48. Under section 106 of the National Historic Preservation Act (NHPA),[76] and its implementing regulations,[77] federal agencies must take into account the effect of any proposed undertaking on properties listed or eligible for listing in the National Register of Historic Places (National Register), defined as historic properties, and afford the Advisory Council on Historic Preservation (Advisory Council) a reasonable opportunity to comment on the undertaking. This generally requires the Commission to consult with the State Historic Preservation Officer (SHPO) or, where a project will be located on Tribal lands, the Tribal Historic Preservation Officer, to determine whether and how a proposed action may affect historic properties, and to seek ways to avoid or minimize any adverse effects.

49. On November 10, 2016, Commission staff designated the Renewal Corporation as its non-federal representative for the purposes of conducting section 106 consultation under the NHPA.[78] Pursuant to section 106, and as the Commission's designated non-federal representative, the Renewal Corporation initiated consultation with the Oregon SHPO and the California SHPO in September 2017. Around this time, the Renewal Corporation also established a Cultural Resources Working Group to assist the Commission with section 106

[76] 54 U.S.C. § 306108.

[77] 36 C.F.R. pt. 800 (2021).

[78] November 10, 2016 Notice of Applications Filed with the Commission, Project Nos. 2082-063 & 14803-001.

compliance and to ensure open communication among consulting parties.[79] On April 5, 2022, the California SHPO requested the Advisory Council's assistance in the consultation.[80] On May 3, 2022, the Advisory Council notified the Commission of its decision to participate in the section 106 consultation process.[81]

50. The surrender of the Lower Klamath Project license would end the Commission's jurisdiction over historic hydroelectric facilities, archaeological sites, and Traditional Cultural Properties within the area of potential effect, thus removing these resources from the federal protection that the NHPA affords.[82] Historic hydroelectric districts and individual structures at the J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate developments would be demolished or abandoned.[83] In the final EIS, Commission staff concluded that the proposed deconstruction activities, as well as the removal of federal oversight, would adversely affect historic properties.[84] As to Traditional Cultural Properties, staff concluded that the proposed license surrender and removal of project facilities would result in a significant beneficial effect on restoring salmon runs, access to traditional foods, Tribal cultural practices, and a characteristic riverine landscape.[85]

51. To address adverse effects on historic properties, the Renewal Corporation developed a Historic Properties Management Plan (HPMP), the final version of which was filed on October 14, 2022, containing a number of general and specific treatment measures designed to avoid, minimize, or mitigate adverse effects on archaeological sites and historic

---

[79] Members of the Cultural Resources Working Group include: PacifiCorp, the Oregon SHPO, the California SHPO, Forest Service, BLM, Corps, Reclamation, and representatives of the Klamath Tribes, Modoc Nation, Shasta Indian Nation, Shasta Nation, Karuk Tribe, Yurok Tribe, Quartz Valley Indian Community of the Quartz Valley Reservation of California, Cher-Ae Heights Indian Community of the Trinidad Rancheria, Confederated Tribes of the Siletz Indian Reservation, Resighini Rancheria, and the Hoopa Valley Tribe.

[80] California SHPO's April 5, 2022 Request for Advisory Council Assistance (filed April 6, 2022).

[81] Advisory Council's May 3, 2022 Notice of Formal Entry into Consultation.

[82] Final EIS at 3-483.

[83] *Id.* at 3-483.

[84] *Id.* at 3-493, 4-24.

[85] *Id.* at 4-25.

structures that are listed or eligible for listing in the National Register.[86] For example, these measures include documenting the National Register-eligible hydroelectric historic districts, as well as contributing resources within each district, prior to the removal of project works, in accordance with the National Park Service's (Park Service) Historic American Buildings Survey/Historic American Engineering Record/Historic American Landscapes Survey procedures. To protect archaeological resources, the HPMP includes measures that call for additional surveying following reservoir drawdown, archaeological and site-condition monitoring during construction, and a range of treatment measures such as employing strategic plantings and signage, installing erosion control materials, and capping and armoring archaeological sites.[87] The HPMP also includes a Monitoring and Inadvertent Discovery Plan, which provides procedures to be followed during archaeological monitoring and after a post-review discovery of archaeological resources or human remains, and a Looting and Vandalism Prevention Plan, which provides archaeological crime prevention and response strategies. The Renewal Corporation developed the HPMP in consultation with the Advisory Council, California SHPO, Oregon SHPO, and Tribes, and incorporated and addressed comments from these entities other consulting parties.

52. To satisfy the requirements of section 106, the Commission executed a programmatic agreement with the Oregon SHPO, California SHPO, and Advisory Council on October 17, 2022, and invited the Renewal Corporation, PacifiCorp, State of California, State of Oregon, the Corps, BLM, Forest Service, Yurok Tribe, Karuk Tribe, Klamath Tribes, Shasta Indian Nation, Modoc Nation, Quartz Valley Indian Community of the Quartz Valley Reservation of California, Confederated Tribes of the Siletz Indian Reservation, Resighini Rancheria, Cher-Ae Heights Indian Community of the Trinidad Rancheria, and Hoopa Valley Tribe to concur.[88] The Renewal Corporation, PacifiCorp, the Corps, the Resighini Rancheria, and the Shasta Indian Nation concurred. The programmatic agreement requires the licensees to implement the HPMP. Execution of the programmatic agreement demonstrates the Commission's compliance with section 106 of the NHPA. Ordering Paragraph (LL) of this order requires the licensees to implement the programmatic agreement and associated HPMP.

2. <u>Tribal Consultation</u>

53. The Commission's consultation with interested Tribes began after the Renewal Corporation filed its initial surrender application in September 2016. By letters dated October 18, and 26, 2017, Commission staff initiated consultation with a number of

---

[86] *See id.* at 3-489 to 3-492 for a detailed discussion of these measures.

[87] *Id.* at 3-489

[88] Advisory Council's October 18, 2022 Transmittal Letter (providing copy of programmatic agreement executed on October 17, 2022).

Tribes.[89] In early 2018, staff held Tribal consultation meetings with the Hoopa Valley Tribe, Karuk Tribe, Quartz Valley Indian Community of the Quartz Valley Indian Reservation of California, Klamath Tribes, Yurok Tribe, and Modoc Nation. On July 9, 2019, Commission staff held a second Tribal consultation meeting with the Yurok Tribe. On October 11, 2021, Chairman Glick and Commission staff participated in a government-to-government consultation with the Yurok Tribe.[90] On March 1, 2022, Commission staff met with Shasta Indian Nation and the California SHPO. The Commission granted cooperating agency status under the National Environmental Policy Act to the Yurok Tribe on March 9, 2022, after the Tribe agreed to use separated staff to cooperate in preparation of the final EIS while maintaining its status as an intervenor in the proceeding.

54. The final EIS includes a summary of general Tribal positions regarding dam removal.[91] That summary concludes that consultation with the participating Tribes indicates strong support for the removal of the J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate Dams, with the consensus being that removal is necessary to restore anadromous fish habitat and improve water quality in the Lower Klamath River. While some Tribes have expressed concern regarding issues such as sediment passage and exposure or erosion of significant cultural resources, which were addressed in the final EIS, the record here shows that most participating Tribes support the removal of the dams as expeditiously as possible.[92]

F. Wild and Scenic Rivers Act

55. Section 7(a) of the Wild and Scenic Rivers Act[93] provides that the Commission "shall not license the construction of any dam, water conduit, reservoir, powerhouse, transmission line, or other project works. . . on or directly affecting any river which is designated" as a component of the wild and scenic rivers system. A portion of the Klamath

---

[89] Consulted Tribes included the: Hoopa Valley Tribe, Karuk Tribe, Yurok Tribe, Klamath Tribes, Modoc Tribe, Quartz Valley Indian Community of the Quartz Valley Reservation of California, Resighini Rancheria, Confederated Tribes of Siletz Indians of Oregon, Trinidad Rancheria, Confederated Tribes of the Warm Springs Reservation of Oregon, Confederated Tribes of the Grand Ronde Community of Oregon, Cow Creek Tribes of the Warm Springs Reservation of Oregon, Elk Valley Rancheria (California), Pit River Tribe (California), and the Tolowa Dee-Ni Nation. Final EIS at 1-14.

[90] Commission staff's October 13, 2021 Consultation Memorandum.

[91] Final EIS, app. K (*Summary of Tribal Views on Dam Removal*).

[92] *Id.* at 1-16.

[93] 16 U.S.C. § 1278(a).

River downstream of the Iron Gate Dam was added by Congress to the wild and scenic rivers system in 1981. Most of the river was designated by Congress as recreational; 24 miles were designated as scenic; and 12 miles were designated as wild. In 1994, the Secretary of the Interior added an 11-mile segment of the Klamath River from downstream of the J.C. Boyle Powerhouse to the Oregon and California state line to the wild and scenic rivers system, specifically designating that stretch as scenic and subject to the requirements of the Wild and Scenic Rivers Act. However, as staff explained in the final EIS, because the Renewal Corporation is proposing to remove an existing project, we are not licensing the construction of any project works, and, consequently, section 7 of the Wild and Scenic Rivers Act does not apply.[94]

56. In comments filed on the draft EIS, the Forest Service, the Park Service, BLM, and American Whitewater disagree that section 7 of the Wild and Scenic Rivers Act does not apply to this surrender proceeding, arguing that dam removal is still considered a type of water resource project per the Interagency Wild and Scenic Rivers Coordinating Council guidance paper,[95] and therefore a section 7 determination is needed.[96] However, the cited guidance paper does not assert that section 7 applies to dam removal, decommissioning, or the surrender of a project. The Forest Service further argues that even if a section 7 determination is not needed for the surrender and decommissioning of the project, the Corps' CWA section 404 permit, which is needed to carry out dam removal, would require a section 7 determination.[97]

57. In any event, the Forest Service, the Park Service, and BLM developed a preliminary section 7 determination in response to the draft EIS, finding that the dam removal proposal is consistent with the Wild and Scenic Rivers Act.[98] On September 30, 2022, the Park Service filed a final section 7 determination on behalf of the Forest Service, BLM, and the Park Service affirming the findings of the preliminary determination.[99] The final determination found that dam removal and associated restoration activities would result in

---

[94] *See PacifiCorp*, 133 FERC ¶ 61,232, at PP 116-117 (2010) (explaining that the Wild and Scenic Rivers Act does not apply to instances where the Commission is authorizing the removal of an existing project).

[95] Wild & Scenic Rivers Act: Section 7, October 2004, https://www.rivers.gov/documents/section-7.pdf. The Coordinating Council is made up of representatives from BLM, the Park Service, FWS, and Forest Service.

[96] *See*, e.g., Forest Service's April 18, 2022 Comments at 2-3.

[97] *Id.* at 2.

[98] *Id.* at 3.

[99] The Park Service September 30, 2022 Final Determination at 1-2.

long-term benefits to the scenery, recreation, fish, and wildlife values of the designated river segments, as compared to the present conditions.[100] The final determination further found there would be no invasion or unreasonable diminishment of the values of the designated river segments.[101] Accordingly, the question of whether the Wild and Scenic Rivers Act applies to surrender and decommissioning is moot.

VI. Dam and Public Safety

58. The J.C. Boyle, Copco No. 1, and Iron Gate Dams are classified as having a high hazard potential, while Copco No. 2 Dam is classified as having a low hazard potential.[102] The dams range in height from approximately 30 to 200 feet. There are no known existing dam safety issues or concerns at any of the developments. The Lower Klamath Project was last inspected on May 10 and 11, 2022, and the project facilities were found to be in satisfactory condition.

59. The Renewal Corporation's proposed pre-drawdown activities include, but are not limited to, improvements to the Fall Creek hatchery, installation of the City of Yreka's water supply pipeline, discussed in further detail below, road and bridge improvements, removal and relocation of transmission lines, excavation of a low-level outlet tunnel through Copco No. 1 Dam, full removal of Copco No. 2 Dam, and modifications to the diversion tunnel at Iron Gate Dam. In the drawdown year, the reservoirs would be lowered and concurrent dam removal of the remaining dams would begin. Reservoir drawdown and dam removal is expected to be complete within 20 months. Following dam removal, demolition of the powerhouses and other associated structures would begin. Restoration activities would follow.

60. Since the Renewal Corporation filed its original surrender application in September 2016, Commission staff has provided preliminary comments on design drawings and specifications, as well as other related filings. In a letter dated October 5, 2017, staff from the Division of Dam Safety and Inspections-Headquarters (D2SI-Headquarters) required the creation of an independent Board of Consultants to review and assess all

---

[100] *Id.*

[101] *Id.*

[102] Dams classified as having a high hazard potential are those where failure would probably cause loss of human life. Dams classified as having a low hazard potential are those where failure would result in no probable loss of human life and would result in low economic or environmental losses. *See Safety of Water Power Projects & Project Works*, Order No. 880, 177 FERC ¶ 61,204, at P 34 (2021) (defining high, significant, and low hazard dam classifications in 18 C.F.R. § 12.3(b)(13) (2021)).

aspects of the proposed dam removal process. By letter dated May 22, 2018, D2SI-Headquarters staff approved the Board.

61. Subsequently on February 26, and July 15, 2021, the Renewal Corporation submitted decommissioning design drawings and a Construction Potential Failure Mode Analysis report, respectively. By letter dated October 13, 2021, D2SI-Portland Regional Engineer staff found the Construction Potential Failure Mode Analysis[103] report met the intent of Chapter 14 of the Commission's Engineering Guidelines. In the October 13 letter, the D2SI-Portland Regional Engineer offered to review a consolidated 100% construction package, noting that any such review would be preliminary and could not prejudge the outcome of any Commission decision on the surrender application. The Renewal Corporation submitted a revised construction package on July 1, 2022. By letter dated October 6, 2022, the D2SI-Portland Regional Engineer provided preliminary comments on the revised construction package.

62. The design package, including the plans and specifications for the proposed work, has not been approved by the D2SI-Portland Regional Engineer and additional modifications are necessary based on the October 6, 2022 letter. Therefore, Ordering Paragraph (O) of this order requires the co-licensees (the Renewal Corporation and the States of Oregon and California) to file final decommissioning design drawings, as well as information regarding the Board of Consultant's review of these documents. Ordering Paragraph (P) also requires the co-licensees to file cofferdam and deep excavation drawings and specifications with the Commission, should cofferdams or deep excavation be necessary for the proposed work. Work may not begin until the D2SI-Portland Regional Engineer authorizes the start of construction.

63. Assuming acceptance of the transfer of the license from PacifiCorp, as required by Ordering Paragraph (B) of this order, Ordering Paragraph (N) requires the co-licensees to submit an Owner's Dam Safety Program within 30 days from the issuance date of this order.

64. Once the activities required by this order are complete, the co-licensees must file a decommissioning report with the D2SI-Portland Regional Engineer. Surrender of the

---

[103] A Potential Failure Mode Analysis is an exercise to identify all potential failure modes under normal, flood, earthquake, and other (ice, reservoir sedimentation, etc.) loading conditions, including all external loading conditions for water retaining and conveying structures, and to assess those potential failure modes that are significant enough to warrant continued awareness and attention to visual observation, monitoring, and remediation, as appropriate. A Construction Potential Failure Mode Analysis is conducted prior to or during construction when the proposed means and methods of construction have the potential to adversely load or otherwise potentially compromise the structure.

license will not be effective until the D2SI-Portland Regional Engineer issues a letter stating that all the work required by this order has been completed.

65. While this order approves several management plans developed by the Renewal Corporation that relate to general construction activities, construction activities may not begin until authorized by the D2SI-Portland Regional Engineer.

VII. Discussion

66. Section 6 of the Federal Power Act (FPA) allows licensees to voluntarily surrender existing licenses and cease operating project works, providing that licenses "may be . . . surrendered only upon mutual agreement between the licensee and the Commission after thirty days' public notice."[104] The Commission, in acting on a surrender application, applies a broad "public interest" standard[105] and may require conditions not inconsistent with the FPA as it finds to be in the public interest.[106]

67. As Commission staff noted in the final EIS, the Lower Klamath Project blocks anadromous fish from reaching potentially hundreds of miles of the Klamath River above the Iron Gate Dam.[107] This lack of passage is considered a major contributing factor to the decline of anadromous fish populations in the Klamath River Basin.[108] Federal and state fish and wildlife agencies have the management goal of restoring anadromous fish in the Klamath River Basin and protecting federally listed salmonid species. These agencies take the position that the best way to restore anadromous fish is to remove the four dams of the Lower Klamath Project and restore natural flow conditions.

68. Additionally, the Hoopa Valley Tribe, the Karuk Tribe, the Yurok Tribe, Resighini Rancheria, and the Klamath Tribes assert that dam removal will improve the health of the river and bring it closer to its pre-project condition, and explain that the restoration of

---

[104] 16 U.S.C. § 799.

[105] *FPL Energy Me. Hydro, LLC*, 106 FERC ¶ 61,038, at P 20 (2004), *reh'g denied*, 107 FERC ¶ 61,120 (2004), *aff'd on other grounds*, *Save our Sebasticook v. FERC*, 431 F.3d 379 (D.C. Cir. 2005) (*FPL Energy*). The broad public interest standard is not the same as the public interest/comprehensive development standards applied to licensing proceedings by FPA sections 4(e) and 10(a)(1). *Id.* (citing *Niagara Mohawk Power Corp.*, 100 FERC ¶ 61,185, at PP 12-13 (2002)).

[106] 16 U.S.C. § 803(g).

[107] Final EIS at 3-245.

[108] *Id.* at 3-237.

salmon runs and improvement in water quality are of great cultural importance to the Tribal communities residing along the Lower Klamath River.[109]

69. Others support dam removal for economic reasons, arguing that keeping the dams in place would likely require costly upgrades, including the development of fish passage facilities. Proponents also state that dam removal and restoration will create hundreds of jobs in the area and increase tourism and recreational fishing industries.

70. Those in opposition to dam removal express concerns that it would adversely affect private wells, reduce property values and tax revenue, adversely affect water storage for fighting fires, remove a source of renewable power, affect local roadways and traffic, and eliminate jobs. Some question the science and engineering in support of dam removal, arguing that the developments have not caused declines in anadromous fisheries nor have they adversely affected water quality. Further, they maintain that dam removal will adversely affect the salmon fishery, release toxic sediment downstream, expose Tribal burial grounds and artifacts, increase flooding, reduce downstream flows, and affect lake recreation. We find these issues were fully addressed in the final EIS; for example, studies have shown that reservoir sediments have generally low concentrations of contaminants and are not acutely toxic.[110] Several of these topics are discussed further below.

71. The proposed surrender of the Lower Klamath Project license and removal of the four project developments is the culmination of a multi-year effort supported by a broad range of stakeholders, as reflected in the provisions of the Amended Settlement Agreement. In the final EIS, Commission staff concluded that the proposed action would result in environmental benefits that outweigh the associated adverse effects.[111] While a request to surrender a license need not be accompanied by a proposal to remove project works, the record here indicates that removing the four developments as proposed by the Renewal Corporation would result in significant environmental benefits. For example, dam removal and restoration of natural flow conditions would significantly improve water quality and provide anadromous fish access to historical habitat upstream of Iron Gate Dam.[112] This opened fish passage would increase the number of naturally produced salmon and steelhead and improve the resiliency of these populations and other aquatic resources.[113] Dam removal would also have beneficial effects on riverine recreation, the scenic landscape, tourism, income from commercial fishing, subsistence fishing, and ocean and in-river sport

---

[109] *See id.* at 3-497.

[110] *Id.* at 3-65.

[111] *See id.* at 4-29.

[112] *Id*. at 4-8.

[113] *Id*.

fishing.[114] As explained above, dam removal is also of great cultural importance to Tribal communities as it would aid in the continuation and restoration of Tribal practices and traditions by improving water quality, as well as the aquatic resources, fisheries, and terrestrial resources used by Tribes.[115]

72. After balancing these environmental benefits with the issues raised by opponents of dam removal,[116] we find that license surrender, decommissioning, and removal of the project developments are in the public interest. Additionally, we note that the Commission cannot obligate a licensee to continue to operate its project;[117] a licensee is free to surrender its license and cease project operations upon Commission approval.[118] We also note that, here, no entity has offered to take over and operate the project. Accordingly, we approve the Renewal Corporation's surrender application, with the modifications discussed below and subject to the conditions in this order's ordering paragraphs.

73. Our approval of this application is conditioned on the Renewal Corporation and the States accepting transfer of the license and implementing a number of measures that reflect the Renewal Corporation's proposal, the mandatory conditions required by other agencies, and the recommendations of Commission staff. Staff's recommended modifications to the management plans are discussed below. Additionally, certain issues associated with license surrender and dam removal are discussed further below.

74. Some commenters allege that the proposed funding for project decommissioning is insufficient to cover the costs.[119] Others express concerns about cost overruns should project decommissioning exceed the $450 million provided for in the Amended Settlement Agreement and whether the States are legally committed to provide funding for any cost overruns.[120]

---

[114] *Id.* at 4-26.

[115] *Id.* at 4-25.

[116] *See supra* P 70.

[117] *FPL Energy*, 106 FERC ¶ 61,038 at P 31, *reh'g denied*, 107 FERC ¶ 61,120, *aff'd sub nom Save our Sebasticook v. FERC*, 431 F.3d 379.

[118] *Ariz. Pub. Serv. Co.*, 109 FERC ¶ 61,036, at P 39 (2004).

[119] E.g., Loy and John Beardsmore's March 15, 2021 Comments at 1-2.

[120] E.g., Congressmen Cliff Bentz and Doug LaMalfa's June 23, 2022 Comment at 4-6.

75. As we explained in the June 17 Transfer Order, we continue to find that the $450 million should be sufficient, based on the independent Board of Consultants' prior review.[121] Additionally, PacifiCorp and the States have committed to creating an additional $45 million contingency fund, and stated that any cost overruns beyond the amount of the contingency fund would be shared equally by PacifiCorp and the States.[122] If the States and the Renewal Corporation accept the transfer and become co-licensees, they will jointly and severally share the liabilities associated with project decommissioning and be bound by the license as if they were the original licensees.[123]

A. Management Plans

76. Fifteen of the 16 management plans and the associated subplans include measures to minimize adverse effects related to construction activities, as well as to restore land occupied by the existing facilities and reservoirs.[124] The 16th plan, the Interim Hydropower Operations Plan, describes how the project would be operated until such time that drawdown and dam removal are initiated. This order approves, without modification, the Interim Hydropower Operations Plan, Remaining Facilities Plan, Oregon Erosion and Control Subplan, Health and Safety Plan, Waste Disposal and Hazardous Materials Management Subplan, Historic Resources Management Plan, and the Aquatic Resources Management Plan. The remaining plans are approved with the modifications discussed below.[125]

77. In comments on the draft EIS, the Renewal Corporation agreed to many of staff's draft EIS recommendations and committed to incorporating those recommendations into the management plans and subplans.[126] In the final EIS, staff recommended additional modifications to several management plans. Staff modifications, as well as Renewal Corporation's agreed upon modifications, are briefly discussed below.

---

[121] June 17 Transfer Order, 175 FERC ¶ 61,236 at P 32.

[122] *Id*. P 17.

[123] *Id*. P 34.

[124] Final EIS at 2-3.

[125] *See also* PP 102 & 104 (discussing modifications to the Construction Management, Sediment Deposit Remediation, Water Supply Management, Slope Stability Monitoring, and Recreation Facilities Management Plans to provide for public outreach to environmental justice communities) and PP 115-116 (discussing modifications to the Fire Management Plan).

[126] *See generally* Renewal Corporation's April 18, 2022 Comments, app. A.

78. To minimize construction effects on air quality, the Renewal Corporation plans to implement air quality mitigation measures negotiated as part of the California Environmental Quality Act (CEQA) consultation process with the California Water Board.[127] In the final EIS, Commission staff recommended further modifying the Construction Management Plan with respect to the use of contractors that use equipment that meets or exceeds EPA's exhaust emission standards to protect air quality during construction. In Ordering Paragraph (S), we approve the Construction Management Plan, consistent with staff's recommendation, to require the Renewal Corporation use such contractors to the extent practicable.

79. In comments on the final EIS, EPA recommends the Renewal Corporation work with the Siskiyou County Air Pollution Control District to establish air quality advisory and response procedures when project activities are expected to temporarily exceed air quality standards or thresholds of significance. We find this coordination request reasonable and, to the extent such advance warning can be provided, we encourage the Renewal Corporation to coordinate with both the Siskiyou County Air Pollution Control District for construction activities at the developments in Siskiyou County, as well as the Oregon DEQ for the construction activities at the J.C. Boyle development. We consider this coordination to be part of best management practices during construction to alert the community in anticipation of poor air quality events.

80. In its comments on the draft EIS, Siskiyou County noted that the development of an erosion and sediment control plan was proposed for activities at the J.C. Boyle development in Oregon, but not for the developments in California.[128] Therefore, in the final EIS, staff recommended that the Renewal Corporation develop and file for Commission approval an erosion and sediment control plan that identifies best management practices to minimize pollution from sediment erosion caused by facilities removal and restoration activities that would take place in California. In its comments on the final EIS, Siskiyou County requested that Commission staff's recommendation become a requirement of any Commission order.[129] We agree with staff's recommendation and, in Ordering Paragraph (V), require the Renewal Corporation to develop, in consultation with appropriate California agencies and Tribes, a California Erosion and Sediment Control Plan, and file the plan for Commission approval at least 90 days before starting removal activities.

81. As described in the final EIS, water quality during drawdown is a primary concern. In the final EIS, Commission staff recommended certain modifications to the Oregon and

---

[127] Specifically, the Renewal Corporation plans to implement air quality measures AQ-1 through AQ-5, which are described in the final EIS at 3-569 to 3-570.

[128] Siskiyou County's April 18, 2022 Comments.

[129] Siskiyou County's October 24, 2022 Comments at 2.

California Water Quality Monitoring Plans to estimate and manage suspended sediment loads.[130] In its comments on the final EIS, Siskiyou County requested that Commission staff's recommendation become a requirement of any Commission order.[131] In Ordering Paragraph (GG), we approve the Renewal Corporation's modifications to its Water Quality Monitoring and Management Plan to include periodic estimation of suspended sediment loads at several monitoring stations, as well as require real-time remedial actions, i.e., adaptive management, depending on real-time turbidity monitoring.

82. In its comments on the draft EIS regarding its Reservoir Area Management Plan, the Renewal Corporation agreed to conduct vegetation sampling in late spring/early fall as proposed, and again in late fall, prior to the onset of woody vegetation dormancy, as recommended by Commission staff. In the final EIS, Commission staff recommended several further modifications to the plan, including: (1) identification of potential cool-water areas and their restoration; (2) inclusion of pre-work maps that would identify areas of grading, water runoff control measures, planting, seeding, mulching, irrigation areas, work zones, delineated wetland areas, reservoir footprints, the J.C. Boyle Power canal and scour hole, and areas of temporary disturbance where revegetation activities would occur; (3) pre- and post-drawdown requirements for cultural resources inspections; and (4) in the event of sediment grading, a provision for an on-site cultural monitor to be present to ensure any cultural resources are identified on the historical pre-dam ground surface, grading stops, and appropriate measures are taken to ensure protection of those resources. We agree with these recommendations and also recognize that the approved HPMP includes the measures identified above to ensure the protection of any cultural resources identified during restoration of the reservoir footprints. In Ordering Paragraph (FF), we approve the Reservoir Area Management Plan with the modifications.

83. In its comments on the draft EIS, the Renewal Corporation agreed with Commission staff's recommendation to modify the California Slope Stability Monitoring Plan,[132] a subplan of the Reservoir Drawdown and Diversion Plan, to include: (1) monitoring monthly for six months following drawdown via one or more of the following methods: Light Detection and Ranging (LiDAR),[133] photogrammetry, and/or ortho-imagery; (2) realigning affected road segments, engineering structural slope improvements, and revegetating affected areas; and (3) providing funding to move or repair damaged structures

---

[130] Final EIS at 4-32.

[131] Siskiyou County's October 24, 2022 Comments at 2.

[132] Renewal Corporation's December 14, 2021 Filing at Ex. K.

[133] LiDar is a remote sensing method that uses light in the form of pulsed lasers to measure distance and is commonly used in creating high resolution maps.

or purchasing affected properties.[134] Ordering Paragraph (Y) approves the Reservoir Drawdown and Diversion Plan with these modifications to the California Slope Stability Monitoring Plan.

84. In its comments on the draft EIS, the Renewal Corporation agreed with Commission staff's recommendation to modify the Del Norte Sediment Management Plan[135] to remove the $14,000 cost cap for removal of sediment deposits attributable to the project from identified boat ramps. Furthermore, the Renewal Corporation stated that the Del Norte Sediment Management Plan will refer to the Memorandum of Understanding with Del Norte County and the Crescent City Harbor District, which identifies mitigation measures to address potential increased sediment deposition within Crescent City Harbor during the dam removal and reservoir drawdown period.[136] The Renewal Corporation must also provide for public outreach to Hmong- and Spanish-speaking communities that use the reservoir as a base for fishing activity that may be affected by construction activities related to project surrender. Thus, in Ordering Paragraph (X), we approve the Del Norte Sediment Deposit Remediation Plan provided that the Renewal Corporation modifies the Del Norte Sediment Management Plan to reflect the changes described above.

85. Based on Siskiyou County's comments on the draft EIS, Commission staff in the final EIS recommended modifying the California Sediment Deposit Remediation Plan[137] to include the period of time (in years) during which the Renewal Corporation would assess sediment deposits on parcels with a current or potential residential or agricultural use, for which the property owner has notified the Renewal Corporation of a sediment deposit that may be associated with reservoir drawdown activities. We agree that the plan should include a period of time following drawdown during which sediment deposits would be assessed. In the final EIS, Commission staff concluded that the proposed action is expected to result in short-term effects on suspended sediment concentration in the hydroelectric

---

[134] This funding would be available to cooperating landowners who allow the co-licensees access to their private properties for a pre-drawdown baseline assessment and for subsequent assessments during and after drawdown, as needed, to determine whether and how any reported structural damage is related to the drawdown.

[135] Renewal Corporation's December 14, 2021 Filing at Ex. L. The Del Norte Sediment Management Plan is a subplan of the Sediment Deposit Remediation Plan.

[136] Renewal Corporation's March 3, 2021 Filing of the Memorandum of Understanding Between County of Del Norte, the Crescent City Harbor District and the Klamath River Renewal Corporation.

[137] Renewal Corporation's December 14, 2021 Filing at Ex. L. The California Sediment Deposit Remediation Plan is a sub-plan of the Sediment Deposit Remediation Plan.

reach and Lower Klamath River;[138] thus a period of three to five years of monitoring would be consistent with the determination. However, we will require five years of monitoring to be consistent with some of the other plans required by this order. Therefore, in Ordering Paragraph (W), we approve the California Sediment Deposit Remediation Plan with modifications that the plan include five years of monitoring and provide for public outreach with Hmong- and Spanish-speaking communities.

86. In its comments on the draft EIS, the Renewal Corporation stated that it plans to attach a new waterline to the Daggett Road Bridge and that it would revise the California Public Drinking Water Management Plan to reflect this change. The revised design would reduce both in-water and upland ground disturbance. Accordingly, in Ordering Paragraph (AA), we approve the California Public Drinking Water Management Plan with the modification that the plan provide for attachment of a new waterline to the Daggett Road Bridge.

87. In comments on the draft EIS, FWS recommended additional buffers around disturbance areas in the survey area for nesting birds. Specifically, FWS recommended a 250-foot buffer around disturbance areas for non-eagle raptor nests[139] and a 50-foot buffer around disturbance areas for nests of all other bird species. FWS also recommended limiting the removal of structures that provide roosting habitat for bats from September 1 to March 31. In the final EIS, Commission staff recommended adopting these measures. In Ordering Paragraph (JJ), we require these provisions as part of the Renewal Corporation's Terrestrial and Wildlife Management Plan.

88. In the final EIS, Commission staff recommended additional consultation on the Recreation Facilities Management Plan with American Whitewater and the Upper Klamath Outfitters Association on necessary restrictions to public access during construction to minimize adverse effects on recreational users. Staff also recommended consultation with the Shasta Indian Nation on the names of future recreation sites. In Ordering Paragraph (KK), we approve the Recreation Facilities Management Plan with these modifications as well as a requirement to provide recreational signage in Spanish and Hmong, discussed further below.[140]

B. <u>Disposition of Parcel B Lands</u>

89. The Amended Settlement Agreement describes two general categories of land that PacifiCorp owns in Oregon and California within the hydroelectric reach: Parcel A lands,

---

[138] Final EIS at 3-86.

[139] *See supra* P 43 (discussing the Bald and Golden Eagle Conservation Plan and associated take permit).

[140] *See infra* PP 103-104.

which "are not directly associated with the Klamath Hydroelectric Project, and generally not included within the existing project boundary," and Parcel B lands, which are "associated with the Klamath Hydroelectric Project and/or included within the FERC project boundary."[141] The Lower Klamath Project boundary encloses approximately 4,000 acres of land, of which PacifiCorp owns approximately 3,500 acres.[142] Pursuant to the Amended Settlement Agreement, PacifiCorp would transfer ownership of the vast majority of lands that it owns within the project boundary to the Renewal Corporation before removal of the project facilities.[143] Once facility removal is complete and all conditions of the surrender satisfied, the Renewal Corporation would transfer ownership of these lands to the respective States or to a designated third-party transferee, which would manage the lands for conservation purposes.[144] In describing these land transfers, the Amended Settlement Agreement also states that "[i]t is also the intent of the [parties to the agreement] that transferred lands shall thereafter be managed for public interest purposes such as fish and wildlife habitat restoration and enhancement, public education, and public recreational access."[145]

90. Throughout this proceeding, the Shasta Indian Nation has voiced strong interest in acquiring certain Parcel B lands following completion of the license surrender and removal of facilities. American Whitewater and the Upper Klamath Outfitters Association support the Tribe's interest in acquiring these lands. The Nation reports that it is involved in ongoing consultation with the California Natural Resources Agency regarding the development of a process for the disposition of Parcel B lands in accordance with the Amended Settlement Agreement.[146] The Nation maintains that it is not possible to adequately assess the mitigation of unavoidable impacts to Tribal cultural resources on Parcel B lands without understanding final ownership of these lands.[147] It states that the future ownership and ongoing stewardship of Tribal cultural resources on Parcel B lands

---

[141] Amended Settlement Agreement, § 7.6.4.A. We note that the Amended Settlement Agreement, and thus this description, predates the March 15 Amendment Order, which administratively separated the J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate developments and created the Lower Klamath Project.

[142] Final EIS at 3-445. The rest of the land is owned by the United States (administered by BLM), the State of Oregon, or private landowners.

[143] Amended Settlement Agreement, § 7.6.4.A.

[144] *Id.*

[145] *Id.*

[146] Shasta Indian Nation's September 12, 2022 Comments at 3.

[147] *Id.*

remains of paramount concern to the Tribe and that the Tribe is best positioned for the stewardship of Shasta Tribal cultural resources, in particular the land associated with the Kikaceki District Traditional Cultural Property.[148]

91. The Shasta Indian Nation's comments reiterate the importance of California Tribal cultural resource mitigation measures,[149] and appear to suggest that the Commission should become involved in the negotiation process with the state agencies.[150] It is the Commission's understanding that these mitigation measures were negotiated as part of the CEQA consultation process with the California Water Board.[151] The Renewal Corporation maintains that the California Water Board suggested these mitigation measures as possibly reducing impacts, but that the Board did not ultimately rely on implementation of these measures in reaching its significance determination for the Environmental Impact Report because the Renewal Corporation's implementation of such measures was infeasible under the terms of the Amendment Settlement Agreement.[152] Nor did the Board include these recommendations as conditions to its water quality certification. By way of example, the Renewal Corporation explains that once the terms of the surrender order are complete, it

---

[148] *Id.*

[149] Specifically, the Shasta Indian Nation seeks implementation of Tribal Cultural Resource (TCR) measures TCR-6, TCR-7, and TCR-8 identified in the California Water Board's April 9, 2020 Environmental Impact Report, which generally consider the possibility of future transfer of some Parcel B lands, land easements and transfer stipulations, and off-site land transfers, respectively, that may benefit Tribes.

[150] *See* Shasta Indian Nation's September 12, 2022 Comments at 2-4. In a subsequent comment, the Shasta Indian Nation also expresses concern regarding the HPMP's discussion of these mitigation measures being relocated from the text of the plan to an appendix, based on comments received from the California SHPO and Commission staff. *See* Shasta Indian Nation's October 2, 2022 Comments.

[151] *See*, e.g., Shasta Indian Nation's October 4 Comments at 2. Specifically, California Assembly Bill 52 requires the lead agency to consider Tribal cultural resources early in the CEQA process and, if a project may cause a substantial adverse change to Tribal cultural resources, consider measures to mitigate that impact. State of California, Governor's Office of Planning and Research, *Technical Advisory: AB 52 and Tribal Cultural Resources in CEQA* (June 2017), https://www.opr.ca.gov/ceqa/docs/20200224-AB_52_Technical_Advisory_Feb_2020.pdf.

[152] Renewal Corporation's September 16, 2022 HPMP, attach. 1 at 10; *see also* California Water Board's April 2020 Final Environmental Impact Report, Volume III, Attachment 1 at AT1-806 n.87, https://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/docs/lower_klamath_ferc14803/lkp_final_feir_vol_iii_att_1.pdf.

will transfer the Parcel B lands to the States of California and Oregon and will have no control over any easement or transfer stipulations that the States may enact.[153] The Renewal Corporation notes that the State of California, through the California Natural Resources Agency and California Department of Fish and Wildlife (California DFW), is engaged in ongoing consultation with Tribes to develop a plan for future ownership and management of Parcel B lands.[154] The Renewal Corporation states that once Tribal consultation is complete, the State of California will consider input from the signatories to the Amended Settlement Agreement before finalizing its decision on the future ownership and management of Parcel B lands in California.[155]

92. As we have explained in other surrender proceedings, it is not appropriate for the Commission to place encumbrances on a licensee's ownership of project lands after our jurisdiction has ended.[156] Similarly, there is no legal basis for us dictating how a licensee disposes of lands that are not needed for project purposes, and certainly not if those actions take place when the Commission no longer has jurisdiction over a former licensee. The Amended Settlement Agreement provides that, once the surrender is complete, the Renewal Corporation will transfer ownership of the Parcel B lands to the States of Oregon and California or to a designated third party. Further, Parcel B lands transferred to the States of Oregon and California will be managed for public interest purposes and in accordance with the respective state land management agencies' strategic plans.[157] Because the Commission's jurisdiction will end once the license surrender becomes effective, the ultimate disposition of the Parcel B lands is a matter that must be left to the States of Oregon and California.[158]

C. Fall Creek Hatchery

93. The purpose of the Hatcheries Management and Operation Plan is to provide capacity for fish propagation during dam removal and for repopulation of new habitat

---

[153] *Id.*

[154] *Id.*

[155] *Id.* at 11.

[156] *FPL Energy*, 106 FERC ¶ 61,038 at P 52.

[157] Final EIS at 3-450.

[158] *See Project Decommissioning at Relicensing*, FERC Stats. & Regs. ¶ 31,011, at 31,223 (explaining that once Commission jurisdiction over a project ends, the Commission cannot require future ongoing conditions, and future actions would have to be the result of the former licensee's voluntary action or the requirements of the new regulatory regime that follows).

following dam removal.[159] The plan describes the co-licensees' plans to construct and operate the Fall Creek Hatchery,[160] while retiring the hatchery located at Iron Gate Development.[161] In the draft EIS, staff recommended that the Renewal Corporation file a revised Hatcheries Management and Operation Plan to clarify future ownership of the Fall Creek Hatchery and the likelihood that fish production at that facility would continue beyond the eight-year period following dam removal.[162]

94. The Renewal Corporation subsequently committed to funding for eight years the operation of the Fall Creek Hatchery, to be leased to California DFW, and agreed to modify the Hatcheries Management and Operation Plan to clarify that PacifiCorp will continue to own the lands occupied by the Fall Creek Hatchery and the newly constructed hatchery facilities.[163]

95. The Hoopa Valley Tribe has expressed concern with the transfer of ownership of fish hatchery facilities to California DFW and advocated for consideration of an alternative under which the Fall Creek Hatchery would be owned and operated by FWS.[164] As explained above, although California DFW would operate the Fall Creek Hatchery facilities, PacifiCorp would retain ownership of the hatchery facilities for eight years following dam removal. During this time, California DFW would coordinate with NMFS, Oregon DFW, Tribes, and commercial fishing interests to determine if fish production at the Fall Creek Hatchery should continue beyond the eight-year period, taking into account factors such as river conditions and water quality; the natural recruitment of fish; the effects

---

[159] Final EIS at 2-22. The Fall Creek Hatchery fish production goals are set forth in Table 2.1-4 of the final EIS. *Id.* at 2-23.

[160] The final EIS explains that the Fall Creek Hatchery was constructed in 1919 to compensate for the loss of spawning grounds due to the construction of Copco No. 1 Dam. *Id.* at 3-206. Although six original rearing ponds remain, California DFW last used the ponds from 1979 until 2003 to raise Chinook salmon yearlings for release into the Klamath River at Iron Gate Hatchery. Yearling production at the Fall Creek Hatchery ceased in 2003 when California DFW transferred all fish production to the Iron Gate Hatchery. *Id.*

[161] *Id.* To implement the Hatcheries Management and Operations Plan, hatchery operations at the Fall Creek Hatchery must be functional prior to drawdown of Iron Gate Reservoir.

[162] Final EIS at 3-248.

[163] *Id.*

[164] *See* Hoopa Valley Tribe's April 19, 2022 Comments at 2 and February 26, 2021 Motion to Intervene at 5 (opposing transfer of ownership of the Iron Gate Hatchery to California DFW, as provided for in the Amended Settlement Agreement).

of climate change; and to what extent, if any, continued hatchery operation is necessary.[165] In the event that continued hatchery operation is found appropriate, California DFW would work with PacifiCorp to develop mutually agreeable terms under which PacifiCorp would transfer ownership of the facility to California DFW, or extend the lease beyond year eight.[166] We find the proposed plan for operating the Fall Creek Hatchery during the eight years following dam removal, as well as the process for determining if hatchery production should continue beyond year eight, to be reasonable and, in Ordering Paragraph (II), approve the Hatcheries Management and Operations Management Plan provided that the plan is modified to clarify future ownership and operation of the hatchery facilities as described above.[167] Further, we note that the Commission has no authority to direct another federal agency, such as FWS—which has in any event expressed no interest in operating the hatchery—to assume ownership and operation of the facility.

D. Environmental Justice

96. The Commission follows Executive Order 12898, which directs federal agencies to identify and address "disproportionately high and adverse human health or environmental effects" of their actions on minority and low-income populations (i.e., environmental justice communities).[168] Executive Order 14008 also directs agencies to develop "programs, policies, and activities to address the disproportionately high and adverse human health, environmental, climate-related and other cumulative impacts on disadvantaged communities, as well as the accompanying economic challenges of such impacts."[169] Environmental justice is "the fair treatment and meaningful involvement of all people

---

[165] Final EIS at 3-242.

[166] *Id.*

[167] We note that once the surrender has become final, we will have no authority regarding the hatchery.

[168] Exec. Order No. 12,898, 59 Fed. Reg. 7629 (Feb. 16, 1994). While the Commission is not one of the specified agencies in Executive Order 12898, the Commission nonetheless addresses environmental justice in its analysis, in accordance with our statutory duties.

[169] Exec. Order No. 14,008, 86 Fed. Reg. 7619 (Feb. 1, 2021). The term "environmental justice community" includes disadvantaged communities that have been historically marginalized and overburdened by pollution. *Id.* at 7629. The term also includes, but may not be limited to, minority populations, low-income populations, or indigenous peoples. *See* EPA, *EJ 2020 Glossary* (Aug. 18, 2022), https://www.epa.gov/environmentaljustice/ej-2020-glossary.

regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies."[170]

97. Consistent with the Council on Environmental Quality (CEQ)[171] and EPA[172] guidance, Commission staff considers: (1) whether environmental justice communities (e.g., minority or low-income populations)[173] exist in the project area; (2) whether impacts on environmental justice communities are disproportionately high and adverse; and (3) what mitigation measures might be needed. Following the recommendations set forth in *Promising Practices*, the Commission uses the 50% and the meaningfully greater analysis

---

[170] EPA, *Learn About Environmental Justice*, https://www.epa.gov/environmentaljustice/learn-about-environmental-justice#:~:text=Environmental%20justice%20(EJ)%20is%20the,environmental%20laws%2C%20regulations%20and%20policies. Fair treatment means that no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental, and commercial operations or policies. *Id*. Meaningful involvement of potentially affected environmental justice community residents means: (1) people have an appropriate opportunity to participate in decisions about a proposed activity that may affect their environment and/or health; (2) the public's contributions can influence the regulatory agency's decision; (3) community concerns will be considered in the decision-making process; and (4) decision makers will seek out and facilitate the involvement of those potentially affected. *Id*.

[171] CEQ, *Environmental Justice: Guidance Under the National Environmental Policy Act* 4 (Dec. 1997) (CEQ's *Environmental Justice Guidance*), https://www.energy.gov/sites/default/files/nepapub/nepa_documents/RedDont/G-CEQ-EJGuidance.pdf. CEQ offers recommendations on how federal agencies can provide opportunities for effective community participation in the NEPA process, including identifying potential effects and mitigation measures in consultation with affected communities and improving the accessibility of public meetings, crucial documents, and notices. There were opportunities for public involvement for environmental justice communities during the Commission's environmental review processes, though the record does not demonstrate that these opportunities were targeted at engaging environmental justice communities. *See supra* P 16.

[172] *See generally* EPA, *Promising Practices for EJ Methodologies in NEPA Reviews* (Mar. 2016) (Promising Practices), https://www.epa.gov/sites/default/files/2016-08/documents/nepa_promising_practices_document_2016.pdf.

[173] *See generally* Exec. Order No. 12,898, 59 Fed. Reg. 7629 (Feb. 16, 1994). Minority populations are those groups that include: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. CEQ's *Environmental Justice Guidance* at 25.

methods to identify minority populations.[174] Specifically, a minority population is present where either: (1) the aggregate minority population of the block groups in the affected area exceeds 50%; or (2) the aggregate minority population in a block group affected is 10% higher than the aggregate minority population percentage in the county.[175]

98. CEQ's *Environmental Justice Guidance* also directs low-income populations to be identified based on the annual statistical poverty thresholds from the U.S. Census Bureau.[176] Using *Promising Practices*' low-income threshold criteria method, low-income populations are identified as block groups where the percent of low-income population in the identified block group is equal to or greater than that of the county.[177]

99. To identity potential environmental justice communities for the analysis presented here, Commission staff used 2019 U.S. Census American Community Survey data[178] for the race, ethnicity, and poverty data at the block group level.[179] Additionally, in accordance

---

[174] *See Promising Practices* at 21-25.

[175] Here, depending on the location of the block group, Commission staff selected the State of Oregon or the State of California as the comparable reference community to ensure that affected environmental justice communities are properly identified. A reference community may vary according to the characteristics of the particular project and the surrounding communities. Because low-income populations may vary in dispersal within a state and its counties, we use the lesser of the state and county low-income levels to accurately identify all potential low-income communities. In this case, the state was used as the reference population because, in all cases, the state's percentage of low-income households is lower than the counties in which the block groups are located. Final EIS at 3-540.

[176] CEQ's *Environmental Justice Guidance* at 26.

[177] *See Promising Practices* at 25.

[178] U.S. Census Bureau, American Community Survey 2019 ACS 5-Year Estimates Detailed Tables, File# B17017, *Poverty Status in the Past 12 Months by Household Type by Age of Householder*, https://data.census.gov/cedsci/table?q=B17017; File #B03002 *Hispanic or Latino Origin By Race*, https://data.census.gov/cedsci/table?q=b03002.

[179] For this project, staff chose a fivr-mile radius around the project boundary as the area of study. Final EIS at 3-539. Staff found that, for most resources, a five-mile radius is sufficiently broad and allows for a thorough analysis of the direct effects of the removal of project dams and facilities and restoration activities in the surrounding project area. Where the proposed action may result in downstream direct effects on a resource, staff considered a broader geographic scope beyond the five-mile radius around the project boundary. To address downstream effects, staff selected a geographic scope that included all block groups

with *Promising Practices*, staff used EJScreen, EPA's environmental justice mapping and screening tool, as an initial step to gather information regarding minority and low-income populations; potential environmental quality issues; environmental and demographic indicators; and other important factors.

100. Once staff collected the block group level data, as discussed in further detail below, staff conducted an impacts analysis for the identified environmental justice communities and evaluated relevant health or environmental hazards; the natural physical environment; and associated social, economic, and cultural factors to determine whether impacts to environmental justice communities are disproportionately high and adverse. For this project, Commission staff determined both whether impacts were disproportionately high and adverse on environmental justice populations and also whether those impacts were significant.[180] Commission staff assessed whether impacts to an environmental justice community were disproportionately high and adverse based on whether those impacts were predominately borne by that community, consistent with EPA's recommendations in *Promising Practices*.[181]

101. In the final EIS, Commission staff identified four environmental justice communities within the 11 block groups in the geographic scope of analysis for this project.[182] Three of the identified environmental justice communities are located in Siskiyou County, California, while the fourth is located in Jackson County, Oregon.[183] The identified environmental justice communities border the Copco No. 1 and Iron Gates Reservoirs and the Klamath River below Iron Gate Dam.[184] Staff's impact analysis focused on how the

---

within a one-mile radius buffer along the Klamath River from J.C. Boyle Dam to the confluence of the Klamath River and Humbug Creek.

[180] *See Promising Practices* at 33 (stating that "an agency may determine that impacts are disproportionately high and adverse, but not significant within the meaning of NEPA" and in other circumstances "an agency may determine that an impact is both disproportionately high and adverse and significant within the meaning of NEPA").

[181] *Id*. at 44-46 (explaining that there are various approaches to determining whether an action will cause a disproportionately high and adverse impact, and that one recommended approach is to consider whether an impact would be "predominantly borne by minority populations or low-income populations"). We recognize that EPA and CEQ are in the process of updating their guidance regarding environmental justice and we will review and incorporate that anticipated guidance in our future analysis, as appropriate.

[182] Final EIS at 3-541.

[183] *Id.* at 3-541.

[184] *Id.* at 3-552.

project's resource effects would affect the identified environmental justice communities. The final EIS identified several temporary, adverse effects on environmental justice communities—including effects on slope stability, sediment deposition on private property, air quality, noise, and traffic.[185] The final EIS also identified long-term, adverse effects on environmental justice communities, including effects on groundwater well productivity, fire management, reservoir angling, access to and type of available recreation opportunities, changes in county tax revenues in California, and aesthetics.[186] Additionally, the final EIS explained that long-term, beneficial effects would result from the project, including increased river recreation opportunities, restoration of the natural geomorphology in the hydroelectric reach, long-term improvements in aquatic habitat, and restoration of the salmon and steelhead fisheries.[187] We discuss temporary and long-term adverse effects, and associated mitigation measures, below.

102. Removal of the project reservoirs could adversely affect groundwater well production in environmental justice communities.[188] In the final EIS, Commission staff found that implementation of the proposed mitigation measures, including plans to enhance outreach efforts associated with the Renewal Corporation's well monitoring program, would reduce the significance of these effects.[189] Staff also observed that several mitigation measures intended to address adverse effects on private land related to groundwater well production, sediment deposits, and slope stability would require landowners to notify the co-licensees of property impacts following dam removal, but that the associated management plans did not include a public outreach component.[190] Therefore, in the final EIS, staff recommended revisions to the Sediment Deposit Remediation Plan, Water Supply Management Plan, Slope Stability Monitoring Plan, and any other plan that requires landowners to contact the co-licensees for mitigation services, to include a required public outreach component that specifically addresses communication with environmental justice

---

[185] *Id.*

[186] Although identified as one of the long-term, adverse effects on environmental justice communities, staff determined that aesthetic changes associated with dam removal are more subjective, noting that draining of the project reservoirs would result in a permanent visual effect that, depending on the viewer, may be either adverse or beneficial. *See* Final EIS at 3-548 and 3-552.

[187] *Id.* at 3-554.

[188] *Id.* at 3-552.

[189] *Id.* at 3-552 to 3-553.

[190] *Id.* at 3-554.

communities.[191] In its comments on the final EIS, Siskiyou County requested that Commission staff's recommendation become a requirement of any Commission order.[192] This order requires the co-licensees to modify the Construction Management, Sediment Deposit Remediation, Water Supply Management,[193] and Slope Stability Monitoring Plans to include public outreach with Spanish- and Hmong-speaking communities. In the final EIS, Commission staff concluded that with targeted outreach to property owners and sufficient participation in well monitoring programs, adverse effects on environmental justice communities from impacts on groundwater wells would be less than significant.[194] We agree.

103. Recreation opportunities would also change from reservoir-based to river-based recreation. The loss of reservoir-based recreation would affect shoreline residents, including both those in environmental justice and non-environmental justice communities.[195] The effect on environmental justice communities may be disproportionate if most reservoir users are low-income or minority individuals.[196] In the final EIS, Commission staff concluded that the applicant-proposed drawdown and removal of the project's reservoirs would have a significant, permanent, adverse effect on reservoir-based recreation users who may be unable to travel extensively for recreational purposes.[197] The Renewal Corporation proposes to place signs at recreation sites informing users of closure dates and potential risks associated with the altered landscape following reservoir drawdown.[198] In the final EIS, Commission staff recommended providing signs in Spanish and Hmong to ensure non-English speakers can access the information and to enhance

---

[191] *Id.* at 3-556.

[192] Siskiyou County's October 24, 2022 Comments at 2.

[193] The Water Supply Management Plan comprises four subplans—the California Water Supply Management Plan, the California Public Drinking Water Management Plan, the Oregon Groundwater Well Management Plan, and the Fire Management Plan. We approve these subplans with modifications, respectively, in Ordering Paragraphs (Z), (AA), (BB), and (CC) of this order.

[194] Final EIS at 3-543 to 3-544.

[195] *Id.* at 3-553.

[196] *Id.*

[197] *Id.* at 3-545.

[198] *Id.* at 3-555.

communication with environmental justice communities.[199] The final EIS reached no conclusion with respect to whether the placement of signs at recreation sites would reduce the significance of the adverse impacts. We find that, while signage may provide information that is useful, the impacts would remain significant.

104. In addition, reservoir removal would lead to changes in fishing opportunities as aquatic species in the project area transition from lake-dwelling panfish to riverine species.[200] Although fishing access may improve, these changes would affect communities that rely on the project reservoirs for subsistence fishing; such effects would be permanent and could disproportionately affect environmental justice communities.[201] However, the final EIS observed that, given the occurrence of large, blue-green algae blooms in the project reservoirs, the shift from lake-dwelling species to riverine species would benefit environmental justice communities by reducing the risk of adverse health effects associated with the local fish population.[202] Commission staff recommended that the signs posted at recreation sites include information, in Spanish and Hmong, notifying recreation users about the changes in fish availability.[203] This will ensure the information is available to all recreation users, including residents in environmental justice communities. Accordingly, Ordering Paragraph (KK) of this order requires the co-licensees to modify the Recreation Facilities Management Plan to ensure that recreation site signage is accessible to Spanish and Hmong speakers and includes information regarding the changes in fishing availability. In the final EIS, Commission staff concluded that the proposed removal of project facilities may have a significant, long-term, adverse effect on aquatic resources with respect to environmental justice communities. The final EIS reached no conclusion with respect to whether the placement of signs about changes in fish availability would reduce the significance of the adverse impacts. We find that while partially mitigated, the impacts would remain significant.

---

[199] *Id.*

[200] *Id.* at 3-553.

[201] *Id.*

[202] *Id.*

[203] *Id.* at 3-555.

105. Additionally, in the final EIS, Commission staff concluded that the decommissioning and surrender may cause temporary significant adverse impacts to traffic[204] and construction-related impacts[205] with respect to environmental justice communities.

106. As described above, the Commission engaged in Tribal consultation and the final EIS includes a summary of Tribal positions regarding the impacts of the surrender and decommissioning.[206] In addition to assessing specific Tribal impacts separately, the Commission also considers, where appropriate, impacts on Tribes as part of our overall assessment of impacts on environmental justice communities.[207] We note, as discussed above, that surrender and decommissioning will have substantial positive impacts on a number of Indian Tribes, and many of those Tribes have strongly supported this action as crucial to their goals and historical practices.[208]

107. In the final EIS, Commission staff concluded that the staff-recommended measures described above would reduce the significance of short- and long-term adverse effects on environmental justice communities.[209] Staff found that although the overall effects of the proposed action with staff modifications would continue to be disproportionately high and adverse, the staff-recommended mitigation would provide greater protection to environmental justice communities than would be provided by the Renewal Corporation's proposal.[210] We agree with Commission staff's conclusion that with staff modifications, the

---

[204] *Id.* at 3-547 to 3-548.

[205] *Id.* at 3-550 to 3-551.

[206] *See supra* PP 53-54.

[207] *See* Final EIS at 3-558, Table 3.13-1, which includes census data on American Indian and Alaskan Native populations that Commission staff uses to help identify potential environmental justice communities.

[208] The final EIS discussed a number of positive impacts associated with dam removal cited by Tribes in their support of decommissioning. The positive impacts include improving salmon access to historical and existing habitat, improving water quality, improving Tribal fisheries, and reducing toxic algae blooms. *Id.* at 3-504 to 3-505. In addition, Commission staff analysis of resource impacts affecting Tribes concluded that dam removal would improve water quality; reduce the incidence of fish kills; reduce the foreseeable risk of the demise of salmon and steelhead runs in the Klamath River and its tributaries; and increase habitat available to salmon and steelhead, which would in turn increase recreational and potentially commercial fishing activity. *Id.* at 3-506.

[209] *Id.* at 3-556.

[210] *Id.*

license surrender and project removal, as conditioned in this order, would result in a disproportionately high and adverse effect on environmental justice populations. Furthermore, we agree that while the adverse effects of the proposed action would be improved from additional mitigation recommended by staff and would improve conditions for environmental justice communities over the proposed action, the overall effects of the proposed action as mitigated continue to be disproportionately high and adverse. We also agree with Commission staff's conclusion that the beneficial effects associated with dam removal would outweigh long-term, adverse effects associated with the proposed action with staff modification.[211]

E. Effects on Wells and Water Supply

108. Groundwater wells adjacent to the Lower Klamath Project reservoirs provide domestic and irrigation water supply to local residents.[212] Commenters, including Siskiyou County, have expressed concern regarding the effect of dam removal on residential groundwater supply wells. In the final EIS, Commission staff found that draining the reservoirs would lower groundwater levels in the aquifer adjacent to the reservoirs, which could affect existing groundwater wells.[213] To mitigate potential effects on groundwater wells, the Renewal Corporation proposes to implement the measures described in its California Water Supply Management Plan and Oregon Groundwater Well Management Plan.[214] These measures include, but are not limited to monitoring wells, public outreach for participation in the well monitoring program, and providing restoration of affected wells.[215]

109. In addition, California Water Board WQC Condition 15 requires the Renewal Corporation to monitor groundwater levels within a 2.5-mile range of the California reservoirs' (i.e., Copco No. 1, Copco No. 2, and Iron Gate reservoirs) ordinary high-water mark before, during, and after reservoir drawdown.[216] Specifically, California Water Board WQC Condition 15 directs the Renewal Corporation to: identify potentially affected groundwater wells by contacting all residents and landowners within 1,000 feet of the

---

[211] *Id.*

[212] *Id.* at 3-47.

[213] *Id.* at 4-4.

[214] *Id.* at 3-47. The California Water Supply Management Plan and the Oregon Groundwater Well Management Plan are subplans of the Renewal Corporation's Water Supply Management Plan.

[215] *Id.*

[216] California Water Board WQC, app. B at Condition 15.

California reservoirs to inquire about their groundwater wells; monitor groundwater levels at a minimum of 10 locations within 1,000 feet of the California reservoirs for at least two months before commencing drawdown activities; continue to monitor groundwater levels on a monthly basis and submit an annual groundwater report to the California Water Board for at least two years following drawdown completion; and, if necessary, to mitigate groundwater impacts.[217]

110. In the final EIS, staff concluded that the Renewal Corporation's proposed mitigation measures would address adverse effects on wells owned by landowners that agree to participate in well monitoring.[218] Staff cautioned that any landowners that choose not to participate in the Renewal Corporation's well monitoring program may run the risk of not participating in mitigation.[219]

F. Effects on Property Values and Tax Revenue

111. Several commenters, including Siskiyou County,[220] have expressed concern that removal of the project reservoirs would adversely affect the property value of parcels along the reservoirs' shorelines. While PacifiCorp owns the reservoirs, the southern and eastern shores of Copco No. 1 Reservoir and some of the areas near Iron Gate Reservoir include residential development.[221] Most waterfront properties are located around Copco No. 1 Reservoir.[222]

112. The final EIS explains that some studies on dam removal have reported increases in private property values following removal due to improvements in water quality, removal of dam structures, and enhancement of the natural riparian environment. Other studies have described private property values decreasing briefly and regaining value by the end of two years.[223] Another study referenced in the final EIS concluded that lake adjacency does have a positive and significant effect on residential property values and that, all things being

---

[217] *Id.*

[218] Final EIS at 4-5.

[219] *See id.* at 3-50.

[220] Three of the four project dams (i.e., Copco No. 1, Copco No. 2, and Iron Gate Dams) are located in Siskiyou County, California.

[221] Final EIS at 3-513.

[222] *Id.*

[223] *Id.* at 3-550 (citing Interior and California DFW's 2012 Klamath Facilities Removal Final EIS/Environmental Impact Report, Vol. 1 at 3.15-20).

equal, properties on a lake, with lake proximity or a lake view are worth more than properties without these characteristics.[224] Staff observed that, while dam removal could influence a potential buyer's decision to purchase a property, that decision would depend on the buyer's preference for lake-front or river-front property as well as a host of other property-specific preferences.[225] We agree with staff's analysis in the final EIS that dam removal may result in property values changes, but that the direction or significance of the effect on property values is unclear.[226] Moreover, as we have noted in other surrender proceedings, the value of local property will depend upon how prospective home and landowners value river-front as opposed to lake-front property.[227]

113. Commenters, such as Siskiyou County, have also raised concerns that removal of the project will result in significant tax revenue losses. While it is possible that revenues related to the presence of the project will be lost, we have previously stated that the termination of any business venture reduces tax revenues to governments, but is not a reason to deny a surrender application.[228]

G. Wildfire Suppression

114. The project reservoirs are currently used for both aerial- and land-based firefighting activities.[229] Draining the reservoirs may increase the risk of wildfire damage to local properties by reducing these water sources as well as by removing fire breaks that the reservoirs provide.[230] The Renewal Corporation proposes to implement a Fire Management

---

[224] *Id.* (citing Kruse, S.A. and A.J. Scholz. 2006. Preliminary economic assessment of dam removal: the Klamath River).

[225] *Id.* (citing Kruse, S.A. and J. Ahman. 2009. The value of lake adjacency: a hedonic pricing analysis on the Klamath River, California. Ecotrust Working Paper Series 5, Portland OR.).

[226] Final EIS at 3-550 (examining the potential for property value changes and how such changes may affect environmental communities around Copco No. 1 and Iron Gate Reservoirs).

[227] *PacifiCorp*, 133 FERC ¶ 61,232 at P 144.

[228] *Id.* (citing *Niagara Mohawk Power Corp.*, 83 FERC ¶ 61,226, at n.12 (1998); *FPL Energy*, 106 FERC ¶ 61,038 at P 58).

[229] Final EIS at 3-450, 4-22.

[230] *Id.*

Plan[231] that includes measures to improve early detection of wildfires, assist property owners' efforts to create defensible space around homes, and develop additional water access sites for aerial- and land-based fire suppression efforts.[232] The Fire Management Plan also provides for early wildfire detection capabilities through the installation of remote, camera-monitored detection systems at several sites throughout the region that will allow for precise triangulation of fires.[233] As part of the Fire Management Plan, the Renewal Corporation has also committed to constructing or improving six sites that will provide access to water to fill water trucks.[234] Two of the six sites will be dry hydrants located at existing road-stream crossings, three sites will be boat ramps with dry hydrants, and the remaining site will be a boat ramp without a dry hydrant.[235] Staff determined that the proposed location of these sites would provide an appropriate geographic distribution of water supplies for land-based fire suppression actions.[236]

115. In its comments on the draft EIS, the Renewal Corporation agreed to modify the Fire Management Plan to incorporate staff's recommendations to include: (1) the addition of dry hydrants that meet National Fire Protection Association standards at Fall Creek confluence and Iron Gate Dam/Hatchery boat launches; (2) the removal of the Deer Creek and Beaver Creek dry hydrants; (3) the installation of a boat ramp at Copco Valley site within the Copco No. 1 Reservoir area; (4) a statement that California Department of Forestry and Fire Protection or a local firefighting agency will be responsible for storage, deployment, and fill of portable water tanks; (5) the installation of five additional dip tanks; and (6) a public outreach component that specifically addresses communication related to emergency planning with Hmong- and Spanish-speaking communities. The Renewal Corporation also provided a technical memorandum detailing locations for the proposed dry hydrants.[237]

---

[231] The Fire Management Plan is a subplan of the Water Supply Management Plan. *See* Renewal Corporation's December 14, 2021 Revised Management Plans, Ex. P, app. D – Fire Management Plan.

[232] Final EIS at 3-453, 4-22.

[233] *Id.* at 3-453 to 3-454.

[234] *Id.* at 3-454.

[235] *Id.*

[236] *Id.*

[237] Fire Access Boat Ramp & Dry Hydrant Design Memo, McMillen Jacobs Associates, June 24, 2022 (filed June 30, 2022).

116. In the final EIS, staff concluded that the Fire Management Plan's mitigation measures, along with the Renewal Corporation's agreed upon modifications, would reduce effects on fire suppression. We agree with staff and in Ordering Paragraph (CC), we approve the Fire Management Plan with the modifications discussed above.

H. Local Land Use and Zoning Requirements

117. Siskiyou County asks the Commission to expressly condition its surrender order on the Renewal Corporation complying with all applicable county regulations, including land use and zoning regulations, prior to project implementation.[238] The County argues that the Renewal Corporation intends to move forward with a project timeline that fails to account for compliance with county land use and zoning regulations.[239] Siskiyou County specifically references the Renewal Corporation's plans to build a construction camp at Copco No. 2 dam,[240] which will consist of a construction office and construction support facilities, temporary housing facilities, laydown areas, and parking.[241] The County states that despite it notifying the Renewal Corporation that the construction work camp would require a zone change application and a use permit, the Renewal Corporation has not taken action to comply with local regulations.[242]

118. It is well established that the FPA preempts all state and local law concerning hydroelectric licensing apart from those adjudicating proprietary water rights.[243] Furthermore, the Commission has found that since the determination of whether a license should be surrendered is an action taken pursuant to the FPA, and the Commission retains

---

[238] Siskiyou County's September 29, 2022 Comments at 1, 3.

[239] *Id.* at 1.

[240] While Siskiyou County maintains that the construction work camp will be located on an undeveloped 11-acre site within Siskiyou County, we note that the Renewal Corporation is evaluating two alterative locations, situated adjacent to one another. *See* Construction Management Plan, Appendix E – Construction Camp Management Plan at 6 (Construction Camp Plan). The final location will be determined between the co-licensees prior to construction. *Id.*

[241] Construction Camp Plan at 5.

[242] Siskiyou County's September 29, 2022 Comments at 2 (citing the Construction Camp Plan at 5).

[243] The courts have found that, except for proprietary water rights, the FPA has "occupied the field," foreclosing state regulation. *Sayles Hydro Assocs. v. Maughan*, 985 F.2d 451, 456 (9th Cir. 1993); *see also Cal. v. FERC*, 495 U.S. 490 (1990).

jurisdiction over the project until the license surrender is accepted and becomes effective, federal preemption applies to a license surrender.[244]

119. At the same time, we have also explained that preemption does not mean that the Commission will not elect to require a licensee to comply with local requirements that do not conflict with a licensee's ability to carry out the Commission's orders.[245] We prefer for our licensees to be good citizens of the communities in which projects are located, and thus to comply with state and local requirements, where possible.[246] However, to the extent that state or local regulations make compliance with our orders impossible or unduly difficult, we will conclude that such regulations are preempted.[247]

120. Siskiyou County fails to describe with any specificity the particular land use and zoning regulations that would apply to Copco No. 2 Construction Camp. The Commission is therefore unable to evaluate whether requiring compliance with such regulations would rise to the level of making compliance with aspects of this surrender order impossible or unduly difficult. For similar reasons, we decline to impose a blanket requirement on the Renewal Corporation to comply with Siskiyou County's regulations. However, we remind the Renewal Corporation that it must endeavor to comply with local ordinances that do not unduly interfere with compliance with this order. Furthermore, we encourage the Renewal Corporation to consult with Siskiyou County on final plans for the Copco No. 2 Construction Camp, including ultimate site selection.

121. Similarly, Commission staff recommended in the final EIS that the co-licensees consult with Siskiyou County regarding disposal of construction debris, related to the Waste Disposal and Management Plan. We encourage this cooperation regarding waste disposal. Ordering paragraph (EE) approves the Waste Disposal and Hazardous Materials Management Plan.

I. City of Yreka Water Rights

122. In its comments on the draft EIS, the City of Yreka expresses concern over the effect the surrender and decommissioning would have on its right to divert water from Spring

---

[244] *PacifiCorp*, 115 FERC ¶ 61,194, at P 8 (2006).

[245] *Id.* P 9 (explaining that "it is within the Commission's sole discretion to determine the extent to which [compliance with local regulation] will be required" and that a county "may be permitted to exert regulatory authority to the degree that the Commission allows.").

[246] *Id.*

[247] *Id.*

Creek and Fall Creek for municipal purposes.[248] The City's water supply originates from two diversions located just downstream of the Fall Creek facility, a hydroelectric facility that is part of the Klamath Project No. 2082.[249] The City seeks reassurance that its water supply will not be impacted by the Lower Klamath Project's decommissioning, but notes that it understands that its water rights could be potentially impacted by the Klamath Project relicensing proceeding.[250] We agree with staff's conclusion in the final EIS that there would be no effect on the City's continued use of its water rights because the surrender and decommissioning will not include any changes to the Fall Creek hydroelectric facility.[251]

123. A section of the City of Yreka's current water supply pipeline crosses the Iron Gate Reservoir, and the Renewal Corporation will construct a new, fully operational replacement pipe prior to any drawdown activities, pursuant to California Water Board WQC Condition 8.[252] Any interruption to water delivery will be limited to a maximum of 12 hours or another water delivery outage timeframe agreed upon between the City of Yreka and the Renewal Corporation.[253] We agree with staff's conclusion in the final EIS that replacement of the pipeline will not change the water supply amount diverted from Fall Creek for the City's water supply.[254] We also note that whether there is sufficient water to satisfy an entity's rights is outside our jurisdiction.

VIII. Conclusion

124. We find surrender of the Lower Klamath Project license and removal of the project to be in the public interest and grant the Renewal Corporation's surrender application, subject to terms and conditions and acceptance of the license transfer.

125. As discussed above, pursuant to the June 17 Transfer Order, the Renewal Corporation and the States have until 30 days following issuance of this order approving

---

[248] City of Yreka's April 18, 2022 Comments at 3-7.

[249] *Id.* at 4.

[250] *Id*. at 6. Since 2016, the relicensing proceeding for Klamath Project No. 2082 has been held in abeyance. *See supra* P 7 and *PacifiCorp*, 155 FERC ¶ 61,271. Upon issuance of this surrender order, the abeyance will no longer be in effect.

[251] Final EIS at 3-45, 3-456.

[252] *See* app. B.

[253] *Id.*

[254] Final EIS at 3-45.

surrender to accept license transfer and co-licensee status.[255] Additionally, the Renewal Corporation and the States have until 30 days following issuance of this order to file the transfer of title to properties under the license and delivery of all license instruments.[256] If the transfer becomes effective, the Renewal Corporation and the States will all be bound by the terms and conditions of this surrender order. Moreover, if the transfer becomes effective, PacifiCorp will continue to operate and maintain the project until electric operations cease and the project powerhouses are physically disconnected from the grid.[257]

The Commission orders:

(A) The amended application to surrender the license for the Lower Klamath Hydroelectric Project No. 14803-001, filed jointly by the Renewal Corporation and PacifiCorp on September 23, 2016, and supplemented on November 17, 2020, February 26, 2021, December 14, 2021, May 2, 2022, and September 16, 2022, subject to the conditions set forth in Ordering Paragraphs (B) through (MM), is approved.

(B) Within 30 days of issuance of this order, the Renewal Corporation, State of Oregon, and State of California, co-licensees, must acknowledge acceptance of the June 17 Transfer Order and its terms and conditions by signing and filing the acceptance sheet attached to the June 17 Transfer Order. PacifiCorp must transfer title of the properties under the license, transfer all project files including all dam safety related documents, deliver all license instruments to the Renewal Corporation, State of Oregon, and State of California, and file certified copies of all instruments of conveyance within 30 days of issuance of this order.

(C) The abeyance of the relicense proceeding for the Klamath Project No. 2082-027 is no longer in effect.

(D) This surrender is subject to the conditions submitted by the Oregon Department of Water Quality under section 401(a)(1) of the Clean Water Act, 33 U.S.C. § 1341(a)(1), as those conditions are set forth in Appendix A to this order.

(E) This surrender is subject to the conditions submitted by the California State Water Resources Control Board under section 401(a)(1) of the Clean Water Act, 33 U.S.C. § 1341(a)(1), as those conditions are set forth in Appendix B to this order.

---

[255] June 17 Transfer Order, 175 FERC ¶ 61,236 at ordering para. (C).

[256] *Id.*

[257] *Id*. P 15; *see also* January 13, 2021 Transfer Application at Ex. 6 (providing 2017 Operation and Maintenance Agreement entered into between PacifiCorp and the Renewal Corporation).

(F) The terms and conditions and reasonable and prudent measures of the incidental take statement included with the U.S. Department of Commerce's National Marine Fisheries Service's December 17, 2021 Biological Opinion, with corrections filed on April 18, 2022, are hereby incorporated into this order. The incidental take statement is attached as Appendix C.

(G) Consistent with reasonable and prudent measure 10 of the National Marine Fisheries Service's incidental take statement, the Commission reserves the authority to reopen this order or other authorization to incorporate any reasonable and prudent alternatives, reasonable and prudent measures, terms and conditions, and monitoring requirements resulting from any reinitiated consultation on the authorized action.

(H) The terms and conditions and reasonable and prudent measures of the incidental take statement included with the U.S. Fish and Wildlife Service's December 22, 2021 Biological Opinion are hereby incorporated into this order. The incidental take statement is attached as Appendix D.

(I) Consistent with reasonable and prudent measure two of the U.S. Fish and Wildlife Service's incidental take statement, the Commission reserves the authority to reopen this order or other authorization to incorporate any reasonable and prudent alternatives, reasonable and prudent measures, terms and conditions, and monitoring requirements resulting from any reinitiated consultation on the authorized action.

(J) The co-licensees must implement the provisions required by the U.S. Fish and Wildlife Service's October 17, 2022 Eagle Take Permit. The Eagle Take Permit is attached as Appendix E.

(K) The co-licensees may not conduct any land-disturbing activities subject to the U.S. Army Corps of Engineers' jurisdiction under section 404(a) of the Clean Water Act, 33 U.S.C. § 1344(a), unless and until the Corps issues a permit authorizing such activities.

(L) **Interim Hydropower Operations Plan:** The Interim Hydropower Operations Plan, filed on December 14, 2021, is approved.

(M) The co-licensees must complete the following decommissioning activities in accordance with the November 17, 2020 Amended Application for Surrender of License:

1. removal of water-retaining, containment, and conveyance structures;
2. barricading/plugging of the J.C. Boyle, Copco No. 2, and Iron Gate tunnels and the Copco No. 1 Penstock #3 portal;
3. removal of the powerhouses and associated structures and equipment;
4. removal of the operator village buildings and all associated utilities;

5. removal of above-ground substation equipment, conduit, transmission lines, and support structures; and
6. grading and filling of the removal areas and channels.

(N) Within 30 days of the date of this order, the co-licensees must submit an Owner's Dam Safety Program which will be in effect following the Facilities Termination Date for each facility until it is removed. The co-licensees must file the Owner's Dam Safety Program with the Secretary of the Commission, preferably through eFiling. The co-licensees must also submit two hard copies of the document to the Commission's Division of Dam Safety and Inspections – Portland Regional Engineer. The Owner's Dam Safety Program must comply with part 12, subpart F, of the Commission's regulations; explain the interrelationship between the co-licensees regarding dam safety issues; and include the name(s) and resume(s) of the individual(s) responsible for overseeing all dam safety issues during this period. For additional guidance on preparing an Owner's Dam Safety Program, the co-licensees should refer to the Commission's website.

(O) At least 60 days prior to the start of any construction, the co-licensees must file final decommissioning design documents and information regarding the Board of Consultants' (Board) review of the design documents with the Secretary of the Commission, preferably through eFiling. The co-licensees must also submit two hard copies of the documents to the Division of Dam Safety and Inspections – Portland Regional Engineer. The design documents must include: final plans and specifications, supporting design report, Quality Control and Inspection Program, Temporary Construction Emergency Action Plan, and Soil Erosion and Sediment Control Plan. The information regarding the Board's review of the design documents must include: (1) Board comments on the design documents; (2) a description of how the Board's comments were addressed in the final design documents; and (3) a statement from the Board that the final design documents adequately address its previous comments and that the Board is in agreement with the final design documents. The co-licensees may not begin construction until the Division of Dam Safety and Inspections – Portland Regional Engineer has reviewed and commented on the documents, determined that all preconstruction requirements have been satisfied, and authorized start of construction.

(P) Should decommissioning activities require cofferdams or deep excavations, the co-licensees must: (1) have a Professional Engineer, who is independent from the construction contractor, review and approve the design of contractor-designed cofferdams and deep excavations prior to the start of construction; and (2) ensure that the construction of cofferdams and deep excavations is consistent with the approved design. At least 30 days before starting construction of any cofferdams or deep excavations, the co-licensees must file the approved cofferdam and deep excavation construction drawings and specifications, and the letters of approval with the Secretary of the Commission, preferably through eFiling. The co-licensees must also submit two hard copies of the documents to the Commission's Division of Dam Safety and Inspections – Portland Regional Engineer.

(Q) Within 30 days of completing decommissioning activities, the co-licensees must file with the Secretary of the Commission, preferably through eFiling, a final decommissioning report, with photographs, that documents that project facilities have been decommissioned in accordance with this order and the final decommissioning design documents. The final decommissioning report must include a table that lists each decommissioning and restoration requirement approved or required by this order, along with its completion date. The co-licensees must also submit two hard copies of this report to the Commission's Division of Dam Safety and Inspections – Portland Regional Engineer.

(R) The surrender of the license for the Lower Klamath Project shall not be effective until the Commission's Division of Dam Safety and Inspections – Portland Regional Engineer has issued a letter stating that the project's facilities have been decommissioned in accordance with this surrender order and the Commission's Division of Hydropower Administration and Compliance is satisfied with the required monitoring in accordance with this surrender order.

(S) **Construction Management Plan**. The Construction Management Plan, filed on December 14, 2021, and supplemented on April 18, 2022, with the following modifications, is approved. The co-licensees must:

1. Incorporate AQ-1 through AQ-5 mitigation measures, negotiated as part of the California Environmental Quality Act (CEQA) consultation process;
2. purchase and retire carbon offsets to address mitigation measure ENR-1 of the CEQA consultation process;
3. provide public outreach that specifically addresses communication related to emergency planning with Hmong- and Spanish-speaking communities which may be affected by construction activities related to project surrender; and
4. to use, to the extent practicable, contractors that use prescribed equipment that meets or exceeds EPA's exhaust emission standards for model year 2010 and newer heavy-duty on highway compression-ignition engines.

(T) **Remaining Facilities Plan**. The Remaining Facilities Plan, filed on December 14, 2021, is approved.

(U) **Oregon Erosion and Sediment Control Plan**. The Oregon Erosion and Sediment Control Plan, filed on December 14, 2021, is approved.

(V) **California Erosion and Sediment Control Plan**. At least 90 days before starting removal activities, the co-licensees shall file, for Commission approval, a California Erosion and Sediment Control Plan. The plan must identify erosion and sediment control best management practices (BMPs) to minimize pollution from sediment erosion caused by facilities removal and restoration activities that would take place in California.

The plan must be prepared after consultation with the appropriate California agencies and Tribes. The co-licensees must include with the plan documentation of consultation, agency comments on the plan, and a description of how agency comments are accommodated by the plan. The co-licensees must allow a minimum of 30 days for the California agencies and Tribes to comment prior to filing the plan with the Commission.

(W) **California Sediment Deposit Remediation Plan**. The California Sediment Deposit Remediation Plan, filed on December 14, 2021, is approved with the following modifications. The Renewal Corporation must include a period of five years of monitoring to assess sediment deposits on parcels with a current or potential residential or agricultural land use, for which the property owner has notified the licensee of a sediment deposit that may be associated with reservoir drawdown activities. The plan must also provide for public outreach to Hmong- and Spanish-speaking communities.

(X) **Del Norte Sediment Management Plan**. The Del Norte Sediment Management Plan, filed on December 14, 2021, and supplemented on April 18, 2022, is approved with elimination of the $14,000 cost cap for removal of sediment deposits attributable to the project from identified boat ramps in Crescent City Harbor and on the Lower Klamath River. The Del Norte Sediment Management Plan will refer to the Memorandum of Understanding with Del Norte County and the Crescent City Harbor District. The plan must provide for public outreach to Hmong- and Spanish-speaking communities.

(Y) **Reservoir Drawdown and Diversion Plan.** The Reservoir Drawdown and Diversion Plan, filed on December 14, 2021, and supplemented on April 18, 2022, with the following modifications, is approved. For the California Slope Stability Monitoring Plan, a subplan, the co-licensees must provide for:

1. Monitoring once monthly for six months following drawdown via one or more of the following methods: LiDAR, photogrammetry, and/or ortho-imagery;
2. realigning affected road segments, engineer structural slope improvements, and revegetate affected areas;
3. moving or repairing damaged structures or purchase affected properties (available to cooperating landowners who allow the licensees access to their private properties for a pre-drawdown baseline assessment and for subsequent assessments during and after drawdown, as needed, to determine whether and how any reported structural damage is related to the drawdown); and
4. Public outreach to Hmong- and Spanish-speaking communities.

(Z) **California Water Supply Management Plan:** The California Water Supply Management Plan, filed on December 14, 2021, is approved. The co-licensees must

provide for public outreach to Hmong- and Spanish-speaking communities regarding the plan.

(AA) **California Public Drinking Water Management Plan:** The California Public Drinking Water Management Plan, filed on December 14, 2021, is approved with the additional requirement that the co-licensees must provide for attachment of the new waterline to the Daggett Road Bridge. The co-licensees must provide for public outreach to Hmong- and Spanish-speaking communities regarding the plan.

(BB) **Oregon Groundwater Well Management Plan:** The Oregon Groundwater Well Management Plan, filed on December 14, 2021, is approved. The co-licensees must provide for public outreach to Hmong- and Spanish-speaking communities regarding the plan.

(CC) **Fire Management Plan:** The Fire Management Plan, filed on December 14, 2021, and supplemented on April 18, 2022, is approved with the following modification. The co-licensees must include:

1. Additional dry hydrants that meet National Fire Protection Association standards at Fall Creek confluence and Iron Gate Dam/Hatchery boat launches;
2. the removal of the Deer Creek and Beaver Creek dry hydrants;
3. a boat ramp to be installed at Copco Valley site within the Copco No. 1 Reservoir area;
4. a provision that the California Department of Forestry and Fire Protection or a local firefighting agency will be responsible for storage, deployment, and fill of portable water tanks;
5. five additional dip tanks; and
6. a public outreach component that specifically addresses communication related to emergency planning with Hmong- and Spanish-speaking communities.

(DD) **Health and Safety Plan:** The Health and Safety Plan, filed on December 14, 2021, is approved.

(EE) **Waste Disposal and Hazardous Materials Management Plan:** The Waste Disposal and Hazardous Materials Management Plan, filed on December 14, 2021, is approved.

(FF) **Reservoir Area Management Plan:** The Reservoir Area Management Plan, filed on December 14, 2021, and supplemented on April 18, 2022, is approved with the following additional provisions:

1. The co-licensees must undertake two periods of vegetation sampling each year, in late spring/early summer and late fall prior to the onset of woody vegetation dormancy; and
2. the co-licensees must include detailed pre-work maps for upland areas that would identify potential cool-water areas and their restoration, grading, water runoff control measures, planting, seeding, mulching, irrigation areas, work zones, delineated wetland areas, reservoir footprints, the J.C. Boyle Power canal and scour hole, and areas of temporary disturbance where revegetation activities would occur.

(GG) **Water Quality Monitoring and Management Plan:** The Water Quality Monitoring and Management Plan, filed on December 14, 2021, with the following modifications is approved. The co-licensees must:

1. Provide all reports and correspondence to the Hoopa Valley Tribe, and any other Tribe that has subsequently obtained Clean Water Act treatment-as-a-state status;
2. at a minimum, and at the frequencies stipulated under Condition 1 of the California Water Quality Certificate and Condition 2 of the Oregon Water Quality Certificate, provide estimations of suspended sediment loads during and following reservoir drawdown using continuous flow and turbidity measurements at the following six continuous monitoring stations: (a) Klamath River 1.3 miles below Dam (USGS gage No. 11509500); (b) Klamath River five miles below J.C. Boyle Dam (USGS gage No. 11510700); (c) Klamath River below Iron Gate Dam (USGS gage No. 11516530); (d) Klamath River near Seiad Valley (USGS gage No. 11520500); (e) Klamath River at Orleans (USGS gage No. 11523000); and (f) Klamath River near Klamath (USGS gage No. 11530500);
3. incorporate measures for any in-water work activities that could impact water quality (including beneficial uses) not otherwise covered by the Construction General Permit of the California Water Quality Certificate in accordance with the California Water Quality Certificate condition 10;
4. consult with the California Water Board and Oregon Department of Environmental Quality regarding continuous monitoring at the monitoring station between Shovel Creek and Copco No. 1 Reservoir to ensure the co-licensees' proposed methods would provide reliable estimates for sediment transport from the reservoir and ensure any inconsistencies in continuous monitoring sites are resolved; and
5. identify any remedial actions taken, i.e., adaptive management, depending on real-time turbidity monitoring.

(HH) **Aquatic Resources Management Plan:** The Aquatic Resources Management Plan, filed on December 14, 2021, is approved.

(II) **Hatcheries Management and Operations Plan:** The Hatcheries Management and Operations Plan, filed on December 14, 2021, and supplemented on April 18, 2022, is approved. The approved plan provides that, for a period of eight years following removal of Iron Gate Dam, PacifiCorp will retain ownership of the lands occupied by the Fall Creek Hatchery and will own the new hatchery facilities and the California Department of Fish and Wildlife will lease the lands and facilities needed to operate the hatchery.

(JJ) **Terrestrial and Wildlife Management Plan:** The Terrestrial and Wildlife Management Plan, filed on December 14, 2021, is approved with the following modifications:

1. Extend the survey area for nesting birds to include a 250-foot buffer around disturbance areas for non-eagle raptor nests and a 50-foot buffer around disturbance areas for nests of all other bird species; and
2. limit the removal of structures that provide roosting habitat for bats from September 1-March 31.

(KK) **Recreation Facilities Management Plan:** The Recreation Facilities Management Plan, filed on December 14, 2021, is approved with the following modifications:

1. A provision to consult with American Whitewater, in addition to Upper Klamath Outfitters Association, to schedule construction activities and access restrictions to minimize adverse effects on whitewater boaters;
2. a provision to add information to the recreation closure signage in Hmong and Spanish explaining that dam removal and reservoir drawdown will change fish availability as species shift from lake-dwelling panfish to riverine species, changes in gear required to catch riverine fish, and the seasonality of anadromous fish; and
3. a provision to consult with the Shasta Indian Nation and any other interested Tribes regarding the naming of recreation sites.

(LL) **Programmatic Agreement and Historic Properties Management Plan:** The co-licensees must implement the "Programmatic Agreement Between the Federal Energy Regulatory Commission, California State Historic Preservation Officer, Oregon State Historic Preservation Officer, and Advisory Council on Historic Preservation regarding License Surrender, Decommissioning, and Removal of the Lower Klamath Project in Klamath County, Oregon and Siskiyou County, California (FERC Project Nos. 14803-001 and 2082-063)," executed on October 17, 2022, and including but not limited to the October 14, 2022 Historic Properties Management Plan for the project. The Commission reserves the authority to require changes to the Historic Properties Management Plan at any time before the license surrender becomes effective.

(MM) This order constitutes final agency action. Any party may file a request for rehearing of this order within 30 days from the date of its issuance, as provided in section 313(a) of the Federal Power Act, 16 U.S.C § 825*l*, and the Commission's regulations at 18 C.F.R. § 385.713 (2021). The filing of a request for rehearing does not operate as a stay of the effective date of this order, or of any other date specified in this order. The licensee's failure to file a request for rehearing shall constitute acceptance of this order.

By the Commission.

(S E A L)

Debbie-Anne A. Reese,
Deputy Secretary.

APPENDIX A

STATE OF OREGON WATER QUALITY CERTIFICATE CONDITIONS

September 7, 2018

1. Proposed Action

The KRRC proposes to remove J.C. Boyle Dam, J.C. Boyle powerhouse and all appurtenant facilities consistent with the procedures and schedule described in the Klamath Hydroelectric Settlement Agreement (KHSA) and associated Detailed Plan, the application for section 401 water quality certification, and the September 30, 2017, Technical Support Document, which by this reference, are incorporated in their entirety (the "Proposed Action"). In accordance with applicable law, the Licensee shall notify DEQ if FERC authorizes modification to the Proposed Action to allow DEQ to determine whether such changes may affect compliance with water quality standards that may require amendment of this certification.

2. Water Quality Management Plan

The Licensee shall submit to DEQ a Water Quality Management Plan (WQMP) for review and approval within 90 days of issuance of the surrender order. Upon approval by DEQ, the Licensee shall file the WQMP with FERC and implement the WQMP in accordance with its terms.

At a minimum, the WQMP shall include the following information:

a) Water Quality Monitoring Plan Content

i. Data collection protocol, analytical methods, and laboratory method reporting limits;

ii. Location and description of monitoring points;

iii. Flow monitoring at USGS gauges 11509500 and 11510700;

iv. Applicable compliance criteria and associated compliance time schedule;

v. Instrument calibration schedule and procedures;

vi. Data validation procedures and quality assurance methodology;

vii. Contingency procedures for inoperable or malfunctioning equipment; and

viii. Data interpretation procedures, and

ix. Adaptive management plan.

b) Monitoring Locations

The Water Quality Management Plan shall establish monitoring stations at the following monitoring locations:

Station	Existing USGS Location	Approximate River Mile	Measurement Type
Keno	USGS 11509500	RM 213.9	Flow, data sonde, grab
JC Boyle Powerhouse	USGS 11510700	RM 219.7	Flow, data sonde, grab

i. The Licensee shall secure all field equipment as necessary to ensure safe reliable placement, stability, and retrieval during seasonally high flows and drawdown conditions;
ii. The Licensee shall install monitoring equipment as necessary to meet data collection schedule as described in Section 3(d) or an alternate schedule approved by DEQ;

c) Parameters

The WQMP shall include monitoring for the following parameters:
Continuous Data Sonde Collection. The Licensee shall maintain operable data sondes and collect continuous measurements for the following parameters:

i. Temperature;
ii. Conductance;
iii. pH;
iv. Dissolved oxygen, oxygen saturation; and
v. Turbidity

Grab Sample Collection. The Licensee shall collect grab samples for the following parameters:

vi. Nitrogen: ammonia, nitrate, nitrite, total nitrogen;
vii. Phosphorus: orthophosphate, organic phosphorus, total phosphorus;
viii. Carbon: dissolved organic carbon, particulate carbon;
ix. Chlorophyll-a; and
x. Suspended sediment concentration.

d) Monitoring Frequency and Duration

i. Initiating data collection: The Licensee shall begin sample and data collection at least

12 months prior to initiating drawdown of J.C. Boyle Reservoir unless otherwise approved by DEQ;

ii. Data sonde sampling frequency: The Licensee shall record data at 15-minute intervals.

iii. The Licensee shall collect grab samples for suspended sediment concentrations per the following schedule:

A. Twice monthly through September of the drawdown year;

B. Monthly beginning October 1 of the drawdown year.

iv. The Licensee shall collect all other grab samples monthly;

v. Duration: The Licensee shall monitor water quality in accordance the schedule in WQMP for a minimum of four years after initiating reservoir drawdown. Upon receipt and review of annual water quality monitoring reports DEQ may, at its discretion, continue or discontinue the requirement to monitor certain water qualityparameters as warranted by water quality conditions.

e) Suspended Sediment Load

The Licensee shall propose procedures to quantify sediment export during and following reservoir drawdown using suspended sediment concentrations and flow measurements recorded at USGS gauges 11510700 and 11509500 and other methodologies as appropriate. Upon approval by DEQ, the Licensee shall implement thismethodology.

f) Non-Reservoir Drawdown Activities

The Licensee shall propose procedures to monitor turbidity at the locations of actions that may discharge or increase sedimentation in runoff to the Klamath River and its tributaries. Except for activities that occur within the 24-month compliance time period identified in Section 3, the Licensee shall monitor turbidity approximately 100 feetupstream and 300 feet downstream during proposed activities at the following locations:

i. Activities to maintain fish passage as required by Section 4(a);

ii. J.C. Boyle scour hole restoration as required by Section 8(c);

iii. Removal of recreation areas required by Section 8(d);

iv. Backfilling and restoring the J.C. Boyle powerhouse tailrace as required by Section 8(f).

g) Water Quality Reporting

The Licensee shall present, summarize, and interpret water quality data in the Annual Compliance Report prepared in accordance with Section 11 of this certification. Water quality data shall be presented using graphs, tables, or other means to clearly

demonstrate trends, relationships, and compliance. Raw data must be made available to DEQ either from accessible external websites, CDs, or other means to effectively transfer electronic data files.

3. Compliance Time Schedule

Pursuant to OAR 340-041-0185(5), DEQ establishes a compliance time schedule of 24 months following drawdown after which dam removal is not expected to cause an exceedance of Oregon water quality standards. If water quality monitoring demonstrates that project actions may contribute to exceedances of the applicable water quality standards beyond the compliance time schedule established by this certification, DEQ may require the Licensee to develop an adaptive management plan in consultation with DEQ, which includes alternative measures, an assessment of impacts, and a schedule to achieve compliance. Once approved by DEQ, the Licensee shall implement the plan in accordance with its terms, including any modifications made by DEQ as conditions of its approval.

4. Biological Criteria; Protection of Beneficial Uses; Other Requirements of State Law

a) Fish Passage

i. The Licensee shall provide or maintain fish passage at all artificial obstructions created or affected by the Proposed Action that prevent or delay the migration of native migratory fish;

ii. The Licensee shall, in consultation with ODFW and subject to approval by DEQ, remove or modify artificial fish barriers created or affected by the Proposed Action until the effective date of license surrender at all locations where native migratory fish are currently or have historically been present. Until the effective date of license surrender the Licensee shall reduce or eliminate project-related obstructions such as sediment barriers and erosional head cuts resulting in a vertical step higher than six inches;

iii. Potential artificial barrier locations may include but are not limited to the following:

A. Topsy Grade Road culverts;

B. Unnamed tributary north of Keno Access Road;

C. Spencer Creek.

b) Aquatic Resource Measure AR-6: Sucker

The Licensee shall implement Aquatic Resource Measure AR-6 presented in Appendix H of the Technical Support Document (KRRC 2017) to mitigate project effectson adult Lost River Sucker and Shortnose Sucker in J.C. Boyle Reservoir prior to drawdown.

c) Western Pond Turtle Mitigation

Subject to approval by DEQ, in consultation with ODFW, the Licensee shall conduct abundance and overwintering studies. The Licensee shall, as DEQ deems warranted, implement appropriate mitigation actions to reduce potential impacts to Western Pond Turtle populations prior to drawdown of JC Boyle Reservoir. DEQ's determination of the need for both initiation and extent of mitigation actions, if any, shallbe based upon ongoing survey data, anticipated impacts, and potential additional impacts associated with capture and transport.

d) On-Site Septic Systems

To reduce the potential for bacterial pollution, the Licensee shall decommission Lower Klamath Project on-site septic systems proposed for removal in accordance with Oregon Administrative Rule Chapter 340, Division 71.

e) NPDES Construction Stormwater Permit

The Licensee shall register with DEQ for coverage under National Pollution Discharge Elimination System general permit 1200-C before any construction activitiesoccur that cumulatively disturb more than one acre of and may discharge stormwater tosurface waters of the state.

5. Reservoir Drawdown and Diversion Plan

Within 90 days of issuance of the surrender order, the Licensee shall submit to DEQ for review and approval a Reservoir Drawdown and Diversion Plan. Upon approvalby DEQ, the Licensee shall file the Reservoir Drawdown and Diversion Plan with FERC and implement the plan upon receipt of all required authorizations. The Reservoir Drawdown and Diversion Plan shall propose drawdown procedures, schedule, and monitoring efforts. At a minimum, the plan shall include the following elements:

a) Drawdown Procedure

The plan shall include the following minimum information:

i. Description of all relevant reservoir drawdown facilities;

ii. Flood frequency evaluation;

iii. Anticipated drawdown rates and schedule;

iv. Slope-stability analysis;

v. Schedule for the sequenced removal of structural elements whose removal will affect discharge during drawdown.

b) Monitoring

The plan should include the following:

i. Location, schedule, and installation procedures for piezometer wells proposed for the upstream shell and core of J.C. Boyle Dam and procedures to monitor water levels and pore pressure at these locations;

ii. Description of all proposed survey monuments and inclinometer installations to monitor slope stability during and following drawdown;

iii. Visual monitoring schedule for evidence of potential slumping, cracking, or slope failure of dam embankment during dam removal;

iv. Monitoring of J.C. Boyle Reservoir elevation and stream flow at USGS gauge 11509500 below Keno Reservoir and USGS gauge 11509500 below J.C. Boyle powerhouse during drawdown.

c) Contingency and Notification Procedures

The plan shall include procedures to assess and respond to confirmed or suspected issues including but not limited to the following:

i. Obstructions to reservoir discharge caused by physical blockages, mechanical failure, or other conditions that may restrict outflow;

ii. Embankment instability, slumping, loss of erosion protection;

iii. Cultural resource discovery;

iv. Other events that directly or indirectly affect reservoir drawdown schedule.

d) Notification

KRRC shall notify DEQ within 72 hours of an event that may substantially delay drawdown or cause the timeline to complete drawdown to exceed the anticipated schedule.

6. Reservoir Area Management Plan

Within 90 days of issuance of a license surrender order from FERC, the Licensee shall submit to DEQ a Reservoir Area Management Plan for review and approval. Upon approval by DEQ, the Licensee shall file the Reservoir Area Management Plan with FERC and implement the plan upon receipt of all required authorizations. The plan shall include the following elements.

a) Reservoir Restoration Activities

The plan should include procedures to stabilize and restore the former reservoirarea following dam removal. The plan should include the following:

i. Performance criteria for evaluating restoration efforts to meet the following objectives:

A. Unobstructed stream continuity;

B. Fish passage;

C. Sediment stability;

D. Invasive exotic vegetation abatement and native vegetation cover establishment.

ii. Proposed actions for meeting plan objectives including:

A. Actions to ensure tributary connectivity following drawdown;

B. Strategies to create or enhance wetlands, floodplain, and off-channel habitat features;

C. Actions to improve revegetation success by enhancing floodplain roughness; Locations for placement of large wood or other structures to improve channel margin complexity;

iii. The Licensee shall not use nitrogen- or phosphorus-based fertilizers in hydroseeding applications unless expressly authorized by DEQ.

b) Monitoring

i. The Licensee shall annually conduct aerial LiDAR reconnaissance surveys of the affected area to measure sediment stability and estimate the volume of sediment export following reservoir drawdown. Annual sediment stability monitoring shall be supplemented with visual inspections, physical measurements, and photo-documentation at monitoring locations identified in the Reservoir Area Management Plan;

ii. The Licensee shall twice annually conduct surveys to determine the area of invasive exotic vegetation and native vegetation cover in the reservoir restoration area;

iii. The Licensee shall annually inspect mainstem Klamath River and affected tributaries for the presence of physical barriers to volitional fish passage. Annual inspections shall occur following the wet season.

iv. Monitoring is required for a minimum of three years following completion of reservoir drawdown.

c) Adaptive Management

If monitoring demonstrates that runoff from exposed embankment areas maycause erosion, sedimentation, or a lowering of water quality DEQ may require the Licensee to analyze the situation and propose an appropriate corrective response.
Corrective actions may include measures to increase soil stability through additional plantings, irrigation to maintain revegetated areas, contouring sediment to reduce slope, adding energy dissipating features such as large wood or boulders, modifying stream channel slope, or other methods deemed appropriate to achieve the goals and objectives of the plan. Upon DEQ approval, the Licensee shall implement the corrective measures.

7. Remaining Facilities and Operations Plan

Within six months of license surrender and prior to initiating the Proposed Action,the Licensee shall submit to DEQ a Remaining Facilities and Operations Plan for review and approval. Upon approval by DEQ, the Licensee shall implement the plan in accordance with its terms, including any modifications made by DEQ as conditions of itsapproval. The Remaining Facilities and Operations Plan shall include, at a minimum, the following information:

a) A description of all Project facilities and/or structures that will not be physically removed or permanently modified during project implementation;

b) A description of all potential water quality impacts associated with retaining proposed project structures;

c) Proposed measures, including but not limited to potential modifications and best management practices, to reduce potential water quality impacts associated with retaining Project facilities and/or structures; and

d) Provisions deemed necessary by DEQ to ensure that any ongoing measures will be implemented once title of the Lower Klamath Project facilities and/or responsibility for operations is transferred to another entity, which shall not occur later than the effective date of surrender of FERC license No. P-14803.

8. Site Restoration, Erosion and Sediment Control

a) Erosion and Sediment Control Plan

Within 90 days of issuance of a surrender order, the Licensee shall submit to DEQ an Erosion and Sediment Control Plan for review and approval. Once approval by DEQ, the Licensee shall implement the plan in accordance with its terms, including any modifications made by DEQ as conditions of its approval. The ESCP shall include best management practices to minimize pollution from sediment erosion caused by facilities removal and restoration activities. The Licensee and its contractors shall ensure the following actions are implemented to minimize sediment runoff during project activities:

i. Maintain an adequate supply of materials necessary to control erosion at the project construction site;

ii. Deploy compost berms, impervious materials, or other effective methods during rain events or when stockpiles are not moved or reshaped for more than 48 hours. Erosion of stockpiles is prohibited;

iii. Inspect erosion control measures daily and maintain erosion control measures as often as necessary to ensure the continued effectiveness of measures. Erosion control measures must remain in place until all exposed soil is stabilized;

iv. If monitoring or inspection shows that the erosion and sediment controls are ineffective, the Licensee must make repairs, install replacements, or install additional controls as necessary;

v. If sediment has reached 1/3 of the exposed height of a sediment or erosion control the Licensee must remove the sediment to its original contour;

vi. Use removable pads or mats to prevent soil compaction at all construction access points through, and staging areas in, riparian or wetland areas to prevent soil compaction, unless otherwise authorized by DEQ;

vii. Flag or fence off wetlands not specifically authorized to be impacted to protect from disturbance and/or erosion;

viii. Place dredged or other excavated material on upland areas with stable slopes to prevent materials from eroding back into waterways or wetlands;

ix. Place clean aggregate at all construction entrances, and utilize other BMPs, including, but not limited to truck or wheel washes, when earth-moving equipment is leaving the site and traveling on paved surfaces. The tracking ofsediment off-site by vehicles is prohibited.

b) J.C. Boyle Disposal Site

i. The Licensee shall place earthen material generated during deconstruction of J.C. Boyle Dam in the disposal site located near the right abutment of the dam. Final contours, elevation, and slope of the disposal site shall reflect the design specifications presented in the J.C. Boyle Right Abutment Disposal Site Plan & Section diagram presented as Figure 5.2-8 of the Technical Support Document (KRRC 2017) or subsequent version approved by DEQ;

ii. The Licensee shall implement inspection procedures to identify and divert non-earthen material from placement in the J.C. Boyle disposal site location;

iii. Site preparation, grading, and vegetative restoration shall be performed in accordance with the ESCP to reduce the potential for erosion and sediment runoff;

iv. The Licensee shall inspect the J.C. Boyle disposal site annually for at least five years following completion or an alternate schedule approved by DEQ. The Licensee shall submit to DEQ an Annual Report in accordance with Section 11,which includes inspection records documenting the physical condition of coverplacement, status of revegetation, evidence of erosive conditions or sediment runoff, and corrective actions performed or proposed to ensure long-term stability.

c) J.C. Boyle Scour Hole Restoration

i. The Licensee shall restore the eroded scour hole beneath the J.C. Boyle emergency spillway based on the design specifications presented in the J.C. Boyle Forebay Spillway Scour Hole Backfill Plan & Sections diagram presented as Figure 5.2-9 in the Technical Support Document (KRRC 2017) or subsequent version approved by DEQ;

ii. The Licensee shall prepare the site and source material as necessary to achieve stable, long-term placement of fill and cover material;

iii. Site preparation and grading shall be performed in accordance with the ESCP to reduce the potential for erosion and sediment runoff;

iv. The Licensee shall inspect the restored scour hole for annually for at least five years or an alternate schedule approved by DEQ. The Licensee shall submit to DEQ an Annual Report in accordance with Section 11, which includes inspection records documenting the physical condition of cover placement, status of revegetation, evidence of erosive conditions or sediment runoff, and corrective actions performed or proposed to ensure long-term stability.

d) Recreation Areas

i. Topsy Campground

The Licensee shall remove all permanent water-related improvements at Topsy Campground including boat launches, floating dock, fishing pier and concrete. Compacted surface areas shall be prepared in a manner that increases surface permeability and reduces surface runoff. The Licensee shall grade, seed and replant affected areas in a manner that promotes riparian revegetation. Site restoration shall be performed according to the ESCP prepared in accordance with Section 9(a).

ii. Pioneer Park

The Licensee shall remove all features at the two separate day use areas on the east and west side of J.C. Boyle Reservoir identified as Pioneer Park. Compactedsurface areas shall be prepared in a manner that increases surface permeability and reduces surface runoff. The Licensee shall grade, seed and replant affected areas in a manner that promotes riparian revegetation. Site restoration shall be performed according to the ESCP prepared in accordance with Section 9(a).

e) J.C. Boyle Power Canal

The Licensee shall remove all concrete wall portions of the J.C. Boyle power canal except for shotcrete applied to the upstream wall to maintain stability against erosion. Concrete shall be placed in the J.C. Boyle emergency spillway scour hole in accordance with Section 8(c). Alternatively, material may be placed at the disposal site inaccordance with Section 8(b). If the Licensee removes the invert slab, the Licensee shall restore the former canal area by decompacting the canal floor to support revegetation.

f) J.C. Boyle Powerhouse Tailrace

i. The Licensee shall select and place material near the mouth of the former tailrace channel in a manner that resists erosion and scour;

ii. Tailrace backfill material sourced from beneath industrial areas such as the adjacent substation and maintenance building must first be screened for the

presence of hazardous materials prior to use as fill material in the tailrace. Soils containing oil or hazardous substances may not be used as fill below the ordinary high water level.

iii. The Licensee shall perform all restoration activities in accordance with the ESCP to reduce the potential for erosion and sedimentation.

9. Waste Disposal and Management Plan

Within 90 days of issuance of a surrender order, the Licensee shall submit to DEQa Waste Disposal and Management Plan for review and approval. Once approved by DEQ, the Licensee shall implement the plan in accordance with its terms, including any modifications made by DEQ as conditions of its approval. The plan shall describe procedures for characterizing and appropriately managing all waste streams generated during facilities removal. The plan shall, at a minimum, include the following components:

a) Hazardous Materials

The plan must include the following information:

i. Prior to drawdown, the Licensee shall commission a Phase I Environmental Site Assessment to identify the presence, nature, and quantities of hazardous substances associated with Lower Klamath Project facilities;

ii. Prior to drawdown, the Licensee shall implement recommendations of the Phase I ESA including, as necessary, a Phase II ESA to characterize the magnitude, extent, and risk of hazardous materials in the environment. In consultation with DEQ, the Licensee shall undertake remedial actions to mitigate risks from residual hazardous materials in accordance with applicable state and federal law;

iii. Procedures to manage disposal of hazardous and solid wastes in compliance with applicable state and federal law;

iv. Comprehensive investigative and sampling procedures to confirm adequate abatement of hazardous materials;

v. Procedures to manage all records, disposal receipts and/or manifests confirming transportation and disposal of hazardous materials.

The Licensee shall file a report with DEQ documenting the investigation, management and disposal of hazardous materials within 90 days of completing actions oran alternate schedule approved by DEQ.

b) Deleterious Waste Materials:

The Licensee is prohibited from placing biologically harmful materials including,but not limited to petroleum products, chemicals, cement cured less than 24 hours, welding slag and grindings, concrete saw cutting by-products, sandblasted materials,

chipped paint, tires, wire, steel posts, and asphalt where such materials could enter waters of the state, including wetlands. The Licensee must do the following:

i. Cure concrete, cement, or grout for at least 24 hours prior to any contact with flowing waters;

ii. Use only clean fill, free of waste and polluted substances;

iii. Employ all practicable controls to prevent discharges of spills of deleterious materials to surface or ground water;

iv. Maintain at the project construction site, and deploy as necessary, an adequate supply of materials needed to contain deleterious materials during a weather event;

v. Remove foreign materials, refuse, and waste from the project area; and

vi. Employ general good housekeeping practices at all times.

10. Spill Response

a) The Licensee shall maintain a Spill Prevention, Control, and Countermeasure Plan in effect at all times in accordance with 40 CFR Part 112. The following specific requirements apply during site activities:

i. Vehicle staging, cleaning, maintenance, refueling, and fuel storage must be performed at least 150 feet from waters of the state. An exception may be authorized upon written approval by DEQ if all practicable prevention measures are employed and this distance is not possible because;

A. Physical constraints that make this distance not feasible (e.g., steep slopes,rock outcroppings);

B. Natural resource features would be degraded as a result of this setback;

C. Equal or greater spill containment and effect avoidance is provided even ifstaging area is less than 150 feet of any waters of the state.

D. If staging areas are within 150 feet of any waters of the state, as allowed under subsection (a)(iii) of this condition, full containment of potential contaminants must be provided to prevent soil and water contamination, as appropriate.

ii. All vehicles operated within 150 feet of any waters of the state must be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected in the vehicle staging area must be repaired before the vehicle resumesoperation;

iii. Before operations begin and as often as necessary during operation, equipment must be steam cleaned (or undergo an approved equivalent cleaning) until all visible external oil, grease, mud, and other visible contaminants are removed if the equipment will be used below the bank of a waterbody;

iv. All stationary power equipment (e.g., generators, cranes, stationary drilling equipment) operated within 150 feet of any waters of the state must be covered by an absorbent mat to prevent leaks, unless other suitable containment is provided to prevent potential spills from entering any waters of the state

v. An adequate supply of materials (such as straw matting/bales, geotextiles, booms, diapers, and other absorbent materials) needed to contain spills must be maintained at the project construction site and deployed as necessary;

vi. All equipment operated in state waters must use biodegradable hydraulic fluid. A maintenance log documenting equipment maintenance inspections and actions must be kept on-site and available upon request.

b) Spill Incident Reporting;

i. If petroleum products, chemicals, or any other deleterious materials are discharged into state waters, or onto land with a potential to enter state waters, the Licensee must promptly report the discharge to the Oregon Emergency Response System (OERS), at 1-800-452-0311);

ii. If a release of petroleum products, chemicals, or other materials results in distressed or dying fish, the Licensee must immediately do the following: cease operations; take appropriate corrective measures to prevent further environmental damage; collect fish specimens and water samples; and notify DEQ, ODFW and other appropriate regulatory agencies.

11. Annual Compliance Report

The Licensee shall prepare and submit to DEQ an Annual Compliance Report byApril 1 for the preceding year in which activities are performed pursuant to conditions required by this certification. The Annual Compliance Report shall include, as appropriate:

a) Monitoring data including graphical representations, as appropriate;

b) Records documenting required consultations and/or approvals;

c) Narrative interpretation of results;

d) Compliance evaluations;

e) Efforts undertaken by the Licensee to achieve the objectives of the Aquatic Resource mitigation measures set forth in section 4 of this certification;

f) A comprehensive presentation of all actions performed in accordance with the Reservoir Area Management Plan and include all data, observations, measurements, photo-documentation, findings and recommendations. The report shall compare reservoir restoration conditions with the objectives of the Reservoir Area Management Plan and document corrective or adaptive methods performed or recommended to meet those objectives.

g) Efforts undertaken by the Licensee to achieve the objectives of the Groundwater Well Management Plan, including all well installations, field activities, outreach efforts, and monitoring results. The report shall include drill logs and well as-builts for project-installed monitoring wells; a comparison with installation depths and techniques from representative nearby wells; the results of any pumping or drawdown tests; an interpretation of the results; mitigation to improve water quality or quantity from affected wells; and findings and recommendations; and

h) Efforts undertaken and anticipated completion of site restoration activities required in this certification.

The Licensee may also include a request for DEQ to consider approval of alternative or additional measures. As used in this section, alternative measures are methods or approaches not included in the Proposed Action that will provide or assist in providing, reasonable assurance that the Proposed Action will not cause or contribute to aviolation of water quality standards beyond the compliance schedule described in Section 3. DEQ shall respond to any request for consideration of alternative measures within 60 days of receipt. DEQ shall notify the Licensee in writing of its approval or denial of the proposed alternative measures. Following DEQ approval, the Licensee shall implementthe plan in accordance with the approved plan's terms and schedule, including any modifications made to the plan by DEQ as a condition of approval.

12. General

a) Section 401 Certification Modification

DEQ, in accordance with Oregon and Federal law including OAR Chapter 340, Division 48 and, as applicable, 33 USC 1341, may modify this Certification to add, delete, or alter Certification conditions as necessary to address;

i. Adverse or potentially adverse Project effects on water quality or designated beneficial uses that did not exist or were not reasonably apparent when this §401 certification was issued;

ii. TMDLs (not specifically addressed above in these section 401 certification conditions);

iii. Changes in water quality standards;

iv. Any failure of these § 401 Certification Conditions to protect water quality or designated beneficial uses as expected when this § 401 Certification was issued; or

v. Any change in the Project or its operations that was not contemplated by this §401 Certification that might adversely affect water quality or designated beneficial uses.

b) Project Modification

The Licensee shall obtain DEQ review and approval before undertaking anychange to the Proposed Action that may affect water quality other than modifications authorized or required by this certification.

c) Inspection

The Licensee shall allow DEQ such access as necessary to inspect the Project area and Project records required by these section 401 Certification Conditionsand to monitor compliance with these section 401 Certification Conditions, upon reasonable notice and subject to applicable safety and security procedureswhen engaged in such access.

d) Posting

The Licensee shall maintain a copy of the section 401 water quality certificationat the project site for the duration of the project. The certification shall be available for review by the Licensee and its contractors, as well as by DEQ, the US Army Corps of Engineers, National Marine Fisheries Service, Oregon Department of Fish and Wildlife, and other appropriate state and local government inspectors for the duration of the project.

e) Water Quality Standards Compliance

Notwithstanding the conditions of this Certification, no wastes shall be discharged and no activities shall be conducted which will violate state waterquality standards.

f) Conflict Between Certification Conditions and Application

To the extent that there are any conflicts between the terms and conditions in this certification and how the Proposed Action, activities, obligations, and processes are described in the Application, the terms and conditions in this certification, as interpreted by DEQ, shall control.

13. Project Specific Fees

In accordance with ORS 543.080, the Licensee shall pay project-specific fees, in 2018 dollars adjusted according to the formula in Section 13b below, to DEQ for costs of overseeing implementation of this certification. The licensee shall pay an initial pro-rated payment to DEQ within 30 days of license surrender for the period from the date of license surrender to the first June 30, which follows license surrender.

a) Schedule

The Licensee shall pay project-specific fees to DEQ, made payable to State of Oregon, Department of Environmental Quality, according to the following schedule:

FERC License Surrender	Annual Project-Specific Fee Subject to Adjustment	Due
Year 1	$42,578	Within 30 days
Year 2	$40,000	July 1
Year 3	$33,219	July 1
Year 4	$7,254	July 1
Year 5	$7,254	July 1

b) Annual Adjustment

Fee amounts shall be adjusted annually, according to the following formula:

AD = D x (CPI-U)/(CPI-U-June 2018)

Where:

AD = Adjusted dollar amount payable to agency.

D = Dollar amount pursuant to Section 13a and Section 13b above,

CPI-U = the most current published version of the Consumer Price Index-Urban. The CPI-U is published monthly by the Bureau ofLabor Statistics of the U.S. Department of Labor. If that index ceases to be published, any reasonably equivalent index published by the Bureau of Economic Analysis may be substituted by written agreement between DEQ and the Licensee.

c) Payment Schedule

Fees shall be paid pursuant to a written invoice from DEQ. Except as provided below, project-specific fees shall be due on July 1 of each year following issuance of the new FERC License. The Licensee shall pay an initial prorated payment to DEQ within 30 days of license surrender, for the period from the date of license surrender to the first June 30 that follows license surrender.

d) Credits

DEQ will credit against this amount any fee or other compensation paid or payable to DEQ, directly or through other agencies of the State of Oregon, during the preceding year (July 1 to June 30) for DEQ's or ODFW's costs of oversight.

e) Expenditure Summary

DEQ shall provide the Licensee with a biennial summary of project specific expenditures.

f) Duration

The project-specific fee shall expire 5 years after the first July 1 following the issuance of the new FERC license, unless DEQ terminates it earlier because oversight is no longer necessary. One year before the expiration of the fee, or earlier if mutually agreed, DEQ and the Licensee shall review the need, if any, to modify, extend, or terminate the fee, in accordance with ORS 543.080. The Licensee shall pay any project-specific fee required after such review as provided in ORS 543.080.

APPENDIX B
STATE OF CALIFORNIA WATER QUALITY CERTIFICATE CONDITIONS
November 3, 2022

The State Water Resources Control Board hereby amends the water quality certification for the Klamath River Renewal Corporation's (KRRC) Lower Klamath Project License Surrender (Project) to modify Conditions 1 – 19, 22, and 24.

CONDITION 1. WATER QUALITY MONITORING AND ADAPTIVE MANAGEMENT

The Licensee shall submit the California Water Quality Monitoring Plan (WQMP) for review and approval by the Executive Director of the State Water Resources Control Board (State Water Board) or the Deputy Director for the Division of Water Rights (Deputy Director) no later than six months following issuance of a Federal Energy Regulatory Commission (FERC) license surrender order and prior to Lower Klamath Project License Surrender (Project) implementation.[19] The WQMP shall be developed in consultation with staff from the State Water Board, North Coast Regional Water Quality Control Board (North Coast Regional Board), Oregon Department of Environmental Quality (ODEQ), and California Department of Fish and Wildlife (CDFW). The Deputy Director may require modifications as part of any approval. The Licensee shall file any Deputy Director-approved revisions to the WQMP, together with any required plan modifications not incorporated into a water quality certification amendment, with FERC. Any changes to WQMP shall be approved by the Deputy Director prior to implementation. Upon receiving all necessary approvals, the Licensee shall implement the WQMP for the duration of the license surrender order or until otherwise approved by the Deputy Director in writing. The Deputy Director may require modifications to the WQMP, including implementation of additional adaptive management measures informed by monitoring results, as part of review and approval of reports as specified below.

At a minimum, the WQMP shall include: (1) a monitoring program to assess Project impacts to water quality; (2) a reporting schedule; (3) adaptive management measures based on water quality monitoring results; and (4) provisions for collection and submittal of water quality data to inform the Licensee's implementation of a water quality compliance schedule (Condition 2). Additionally, the WQMP shall describe: field sampling and analytical methods; monitoring locations; types of sampling (e.g., continuous, grab) and frequency by the category (as enumerated below); pre-drawdown monitoring; quality assurance plan and quality control measures; sediment load quantification; reporting and adaptive management; and other Project- related monitoring.

Field Sampling and Analytical Methods

The Licensee shall implement field sampling and monitoring methods consistent with the State of California's Surface Water Ambient Monitoring Program or equivalent methods approved by the Deputy Director. The Licensee shall use analytical methods that comply with Code of Federal Regulations, title 40, part 136, or methods approved by California's Environmental Laboratory Accreditation Program (ELAP), where such

[19] The KRRC submitted the California Water Quality Monitoring Plan for approval as part of its request for an amendment of the Project water quality certification.

methods are available. Samples that require laboratory analysis shall be analyzed by ELAP-certified laboratories.

Types of Sampling and Frequency by Category

At a minimum, the WQMP shall identify the parameters and sampling frequency[~~19~~20] for the three categories of sampling outlined below. Water quality monitoring shall be implemented at the noted frequency or more often.

Category 1: Continuous Water Quality Monitoring

The Licensee shall continuously monitor the following water quality parameters:

(1) dissolved oxygen (DO) in milligrams per liter (mg/L) and percent saturation;
(2) water temperature;
(3) turbidity;
(4) conductivity; and
(5) pH.

Category 1 Frequency: At a minimum, 30-minute interval recordings.

Category 2: Water Quality Grab Samples

The Licensee shall collect and analyze water quality grab samples for the following parameters:

(1) total nitrogen;
(2) nitrate;
(3) nitrite;
(4) ammonia
(5) total phosphorus;
(6) particulate organic phosphorus;
(7) orthophosphate;
(8) particulate organic carbon;
(9) dissolved organic carbon;
(10) chlorophyll-a (beginning May 1 following drawdown activities and continuing annually from May 1 through October 31);
(11) turbidity;
(12) microcystin (beginning May 1 following drawdown activities and continuing annually from May 1 through October 31);
(13) suspended sediment concentrations;
(14) methylmercury (only at Klamath River monitoring locations below Copco No. 1);
(15) settleable solids; and
(16) particulate and dissolved aluminum (only at Klamath River monitoring locations below Iron Gate).

[20] See pre-drawdown monitoring below for minimum monitoring frequency prior to drawdown.

Category 2 Frequency: At a minimum, monthly (with the exception of suspended sediment concentrations), at approximately the same time of day, during and following drawdown. For suspended sediment concentrations, monitoring shall occur every two weeks.

Category 3: Klamath Riverbed Sediment Grab Samples

The Licensee shall collect and analyze sediment samples from the Klamath Riverbed prior to and following dam decommissioning. At a minimum, sediment samples shall be analyzed for the following parameters:

(1) arsenic;
(2) lead;
(3) copper;
(4) nickel;
(5) iron;
(6) aluminum;
(7) dioxin;
(8) cyanide;
(9) mercury;
(10) ethyl benzenes;
(11) total xylenes;
(12) dieldrin;
(13) 4,4'-dichlorodiphenyltrichloroethane (DDT);
(14) 4,4'-dichlorodiphenyldichloroethane (DDD);
(15) 2,3,7,8-tetrachlorodibenzodioxin (TCDD);
(16) 4,4'-dichlorodiphenyldichloroethylene (DDE); and
(17) 2,3,4,7,8-pentachlordibenzofuran (PECDF).

Category 3 Frequency: One monitoring event prior to drawdown activities[21] and one event within 12 to 24 months of completing drawdown activities.

Monitoring Locations (Categories 1 through 3)
The Licensee shall consider the following when selecting monitoring locations: existing water quality monitoring stations in the Klamath River Basin, site access, land use, and input received during consultation. Whenever feasible, the Licensee shall select monitoring locations at or near existing water quality monitoring locations. At a minimum, the Licensee shall monitor at the following locations:

[21] In lieu of collecting additional pre-drawdown [in-reservoir] samples, the Licensee may rely on the results of previously-analyzed sediment samples, to the extent they provide the necessary information.

Category 1 (Continuous Water Quality Monitoring) and Category 2 (Water Quality Grab Samples[22]) shall be conducted at the following locations:

- Klamath River at or near United State Geological Survey (USGS) gage no. 11509500 (below Keno)
- Klamath River at or near USGS gage no. 11510700 (below J.C. Boyle)
- Klamath River upstream of Copco No. 1 Reservoir, and downstream of Shovel Creek (Category 2 only);
- Klamath River downstream of Copco No. 2 Powerhouse, no further downstream than the Daggett Road bridge crossing of the Klamath River;
- Klamath River at or near USGS gage no. 11516530 (below Iron Gate);
- Klamath River at or near Walker Bridge (Category 1 monitoring only);
- Klamath River at or near USGS gage no. 11520500 (below Seiad Valley);
- Klamath River at or near USGS gage no. 11523000 (Orleans);
- Klamath River at or near USGS gage no. 11530500 (Klamath); and
- Klamath Estuary near the mouth of the Klamath River.

Category 3 (Klamath Riverbed Sediment Grab Samples) shall be collected at the following locations[23]:

- Klamath River upstream of Copco No. 1 Reservoir and downstream of Shovel Creek;
- Three locations in the Copco No. 1 Reservoir footprint, in areas where sediments will likely be terraced. If terracing does not occur at the previously sampled location, the sample location shall be moved to a location with terraced sediments;
- Klamath River downstream of Copco No. 2 Powerhouse, no farther downstream than the Daggett Road bridge crossing of the Klamath River;
- Three locations in the Iron Gate Reservoir footprint, in areas where sediments will likely be terraced. If terracing does not occur at the previously sampled location, the sample location shall be moved to a location with terraced sediments;
- Klamath River at or near USGS gage no. 11516530 (below Iron Gate);
- Klamath River at or near USGS gage no. 11523000 (Orleans); and
- Klamath Estuary.

<u>Pre-Drawdown Monitoring (Categories 1 through 3)</u>
At a minimum, prior to drawdown activities the Licensee shall monitor as follows:

- Category 1 (Continuous Water Quality Monitoring): One year of continuous monitoring at all Category 1 monitoring locations.

---

[22] Samples shall be collected at the same location, or as close as possible, each time.
[23]~~[22]~~ Samples shall be collected at the same location, or as close as possible, each time. Locations should target slow-velocity depositional areas (eddies and backwaters) where fine sediment accumulation is most likely to occur.

- Category 2 (Water Quality Grab Samples): One year with samples collected monthly, at all Category 2 monitoring locations.
- Category 3 (Klamath Riverbed Sediment Grab Samples): One collection event at all Category 3 monitoring locations, except as specified in Footnote 21.

Quality Assurance Project Plan

The Licensee shall develop a Quality Assurance Project Plan (QAPP) using the State Water Board's and United States Environmental Protection Agency's (USEPA's) guidance resources to describe the Project's monitoring goals, data needs and assessment, responsible individuals, quality assurance plan, equipment maintenance, quality control measures, and reporting deadlines. The QAPP shall be submitted as part of the WQMP.

Sediment Load Quantification

The Licensee shall submit reports to the Deputy Director describing the status of sediment movement at 12 and 24 months, respectively, following completion of drawdown activities. The reports shall: (a) quantify the amount of sediment present in each Project reservoir footprint; (b) quantify the total amount of sediment exported from the Project reservoirs; (c) quantify the amount of sediment that has settled in the Klamath River between Iron Gate Dam and Cottonwood Creek (River Mile[24]~~[23]~~ [RM] 185); and (d) describe remediation activities planned or undertaken, if any. For (a) and (b) estimates shall be provided in million cubic yards, tons (dry weight), and percentage of sediment present compared to total amount of sediment present prior to drawdown. For (c) estimated sediment deposition shall be presented as total estimated quantities in million cubic yards, tons (dry weight), average depth change from pre-drawdown conditions, and percent particle size composition. The reports shall be submitted to the Deputy Director at 15- and 27-months following completion of drawdown activities, respectively.

Reporting and Adaptive Management: Prior to, during, and for a minimum of one year following completion of drawdown, the Licensee shall provide monthly monitoring reports to the State Water Board, ODEQ, and North Coast Regional Board. Monitoring and monthly reporting shall continue until otherwise approved by the Deputy Director in writing. The monthly report shall, at a minimum: 1) summarize the results of the month's monitoring; 2) be provided in a Microsoft Excel spreadsheet format and include all data collected during the reporting period; 3) highlight any exceedances of water quality objectives; 4) highlight observed trends; 5) request any changes to the WQMP; and 6) report on any adaptive management measures taken and propose any additional or substitute adaptive management measures to address exceedances. Any proposal to modify, reduce, or discontinue monitoring and reporting shall be included in the reports with a request for Deputy Director approval and must include information to support the request. Such requests must also comply with Tribal Water Quality Standards (Condition 22). Modifications to the WQMP or additional or substitute

[24] River Mile (RM) refers to the distance, along the Klamath River, upstream from the mouth of the Klamath River at the Pacific Ocean.

adaptive management measures requested by the Licensee require Deputy Director approval prior to implementation.

As noted in the Sediment Load Quantification section above, at 15 months and 27 months following completion of drawdown activities, the Licensee shall submit the reports describing the status of sediment movement.

Based on monitoring results, the Deputy Director may require the Licensee to modify monitoring parameters, frequency, methods, duration, constituents, reporting, or other elements of the WQMP, or to implement additional adaptive management measures. The Licensee shall implement changes upon receiving Deputy Director and any other required approvals. The Licensee shall file the Deputy-Director-approved updates to the WQMP with FERC. The Licensee may integrate the reporting in this condition with other reporting requirements outlined in this water quality certification (certification).

Other Project-Related Monitoring

The WQMP shall identify other monitoring efforts the Licensee plans to conduct under other plans or aspects of the Project, which include, but are not limited to monitoring under the following conditions: Sediment Deposits (Condition 4); Public Water Supplies (Condition 8); Construction: General Permit Compliance, and Water Quality Monitoring and Protection Plans (Condition 10); Hatcheries (Condition 13); and Recreation Facilities (Condition 19).

The October 2022 California Water Quality Monitoring Plan and October 2022 Quality Assurance Project Plan submitted by the KRRC to the State Water Board on October 10, 2022, satisfy the plan requirements of this condition and are hereby approved with the following modification:

- The WQMP shall be modified to include a suspended sediment load quantification methodology: A minimum of six months prior to implementing drawdown activities, the Licensee shall submit to the Deputy Director for review and approval a methodology to quantify sediment export during and following reservoir drawdown using suspended sediment concentrations and flow measurements recorded at six USGS gage locations[25]. The Deputy Director may require modifications as part of any approval.

  Any changes to the sediment load quantification methodology shall be approved by the Deputy Director prior to implementation. The Deputy Director may require modification as part of any such approval. The Licensee shall file any Deputy Director-approved updates, along with any required modifications, with FERC. Upon receiving all necessary approvals, the Licensee shall implement the sediment load quantification methodology until otherwise approved by the Deputy Director in writing.

  Unless otherwise approved by the Deputy Director, the Licensee shall quantify and report suspended sediment loads in the monthly reports required by the

[25] Gage Nos. 11509500, 11510700, 11516530, 11520500, 11523000, and 11530500.

WQMP. The Deputy Director may require modifications to the suspended sediment load quantification methodology based on reporting information.

CONDITION 2. COMPLIANCE SCHEDULE

Project activities related to drawdown and the export of reservoir sediments into the Klamath River are anticipated to result in temporary exceedances of water quality objectives related to sediment. Temporary exceedance of a water quality objective is permissible for restoration projects with long-term benefits to water quality and beneficial uses. Pursuant to this certification, discharges to the Klamath River that exceed sediment-related water quality objectives can temporarily occur during and following reservoir drawdown, dam removal, and associated sediment flushing activities. The Licensee shall demonstrate that, in the long term, these Project activities attain all sediment-related water quality objectives listed in *the Water Quality Control Plan for the North Coast Region* (North Coast Basin Plan) as outlined in this condition. Implementation of this condition shall also serve to demonstrate compliance with North Coast Basin Plan prohibitions.

The Licensee shall monitor water quality consistent with Water Quality Monitoring and Adaptive Management (Condition 1) to assess attainment of water quality objectives listed in the North Coast Basin Plan. Within 36 months of beginning drawdown, unless otherwise approved by the Deputy Director in writing, the Licensee shall submit a report that documents: 1) Project attainment of sediment-related water quality objectives over a range of flows, including high winter flows and low summer flows; and 2) post-dam removal Klamath River water quality conditions following attenuation of impacts associated with drawdown and establishment of new riverine conditions.

The Licensee shall document changes in water quality following drawdown and assess trends in water quality parameters. The Licensee's report shall evaluate the Project's effects on all California portions of the Klamath River (i.e., from California/Oregon Stateline to Klamath Estuary), including attainment of: (i) numeric water quality objectives outlined in Table 1; and (ii) narrative water quality objectives in the North Coast Basin Plan. Outlier exceedances that are localized or isolated may be accepted if the Project is consistently in attainment with water quality standards. Localized or isolated exceedances may be addressed through adaptive management associated with Restoration (Condition 14) or other measures proposed by the Licensee. If data indicate that a water quality objective is exceeded and the Licensee believes the exceedance is not a result of Project activities, the Licensee shall provide information and support demonstrating that the exceedance is not related to Project activities. The Deputy Director will consider the information provided by the Licensee in evaluating the Licensee's attainment of water quality objectives.

Table 1: Minimum Parameters to Demonstrate Attainment of Numeric Water Quality Objectives

Parameter	Water Quality Objective*
Turbidity	Turbidity shall not be increased more than 20% above naturally occurring background levels.
pH	pH shall be between 7.0 (minimum) and 8.5 (maximum). Changes in normal ambient pH levels shall not exceed 0.2 units in waters designated marine or saline beneficial uses nor 0.5 units within the range specified above in fresh waters with designated COLD** or WARM***.
Dissolved Oxygen (percent saturation)	Stateline to the Scott River: • October 1 to March 31: 90% • April 1 to September 30: 85% Scott River to Hoopa: • All year: 90% saturation Downstream of Hoopa to Turwar: • June 1 to August 31: 85% • September 1 to May 31: 90% Upper and Middle Estuary: • September 1 to October 31: 85% • November 1 to May 31: 90% • June 1 to July 31: 85% • August 1 through August 31: 80%
Temperature	Elevated temperature waste discharges into COLD** interstate waters are prohibited. Thermal waste discharges having a maximum temperature greater than 5°Fahrenheit above natural receiving water temperature are prohibited. At no time or place shall the temperature of WARM*** intrastate water be increased more than 5° Fahrenheit above natural receiving water temperature.
Specific Conductance	Klamath River above Iron Gate Dam and including Iron Gate and Copco Reservoirs: • 275 micromhos (50% upper limit)****; and • 425 micromhos (90% upper limit)***** Middle Klamath River below Iron Gate Dam: • 275 micromhos (50% upper limit); and • 350 micromhos (90% upper limit) Lower Klamath River: • 200 micromhos (50% upper limit); and • 300 micromhos (90% upper limit)

* Naturally occurring background levels, for the purpose of numeric water quality objectives in Table 1, are defined as the post-dam-removal condition of the Klamath River with successful implementation of revegetation and bank stabilization. It does not include discharges from construction or restoration activities, including failures of vegetation and/or bank stabilization.
** COLD is defined as Cold Freshwater Habitat uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
*** WARM is defined as Warm Freshwater Habitat uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
**** 50% upper and lower limits represent the 50 percentile values of the monthly means for the calendar year. 50% or more of the monthly means must be less than or equal to an upper limit and greater than or equal to a lower limit.
***** 90% upper and lower limits represent the 90 percentile values of the monthly means for the calendar year. 90% or more of the monthly means must be less than or equal to an upper limit and greater than or equal to a lower limit.

At 32 months following the beginning of drawdown, the Licensee shall submit an assessment of whether Project activities are anticipated to result in exceedance of a water quality objective(s) beyond 36 months following the beginning of Project drawdown. The assessment shall be submitted to the Deputy Director and the Executive Officer of the North Coast Regional Board (Executive Officer), and consistent with Tribal Water Quality Standards (Condition 22). If the assessment indicates a high risk of continued exceedance beyond this timeline, the Licensee shall immediately commence consultation with staff from the State Water Board and North Coast Regional Board regarding the development of a report and compliance proposal for actions to address the anticipated exceedance(s). The report and proposal shall be submitted to the Deputy Director for review and approval no later than 35 months following the beginning of Project drawdown activities and shall at a minimum include:

- A summary of which water quality objective(s) and compliance location(s) continue to exceed a water quality objective(s);
- An explanation of why the water quality objective(s) continues to be exceeded in relation to Project activities;
- A description of Licensee actions taken to date to address the exceedance(s); and
- A proposal to address the water quality objective(s) exceedance and associated timeline for attainment of compliance with the water quality objective(s).

The Deputy Director may require modifications as part of any approval. The Licensee shall file the Deputy Director's approval, together with any required modifications, with FERC. The Licensee shall implement the compliance plan upon receiving Deputy Director and any other required approvals. Any changes to the compliance plan shall be approved by the Deputy Director prior to implementation.

If the Licensee is unable to demonstrate attainment of water quality objectives within 36 months of beginning Project drawdown activities, the Licensee shall notify the

Deputy Director and immediately begin implementation of the approved compliance proposal, or the approved portions of the proposal if the entire proposal has not yet been approved.

CONDITION 3. RESERVOIR DRAWDOWN

No later than six months following issuance of the FERC license surrender order, the Licensee shall prepare and submit a Reservoir Drawdown and Diversion Plan (Drawdown Plan) to the Executive Director of the State Water Board or the Deputy Director for review and approval.

At a minimum, the Drawdown Plan shall include:

(1) The material elements of the drawdown plan in the November 2020 Definite Decommissioning Plan filed with FERC;
(2) A description of the facilities that will be used to draw down the reservoirs;
(3) An updated flood frequency analysis and associated average flows;
(4) Anticipated drawdown rates for each reservoir. The drawdown rate for each reservoir shall be determined using best available science and consider any potential slope instability issues;
(5) Drawdown scenarios for different water years (e.g., wet, dry, etc.);
(6) Construction schedule, including anticipated schedule for drawdown, and each reservoir's anticipated drawdown start and end dates;
(7) Anticipated total (drawdown and inflow) and drawdown only discharge rates (cubic feet per second [cfs]) associated with each structure (e.g., spillways, diversion tunnels, outlets, etc.);
(8) Public notice of Project schedule and potential impacts, including but not limited to closure of reservoirs, recreation facilities, and impacts to water quality;
(9) Surface water elevation at which each reservoir is considered drawn down;
(10) A detailed description of all structures related to reservoir operations that are proposed to be removed during drawdown;
(11) Compliance with cofferdam requirements in this condition, and a detailed description of cofferdams or equivalent barriers that will be installed as part of drawdown that includes locations, timing and duration of installations, and other information related to how the installation and removal of cofferdams or equivalent barriers will be coordinated to limit impacts;
(12) A description of the coordination process with the United States Bureau of Reclamation, National Marine Fisheries Service (NMFS), and United States Fish and Wildlife Service (USFWS) for any potential operation changes to the Klamath Irrigation Project needed to implement the Project;
(13) Detail on how long Project powerhouses are anticipated to be operational during drawdown of the reservoirs;
(14) An overview of the sequence of drawdown activities for all four reservoirs, including a detailed sequence of how drawdown activities will be implemented at each reservoir; and
(15) A discussion of drawdown criteria, drawdown and diversion procedures, alternative drawdown procedures, drawdown monitoring plans, and drawdown implementation plans.

Construction areas in active streams shall use cofferdams, construction pads, or equivalent barriers to isolate construction areas from instream flows. Instream water shall be routed around the isolated construction area either by pipe or by isolating the stream in phases so that construction does not impede stream flow around the construction area. In addition, all dewatering pump intakes shall be screened to avoid potential impacts to fish and all bypass routes (e.g., pipelines, outlets, etc.) shall be properly removed or sealed upon completion of Project activities unless otherwise approved by the Deputy Director as part of review and approval of the Drawdown Plan. Any fish entrained by a Project cofferdam shall be safely relocated.

The Licensee shall notify the Deputy Director, in writing, within 24 hours of initiation and conclusion of drawdown activities at each reservoir. The Licensee shall notify the Deputy Director within 72 hours of knowledge that reservoir drawdown has the potential to be delayed or extended while still meeting the requirements outlined in this certification. The notification shall include the reason for the delay or extension and a proposed revised drawdown schedule that complies with this condition. The Deputy Director may require modifications to the proposed revised drawdown schedule.
Development of a proposed revised drawdown schedule shall include consultation with State Water Board staff.

The California Reservoir Drawdown and Diversion Plan, dated July 2022, submitted by the KRRC to the State Water Board on July 28, 2022, as amended by the KRRC's October 10, 2022, supplemental filing, satisfy the Drawdown Plan requirements of this condition and are hereby approved. The KRRC shall file the approved documents with FERC within 30 days of this certification amendment. Any future changes to the Drawdown Plan shall be approved by the Deputy Director prior to implementation. The Deputy Director may require modifications as part of any such approval. The Licensee shall file any such Deputy Director-approved updates to the Drawdown Plan, together with any required plan modifications, with FERC. The Licensee shall implement the Drawdown Plan upon receipt of all required approvals.

Pre-drawdown and drawdown activities described in the Drawdown Plan that could impact water quality (e.g., building the access construction pads below the spillway, dredging the low-level outlet tunnel approach channel at Copco 1, cleaning and exercising the Iron Gate diversion gate) shall be covered by a Deputy Director-approved site-specific water quality monitoring and protection plan(s) as defined in Condition 10 of this certification. The Licensee shall comply with Condition 10 requirements for construction-related pre-drawdown and drawdown work with the potential to impact water quality.

Removal of the Project facilities shall begin and be completed, to the extent feasible, during drawdown to minimize the duration of sediment releases, and to comply with the schedule set forth in the Compliance Schedule (Condition 2) of this certification.

Additionally, drawdown and dam deconstruction shall be conducted to ensure instream flow requirements[26] below Iron Gate Dam are maintained.

CONDITION 4. SEDIMENT DEPOSITS

Unless otherwise approved in writing by the Deputy Director, by no later than December of the second full calendar year following completion of drawdown activities, the Licensee shall assess and remediate (if appropriate) visibly obvious sediment deposits along the Klamath River from below Iron Gate Dam to the mouth of the Klamath Estuary that may have been deposited during reservoir drawdown activities. Assessment is limited to sediment deposits on parcels with a current or potential residential or agricultural (e.g., row crop) land use, for which the property owner has notified the KRRC of a potential sediment deposit that may be associated with reservoir drawdown activities.

Within 60 days of property owner notification, visibly obvious sediment deposits shall be assessed by the Licensee to determine if the deposits are consistent with physical sediment properties associated with Project reservoir sediments. Sediment deposits consistent with the physical sediment properties of Project reservoirs shall be tested for arsenic or remediated without testing per the requirements of this condition. If testing is performed, soil samples in the vicinity of the deposited sediments (e.g., from the adjacent riverbank and/or floodplain), shall also be tested for arsenic to determine the local background arsenic concentrations. No additional actions or remediation shall be required if the measured arsenic concentrations in the deposited sediments are less than or equal to measured local background soil concentrations for arsenic. If the concentration of arsenic in the deposited sediments on the river banks and floodplain of the Klamath River exceed local background levels and USEPA or California Environmental Protection Agency human health residential screening levels, the deposited sediments shall be remediated to local background levels through removal of the deposited sediments or soil capping, if sediment removal is infeasible or poses a greater risk than soil capping.

For Sediment Deposits that Require No Further Action. Within 30 days of a determination that a reported deposit does not require remediation, either because it is not consistent with reservoir sediment deposits or because sediment testing does not indicate a need for further action, the Licensee shall notify the property owner and submit a report to the Deputy Director. At a minimum, the report shall include the location of the reported deposit, a summary of actions taken, and support for the determination that no further action is needed. If sampling was performed, the report shall also include, at a minimum:

- Estimated quantity of the reported sediment deposit;

[26] The United States Bureau of Reclamation's (USBR) Klamath River Project must meet flows below Iron Gate Dam that are required under the Endangered Species Act Section 7(a)(2) Biological Opinion, and Magnuson-Stevens Fishery Conservation and Management Act essential fish habitat requirements. Drawdown shall not interfere with implementation of the required instream flow requirements that are current at this time.

- Arsenic testing method(s) used and the number, location, and depth of samples collected from the reported sediment deposit and surrounding soils (background); and

- Arsenic concentrations associated with each sample.

The Deputy Director may require additional testing, remediation, or other actions based on the report. The Licensee shall provide additional information upon request by the Deputy Director.

For Sediment Deposits that Require Further Action. Within 14 days following completion of the inspection of a reported sediment deposit that requires further action (including any associated sediment sampling results), the Licensee shall submit a Sediment Deposit Remediation Plan to the Deputy Director for review and approval. At a minimum, the Sediment Deposit Remediation Plan shall include:

- Estimated location and quantity of the reported sediment deposit;

- If testing was performed, the arsenic sediment testing methods used and the number, location, depth, and concentration associated with each sediment samples collected from the reported sediment deposit and surrounding soils (background); and

- Proposed remediation actions, including a schedule for remediation and any proposed post-remediation soil sampling. If soil capping is proposed, the Licensee shall provide documentation supporting why soil removal is infeasible or poses a greater risk than soil capping.

Within 30 days of completing remediation activities, the Licensee shall provide the property owner and Deputy Director with a report documenting completion of the remediation. At a minimum, the report shall include the location of the remediation, a summary of action(s) taken including the quantity of soil removed or area capped, and support for the determination that no further remediation is needed. Additionally, if post- remediation soil sampling was performed, the report shall include, at a minimum: arsenic soil testing method(s) used; the number, location, and depth of soil samples collected and their relation to the area remediated; and the associated arsenic soil concentrations.

The Deputy Director may require additional testing, remediation, or other actions based on the report. The Licensee shall provide additional information upon request by the Deputy Director.

The California Sediment Deposit Remediation Plan, dated July 2022, submitted by the KRRC to the State Water Board on July 14, 2022, as amended by the KRRC's October 10, 2022, supplemental filing establishes a framework that incorporates the general requirements of this condition. Any site-specific remediation needed to comply with this condition, as well as any changes to the California Sediment Deposit Remediation Plan, shall be submitted to the Deputy Director for review and approval as

an update to the California Sediment Deposit Remediation Plan. The Deputy Director may require modifications to the California Sediment Deposit Remediation Plan as part of any approval of such an update. The Licensee shall file any Deputy Director- approved updates, together with any required modifications, with FERC. The Licensee shall implement the California Sediment Deposit Remediation Plan upon receipt of all required approvals.

CONDITION 5. ANADROMOUS FISH PRESENCE

The purpose of fish presence surveys is to ensure that following Project implementation anadromous fish can volitionally access the Klamath River and its tributaries within and upstream of the California portion of the Hydroelectric Reach[27]. Accordingly, the Licensee shall conduct surveys to document anadromous fish presence and access to the tributaries and mainstem Klamath River.

No later than 24 months following issuance of a FERC license surrender order, the Licensee shall submit a Fish Presence Monitoring Plan (Fish Presence Plan) to the Executive Director of the State Water Board or the Deputy Director for review and approval. The Fish Presence Plan shall be developed in consultation with staff from the State Water Board, North Coast Regional Board, CDFW, and NMFS.

At a minimum, the Fish Presence Plan shall include: (1) a list of anadromous fish species covered by the plan; (2) California survey reaches; (3) timing, frequency, and duration of surveys; (4) survey methods; and (5) reporting. Additional information on the minimum requirements for each of these plan elements is provided below. Additionally, the Fish Presence Plan may include a discussion of how the information collected under Action 1 (Tributary-Mainstem Connectivity) of the Mainstem Spawning Aquatic Resources Measure (Condition 6) will be used to inform implementation of the Fish Presence Plan.

Fish Species: The Fish Presence Plan shall, at a minimum, include surveys for the following anadromous fish species: spring-run and fall-run Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*Oncorhynchus kisutch*), Pacific lamprey (*Entosphenus tridentatus*), and steelhead (*Oncorhynchus mykiss*).

California Survey Reaches: Unless otherwise approved by the Deputy Director in writing, the Licensee shall survey, in California, all tributaries with potentially viable anadromous fish habitat that have a confluence in the Hydroelectric Reach, as well as the mainstem Klamath River to the state line to determine if anadromous fish are present. Specific survey reaches of the mainstem Klamath River shall include areas upstream of the California Project reservoir footprints.

[27] The Hydroelectric Reach refers to the stretch of the Klamath River that begins at the confluence of J.C. Boyle Reservoir with the Klamath River and continues to the base of Iron Gate Dam, and includes both J.C. Boyle and Copco No. 2 bypass reaches, and tributaries in this reach such as Jenny Creek, Fall Creek, Spencer Creek, and Shovel Creek.

Timing, Frequency, and Duration: Fish presence surveys shall begin in the fall of the first year following the completion of drawdown. Fish presence surveys shall be conducted for at least four consecutive years and until otherwise approved or modified by the Deputy Director. The Licensee may request to reduce the duration or scope of surveys based on new information (e.g. survey results that substantiate either anadromous fish presence or lack of fish passage barriers related to Project implementation).

Survey Methods: The Licensee shall propose appropriate survey methods (e.g., carcass surveys, snorkel surveys, etc.) to evaluate anadromous fish presence. Information provided shall include: number of days required for surveys with approximate field crew size; equipment that will be used to assess fish presence; global positioning system (GPS) and map of survey areas; field documentation methods (e.g., data sheets, photo documentation); and survey timing. The results of tributary fish presence surveys may be used to determine the need for surveys of the mainstem Klamath River (e.g., anadromous fish present in tributaries above Copco No. 1 Reservoir footprint would indicate anadromous fish can access portions of the mainstem Klamath River below that point, eliminating the need for additional evaluation). A minimum of four weeks prior to conducting fish presence surveys, the Licensee shall notify staff from the State Water Board, North Coast Regional Board, CDFW, and NMFS so that agency staff may participate in the surveys, if desired.

Reporting: The Licensee shall report fish presence survey results annually to the Deputy Director.

Annual reports shall, at a minimum, include:

(1) A summary of the fish presence results; and
(2) An overall assessment of fish presence in the newly accessible Klamath River and tributaries. The Licensee shall consider fish return projections and observations (e.g., barrier) as part of the fish surveys in the reports.

Additionally, the fourth annual report shall, at a minimum, include:

(1) An analysis of whether any encountered fish passage impediment is Project- related; and
(2) Proposed actions to remedy any Project-related impediments to anadromous fish.

The Deputy Director may require the Licensee to submit proposed actions to address a fish passage impediment that the Deputy Director finds is Project-related. Prior to implementing any proposed actions, the Licensee shall receive approval from the Deputy Director. The Deputy Director may require modifications as part of any approval. The Licensee shall file the Deputy Director's approval, together with any required modifications, with FERC. The Licensee shall implement the action upon receipt of Deputy Director and any other required approvals.

The Fish Presence Monitoring Plan, dated August 2022, submitted by the KRRC to the State Water Board on August 11, 2022, as amended by the KRRC's October 10, 2022, supplemental filing satisfies the requirements of this condition and is hereby approved.

The KRRC shall file the approved documents with FERC within 30 days of this certification amendment. Any changes to the Fish Presence Monitoring Plan shall be approved by the Deputy Director prior to implementation. The Deputy Director may require modifications as part of any approval. The Licensee shall file any Deputy- Director-approved updates to the Fish Presence Monitoring Plan, together with any required plan modifications, with FERC. The Licensee shall implement the Fish Presence Monitoring Plan upon Deputy Director and any other required approvals.

CONDITION 6. AQUATIC RESOURCES

The Licensee shall implement the three Aquatic Resource (AR) measures outlined below and associated plans that are part of the Licensee's Aquatic Resources Management Plan, dated August 2022, as submitted to the State Water Board on August 3, 2022. The Deputy Director may approve, deny, or conditionally approve any changes to the AR Measures proposed by the Licensee.

Mainstem Spawning Aquatic Resource Measure

The Mainstem Spawning AR Measure includes two actions: 1) Tributary-Mainstem Connectivity; and 2) Spawning Habitat Evaluation.

Action 1: Tributary-Mainstem Connectivity. No later than six months following issuance of a FERC license surrender order and prior to Project implementation, the Licensee shall submit the Tributary-Mainstem Connectivity Plan to the Executive Director of the State Water Board or Deputy Director for review and approval. The Tributary-Mainstem Connectivity Plan shall be developed in consultation with staff from the State Water Board, North Coast Regional Board, ODEQ, NMFS, and CDFW.

The Tributary-Mainstem Connectivity Plan shall assess tributary confluences with the Klamath River for connectivity that provides coho salmon, Chinook salmon, steelhead, and Pacific lamprey passage. At a minimum, the Tributary-Mainstem Connectivity Plan shall include: proposed monitoring elements such as methods, timing, duration, frequency, and locations; and proposed reporting. The Tributary-Mainstem Connectivity Plan shall also include a framework to develop adaptive management measures that the Licensee may implement to remove Project-related obstructions to tributary connectivity and fish passage. The Tributary-Mainstem Connectivity Plan shall monitor and address tributary connectivity and fish passage in one tributary[28] in the Hydroelectric Reach and five tributaries from below Iron Gate to Cottonwood Creek.

The Tributary-Mainstem Connectivity Plan shall include monitoring for at least two years directly following the completion of drawdown activities, and within one month following

[28] Additional tributaries in the Hydroelectric Reach will be assessed for connectivity through implementation of the Reservoir Area Management Plan (Condition 14).

Connectivity assessment includes newly created stream channels that were previously inundated by Project reservoirs prior to drawdown.

a five-year flow event[29,30] unless it is unsafe for field crews, in which case monitoring shall be conducted as soon thereafter as safe conditions occur.

Reporting: The Licensee shall submit annual reports to the Deputy Director. Annual reports shall, at a minimum, include:

(1) A summary of monitoring results;
(2) An overall assessment of fish passage in the newly accessible Klamath River and tributaries; and
(3) A summary of tributary obstructions that limit fish passage and proposed remedial actions.

The Tributary-Mainstem Connectivity Plan, dated August 2022, as submitted by the KRRC for review and approval by the State Water Board on August 11, 2022, as amended by the KRRC's October 10, 2022, supplemental filing satisfies the requirements of this action and is hereby approved. The KRRC shall file the approved documents with FERC within 30 days of this certification amendment. Any changes to the Tributary-Mainstem Connectivity Plan shall be approved by the Deputy Director prior to implementation. The Deputy Director may require modifications as part of any approval. The Licensee shall file any Deputy Director-approved updates, along with any required modifications, with FERC. The Licensee shall implement any updates to the Tributary-Mainstem Connectivity Plan upon receipt of all required approvals.

Action 2: Spawning Habitat Evaluation. The Licensee shall implement spawning habitat. The Licensee shall develop a Spawning Habitat Availability Report and Plan (SHARP) that: (i) includes field surveys and remote sensing efforts to quantify available spawning habitat prior to and following drawdown in the Hydroelectric Reach and several tributaries[31]; (ii) summarizes the survey of newly-accessible anadromous fish spawning habitat; and (iii) includes potential actions that the Licensee may implement to augment spawning habitat in the mainstem Klamath River and its tributaries if needed. The SHARP shall be developed in consultation with staff from the State Water Board, North Coast Regional Board, CDFW, NMFS, USFWS, ODEQ, and Oregon Department of Fish and Wildlife. The SHARP shall be submitted to the Executive Director of the State Water Board or the Deputy Director for review and approval no later than December 31 of the year in which drawdown is completed.

---

[29] A 5-year flow event is 10,908 cfs as recorded at USGS gage no. 11516530 (below Iron Gate).
[30] A 5-year flow event may occur outside of the two years following completion of drawdown, in which case the monitoring described here would be required.
[31] Tributaries include Jenny Creek, Fall Creek, Shovel Creek, and Spencer Creek. If the spawning habitat tributary target of 4,700 square yards is achieved prior to surveying each tributary, tributary monitoring may be discontinued. If the spawning habitat tributary target is not met in the initial survey effort, additional tributaries that will be surveyed include Camp Creek, Scotch Creek, Dutch Creek, Deer Creek and/or Beaver Creek.

If it is necessary for the Licensee to take action to augment spawning habitat based on the results of the survey of spawning habitat (i.e., if the spawning habitat target metrics [i.e., tributary – 4,700 square yards, mainstem – 44,100 square yards] identified in Section 2 of the SHARP are not met), the Licensee shall update the SHARP to include the following elements for proposed actions to improve spawning habitat: 1) a detailed description of each proposed action; 2) locations of the proposed actions; 3) duration and timing (e.g., season) for implementation of the proposed actions; and 4) assessment of estimated spawning habitat benefits resulting from the proposed actions compared to the targets set forth in the SHARP. The Licensee shall evaluate a range of actions to meet the spawning targets identified in Section 2 of the SHARP. When spawning gravel augmentation is not appropriate[32], the Licensee shall evaluate and propose other actions to improve spawning and rearing habitat that meet the targets identified in Section 2 of the SHARP. Other actions may include: installation of large woody material, riparian planting for shade coverage, wetland construction or enhancement, and cattle exclusion fencing.

Reporting: The Licensee shall submit annual reports to the Deputy Director no later than April 1 of the following year for as long as the Licensee is conducting surveys or implementing spawning habitat improvement actions. Annual Reports shall, at a minimum, include:

(1) A summary of monitoring results; and
(2) A summary of the actions, if needed, implemented to improve spawning habitat.

The Spawning Habitat Availability Report and Plan, dated August 2022, as submitted for review and approval to the State Water Board on August 11, 2022, satisfies the requirements of this action and is hereby approved. The KRRC shall file the approved documents with FERC within 30 days of this certification amendment. Any changes to the SHARP shall be approved by the Deputy Director prior to implementation. The Deputy Director may require modifications as part of any approval. The Licensee shall file any Deputy Director-approved updates, along with any required modifications, with FERC. The Licensee shall implement any updates to the SHARP upon receipt of all required approvals.

Juvenile Outmigration Aquatic Resource Measure

The Juvenile Outmigration AR Measure includes three actions: 1) Mainstem Salvage of Overwintering Juvenile Salmonids; 2) Tributary-Mainstem Connectivity Monitoring; and 3) Rescue and Relocation of Juvenile Salmonids from Tributary Confluence Areas.

Action 1: Mainstem Salvage of Overwintering Juvenile Salmonids. Except as modified by this condition, the Licensee shall implement the overwintering juvenile salmonid salvage and relocation efforts described in Action 1 of the Outmigrating Juveniles AR Measure in the Lower Klamath Project Biological Opinion. The Licensee shall evaluate sites in the Klamath River between Iron Gate Dam (RM 192.9) and the Trinity River (RM 43.4) prior to reservoir drawdown to identify salvage locations based on the

[32] Gravel augmentation shall only be performed in the mainstem Klamath River, unless the Deputy Director-approved SHARP allows otherwise.

presence and relative abundance of juvenile coho salmon and the suitability of such sites for salvage. Site selection and salvage methods shall be developed in consultation with staff from CDFW, NMFS, State Water Board, and North Coast Regional Board, and implemented as approved by the Deputy Director. Prior to drawdown, the Licensee shall relocate juvenile coho salmon to off-channel ponds. A technical memorandum identifying target capture locations and methods of salvage of overwintering juvenile coho salmon shall be submitted to NMFS, CDFW, and the State Water Board at least six months prior to salvage.

Action 2: Tributary-Mainstem Connectivity Monitoring. The Licensee shall implement the Tributary-Mainstem Connectivity Plan approved under the Mainstem Spawning AR Measure section of this condition above.

Action 3: Rescue and Relocation of Juvenile Salmonids from Tributary Confluence Areas. No later than six months following issuance of the FERC license surrender order, the Licensee shall submit a Juvenile Salmonid and Pacific Lamprey Rescue and Relocation Plan (Juvenile Salmonid Plan) to the Executive Director of the State Water Board or the Deputy Director for review and approval. The Juvenile Salmonid Plan shall be developed in consultation with staff from the State Water Board, North Coast Regional Board, NMFS, and CDFW.

At a minimum, the Juvenile Salmonid Plan shall include:

(1) Methods that will be used to find and relocate juvenile salmonids;
(2) Potential relocation areas and/or criteria that will be used to identify potential relocation areas;
(3) Detailed description of water quality monitoring to be performed at each confluence of the Klamath River and the 13 tributaries[33] listed in Action 3 of the Juvenile Outmigration AR Measure. In addition, the plan shall include water quality triggers for implementation of juvenile salmonid relocation efforts. The Licensee shall perform the water quality monitoring required here consistent with the sampling methods and quality control procedures identified in the Deputy- Director-approved WQMP and its QAPP (Condition 1). The Licensee shall provide the proposed frequency, duration, and location of water quality monitoring that will be conducted under Action 3 of the Juvenile Outmigration AR Measure. The Licensee may use water quality monitoring results from implementation of the WQMP (Condition 1), as applicable. The plan shall identify what monitoring results from Condition 1 may be used under this action;
(4) Detailed description of proposed rescue efforts that includes: duration, method of rescue, locations for capture and relocation; and
(5) Reporting to the Deputy Director on implementation of Action 3 of the Juvenile Outmigration AR Measure within six months following implementation of rescue and relocation efforts. At a minimum, reporting shall include: a summary of the water quality data collected; any actions taken by the Licensee to rescue and

[33] The 13 tributaries are: Bogus Creek, Dry Creek, Cottonwood Creek, Shasta River, Humbug Creek, Beaver Creek, Horse Creek, Scott River, Tom Martin Creek, O'Neil Creek, Walker Creek, Grider Creek, and Seiad Creek.

relocate juvenile salmonids, including number of juvenile salmonids rescued (including age class), release location, and the success of such efforts.

The Juvenile Salmonid and Pacific Lamprey Rescue and Relocation Plan, dated August 2022, as submitted for review and approval to the State Water Board on August 11, 2022, satisfies the requirements of this action and is hereby approved. The KRRC shall file the approved documents with FERC within 30 days of this certification amendment. Any changes to the Juvenile Salmonid Plan shall be approved by the Deputy Director prior to implementation. The Deputy Director may require modifications as part of any approval. The Licensee shall file any Deputy Director-approved updates, along with any required modifications, with FERC. The Licensee shall implement any updates to the Juvenile Salmonid Plan upon receipt of all required approvals.

Suckers Aquatic Resource Measure

The Licensee shall implement the California AR-6 Adaptive Management Plan – Suckers (California Suckers Plan), dated August 2022, as submitted to the State Water Board on August 11, 2022. The KRRC shall file the approved documents with FERC within 30 days of this certification amendment. Any changes to the California Suckers Plan shall be approved by the Deputy Director prior to implementation. The Deputy Director may require modifications as part of any approval. The Licensee shall implement any updates to the California Suckers Plan upon Deputy Director and any other required approvals.

CONDITION 7. REMAINING FACILITIES

No later than six months following issuance of the FERC license surrender order, and prior to Project implementation, the Licensee shall submit a Remaining Facilities Plan to the Executive Director of the State Water Board or the Deputy Director for review and approval.

At a minimum, the Remaining Facilities Plan shall include:

(1) A list and description of all Project facilities and structures that will be retained during Project implementation[34], including but not limited to facilities buried in place;
(2) An analysis of potential water quality impacts associated with remaining facilities and operations, including hazardous materials or wastes present at the facilities and the potential for erosion or runoff to surface waters;
(3) Measures the Licensee will implement to ensure remaining facilities do not contribute to water quality impairments; and
(4) Provisions to ensure that any ongoing measures will be implemented when ownership of the facilities and/or responsibility for operations is transferred to another entity.

[34] While all remaining facilities shall be listed in the Remaining Facilities Plan, it is not necessary to include a description and other information for recreational facilities addressed under Recreation Facilities (Condition 19) and hatcheries addressed under Hatcheries (Condition 13).

The Remaining Facilities Plan, dated December 2021, submitted to FERC on December 14, 2021, and submitted to the State Water Board for review and approval July 7, 2022, satisfies the requirements of this condition and is hereby approved. The KRRC shall file the approved documents with FERC within 30 days of this certification amendment. Any changes to the Remaining Facilities Plan shall be approved by the Deputy Director prior to implementation. The Deputy Director may require modifications as part of any such approval. The Licensee shall file any Deputy Director-approved updates, along with any required modifications, with FERC. The Licensee shall implement any updates to the Remaining Facilities Plan upon receipt of all required approvals.

CONDITION 8. PUBLIC DRINKING WATER SUPPLIES

This condition outlines provisions to ensure protection of public drinking water supplies that may be impacted by Project implementation, including drinking water supplies sourced from the Klamath River and the City of Yreka's water supply. The provisions for each of these types of water supplies are provided below.

Drinking Water Supplies Sourced from the Klamath River. No later than three months following issuance of the FERC license surrender order, and prior to Project implementation, the Licensee shall consult with community water systems, transient non-community water systems, or other drinking water providers that use Klamath River surface water for drinking water to identify appropriate measures to reduce water supply impacts associated with Project implementation. The Licensee shall ensure that Project implementation does not result in service of water that fails to meet drinking water quality standards. Potential measures shall include, as appropriate: (1) providing an alternative potable water supply; (2) providing technical assistance to assess whether existing treatment is adequate to treat the potential increase in sediments and sediment-associated contaminants to meet drinking water standards; (3) providing water treatment assistance to adequately treat Klamath River water to minimize suspended sediments and associated constituents that may impact human health; (4) ensuring that transient, non-community supplies are temporarily shut off for drinking; and/or (5) ensuring that water not intended for drinking is clearly marked as non- potable.

At least six months prior to initiating drawdown, the Licensee shall submit the California Public Drinking Water Management Plan to the Executive Director of the State Water Board or the Deputy Director for review and approval. The California Public Drinking Water Management Plan shall: (i) identify all drinking water supplies sourced from the Klamath River that may be impacted by the Project; and (ii) detail~~s~~ measures the Licensee will implement to protect each potentially affected water supply and why such measures are sufficient to protect the drinking water supplies. The Licensee shall implement the measures sufficiently prior to, during, and following the reservoir sediment releases to ensure protection of water supplies. The Deputy Director may require modifications or additional measures. The Licensee shall provide the Deputy Director with a summary of its implementation of this provision within three months of concluding implementation of the measures.

City of Yreka's Water Supply. Prior to initiating drawdown of Project reservoirs, the Licensee shall either temporarily or permanently reroute the existing City of Yreka water supply pipeline across the Daggett Road Bridge. The Licensee shall coordinate with the City of Yreka to provide an uninterrupted water supply during replacement, and the estimated water delivery outage timeframe shall be agreed upon between the City of Yreka and Licensee prior to construction, consistent with the California Public Drinking Water Management Plan. The new replacement pipeline section shall be connected to the existing City of Yreka water supply pipeline and installed in a location that prevents Klamath River flows during and after drawdown from affecting the City of Yreka's water supply.

Any work the Licensee undertakes to ensure that the City of Yreka water supply intake structures comply with fish screen criteria shall be completed within the water delivery outage period specified in this condition. Installation of a fish barrier that does not impact the City of Yreka's water supply and associated intake structures may be performed at an alternate time outside of the water delivery outage period.

Except as provided in this condition, the Licensee shall ensure uninterrupted water supply during replacement of the water pipeline section, any required intake structure modifications, and throughout Project implementation. A short water delivery outage is necessary to make the final connections following construction of the new pipeline. The Licensee shall limit the water delivery outage to a maximum of 12 hours or another water delivery outage timeframe agreed upon between the City of Yreka and the Licensee. The Licensee shall coordinate the water delivery outage period with the City of Yreka to ensure the City of Yreka has an adequate supply of water stored to cover the maximum water delivery outage period.

Water pipeline and intake work shall not cause impacts to water quality that exceed North Coast Basin Plan standards. If the Licensee proposes any in-water work, the Licensee shall prepare a water quality monitoring and protection plan in compliance with Condition 10 of this certification for Deputy Director review and approval.

The California Public Drinking Water Management Plan submitted to FERC on December 14, 2021, and submitted to the State Water Board on July 7, 2022, as amended by the KRRC's October 10, 2022, supplemental filing satisfies the requirements of this condition and is hereby approved. The KRRC shall file the approved documents with FERC within 30 days of this certification amendment. Any changes to the California Public Drinking Water Management Plan shall be approved by the Deputy Director prior to implementation. The Deputy Director may require modifications as part of any such approval. The Licensee shall file any Deputy Director- approved updates, along with any required modifications, with FERC. The Licensee shall implement any updates to the California Public Drinking Water Management Plan upon Deputy Director and any other required approvals.

CONDITION 9. AQUATIC VEGETATION MANAGEMENT

In the event chemical vegetation control is proposed to control algae or aquatic weeds, the Licensee shall consult with staff from the United States Army Corps of Engineers (USACE), CDFW, North Coast Regional Board, and State Water Board and submit a

proposal to the Deputy Director for review and approval. The proposal shall include: (1) the Licensee's plans to implement chemical vegetation management, including any public noticing or additional measures proposed beyond those required in this certification; (2) the timeline for the application of chemicals and any potential impacts to beneficial uses of water, including Native American culture uses; (3) comments and recommendations made in connection with the consultation and how they were incorporated into the proposal; and (4) a description of how the proposal incorporates or addresses use of glyphosate in an aquatic formulation, avoidance of glyphosate formulations containing the surfactants POEA or R-11, and prohibition of application if precipitation is predicted within 24 hours of intended use. If another herbicide is selected for use, it shall meet the characteristics of low soil mobility and low toxicity to fish and aquatic organisms and shall be applied using low use rates (i.e., spot treatments), avoidance of application in the rain, avoidance of treatments during periods when fish are in life stages most sensitive to the herbicide(s) used, and adherence to appropriate buffer zones around stream channels as specified in Bureau of Land Management 2010[35].

The Deputy Director may approve, deny, or require modifications of the proposal. The Licensee shall file any Deputy-Director-approved proposal, together with any required proposal modifications, with FERC. The Licensee shall implement the proposal upon Deputy Director and any other required approvals. Any changes to the proposal shall be approved by the Deputy Director prior to implementation.

At a minimum, the Licensee shall comply with the terms in State Water Board Order No. 2013-0002-DWQ (as amended by Orders 2014-0078-DWQ, 2015-0029-DWQ, 2016-073-EXEC, 2017-0015-EXEC, and 2020-0037-EXEC, and any amendments thereto), National Pollutant Discharge Elimination System (NPDES) No. CAG990005, *Statewide National Pollutant Discharge Elimination System Permit for Residual Aquatic Pesticide Discharges to Water of the United States from Algae and Aquatic Weed Control Applications* and any amendments thereto.

CONDITION 10. CONSTRUCTION GENERAL PERMIT COMPLIANCE AND WATER QUALITY MONITORING AND PROTECTION PLANS

The Licensee shall comply with the terms and conditions in the State Water Board's *National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit; State Water Board Order 2009-0009-DWQ, as amended by State Water Board Orders 2010-0014-DWQ, 2012-0006-DWQ, and 2022-0057- DWQ, as applicable), and ongoing amendments during the life of the Project.

For any ground-disturbing activities that could impact water quality (including beneficial uses) that are neither addressed by the Construction General Permit nor addressed in other conditions of this certification (e.g., Reservoir Drawdown [Condition 3], Hatcheries

[35] Bureau of Land Management (BLM). 2010. Final environmental impact statement. Vegetation treatments using herbicides on BLM lands in Oregon. Volume 2- Appendices. FES 10-23 BLM/OR/WA/AE-10/077+1792. Prepared by BLM, Pacific Northwest Region, Portland, Oregon.

[Condition 13], and Restoration [Condition 14]) site-specific water quality monitoring and protection plans shall be prepared and implemented following Deputy Director approval. Activities for which site-specific water quality monitoring and protection plans shall be prepared include, but are not limited to, Ward's Canyon-related work (Condition 19) and other pre-drawdown and drawdown construction-related work (Condition 3). Prior to construction or other activity that could impact water quality or beneficial uses, the Licensee shall submit the water quality monitoring and protection plan to the Deputy Director for review and approval. The Deputy Director may require modifications as part of any approval. The Licensee shall file the Deputy Director's approval, together with any required modifications, with FERC. The Licensee shall implement site-specific water quality monitoring and protection plans upon receipt of Deputy Director and any other required approvals.

Any water quality monitoring and protection plans shall include measures to control erosion, stream sedimentation, dust, and soil mass movement. The plans shall be based on actual-site geologic, soil, and groundwater conditions and at a minimum include:

(1) Description of site conditions and the proposed activity;
(2) Detailed descriptions, design drawings, and specific topographic locations of all control measures in relation to the proposed activity, which may include:
    a. Measures to divert runoff away from disturbed land surfaces;
    b. Measures to collect and filter runoff from disturbed land surfaces, including sediment ponds at the sites; and
    c. Measures to dissipate energy and prevent erosion;
(3) Revegetation of disturbed areas using native plants and locally-sourced plants and seeds; and
(4) A monitoring, maintenance, and reporting schedule.

A minimum of three weeks prior to the start of ground-disturbing construction activities, unless an alternate timeframe is approved by the Deputy Director, the Licensee shall submit a California Erosion and Sediment Control Plan to the Deputy Director for review and approval. The Deputy Director may require modifications as part of any approval. The California Erosion and Sediment Control Plan shall be developed in consultation with the State Water Board, North Coast Regional Board, and appropriate Tribes and identify any additional erosion and sediment control best management practices (BMPs) beyond those required by Condition 10 (e.g., Construction General Permit) that the Licensee will use to minimize pollution from sediment erosion caused from Project implementation. The Licensee shall file the Deputy Director's approval, together with any required modifications, with FERC. The Licensee shall implement the California Erosion and Sediment Control Plan upon receipt of Deputy Director and any other required approvals. Any changes to the California Erosion and Sediment Control Plan shall be approved by the Deputy Director prior to implementation. Potential ~~best management practices (~~BMPs) include those ~~i~~identified in the Licensee's November 2020 Definite Decommissioning Plan, *Water Quality Management for Forest System Lands in California –Best Management Practices* (USFS 2012), California Department

of Transportation's May 2017 *Construction Site Best Management Practices (BMP) Manual* (Caltrans BMP Manual) (Caltrans 2017), or other appropriate documents.

CONDITION 11. WASTE DISPOSAL

No later than six months following issuance of the FERC license surrender order, the Licensee shall submit a Waste Disposal Plan to the Executive Director of the State Water Board or the Deputy Director for review and approval. The Waste Disposal Plan shall describe how the Licensee will manage and dispose of all non-hazardous wastes[36] generated as part of the Project in a manner protective of water quality. The Waste Disposal Plan shall be developed in consultation with staff from the North Coast Regional Board and State Water Board.

At a minimum, the Waste Disposal Plan shall include:

(1) The elements of the waste disposal description presented in the November 2020 Definite Decommissioning Plan filed with FERC, that influence water quality, and as updated based on the requirements presented in this condition;
(2) An estimate of the quantity and nature of anticipated waste generated by dam removal and other Project decommissioning activities and a description of where all materials and debris will be disposed;
(3) A detailed description of on-site disposal, including the proposed locations and associated size of sites;
(4) Erosion control measures for on-site disposal activities; and
(5) A proposal to restore on-site disposal sites in accordance with the Construction General Permit and stormwater pollution and prevention plans (consistent with Condition 10 of this certification), including monitoring, reporting, and follow up actions (if needed) to ensure the long-term stability of the restored disposal site and protection of water quality.

On-site disposal of inert, non-hazardous debris resulting from dam removal and other Project decommissioning activities may be buried at disposal sites identified in the Waste Disposal Plan. With exception of the J.C. Boyle scour hole and powerhouse tailrace disposal sites identified in the November 2020 Definite Decommissioning Plan, the Licensee shall ensure that the disposal sites are above the ordinary high-water mark (OHWM) and in a location that does not drain directly to surface waters. The Licensee shall select disposal site locations where drainage patterns can be preserved. If a waste disposal site has the potential to drain into surface waters, catch basins shall be constructed whenever feasible[37] and other appropriate BMPs from the Caltrans BMP Manual shall be implemented, to intercept runoff before it reaches surface waters.

[36] Management of hazardous materials is covered in Hazardous Materials Management (Condition 12).
[37] The Licensee shall provide justification for any determination that a catch basin is infeasible at a disposal site with the potential to drain into surface water. Additionally, the Licensee shall provide support for why other appropriate BMPs from the Caltrans Manual are sufficient to protect water quality and beneficial uses.

On-site disposal areas that will remain uncovered through the rainy season (between October 16 and May 14) shall be protected with appropriate BMPs from the Caltrans BMP Manual to prevent erosion or as otherwise allowed under Condition 10 of this certification. Reinforced steel and other recyclable materials should be recycled, when feasible, at local recycling facilities. Excavated embankment material may be used as topsoil to cover on-site disposal areas prior to grading and being sloped for drainage. Concrete rubble resulting from demolition of the powerhouses may be buried in the existing tailrace channel. All mechanical and electrical equipment shall be hauled to a suitable commercial landfill or salvage collection point. Prior to Project completion, all on-site disposal locations shall be graded and stabilized to reduce the potential for erosion.

The California Waste Disposal Plan, dated December 2021, submitted by the KRRC to the State Water Board on July 7, 2022, as amended by the KRRC's October 10, 2022 supplemental filing, satisfies the plan requirements of this condition and are hereby approved. The KRRC shall file the approved documents with FERC within 30 days of this certification amendment. Any changes to the Waste Disposal Plan shall be approved by the Deputy Director prior to implementation. The Deputy Director may require modifications as part of any such approval. The Licensee shall file any Deputy Director-approved updates, along with any required modifications, with FERC. The Licensee shall implement the Waste Disposal Plan upon receiving all required approvals.

CONDITION 12. HAZARDOUS MATERIALS MANAGEMENT

No later than six months following issuance of the FERC license surrender order, the Licensee shall submit a Hazardous Materials Management Plan to the Executive Director of the State Water Board or the Deputy Director for review and approval. The Hazardous Materials Management Plan shall be developed in coordination with State Water Board staff. The Hazardous Materials Management Plan shall include the following: (a) proper disposal or abatement of hazardous materials and wastes that are encountered as part of decommissioning activities (e.g., asbestos tiles or building materials, batteries, etc.); (b) proper storage, containment, and response to spills of hazardous materials and wastes that are part of Project implementation (e.g., gasoline and diesel for vehicles, oil and other fluids for construction equipment, etc.); and (c) proper removal and disposal of septic tanks. At a minimum, the Hazardous Materials Management Plan shall include the requirements presented in this condition and:

(1) The elements of the hazardous materials management description presented in the November 2020 Definite Decommissioning Plan;
(2) A list with contact information of federal, state, and local officials the Licensee will contact to respond in the event of a hazardous materials spill. The list and contact information shall be maintained and updated by the Licensee. In the event of a hazardous materials spill, at a minimum, the Licensee shall immediately inform the California Emergency Management Agency, CDFW, North Coast Regional Board, and the State Water Board staff of the magnitude, nature, time, date, location, and action taken for the spill;

(3) An inventory of hazardous materials and wastes at each facility and the plan for final disposition of the hazardous materials and wastes;
(4) Description of hazardous materials storage, spill prevention, and cleanup measures, including the deployment and maintenance of spill cleanup materials and equipment at each facility/site to contain any spill from Project activities. Onsite containment for storage of chemicals classified as hazardous shall be away from watercourses and include secondary containment; and
(5) Testing, monitoring, and reporting that will be implemented if a spill occurs to ensure water quality is not affected.

For structures being removed, the Licensee shall inspect each structure prior to removal for hazardous materials (e.g. asbestos-containing material, lead-based paint, and polychlorinated biphenyls [PCBs]) and perform any necessary sampling or testing when inspection alone does not provide sufficient information to determine whether the material is hazardous. Any material with asbestos, lead, PCBs, or other hazardous waste shall be handled and disposed of as hazardous waste at approved hazardous waste facilities in accordance with applicable waste management regulations. Other deconstruction materials shall be disposed of as non-hazardous waste in accordance with Waste Disposal (Condition 11) provisions of this certification.

All hazardous materials removed from inside existing structures during Project implementation (e.g., paints, oils, and welding gases) shall be either returned to the vendor, recycled, or managed and disposed of as hazardous waste at an approved hazardous waste facility in accordance with applicable federal and state regulations. Transformer oils shall be tested for PCBs if no data exist. Any tanks that contained hazardous materials shall be decontaminated prior to disposal. Universal hazardous waste (e.g., lighting ballasts, mercury switches, and batteries) shall be handled in accordance with applicable federal and state universal waste regulations.

Existing septic tanks associated with Project facilities shall be decommissioned in place or removed and disposed of in accordance with the corrective action requirements specified in the State Water Board's *Water Quality Control Policy for Siting, Design, Operation and Maintenance of Onsite Wastewater Treatment Systems* (OWTS Policy)[38~~35~~] (State Water Board 2012).

The California Hazardous Materials Management Plan, dated December 2021, submitted by the KRRC to the State Water Board on July 7, 2022, as amended by the KRRC's October 10, 2022 supplemental filing, satisfies the plan requirements of this condition and are hereby approved. The KRRC shall file the approved documents with FERC within 30 days of this certification amendment. Any changes to the Hazardous Materials Management Plan shall be approved by the Deputy Director prior to implementation. The Deputy Director may require modifications as part of any such

[38~~35~~] The OWTS Policy was adopted by the State Water Board on June 19, 2012 per Resolution No. 2012-0032; it was approved by the Office of Administrative Law on November 13, 2012; and consistent with OWTS Policy section 13.0, became effective on May 13, 2013. On April 17, 2018, per Resolution No. 2018-0019, the State Water Board amended the OWTS Policy renewed its conditional waiver.

approval. The Licensee shall file any Deputy Director-approved updates, along with any required modifications, with FERC. The Licensee shall implement the Hazardous Materials Management Plan upon receiving all required approvals.

CONDITION 13. HATCHERIES

No later than six months following issuance of a FERC license surrender order, the Licensee shall submit a Hatcheries Management and Operations Plan (Hatcheries Plan) to the Executive Director of the State Water Board or the Deputy Director for review and approval. The Hatcheries Plan shall be developed in consultation with staff from the State Water Board, North Coast Regional Board, CDFW, and NMFS. At a minimum, the Hatcheries Plan shall include:

(1) Annual fish production goals that include the target production numbers by species and life stage;
(2) Identification of water supplies that will be used to operate ~~the Iron Gate and~~ Fall Creek Hatchery including: location; anticipated diversion rates (cfs) and total diversion amounts (annual and monthly); minimum amount of flow that will be bypassed below the diversions to provide volitional fish passage; and summaries of and compliance with any water right requirements associated with water diversions;
(3) Implementation actions for protection of hatchery and natural fish populations (as impacted by hatchery operations) in the event water supply to Fall Creek Hatchery is unavailable due to drought or other limitations;
(4) The proposed construction BMPs for ground-disturbing activities associated with construction of the hatchery, including establishment of a 20-foot buffer around delineated wetlands, unless site-specific conditions require adjustment of the buffer in a manner that remains protective of delineated wetlands and is acceptable to a qualified and approved biologist. Construction associated with these activities shall be subject to the BMPs required under the Construction General Permit;
(5) Expected duration of the hatchery's operation~~s~~; and
(6) Reporting details, such as the amount of water diverted ~~at each hatchery~~, bypass flows, and reporting requirements under the NPDES permit.

Prior to operation of the Fall Creek Hatchery, the Licensee shall ensure that it has obtained coverage under and complies with a NPDES permit issued by the North Coast Regional Board. If the closure of Fall Creek Hatchery is anticipated while the license surrender order is still in effect, the Hatchery Plan shall be updated to include the proposal for decommissioning of the facilities.

The Hatcheries Management and Operations Plan dated July 2020 and submitted by the KRRC to the State Water Board on July 14, 2022, as amended by the KRRC's October 10, 2022, supplemental filing satisfies the plan requirements of this condition with the modification outlined below. The KRRC shall file the approved documents with FERC within 30 days of this certification amendment.

- The Licensee shall ensure that the appropriate water right reports under California Code of Regulation, title 23, section 929, or the appropriate statements of diversion and use for diversion under riparian or pre-1914 water rights under

Water Code section 5101 are filed with the State Water Board for water diversions used for hatchery operations.

Any changes to the Hatcheries Plan with the potential to increase impacts to water quality shall be approved by the Deputy Director prior to implementation. The Deputy Director may require modifications as part of any such approval. The Licensee shall file any Deputy Director-approved updates, along with any required modifications, with FERC. The Licensee shall implement the Hatcheries Plan upon receipt of all required approvals.

CONDITION 14. RESTORATION

No later than six months following issuance of the FERC license surrender order, and prior to initiation of drawdown activities, the Licensee shall submit a Reservoir Area Management Plan (Restoration Plan) to the Executive Director of the State Water Board or the Deputy Director for review and approval. The Restoration Plan shall be developed in consultation with staff from the North Coast Regional Board, State Water Board, and CDFW. At a minimum, the Restoration Plan shall include:

(1) Detailed description of proposed restoration activities (e.g., grading, planting, swales, wetland construction, etc.). The description of proposed restoration activities shall include associated water quality protection measures the Licensee will implement as part of restoration;
(2) Preliminary maps of proposed restoration activities that identify~~ing~~ proposed locations for restoration activities. The preliminary map shall be updated within six months following drawdown, as necessary. The preliminary maps shall: identify areas of grading, water runoff control measures, planting, seeding, mulching, and irrigation areas. Preliminary maps should include final limits of work zones, delineated wetlands within areas of proposed disturbance, the reservoir footprints, the J.C. Boyle Power Canal and scour hole, and all areas of temporary disturbance where revegetation activities would occur;
(3) Exclusive use of native plants, with preference for plants that promote soil stabilization;
(4) Description and results of the Licensee's evaluation of the presence of wetlands that could be affected by the Project, including wetlands in the potential disposal areas;
(5) Description of measures the Licensee will implement to ensure no net loss of wetland and riparian habitat. Measures shall include establishment of a minimum 20-foot buffer around all non-reservoir dependent, delineated wetlands potentially affected by construction impacts (unless site-specific conditions require adjustment of the buffer in a manner that remains protective of non-reservoir dependent, delineated wetlands and is acceptable to a qualified and approved biologist) to deter heavy machinery from traversing the wetland and prevent runoff pollution associated with Project activities from directly entering the non-reservoir dependent wetlands. (For reference, non-reservoir dependent wetlands refers to wetlands that are not anticipated to be impacted by drawdown and their primary hydrological sources are the Klamath River, a stream or seep, and/or precipitation.);

(6) Description of how the Licensee will ensure floodplain connectively within the reservoir footprint;
(7) Description of how the Licensee will monitor for and address any invasive weeds in the restored area;
(8) Plan for installation of large woody material in the Hydroelectric Reach in California that includes:
    a. Number or volume of large woody material to be installed;
    b. Consistency with practices in *California Salmonid Stream Habitat Restoration Manual* (CDFG 2010) or guidance provided through consultation with staff from CDFW, NMFS, North Coast Regional Board, and State Water Board; and
    c. Timeline for placement of large woody material;
(9) Monitoring and reporting on the implementation of the Restoration Plan, including adaptive management measures that will be implemented over time to ensure successful restoration (e.g., measures to address the loss of newly planted vegetation, soil instability[39], etc.). Monitoring shall occur frequently enough to determine whether plantings are successful and to facilitate implementation of adaptive measures (e.g., supplemental irrigation, re-seeding, changes in plant types) to ensure rapid establishment of vegetation; and
(10) Confirmation that water pumps used for irrigation are screened to prevent fish injury or entrainment.

Within six months of concluding drawdown activities, and annually thereafter until otherwise directed by the Deputy Director, the Licensee shall provide a report to the Deputy Director documenting implementation of the Restoration Plan, including highlights of any problems encountered and adaptive management measures deployed or proposed to address the problems. The Licensee shall provide additional reports or information related to implementation of the Restoration Plan if requested by the Deputy Director.

The Reservoir Area Management Plan, dated August 2022, as submitted by the KRRC to the State Water Board on August 11, 2022, as amended by the KRRC's October 10, 2022 supplemental filing, satisfy the plan requirements of this condition and are hereby approved with the modification noted below. The KRRC shall file the approved documents with FERC within 30 days of this certification amendment.

- A minimum of six months prior to reservoir drawdown, the Licensee shall submit a Cold-Water Report to the Deputy Director for review and approval that includes: (1) identification of potential cool-water areas in the Klamath River from the upper end of J.C. Boyle Reservoir to Cottonwood Creek; and (2) methods for monitoring and analysis of the cold-water area, triggers that would guide implementation of adaptive management measures if necessary, and a schedule for monitoring, analysis, and reporting of cold-water areas. The Deputy Director may require modifications as part of any approval. The Licensee shall file the Deputy Director-approved Cold-Water Report, together with any required

[39] Adaptive management measures for soil stabilization may refer to the Slope Stability Monitoring Plan required in Slope Stability (Condition 18).

modifications, with FERC. Any changes to Cold-Water Report shall be approved by the Deputy Director prior to implementation. Upon receiving all necessary approvals, the Licensee shall implement the Cold-Water Report for the duration of the license surrender order or until otherwise approved by the Deputy Director.

Any changes to the Restoration Plan, including changes to the final reservoir restoration designs, shall be approved by the Deputy Director prior to implementation. The Deputy Director may require modifications as part of any such approval. The Licensee shall file any Deputy Director-approved updates, along with any required modifications, with FERC. The Licensee shall implement the updates to the Restoration Plan upon receipt of all required approvals.

CONDITION 15. WATER SUPPLY MONITORING AND MANAGEMENT

The Licensee shall implement the following measures to protect water supply and beneficial uses. The Licensee shall annually prepare, and submit to the Deputy Director, a Water Supply Management Report that includes the elements described below. The Deputy Director may require implementation of additional adaptive management measures informed by the report and associated monitoring results.

Surface Water Diversions: The Licensee shall identify all points of diversion on the Klamath River listed in the Electronic Water Rights Information Management System (eWRIMS). The Licensee shall contact all California water rights holders with points of diversion on the Klamath River to determine whether the water right holder is interested in working with the Licensee to evaluate potential Project impacts to the water right holder. If potential impacts are identified and if the water right holder is interested in working with the Licensee, the Licensee shall provide temporary accommodations (e.g., replacement water, settling basins, etc.) to address potential impacts. Following dam removal, the Licensee shall investigate any impacts reported by a diverter. If the investigation confirms an adverse impact has occurred as a result of dam removal, the Licensee shall implement measures to reduce impacts and allow the water right holder to divert water in the same manner (e.g., amounts, suitable quality, and timing) as before dam removal.

The year prior to and annually for the first two years following drawdown, the Licensee shall submit a Water Supply Management Report to the Deputy Director on implementation of the surface water supply activities described above. At a minimum, the report shall include: a map showing the location of potentially affected points of diversion; a description of the potential adverse effects; a description of proposed/implemented mitigation measures; and the number of water right holders who agreed to work with the Licensee to address potential water supply issues.

Groundwater: To determine Project effects on surrounding groundwater wells, the Licensee shall, within a 1,000-foot range of the reservoirs' OHWM, monitor groundwater levels before, during, and after drawing down the reservoirs. To identify groundwater wells, the Licensee shall outreach to all residents and landowners within 1,000 feet of the California Project reservoirs to inquire about their groundwater wells. The outreach effort shall include information regarding the Local Impact Mitigation Fund, including information on any prerequisites to access the fund (e.g., if funding is dependent on

participation in the groundwater monitoring effort). At least two months prior to commencing drawdown activities, the Licensee shall monitor groundwater levels at all available locations or up to 10 locations, whichever is less, within 1,000 feet of the California reservoirs dispersed throughout the Hydroelectric Reach in California. The Licensee may begin groundwater elevation monitoring earlier, in order to integrate observations of natural seasonal fluctuations in groundwater elevation into the impact analysis.

The Licensee shall continue to monitor groundwater levels, at least monthly, until otherwise approved by the Deputy Director and for a term of at least two years following completion of drawdown of Copco No. 1 and Iron Gate Reservoirs. Monitoring may occur at groundwater wells of landowners or residents with wells located within 1,000 feet of the California Project reservoirs who volunteer to allow testing or at other groundwater monitoring wells around the California Project reservoirs. Potential groundwater monitoring locations and measures to address potential water supply impacts are identified in the California Water Supply Management Plan, dated July 2022. The Licensee shall provide the Deputy Director with the locations of groundwater wells that will be monitored per this condition, and the Deputy Director may require additional monitoring on lands under the control of the Licensee if the locations chosen do not provide sufficient information on potential impacts to groundwater levels. The Licensee shall submit an annual Groundwater Report to the Deputy Director, for a minimum of two years directly following completion of drawdown. Monitoring duration may be adjusted based on groundwater levels reported in the annual Groundwater Report, and as approved by the Deputy Director. At a minimum, the annual Water Supply Management Report shall include a section on groundwater that:

- Documents groundwater level monitoring results;
- Highlights any trends or significant changes in groundwater levels; and
- Summarizes actions the Licensee has or will implement to address any impacts to groundwater supply associated with Project implementation. Actions implemented by the Licensee shall ensure disruptions in groundwater supply determined to be a result of the Project are limited. Actions shall include, but are not limited to, providing temporary water until Project impacts are adequately addressed.

The California Water Supply Management Plan, dated July 2022, as submitted by the KRRC to the State Water Board on July 14, 2022, for review and approval, as amended by the KRRC's October 10, 2022, supplemental filing, satisfy the requirements of this condition and are hereby approved. The KRRC shall file the approved documents with FERC within 30 days of this certification amendment. The Licensee shall implement the California Water Supply Management Plan upon receipt of all required approvals. Any changes to the California Water Supply Management Plan shall be approved by the Deputy Director prior to implementation. The Deputy Director may require modifications as part of any such approval. The Licensee shall file any Deputy Director-approved updates, along with any required modifications, with FERC. The Licensee shall implement the updates to the California Water Supply Management Plan upon receipt of all required approvals.

Fire Protection: The Licensee shall submit a Fire Management Plan to the Executive Director of the State Water Board or Deputy Director for review and approval prior to its implementation. The Fire Management Plan shall include a list and map of locations where fire trucks and/or helicopters may access the Klamath River and its tributaries for residential fire protection efforts in the Hydroelectric Reach.

The Fire Management Plan, dated July 2022, as submitted by the KRRC to the State Water Board on July 14, 2022, for review and approval, as amended by the KRRC's October 10, 2022, supplemental filing, satisfies the Fire Management Plan requirements of this condition and are hereby approved. The KRRC shall file the approved documents with FERC within 30 days of this certification amendment. The Licensee shall implement the Fire Management Plan upon receipt of all required approvals. Any changes to the Fire Management Plan related to water supply access or that have the potential to affect water quality, including beneficial uses shall be approved by the Deputy Director prior to implementation. The Deputy Director may require modifications as part of any such approval. The Licensee shall file any Deputy Director-approved updates, along with any required modifications, with FERC. The Licensee shall implement the updates to the Fire Management Plan upon receipt of all required approvals.

If the Deputy Director finds that the measures undertaken to address water supply impacts are insufficient or additional reporting is needed, the Deputy Director may require the Licensee to implement additional measures or continue reporting on implementation of this condition.

CONDITION 16. AMPHIBIAN AND REPTILE MANAGEMENT

No later than three months following issuance of a FERC license surrender order, the Licensee shall submit an Amphibian and Reptile Rescue and Relocation Plan (Amphibian and Reptile Plan) to the Executive Director of the State Water Board or the Deputy Director for review and approval. The Amphibian and Reptile Plan shall be developed in consultation with staff from CDFW, USFWS, and State Water Board.

The Amphibian and Reptile Plan shall address protection of amphibians and reptiles previously found in the areas of the Project affected by drawdown and land-disturbing activities that are listed under the Federal Endangered Species Act (ESA) or the California ESA, or are designated as Species of Special Concern by CDFW. These species may include, but are not limited to foothill yellow-legged frog, and western pond turtle. At a minimum the Amphibian and Reptile Plan shall include:

(1) The amphibians and reptiles covered by the plan;
(2) Surveys and protocols that will be implemented to identify and relocate amphibians and reptiles identified in the plan;
(3) Protocols for relocation that will be implemented upon the incidental discovery of a listed species during surveys;
(4) Identification of the minimum qualifications for the individual(s) that will conduct the surveys and relocations, if necessary;

(5) Timing and locations where surveys will be conducted, including all areas of the Project affected by drawdown and land-disturbing activities in California with known amphibian or reptile habitat or presence;
(6) Identification of potential relocation areas, which may include lower reaches of Klamath River tributaries with suitable habitat approved by USFWS and CDFW;
(7) Pre-construction surveys and associated reporting for western pond turtles conducted by an on-site biologist approved by applicable agencies and familiar with western pond turtle ecology;
(8) Provisions for rescue and relocation of western pond turtles after reservoir drawdown that includes survey timing to cover multiple life stages, survey frequency, survey locations, relocation areas with suitable habitat, survey methodology, and reporting of survey results within 60 days of the completion of surveys to applicable agencies and the State Water Board; and
(9) Monitoring and reporting that will be implemented to document compliance with this condition, including notification and reporting identified by USFWS and CDFW through consultation to develop the plan. Reporting shall include a report submitted to applicable agencies within 30 days of completing the Project, regarding all species handled and relocated; location, date, time and duration of the handling; enumeration and identification of species handled; identification of species life stage; identification of capture personnel; the release location and time; stream, transport, and receiving water temperatures; and location, date, and time of release.

The Amphibian and Reptile Plan must be approved by the Deputy Director prior to drawdown, in-water work, and work in riparian areas. Prior to approval of the Amphibian and Reptile Plan, the Licensee may implement ground-disturbing activities occurring entirely above the OHWM, so long as a USFWS- and CDFW-approved biological monitor surveys the area, monitors construction, and takes appropriate actions to protect amphibians and reptiles.

The California Terrestrial and Wildlife Management Plan, dated August 2022, as submitted by the KRRC to the State Water Board on July 28, 2022, for review and approval, as amended by the KRRC's October 10, 2022, supplemental filing, satisfies the requirements of this condition and are hereby approved. The KRRC shall file the approved documents with FERC within 30 days of this certification amendment. The Licensee shall implement the California Terrestrial and Wildlife Management Plan upon receipt of all required approvals. Any changes to the California Terrestrial and Wildlife Management Plan shall be approved by the Deputy Director prior to implementation. The Deputy Director may require modifications as part of any such approval. The Licensee shall file any Deputy Director-approved updates, along with any required modifications, with FERC. The Licensee shall implement the updates to the California Terrestrial and Wildlife Management Plan upon receipt of all required approvals.

CONDITION 17. BALD AND GOLDEN EAGLE MANAGEMENT

The Bald and Golden Eagle Conservation Plan developed in consultation with USFWS staff that is dated January 2022, and submitted by the KRRC to the State Water Board on July 7, 2022, demonstrates that the potential effects to bald and golden eagles from Project implementation have been considered and addressed by the Licensee through

avoidance, minimization, and mitigation measures. The Bald and Golden Eagle Conservation Plan supports the KRRC's request for an incidental take permit for bald and golden eagles.

The Licensee shall comply with the USFWS' incidental take permit, dated October 14, and effective October 17, 2022, issued under the Bald and Golden Eagle Protection Act, for any incidental take of bald eagles or golden eagles, and any amendments thereto. Any updates to the incidental take permit shall be approved by USFWS and submitted to the Deputy Director prior to implementation.

CONDITION 18. SLOPE STABILITY

The Licensee shall identify reservoir slopes and other Project areas prone to instability and implement site-specific measures to avoid potential slope erosion and associated increases in sedimentation to surface waters throughout Project implementation. Additionally, the Licensee shall monitor for and address slope instability throughout the term of the Project, including restoration activities. No later than three months following issuance of the FERC license surrender order and prior to starting drawdown, the Licensee shall submit a Slope Stability Monitoring Plan to the Executive Director of the State Water Board or the Deputy Director for review and approval. The Slope Stability Monitoring Plan shall be developed in consultation with State Water Board staff. At a minimum, the Slope Stability Monitoring Plan shall include:

(1) The material elements of the Licensee's proposal related to stability of embankments and reservoir rims, as presented in the November 2020 Definite Decommissioning Plan and the Licensee's commitment to implement final EIR Mitigation Measure GEO-1 (Slope Stabilization), and as updated based on the requirements presented in this condition;
(2) A list of slopes and Project areas prone to instability;
(3) Number and location of piezometer wells the Licensee will use to monitor water levels and pore pressure and/or alternative methods to monitor for slope stability;
(4) Number and location of inclinometer installations and/or alternative methods to monitor and determine slope stability;
(5) A list of measures the Licensee will implement to prevent erosion and maintain soil stability;
(6) A description of soil stability monitoring, including locations and schedule;
(7) Visual monitoring for potential slumping, cracking, and other signs of slope instability throughout the Project area;
(8) Potential measures the Licensee will implement to address soil instability;
(9) Coordination with Reservoir Drawdown (Condition 3) to address the potential modification of drawdown rates to control slope instability if necessary to protect infrastructure, property, or resources;
(10) Slope inspections during drawdown of the reservoirs and after storm events, and implementation of any necessary repairs, replacements, and/or additional measures to minimize potential slope instability effects on water quality based on inspection information; and
(11) Submittal of the following reports to the Deputy Director until the Licensee requests and the Deputy Director approves discontinuance of reporting:

a. An annual report that summarizes: slope stability monitoring and inspection information; any repairs, replacements, or additional stabilization measures implemented; and any proposed changes to the Slope Stability Monitoring Plan; and
b. Monthly reports during the rainy season (October 16 – May 14) that identify any areas that have experienced slope instability, any actions taken to control and improve slope stability, and an assessment of the success of initial and any ongoing slope stability actions implemented.

Upon request, the Licensee shall provide additional information regarding slope stability measures undertaken to address identified slope instability. If monitoring and inspection indicate that the measures identified in the Slope Stability Monitoring Plan are insufficient to protect water quality, the Deputy Director may establish a timeframe and require the Licensee to re-consult on the Slope Stability Monitoring Plan, make changes, and resubmit the Slope Stability Monitoring Plan for Deputy Director approval.

The California Slope Stability Monitoring Plan, dated July 2022, as submitted by the KRRC to the State Water Board on July 14, 2022, for review and approval, as amended by the October 10, 2022 supplemental filing, satisfies the plan requirements of this condition and are hereby approved. The KRRC shall file the approved documents with FERC within 30 days of this certification amendment. The Licensee shall implement the Slope Stability Monitoring Plan upon receipt of all required approvals. Any changes to the Slope Stability Monitoring Plan shall be approved by the Deputy Director prior to implementation. The Deputy Director may require modifications as part of any such approval. The Licensee shall file any Deputy Director-approved updates, along with any required modifications, with FERC. The Licensee shall implement the updates to the Slope Stability Monitoring Plan upon receipt of all required approvals.

CONDITION 19. RECREATION FACILITIES

No later than six months following issuance of the FERC license surrender order, the Licensee shall submit a Recreation Facilities Plan to the Executive Director of the State Water Board or the Deputy Director for review and approval. The Recreation Facilities Plan shall be developed in consultation with staff from the State Water Board, North Coast Regional Board, and CDFW. At a minimum, the Recreation Facilities Plan shall include:

(1) The material elements of the Licensee's recreation proposal for the Project, as presented in the 2020 Definite Decommissioning Plan, and as updated based on the requirements presented in this condition;
(2) A list of recreation facilities associated with the Project;
(3) Identification of recreation facilities that will be removed and a schedule for removal;
(4) Identification of any recreation sites to be added, modified, or maintained following dam removal, including location, the types of facilities to be added, modified, or maintained, and the proposed schedule for completion of new facilities or modifications to existing facilities;
(5) The Licensee's plans to facilitate transfer of ownership and/or operation of Project recreation facilities;

(6) Proposed measures to protect water quality and beneficial uses during any construction, removal, maintenance, or other activities associated with the Project recreation facilities;
(7) Water quality monitoring of Project recreation areas in compliance with this condition;
(8) Public education signage regarding aquatic invasive species and proper boat cleaning at established public boat access locations or visitor information kiosks in the vicinity;
(9) Installation, if necessary, and maintenance of boat cleaning stations at Project boat ramps for the removal of aquatic invasive species;
(10) Signage posted at operational Project recreation facilities for water quality impairments (e.g., *E. coli* or fecal coliform and microcystin toxin) discovered through sampling under this condition or other efforts. If water quality monitoring indicates the impairments are an ongoing problem, the Licensee shall propose implementation of appropriate measures as part of the annual reporting requirement outlined in this condition;
(11) Annual reporting to the Deputy Director on implementation of the Recreation Facilities Plan that includes: the status of any proposed construction, removal, or modifications to Project recreation facilities; water quality monitoring results required per this condition; and any proposed modifications to the Recreation Facilities Plan requested by the Licensee; and
(12) Consultation with American Whitewater and Upper Klamath Outfitters Association to schedule construction activities and access restrictions during construction to minimize adverse effects on whitewater boaters.

Recreation Areas Water Quality Monitoring: The Licensee shall collect and analyze grab water samples as outlined below for protection of the recreational water contact (REC-1) beneficial use as defined in the North Coast Basin Plan. The Licensee may use the water quality results collected under the WQMP (Condition 1) and other water quality monitoring efforts[40] in the Klamath River watershed that comply with Water Quality Monitoring and Adaptive Management (Condition 1) and the provisions of the Deputy Director approved WQMP, as appropriate.

For fecal coliform and *E.coli:*

Timing: Prior to drawdown, samples shall be collected during the 30-day period that spans the Independence Day holiday (June-July) and the Labor Day holiday (August-September). Following completion of drawdown, sampling shall be performed as necessary to monitor for water quality and beneficial use protection, as approved by the Deputy Director in the Recreation Facilities Plan.

[40] Other water quality efforts may include Interim Measure 15 as described in Appendix D of the Klamath Hydroelectric Settlement Agreement, as amended November 30, 2016.

Frequency: Project facilities shall be monitored twice every year until each recreation facility is transferred to a new owner or as otherwise approved by the Deputy Director in the Recreation Facilities Plan.

Location: Samples shall be collected at all Project recreation facilities that provide for recreational water contact unless otherwise approved by the Deputy Director in the Recreation Facilities Plan. Samples shall be collected at locations near restrooms, recreation facilities, and other high use areas.

Method: The Licensee shall use the five samples in 30-day methodology or other future protocol identified in the North Coast Basin Plan.

For microcystin toxin:

Prior to drawdown, the Licensee shall annually monitor for microcystin toxin at all Project recreation sites that provide for recreational water contact unless otherwise approved by the Deputy Director in the Recreation Facilities Plan. At a minimum, monitoring shall continue monthly (May through October) for two years following the completion of drawdown unless the recreation site is removed. For newly constructed or modified-existing recreation sites, the Licensee shall monitor microcystin toxins for a minimum of two year beginning with completion of construction or modifications, unless otherwise approved by the Deputy Director in the Recreation Facilities Plan.

The Licensee shall report monitoring results annually. Reporting shall: summarize monitoring results; highlight any exceedances of fecal coliform, *E. coli*, or microcystin toxin and propose adaptive management measures to address exceedances. Based on monitoring results, the Deputy Director may require the Licensee to modify monitoring frequency, methods, duration, or to implement additional adaptive management measures. The Licensee shall implement changes upon receipt of Deputy Director direction and any other required approvals.

The Recreation Facilities Plan, dated July 2022, as submitted by the KRRC to the State Water Board on July 28, 2022 for review and approval, as amended by the KRRC's October 10, 2022, supplemental filing, satisfies the plan requirements of this condition and is hereby approved. The KRRC shall file the approved documents with FERC within 30 days of this certification amendment. The Licensee shall implement the Recreation Facilities Plan upon receipt of all required approvals. Any changes to the Recreation Facilities Plan shall be approved by the Deputy Director prior to implementation. The Deputy Director may require modifications as part of any such approval. The Licensee shall file any Deputy Director-approved updates, along with any required modifications, with FERC. The Licensee shall implement the updates to the Recreation Facilities Plan upon receipt of all required approvals.

Note that for any construction-related activities associated with tree removal in the Ward's Canyon Run, the Licensee shall develop and implement a water quality monitoring and protection plan that meets the requirements outlined in Condition 10.

CONDITION 20. LIMITATIONS ON HYDROPOWER OPERATIONS

This water quality certification is for the proposed removal of Project facilities as described in the Licensee's application and shall not be construed as approval of more than incidental, short-term interim operation of the Project hydroelectric facilities until such removal can be implemented.

Not later than 24 months following issuance of the FERC license surrender order, if drawdown and dam removal are not initiated, the Licensee shall submit an Interim Hydropower Operations Plan (Operations Plan) to the Deputy Director for review and approval. The Operations Plan shall describe additional measures the Licensee will implement to protect water quality and fisheries in advance of drawdown and dam removal activities. The Operations Plan shall be developed in consultation with staff from the State Water Board, North Coast Regional Board, CDFW, NMFS, and USFWS. The Licensee shall solicit comments from the agencies listed above, and the Operations Plan shall include comments received during the consultation process and identify how the Licensee has addressed the comments. The Deputy Director may require modifications as part of any approval. The Licensee shall file the Deputy-Director- approved Operations Plan, together with any required plan modifications, with FERC. The Licensee shall implement the Operations Plan upon receipt of Deputy Director and any other required approvals.

Dam removal must be initiated no later than five years following issuance of the FERC license surrender order unless the Licensee can demonstrate to the satisfaction of the Executive Director of the State Water Board that the delay is due to factors outside of the Licensee's control.

CONDITION 21. WATER RIGHTS MODIFICATION

The Licensee shall provide the State Water Board with a description of the Licensee's proposal for the post-dam removal disposition of all water rights associated with Project facilities. Prior to changing any water diversion for implementation of the Project, the Licensee shall consult with State Water Board staff regarding potential modifications to or transfer of state-issued water right permits and licenses that may be required by the Project. The Licensee shall follow the procedures for any such modification, as described in the California Water Code and in California Code of Regulations, title 23. Nothing in this certification shall be construed as State Water Board approval of the validity of any water rights, including pre-1914 or riparian claims. The State Water Board has separate authority under the California Water Code to investigate and take enforcement action, if necessary, to prevent any unauthorized or threatened unauthorized diversion of water.

CONDITION 22. TRIBAL WATER QUALITY STANDARDS

Project implementation and compliance with the conditions in this certification are anticipated to result in improved compliance with downstream water quality standards for the Hoopa Valley Tribe, adopted in the *Water Quality Control Plan, Hoopa Valley*

Indian Reservation (Hoopa Valley Tribe 2008)[41]. The Karuk Tribe and Resighini Rancheria have received treatment-in-the-same-manner-as-a-state status, but do not yet have USEPA-approved Clean Water Act standards. The Yurok Tribe ~~and Karuk Tribe have~~ has applied to the USEPA for treatment-in-the-same-manner-as-a-state status under the Clean Water Act, and it is possible that other tribes may similarly apply for and receive such status.

To ensure that the requirements of this certification ultimately meet tribal Clean Water Act standards, the 32-month report on anticipated compliance under the Compliance Schedule (Condition 2), as well as monthly water quality reports described under Condition 1, shall be submitted to the Hoopa Valley Tribe, Resighini Rancheria, Karuk Tribe, and any other Native American tribes that have obtained treatment-in-the-same- manner-as-a-state status. Any comments from such tribes received by the Deputy Director on the report shall be a factor in the Deputy Director's consideration of whether to require implementation of additional management measures.

Additionally, the Licensee shall submit to the Hoopa Valley Tribe, Resighini Rancheria, Karuk Tribe, and any other tribe that has subsequently obtained treatment-in-the-same-manner-as-a-state status, any request to end or modify monitoring under Water Quality Monitoring and Adaptive Management (Condition 1) at the location(s) closest to or within that tribe's reservation, along with a summary of that location's monitoring results and associated data, to date. Any comments from such tribes received by the Deputy Director on the report will be a factor in the Deputy Director's consideration of whether to approve the cessation or modification of monitoring at that location(s).

CONDITION 23. CONSULTATION REQUIREMENTS

For any condition that requires consultation with specific agencies, the Licensee may consult with additional parties (including, through "good neighbor" agreements or through consultation commitments under the Klamath Hydroelectric Settlement Agreement). The Licensee is particularly encouraged to consult with local agencies with expertise in siting issues and local conditions, and with tribes that have resources that may be affected by various plans or adaptive management measures. Such consultation is likely to result in plans that are better conceived and more likely to receive approval without the need for additional modification.

ADDITIONAL CONDITIONS (CONDITIONS 24-41)

CONDITION 24. The State Water Board's approval authority includes the authority to withhold approval or to require modification of a proposal or plan prior to approval. The State Water Board may take enforcement action if the Licensee fails to provide or implement a required plan in a timely manner. If a time extension is needed to submit a report or plan for Deputy Director approval, the Licensee shall submit a written request for the extension, with justification, to the Deputy Director no later than 60 days prior to the deadline. The Licensee shall file any Deputy-Director-approved time extensions

[41] See also a February 1, 2017, letter from Robert Franklin, Division Lead, Hoopa Tribal Fisheries – Water Division to Parker Thaler, State Water Board, Division of Water Rights.

with FERC. Under existing law, all delegations for approval by the Deputy Director are permissive, and do not divest the Executive Director or State Water Board of approval authority.

CONDITION 25. The State Water Board reserves the authority to reopen this certification based on evidence that the Project may be contributing to fish passage impediment in the Hydroelectric Reach upstream of the California/Oregon Stateline.

CONDITION 26. The State Water Board reserves the authority to add to or modify the conditions of this certification to incorporate changes in technology, sampling, or methodologies.

CONDITION 27. The State Water Board shall provide notice and an opportunity to be heard in exercising its authority to add to or modify the conditions of this certification.

CONDITION 28. Notwithstanding any more specific conditions in this certification, the Project shall be operated in a manner consistent with all water quality standards and implementation plans adopted or approved pursuant to the Porter-Cologne Water Quality Control Act or section 303 of the Clean Water Act. The Licensee must take all reasonable measures to protect the beneficial uses of the Klamath River watershed.

CONDITION 29. Unless otherwise specified in this certification or at the request of the Deputy Director, data and/or reports shall be submitted electronically in a format accepted by the State Water Board to facilitate the incorporation of this information into public reports and the State Water Board's water quality database systems in compliance with California Water Code section 13167.

CONDITION 30. This certification does not authorize any act which results in the unauthorized taking of a threatened, endangered, or candidate species or any act which is now prohibited, or becomes prohibited in the future, under either the California ESA (Fish & Game Code §§ 2050-2097) or the federal ESA (16 U.S.C. §§ 1531 - 1544). If a “take” will result from any act authorized under this certification or water rights held by the Licensee, the Licensee must obtain applicable authorization for the take prior to any construction or operation of the portion of the Project that may result in a take. The Licensee is responsible for meeting all applicable requirements of the cited laws for the Project authorized under this certification.

CONDITION 31. The Licensee shall submit any change to the Project, including Project operation, implementation, technology changes or upgrades, or methodology, which would have a significant or material effect on the findings, conclusions, or conditions of this certification, to the Deputy Director for prior review and written approval. The Deputy Director shall determine significance and may require consultation with state and/or federal agencies. If the Deputy Director is not notified of a change to the Project, it will be considered a violation of this certification. If such a change would also require submission to FERC, the change must first be submitted and approved by the Deputy Director.

CONDITION 32. In the event of any violation or threatened violation of the conditions of this certification, the violation or threatened violation is subject to any remedies, penalties, process, or sanctions as provided for under applicable state or federal law. For the purposes of section 401(d) of the Clean Water Act, the applicability of any state law authorizing remedies, penalties, process, or sanctions for the violation or threatened violation constitutes a limitation necessary to ensure compliance with the water quality standards and other pertinent requirements incorporated into this certification.

CONDITION 33. In response to a suspected violation of any condition of this certification, the State Water Board or North Coast Regional Board may require the holder of any federal permit or license subject to this certification to furnish, under penalty of perjury, any technical or monitoring reports the State Water Board deems appropriate, provided that the burden, including costs, of the reports shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports (California Water Code sections 1051, 13165,13267 and 13383).

CONDITION 34. In response to any violation of the conditions of this certification, the State Water Board may add to or modify the conditions of this certification as appropriate to ensure compliance.

CONDITION 35. This certification shall not be construed as replacement or substitution for any necessary federal, state, and local Project approvals. The Licensee is responsible for compliance with all applicable federal, state, or local laws or ordinances and shall obtain authorization from applicable regulatory agencies prior to the commencement of Project activities.

CONDITION 36. Any requirement in this certification that refers to an agency whose authorities and responsibilities are transferred to or subsumed by another state or federal agency, will apply equally to the successor agency.

CONDITION 37. The Deputy Director and the Executive Officer shall be notified one week prior to the commencement of ground disturbing activities that may adversely affect water quality. Upon request, a construction schedule, and updates thereto, shall be provided to the State Water Board and North Coast Regional Board staff. The Licensee shall provide State Water Board and North Coast Regional Board staffs access to Project sites to document compliance with this certification.

CONDITION 38. This certification is not intended and shall not be construed to apply to any activity involving a hydroelectric facility and requiring a FERC license or an amendment to a FERC license unless the pertinent application for certification was filed pursuant to California Code of Regulations, title 23, section 3855, subdivision (b) and that application for certification specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

CONDITION 39. This certification is conditioned upon total payment of any fee required in California Code of Regulations, title 23, article 4.

CONDITION 40. This certification is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to California Water Code, section 13330, and California Code of Regulations, title 23, division 3, chapter 28, article 6 (commencing with section 3867).

CONDITION 41. A copy of this certification shall be provided to any contractor and all subcontractors conducting Project-related work, and copies shall remain in their possession at the Project site(s). The Licensee shall be responsible for work conducted by its contractor, subcontractors, or other persons conducting Project-related work.

APPENDIX C

Incidental Take Statement included in the U.S. Department of Commerce's National Marine Fisheries Service's Biological Opinion for the Surrender, Decommissioning, and Removal of the Lower Klamath Project, P-14803

Issued on December 17, 2021
With corrections filed on April 18, 2022

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption. "Take" isdefined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attemptto engage in any such conduct. "Harm" is further defined by regulation to include significant habitat modification or degradation that actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR 222.102). "Harass" is further defined by interim guidance as to "create the likelihood of injury to wildlife 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." "Incidental take" is defined by regulation as takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant (50 CFR 402.02). Section 7(b)(4) and section 7(o)(2) provide that taking that is incidental to an otherwise lawful agency action is not considered to be prohibited taking under the ESA if that action is performed in compliance with the terms and conditions of this ITS.

2.9.1 Amount or Extent of Take

In the biological opinion, NMFS determined that incidental take is reasonably certain to occur as follows:

2.9.1.1 SONCC Coho Salmon ESU

NMFS expects the proposed action will result in incidental take of SONCC coho salmon adults, embryos/pre-emergent fry, sub-yearlings, yearlings, and smolts.

2.9.1.1.1 Suspended Sediment and Dissolved Oxygen

As described in previous sections of this biological opinion, NMFS expects all freshwater lifestages of coho salmon in all populations of the Klamath Basin to be harmed to some degree during year 1 (reservoir drawdown) and year 2 (post dam removal) due to elevated SSCs and associated decreases in dissolved oxygen.

The incidental take of coho salmon resulting from the suspended sediment concentrations related to the proposed action is not practicable to measure and impossible to separate out from the reduced levels of dissolved oxygen. Incidental take of coho salmon resulting from these impacts of the proposed action is not practicable to measure for the following reasons: the small size of many of the life stages, the number of individuals that will survive and return as adults in the Klamath River in any given year cannot be precisely determined, their occurrence in elevated suspended sediment concentrations that make them difficult to detect, the low likelihood of finding dead or impaired specimens, and the high rate of removal of injured or killed individuals by predators or scavengers. Because measuring the number of coho salmon that are expected to be harmed as a result of the elevated suspended sediment concentrations and low dissolved oxygen is not practicable, NMFS will use suspended sediment concentrations as a surrogate which we assume includes the added impact of co-occurring low dissolved oxygen (described in Table 37 and Table 38). Impacts of elevated SSCs and the causal link to incidental take is informed by the Newcombe and Jensen (1996) severity indices and further described in the Effects Section, Section 2.5.1.1.7. If the modeled suspended sediment concentrations described in Tables 38 and 39 are exceeded, the amount or extent of incidental take of coho salmon due tosuspended sediment concentrations and low dissolved oxygen will be considered exceeded.

Bedload deposition during reservoir drawdown will be responsible for smothering embryos and pre-emergent fry in the gravel immediately downstream of Iron Gate Dam as described in Sections 2.5.1.1.7.3 and 2.5.1.1.9. The incidental take of coho salmon embryos or pre-emergentfry due to bedload deposition during drawdown is not practicable to measure due to the small size of these life stages and their occurrence in elevated suspended sediment concentrations that make them difficult to detect. Thus, we use the number of redds that are expected to be buried by bedload deposition as a surrogate for incidental take of coho salmon embryos and pre- emergent fry due to bedload deposition during drawdown. As described in Section 2.5.1.1.7.3, NMFS estimates that 100% of coho salmon eggs and pre-emergent fry in up to six redds will be killed as a result of deposition in Year 1. Therefore, if more than six redds in the mainstem Klamath River downstream of the Iron Gate Dam site are buried by bedload deposition during drawdown, then the amount or extent of incidental take of coho salmon eggs and pre-emergent fry due to bedload deposition will be considered exceeded.

Table 37. Summary of incidental take of SONCC coho salmon expected to occur as a result of SSC related to the proposed action in year 1 (reservoir drawdown) during a severe impact year.

Life History Stage (timing)	Populations	SSC (mg/l)[1]	Exposure Days	Type and Amount/Extent of Incidental Take[2]
Adult Migration (Sept 1 – Jan 1)	Upper Klamath, Shasta	52-194	14 days	Sublethal effects, including major stress and impaired homing
	Mid Klamath, Scott	30-170	14 days	Sublethal effects, including major stress and impaired homing
	Lower Klamath, Salmon, Trinity	18-133	14 days	Sublethal effects, including major stress and impaired homing
Embryos/pre-emergent fry[3]	Upper Klamath, Shasta		60 days	Bedload transport is expected to result in 100% mortality in up to six redds
Summer rearing 0+ juveniles	Upper Klamath, Shasta	39 - 2111	20 days	Major stress, reduced growth, 0–20% mortality of fish rearing in the mainstem for 31% of the summer rearing period and 20-40% mortality of fish rearing in the mainstem for eight percent of the summer rearingperiod
	Mid Klamath, Scott	23 - 1510	20 days	Major stress, reduced growth, and 0-20% mortality of fish rearing in the mainstem for 38% of the summer rearing period
	Lower Klamath, Salmon, Trinity	18 - 679	20 days	Major stress, reduced growth, and 0-20% mortality of fish rearing in the mainstem for 15% of the summer rearing period
Winter rearing 1+ juveniles[4]	Upper Klamath, Shasta	33 - 2319	20 days	Major stress, reduced growth, and 0 – 20% mortality of fish rearing in the mainstem for 20% of the winter rearing period and 0-40% mortality of fish rearing in the mainstem 20% of the winter rearing period
	Mid Klamath, Scott	25 - 1739	20 days	Major stress, reduced growth, and 0 – 20% mortality of fish rearing in the mainstem for 40% of the winter rearing period
	Lower Klamath, Salmon, Trinity	17 - 992	20 days	Major stress, reduced growth, and 0-20% mortality of fish rearing in the mainstem for 20% of the winter rearing period
Outmigrating 1+ smolt	Upper Klamath, Shasta	250-2844	14 days	Major stress, reduced growth, and up to 20% mortality for approximately 60% of the outmigration period
	Mid Klamath, Scott	179-1899	14 days	Major stress, reduced growth, and 0 - 20% mortality of smolts for 30% of the spring outmigration period
	Lower Klamath, Salmon, Trinity	96-961	14 days	Major stress, reduced growth, and 0 - 20% mortality of smolts for 20% of the spring outmigration period

[1] Data for Upper Klamath and Shasta populations relied on USGS Iron Gate Dam station; data for Mid Klamath and Scott populations relied on USGS Seiad Valley station; data for Lower Klamath, Salmon, and Trinity populations relied on USGS Orleans station.

[2] Response was determined using Newcombe and Jenson (1996) Severity Index as described in the Approach toAnalysis.

[3] Number of redds buried from bedload deposition is used as a surrogate as described above. [4]We use the impacts modeled for the "median impact year" for this life stage since they were determined to result in greater impacts to individuals than the "severe impact year".

Table 38. Summary of incidental take of SONCC coho salmon expected to occur as a result of SSC related to the proposed action in year 2 (post dam removal) of a severe impact year

Life History Stage (timing)	Populations	SSC (mg/l)[1]	Exposure Days	Effects on Production[2]
Adult Migration (Sept 1 – Jan 1)	Upper Klamath, Shasta	14-14	14 days	Sublethal effects, including moderate stress
	Mid Klamath, Scott	8-9	14 days	Sublethal effects, including moderate stress
	Lower Klamath, Salmon, Trinity	7-7	14 days	Sublethal effects, including moderate stress
Summer rearing 0+ juveniles	Upper Klamath, Shasta	2-60	20 days	Sublethal effects, including reductions in feeding and major stress for fish rearing in the mainstem
	Mid Klamath, Scott	2-45	20 days	Sublethal effects, including reductions in feeding and major stress for fish rearing in the mainstem
	Lower Klamath, Salmon, Trinity	2-39	20 days	Sublethal effects, including reductions in feeding and major stress for fish rearing in the mainstem
Winter rearing 1+ juveniles	Upper Klamath, Shasta	39-354	20 days	Sublethal effects, including reductions in feeding and major stress for fish rearing in the mainstem
	Mid Klamath, Scott	31-102	20 days	Sublethal effects, including reductions in feeding and major stress for fish rearing in the mainstem
	Lower Klamath, Salmon, Trinity	26-74	20 days	Sublethal effects, including reductions in feeding and major stress for fish rearing in the mainstem
Outmigrating 1+ smolt	Upper Klamath, Shasta	6-165	14 days	Sublethal effects, including major stress and reduced growth
	Mid Klamath, Scott	12-59	14 days	Sublethal effects, including reductions in feeding and major stress
	Lower Klamath, Salmon, Trinity	13-49	14 days	Sublethal effects, including reductions in feeding and major stress

[1] Data for Upper Klamath and Shasta populations relied on USGS Iron Gate Dam station; data for Mid Klamath and Scott populations relied on USGS Seiad Valley station; data for Lower Klamath, Salmon, and Trinity populations relied on USGS Orleans station.

[2] Response was determined using Newcombe and Jenson (1996) Severity Index as described in the Approach toAnalysis.

2.9.1.1.2 Relocation Measures

NMFS expects juvenile coho salmon from Upper Klamath, Shasta, Scott, and Middle Klamath River populations to be captured and relocated as method to minimize impacts of the proposed action at various times over the eight year implementation period. The number of fishes estimated to be relocated is based on estimates from the Renewal Corporation, review of relocation data from other projects, and our understanding of habitat occupancy (e.g., newly seeded habitat has low densities of fish) as described in Section 2.5.1.1.10. The amount of incidental take of coho salmon due to relocation measures will be considered exceeded if the number of coho salmon captured or killed as a result of relocation is greater than described in Table 39.

Table 39. Amount of incidental take associated with relocation activities for coho salmon

Timing	Effected Populations	Activity	Estimated Number of Coho salmon to be Relocated	Estimated Number of Coho Salmon Killed
Pre-drawdown Summer	Upper Klamath	Temporary road construction, temporary bridge construction, armoring of left bank access road, construction of fire access ramp	30	1
Pre-drawdown Winter	Upper Klamath, Shasta, Scott, Mid-Klamath	Relocation of mainstem-rearing juvenile coho salmon to minimize SSC impacts	1000	10
During drawdown	Upper Klamath, Shasta, Scott	Relocation of outmigrating smolt (1+) from tributary mouths	1200	12
Post-dam removal (years 2-7)	Upper Klamath	Instream habitat restoration projects	1200	12
Post-dam removal (years 2-7)	Upper Klamath	Fish passage maintenance projects	1500	15
Post-dam removal (years 2-7)	Upper Klamath	Boat ramp construction	500	5

2.9.1.1.3 Herbicide and Adjuvant Applications

Projects conducted under the Invasive Exotic Vegetation Management program will take place adjacent to aquatic habitats that are reasonably certain to be occupied by individuals of the upper Klamath River population of coho salmon. As described below, the proposed action is reasonably certain to cause incidental take. Juvenile life stages are most likely to be affected, although adults will sometimes also be present when the projects occur within or adjacent to the former reservoir footprints.

Herbicide applications, as constrained by the conservation measures, are reasonably certain to result in herbicide drift or movement into streams that will harm listed coho salmon. Incidental take caused by the habitat-related effects of this action cannot be accurately quantified as a number of fish because the distribution and abundance of fish that occur within the action area are affected by habitat quality, competition, predation and the interaction of processes that influence genetic, population and environmental characteristics both within and outside the action area. As the portion of the action area likely affected by herbicides has not been occupied

by listed coho salmon since the construction of the four dams between 60 and 100 years ago, it is not certain how quickly or exactly where coho utilization will occur. In this unique environment,the distribution and abundance of fish within the program action area cannot be attributed entirely to habitat conditions, nor can NMFS precisely predict the number of fishes that are reasonably certain to be harmed or killed if fish or their prey are exposed to herbicides and their associated adjuvants. Additionally, there is no practical way to count the number of fishes exposed to herbicides without causing additional stress and injury to these fish. In such circumstances, NMFS can use the causal link established between the activity and the likely changes in habitat conditions affecting the listed species as a surrogate to describe the extent oftake in terms of habitat disturbance.

Application of herbicides and associated adjuvants will result in short-term degradation of water quality, which is reasonably certain to cause injury to fish in the form of sublethal adverse physiological effects or temporary reduction in benthic macroinvertebrate prey resources. This is particularly true for herbicide applications in riparian areas that may deliver herbicides via driftto streams occupied by listed salmonids. These sublethal effects were described in the effect's analysis for this opinion. The best available indicator for the extent of take due to proposed IEV control and eradication program is the annual number of treated acres for the planned life of the IEV program. Thus, if more than 1,967 acres of treatment each year through the proposed three year reservoir restoration period is exceeded, incidental take of coho salmon due to herbicide application will be considered exceeded. This includes no more than 207 acres of irrigated riparian areas and recognizes that this entire acreage will not be broadcast treated but is subject to mostly spot treatments of IEV from the beginning of the site preparation through conclusion of the program. Although this surrogate is the number of treated acres for the planned life of the IEV program, it will serve as an effective reinitiation trigger because it can be accurately measured within each year of the IEV program, which will indicate if expected herbicide treatment and related incidental take is exceeded within each year of the IEV program.

2.9.1.2 Southern Resident Killer Whales (SRKWs)

2.9.1.2.1 Incidental Take Summary for SRKWs

NMFS anticipates that the reduction in the abundance of Klamath River Chinook salmon that will occur as a result of impacts to juvenile Chinook during dam removal and changes in hatchery production over the short term (2-3 year period beginning two years after dam removal)is reasonably certain to result in some level of harm to

SRKWs; specifically, members of K and L pod (currently 50 individuals[258]) during that period. The harm is a consequence of subsequent reduced prey availability causing impairment in foraging behavior, leading SRKWs to forage for longer periods, travel to alternate locations, and increased risk of nutritional stress and related health effects.

Similarly, we expect that limited and occasional reduction in the abundance of Klamath River Chinook salmon could occur during some individual years within the mid term period (six plus year period starting four years after dam removal). This primarily would occur because of changes in juvenile Chinook salmon hatchery production. Reductions in hatchery production would be mitigated by anticipated improvements in Chinook salmon survival and productivity in response to changing conditions in the Klamath River following dam removal. This scenario is reasonably certain to result in some level of harm to SRKWs, specifically members of K and L pod during this period. Our expectations are that SRKWs will not be harmed every year during the mid term as reduced abundance of Klamath Chinook in the ocean is not expected during most years during this period (if at all), and SRKWs do not necessarily occur in the proposed action area every year. We also expect the extent of harm during the mid term period should be less than the extent that is expected to occur during the short term period in terms of the magnitude of reduced prey that is reasonably likely to occur.

Currently, we cannot readily observe or quantify impacts to foraging behavior or any changes to the health of individual SRKWs that occur as a consequence of the general level of prey reduction that is expected as a result of the proposed action because we do not have the data or metrics needed to monitor and quantitatively establish relationships between the effects of the proposed action and individual SRKW health. Quantitative relationships between the health andproductivity of the entire SRKW population and the changing abundance of prey species are complex and of limited utility as described in section 2.4.2 Environmental Baseline for Southern Resident Killer Whale DPS. As a result, we will rely on surrogates of the amount or extent of incidental take of SRKWs as a result of the proposed action in the form of the extent of effects to Chinook salmon described in the Chinook effects analysis (Sections 2.5.2 Effects to SRKWs and 2.7.2 Integration and Synthesis for SRKWs), and the surrogates used in Section 2.9.1 Incidental Take Summary for Coho Salmon, where applicable. Exceedance of the extent of effects to Chinook salmon would be viewed as an exceedance of the anticipated harm to SRKWs.

2.9.1.2.2 Surrogates for Incidental Take

[258] Based on the CWR 2021 Annual Census from surveys through July 1, 2021. The additional loss of L47 following the census leaves 49 individual whales in K and L pods.

Analysis indicates that the take of SRKWs is expected to occur through effects to Klamath River Chinook salmon resulting in the subsequent reduction of Chinook salmon available as prey for SRKWs. During the short term period, the anticipated effects to Chinook salmon include reductions in the survival and productivity of juvenile Chinook salmon by release of the sediment and other effects associated with dam removal. The effects also include reductions in the production of hatchery Chinook salmon associated with the modification to hatchery production in the Klamath River that have been proposed. During the mid term period, the anticipated effects to Chinook salmon include reductions in the production of hatchery Chinook salmon associated with modification to hatchery operations in the Klamath River, gradually offset by improvements in survival and production of Chinook salmon throughout the Klamath River in response to the improving conditions throughout the system associated with the proposed action.

As described in section 2.9.1.1 Amount or Extent of Take for SONCC Coho Salmon ESU, the incidental take of SONCC coho salmon during dam removal will be measured by surrogates of suspended sediment and the dissolved oxygen concentrations that will be measured during monitoring of the proposed action. Similarly, we will use the measures of suspended sediment concentrations and dissolved oxygen to describe the extent of impacts to Chinook salmon that have been analyzed in this Opinion given that these relate directly to the analysis of how the proposed action affects Chinook salmon in the Klamath River, and ultimately the future availability of Chinook salmon in the ocean as prey for SRKWs. The incidental take of SRKW resulting from impacts to Chinook salmon due to suspended sediment concentrations related to the proposed action is not practicable to measure and impossible to separate out from reduced levels of dissolved oxygen. Incidental take of SRKWs based on reduction in Chinook salmon prey related to these impacts of the proposed action is not practicable to measure for the following reasons: the small size of many of the Chinook salmon life stages, the number of Chinook salmon individuals that will survive and return as adults in the Klamath River in any given year cannot be precisely determined, the occurrence of Chinook salmon in elevated suspended sediment concentrations that make them difficult to detect, the low likelihood of finding dead or impaired specimens of Chinook salmon, and the high rate of removal of injured or killed Chinook salmon individuals by predators or scavengers. Because measuring the number of Chinook salmon that are expected to be harmed as a result of the elevated suspended sediment concentrations and low dissolved oxygen is not practicable, NMFS will use suspended sediment concentrations as a surrogate which we assume includes the added impact of co- occurring low dissolved oxygen (described in Table 40). If the modeled suspended sediment concentrations described in Table 40 are exceeded, the amount or extent of incidental take of SRKW due to suspended sediment concentrations and dissolved oxygen impacts on their prey base (Chinook salmon) will be considered exceeded.

Bedload deposition during reservoir drawdown will be responsible for smothering embryos and pre-emergent fry in the gravel immediately downstream of Iron Gate Dam as described in Sections 2.5.2.2.2 and 2.5.2.3.1. The incidental take of SRKWs based on mortality of Chinook salmon embryos or pre-emergent fry due to bedload deposition during drawdown is not practicable to measure due to the small size of these Chinook salmon life stages and their occurrence in elevated suspended sediment concentrations that make them difficult to detect. Thus, we use the extent of bedload deposition as a surrogate for the incidental take of SRKWs based on mortality of Chinook salmon embryos and pre-emergent fry that are predicted to die during drawdown. As described in Section 2.5.2.2.2, NMFS estimates that 100% of Chinook salmon eggs and pre-emergent fry will be killed in 13% of the Chinook salmon redds in the mainstem Klamath River. The 13% of Chinook salmon redds will occur in the reach between Iron Gate Dam and Willow Creek (as described in FERC 2021a Appendix J-29) as a result of deposition in Year 1. Therefore, if deposition occurs beyond the reach between Iron Gate Dam and Willow Creek in Year 1, then the amount or extent of incidental take of SRKW based on mortality of Chinook salmon embryos/pre-emergent fry due to bedload deposition during drawdown will be considered exceeded.

Table 40. Summary of incidental take of SRKW resulting from impacts to Chinook salmon expected to occur as a result of SSC related to the proposed action in year 1 (reservoir drawdown) during a severe impact year (1973).

Life History Stage (timing)[1]	**Populations/ Location**	**SSC (mg/l)[2]**	**Exposure Days**	**Type and Amount/Extent of Incidental Take**
Embryos/pre-emergent fry[3]	Iron Gate to Willow Creek			Bedload deposition in the Iron Gate Dam to Willow Creek reach is expected to result in 100% mortality in up to 13% of Chinook salmon redds in the mainstem Klamath River
Age 0+ outmigrants	Upper Klamath	84-1433	20	Up to 13% mortality of fish passing Bogus Cr trap, 17% mortality of fish passing 1-5 trap, and 15% mortality of fish passing Shasta River trap
	Middle Klamath	68-1103	20	Up to nine percent mortality of fish passing Kinsman trap, up to 11% mortality offish passing the Scott River trap
	Lower Klamath	45-707	20	Up to five percent mortality for fish passing Trinity River trap, up to two percent mortalityfor fish passing the Blue Creek trap

[1] Adult migration has not been included since migration will be complete prior to drawdown.
[2] Data for Upper Klamath populations relied on USGS Iron Gate station, data for Middle Klamath

populations relied on USGS Seiad Valley station, data for Lower Klamath populations relied on USGSOrleans station.
[3] Bedload deposition will be used as a surrogate as described above.

For SRKWs, the extent of incidental take during the short term and mid term is also related to reductions in hatchery production of Chinook salmon in the Klamath River that have been proposed. While the proposed action includes modified (reduced) hatchery production goals forChinook salmon at the Fall Creek hatchery during and after dam removal compared to the Chinook salmon hatchery production goals at Iron Gate hatchery prior to dam removal, we recognize that hatchery production goals cannot always be met. In the past, hatchery productionat Iron Gate hatchery has not always met the goals, which was reflected in the analysis of potential reductions in the ocean abundance of Klamath Chinook salmon described in section 2.5.2.2.2 Effects to Chinook salmon. In the past, actual hatchery production compared to hatchery production goals has averaged approximately 63% over the last five years of available information (2016-2020). During this five year period, actual production compared to goals has been as low as 24% and as high as 93% (CDFW 2021d). Using this information, we expect that the hatchery production relative to the goals that are associated with the proposed action should fall within the same range as what has occurred at Iron Gate hatchery recently. Our analysis of how the proposed action affects Chinook salmon in the Klamath River, and ultimately the future availability of Chinook salmon in the ocean for SRKWs, is contingent upon expectations that hatchery production will occur at least at some reduced level scaled with the production that occurred before dam removal. Over the short term and mid term, we expect that actual hatchery production will not be less than 24% relative to the goals established by the proposed action during any year. Therefore, we will also use this threshold for actual hatchery production as a surrogate for the amount or extent of anticipated incidental take of SRKWs from reduced hatchery production goals for Chinook salmon at the Fall Creek hatchery as a result of the proposed action. Consistent with the recent average production at Iron Gate hatchery compared to goals (63% rate), we anticipate that the average actual production will meet or exceed this rate during the proposed action. Therefore, we will also use this threshold for actual hatchery production as a surrogate for the amount or extent of anticipated incidental take of SRKWs from reduced hatchery production goals for Chinook salmon at the Fall Creek hatchery as a result of the proposed action. Incidental take will likely be exceeded if hatchery production relative to the goals falls below 24% for any given year, or falls below an average of 63% during the proposed action. Throughout the proposed action, we expect that the annual hatchery production goals will remain similar to current goals. If these goals are adjusted in response to available information about natural Chinook salmon survival and productivity, we will continue to rely upon these relative performance standards as the applicable thresholds for incidental take.

Our use of hatchery production performance as a surrogate for the extent of incidental take of SRKWs is linked to our expectations for how the survival and production of Chinook salmon will improve throughout the Klamath River following dam removal. The anticipated benefits of the proposed action minimize the level of harm to SRKWs that we expect as a result of the reduction in the hatchery production of Chinook salmon. In order to effectively monitor the extent of incidental take using the hatchery production performance surrogate, information about the survival and production of Chinook salmon in the Klamath River, including but not limited to disease impacts, will need to be gathered as available and be evaluated throughout the proposed action. Along these lines, our analysis of the surrogates described above as a threshold for anticipated incidental take of SRKW recognizes that adjustments of the proposed hatchery plan may be recommended by the applicant. Specifically, if hatchery production goals are reduced based on the improvement in the overall survival and production of Chinook salmon in the Klamath River as demonstrated by the available information, we will assume that the overall extent of SRKW incidental take occurring will not have been exceeded by these reductions in hatchery production goals unless performance of the hatchery relative to any new goals drops below the same relative performance levels established in this ITS. If the annual hatchery production goals change over time (e.g., are reduced based on increased survival of juvenile fish), we expect these changes will be reported to NMFS along with information on how the new goals were set (e.g., considerations of increases in juvenile Chinook salmon survival and productivity). This information, in concert with data on actual hatchery production compared to the new goals, overall abundance of Klamath Chinook salmon, and contribution of hatchery fish to Klamath Chinook salmon populations, will be used to inform a review of whether incidental take has been exceeded. The analysis in the biological opinion and ITS above indicates that the incidental take of SRKWs is not expected to occur over the long term through effects to Klamath River Chinook salmon resulting in the subsequent reduction of Chinook salmon available as prey for SRKWs. We expect the abundance of Klamath Chinook salmon in the ocean as potential prey for SRKWs to increase over the long term, through realization of the beneficial effects of the proposed action. In addition, we expect other improvements to Chinook salmon productivity and diversity in the Klamath River that will benefit the future prospect of available prey resources for SRKWs when they occur off the coast of Oregon and California. Our expectation is that Chinook salmon hatchery production will cease at a time when the natural productivity of Chinook salmon in the Klamath River system no longer needs to be supplemented. We expect this condition to exist when repopulation of newly available upstream habitat is occurring in concert with improved survival/productivity of Chinook salmon throughout the entire system at a level that will compensate (or more than compensate) for the lost hatchery production. Since there is no incidental take of SRKWs expected as a result of the proposed action over the long term, we do not establish a surrogate for the extent of incidental take over the long term.

2.9.1.3 Eulachon

NMFS expects the proposed action is reasonably certain to result in incidental take of adult eulachon as a result of elevated SSCs and low dissolved oxygen during Year 1. For the reasons we describe in our discussion regarding incidental take of coho salmon in Section 2.9.1.1.1, it is not practicable to measure the incidental take of eulachon resulting from the suspended sediment concentrations related to the proposed action and impossible to separate out from incidental take resulting from the reduced levels of dissolved oxygen. Therefore, NMFS will use suspended sediment concentrations as a surrogate, which we assume includes the added impact of co- occurring low dissolved oxygen. If the modeled suspended sediment concentrations exceed 3,477 mg/L during the migration period of Year 1 (January – May), the amount or extent of incidental take of eulachon due to suspended sediment concentrations and low dissolved oxygenwill be considered exceeded.

2.9.2 Effect of the Take

In the biological opinion, NMFS determined that the amount or extent of anticipated take, coupled with other effects of the proposed action, is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

2.9.3 Reasonable and Prudent Measures

"Reasonable and prudent measures" are measures that are necessary or appropriate to minimizethe impact of the amount or extent of incidental take (50 CFR 402.02).

2.9.3.1 SONCC Coho Salmon ESU and Southern DPS of Eulachon

NMFS believes that the following reasonable and prudent measures and terms and conditions are necessary and appropriate to minimize the impacts of the amount or extent of incidental take of SONCC ESU coho salmon and Southern DPS eulachon resulting from the proposed action.

1. Monitor and report on water quality and incidental take of coho salmon and eulachon in the Klamath River mainstem related to the proposed action.
2. Minimize incidental take associated with the IEV management program.
3. Ensure real-time decision making occurs using best available technical informationduring implementation and maintenance of the action.

4. Monitor mainstem coho salmon spawning to ensure the expected amount or extent of incidental take of coho salmon embryos and pre-emergent fry in redds is not exceeded.

2.9.3.2 Southern Resident Killer Whales (SRKWs)

NMFS believes that the following reasonable and prudent measures, and terms and conditions, are necessary and appropriate to minimize the impacts of the amount or extent of incidental take of SRKWs resulting from the proposed action.

5. Monitor and report on water quality and incidental take of SRKWs as it relates to impacts to Chinook salmon.
6. Minimize incidental take of SRKWs through ensuring both hatchery and wild Chinook salmon production and survival meets assumptions described in this Incidental Take Statement.
7. Ensure real-time decision making occurs using best available technical information during implementation and maintenance of the action.
8. Monitor sediment deposition to ensure the expected amount or extent of incidental take of SRKWs as a result of mortality of Chinook salmon embryos and pre-emergent fry in redds is not exceeded.

2.9.3.3 General Reasonable and Prudent Measures

9. FERC shall include in any license surrender order or other authorization for the amended surrender application for the Lower Klamath Project a condition that makes the license order or other authorization subject to the reasonable and prudent measures and terms and conditions of this Incidental Take Statement.
10. FERC shall include in any license surrender order or other authorization for the amended surrender application for the Lower Klamath Project a reopener clause providing for the possible amendment of the order or other authorization to incorporate any reasonable and prudent alternatives, reasonable and prudent measures, and terms and conditions resultingfrom any reinitiated consultation on the authorized action.

2.9.4 Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the Federal action agency must comply (or must ensure that any applicant complies) with the following terms and conditions. The FERC or any applicant has a continuing duty to

monitor the impacts of incidental take and must report the progress of the action and its impact on the species as specified in this ITS (50 CFR 402.14). The Renewal Corporation may develop agreements with partners such as CDFW to implement the terms and conditions. If the entity to whom a term and condition is directed does not comply with the following terms and conditions, protective coverage for the proposed action would likely lapse.

The Renewal Corporation describes the role of the ARG as a group that provides technical consultation during the implementation of the Aquatic Resources Management Plan. The ARG includes members from the Renewal Corporation's team as well as federal, state, and Tribal resource staff. In the following terms and conditions, NMFS relies on the Renewal Corporation to utilize the ARG to gather available data that provides information to the Renewal Corporationand NMFS regarding the accuracy of assumptions made within this ITS.

2.9.4.1 SONCC Coho Salmon ESU and Southern DPS of Eulachon

The following terms and conditions implement reasonable and prudent measure 1:

a) The Renewal Corporation shall provide NMFS real-time estimates (i.e., continuous updates every 15 minutes) of the turbidity at USGS stations at Iron Gate, Seiad Valley,and Orleans beginning on or before the commencement of reservoir drawdown, continuing through two years post dam removal. The Renewal Corporation shall establish an SSC rating curve using the turbidity data prior to June 1st of the drawdown year when such data will be used in decision making regarding rescue and relocation actions (described in FERC 2021a Appendix D).

b) The Renewal Corporation shall provide NMFS real-time estimates (i.e., continuous updates every 30 minutes) of the dissolved oxygen concentration at or near the current Iron Gate Dam gage and immediately upstream of the mouth of the Shasta River beginning on or before the commencement of reservoir drawdown through two years postdam removal.

c) The Renewal Corporation shall test in advance all measurement devices used for SSC and DO water quality monitoring (as identified in the California Water Quality Certification (CSWRCB 2020a)) and reporting systems to identify and resolve any concerns that arise.

d) Reporting Requirements:

The Renewal Corporation shall prepare and provide NMFS a summary annual report,by April 1st of each year, for the monitoring and maintenance period as defined in the Reservoir Area Management Plan (FERC 2021a Appendix C), that was conducted theprevious calendar year. The report shall detail the following information:

- A comparison of the measured or estimated suspended sediment concentrations versus the modeled concentrations for the duration of themeasured period.
- Total number and life stage of coho salmon captured.
- Total number and life stage of coho salmon injured by capture method.
- Total number and life stage of coho salmon killed by capture method.
- The dates when trapping of coho salmon occurred.
- Which BMPs were implemented and when.
- The dates when transport of coho salmon occurred and the total number andlife stage of coho salmon killed in transport.
- Locations where captured coho salmon were released.

In addition, the Renewal Corporation shall report all observations of dead or injured coho salmon or eulachon coincident with dam removal activities (other than relocation activities) and the associated suspended sediment concentrations in the mainstem Klamath River to NMFS within two days of their observance, and include a concise description of the causative event (if known), and a description of any resultant corrective actions taken (if any) to reduce the likelihood of future mortalities or injuries. The report will include a discussion of implementation of the terms and conditions that implement reasonable and prudent measure 1 above.

Submit monitoring reports to:

National Marine Fisheries ServiceNorthern California Office
1655 Heindon Road
Arcata, California 95521.

If a sick, injured or dead specimen of a coho salmon or eulachon is found in the action area, the Renewal Corporation shall notify NMFS through the contact person identified in the transmittal letter for this biological opinion, or through the NMFS Office of Law Enforcement at 1-800-853-1964, and follow any instructions. In addition, the Renewal Corporation shall

immediately report to NMFS any exceedanceof the amount or extent of incidental take described in Section 2.9.1.

If the proposed action may worsen the coho salmon or eulachon's condition before NMFS can be contacted, the finder shall attempt to move the coho salmon or eulachon to a suitable location near the capture site while keeping the coho salmon or eulachon in the water and reducing its stress as much as possible. Do not disturb the coho salmon or eulachon after it has been moved. If the coho salmon or eulachon is dead, or dies while being captured or moved, the Renewal Corporation shall report the following information: (1) the NMFS consultation number for this opinion; (2) the date, time, and location of discovery; (3) a brief description of circumstances and any information that may show the cause of death; and (4) photographs of the coho salmon or eulachon and where it was found. The Renewal Corporation shall also coordinate with local biologists to recover any tags or other relevant research information. If the specimen is not needed by local biologists for tag recovery or by NMFS for analysis, the specimen shall be returned to the water in which it was found with appropriate marking to ensure that it is not subsequently recounted or otherwise discarded.

The following terms and conditions implement reasonable and prudent measure 2:

e) The Renewal Corporation shall prepare and provide NMFS a summary annual report, by April 1st of each year, addressing the invasive exotic vegetation control program that wasconducted the previous calendar year. The report shall detail all the chemicals (herbicides and adjuvants) used in the program, where they were used (e.g., in which former reservoir footprint), how many acres in total treated by which method, and how many acres in total treated within 100 feet of the river or a wetted stream by which method. Any known incidents of exposure of a wetted waterbody or other problem that may have affected aquatic resources shall be documented in the summary report. This report may be combined with the report in term and condition d.

f) The Renewal Corporation shall not allow any broadcast application of dicamba as part of the IEV management program because of its issues associated with drift that can result in an uncontrolled exposure scenario. Spot spraying and hand application uses as proposed in Table C-2 in Appendix C of the FERC (2021a) BA are permissible with the proposed buffers.

g) The biological assessment did not propose buffers between application and aquatic sites for use of the remaining herbicides considered in this consultation (aminopyralid, chlorosulfuron, aminopyralid + chlorosulfuron,

and triclopyr TEA). As the risk assessment methodology and results from the BPA HIP consultation (NMFS 2020a) are used in this analysis, the use of these chemicals shall be subject to the same avoidance and minimization measures – 100 foot buffer for broadcast applications, 15 foot buffer for spot spraying, and use up to the waterline for hand applications (wiping, wicking, injection) near waterbodies or ditches containing water. For dry streams, wetlands or ditches, broadcast applications shall be subject to a 50 foot buffer but spot spraying and hand applications may be done without a buffer. Only adjuvants on the May 15, 2017 revised table from the Washington State Department of Agriculture, Pesticide Management Division (WSDA 2017) that have the EPA toxicity classification of "practically non-toxic" to both rainbow trout and daphnids may be used. The Renewal Corporation shall inform NMFS before use of any other adjuvant to determine if reinitiation of consultation is needed.

The following terms and conditions implement reasonable and prudent measure 3:

h) The Renewal Corporation shall convene and consider the recommendations of the ARG frequently during implementation of the action to ensure real-time decision making uses the best available technical information for the protection of listed species and to maximize beneficial effects of the action on listed species to the extent practicable. The Renewal Corporation should convene the ARG at least once prior to reservoir drawdown and quarterly thereafter during the implementation, monitoring, and maintenance periods(as defined in FERC 2021a Appendix C). In addition, the Renewal Corporation shall convene the ARG when monitoring data indicates the amount or extent of incidental takeas described above in section 2.9.1 is likely to be or has been exceeded.

The following terms and condition implements reasonable and prudent measure 4:

i) The Renewal Corporation shall perform at least one redd survey in the five-mile reach downstream of Iron Gate Dam prior to reservoir drawdown to determine whether more than six coho salmon redds are present. If monitoring data are available from existing survey efforts, the Renewal Corporation may use it for the purposes of this term and condition. The Renewal Corporation shall provide information collected from the redd surveys to NMFS prior to drawdown.

2.9.4.2 Southern Resident Killer Whales (SRKWs)

The following terms and conditions implement reasonable and prudent measure 5:

j) The Renewal Corporation shall comply with terms and conditions a, b, c, and d (to the extent term and condition d requires a comparison of the measured or estimated suspended sediment concentrations versus the modeled concentrations for the duration ofthe measured period) to ensure suspended sediment concentrations are consistent with the SSC thresholds in Section 2.9.1.2.2, Surrogates for Incidental Take.

The following terms and conditions implement reasonable and prudent measure 6:

k) The Renewal Corporation shall annually evaluate the Chinook salmon hatchery production plan, including goals and performance, and provide an annual summary reportof the evaluation to NMFS by April 1st of each year, for the previous calendar year, that the hatchery is operational continuing to the end of eight years post dam removal. The Renewal Corporation may utilize the ARG to collect and summarize data as well as make recommendations to the Renewal Corporation, CDFW, and other agencies in regards to future operations of the Chinook salmon hatchery. Data used for the evaluation shall include (but not be limited to):

- Broodstock collection numbers for Chinook salmon.
- Annual production achieved in context of the proposed hatchery production plan goals for Chinook salmon during each year of the proposed action. This shall be compared to the minimum hatchery production performance thresholds in Section 2.9.1.2.2 that measure the actual hatchery production of Chinook salmon relativeto the hatchery plan goals for Chinook salmon.
- Information relevant to Chinook salmon survival estimates (e.g., outmigrant trapping, disease infection rates).

l) If the minimum hatchery production performance thresholds in Section 2.9.1.2.2 that measure the actual hatchery production of Chinook salmon relative to the hatchery plan goals for Chinook salmon are not being met, the Renewal Corporation shall convene and coordinate with the ARG to specifically evaluate the cause(s) and recommend actions to remedy low Chinook salmon hatchery production to meet those thresholds. The Renewal

Corporation shall submit a summary of the evaluation and the recommended actions to NMFS prior to implementation.

m) Before any changes in the Chinook salmon hatchery plan and goals for Fall Creek Hatchery are implemented, the Renewal Corporation shall develop and submit proposals for any such changes to the ARG for review. Subsequent to ARG review, the Renewal Corporation shall submit the proposals to NMFS prior to implementation. Proposals shall include all available information used to support the need and utility of the changes,such as:

- Updated information on juvenile Chinook salmon survival and disease rates;
- Updated information on Klamath basin-wide Chinook salmon productivity, including the status of repopulation upstream of the former dams;
- Updated information on the recent ocean abundance of Klamath Chinooksalmon; and
- Updated information on the contribution of hatchery fish to the population(s)of Klamath Chinook salmon.

n) The Renewal Corporation shall utilize the ARG to gather available data regarding disease rates and other available information about juvenile Chinook salmon survival in the Klamath River. The Renewal Corporation shall prepare an annual summary report of such data and provide the report to NMFS by April 1st each year, for the previous calendar year, during the monitoring and maintenance periods (as defined in FERC 2021a Appendix C) to inform whether Chinook salmon survival meets assumptions described in Section 2.9.1.2.2 regarding the surrogate for incidental take for reductions in hatchery production of Chinook salmon. The Renewal Corporation shall coordinate with NMFS and Reclamation as needed to gain access to S3 modeling results to monitor and report on disease rates.

o) The Renewal Corporation shall utilize the ARG to gather available data as it relates to the access of Chinook salmon to newly available upstream habitat and repopulation of these habitats by Chinook salmon. The Renewal Corporation shall prepare an annual summary report of such data and provide

the report to NMFS by April 1st of each year, for the previous calendar year, during the monitoring and maintenance periods (as defined in FERC 2021a Appendix C) to inform whether Chinook salmon survival meets assumptions described in Section 2.9.1.2.2 regarding the surrogate for incidental take for reductions in hatchery production of Chinook salmon. Such data may include that gathered through implementation of the:

i. Fish presence monitoring plan (FERC 2021a Appendix D);
ii. Fish passage barrier monitoring (FERC 2021a Appendix D);
iii. Escapement monitoring from basin-wide partners.

The following terms and conditions implement reasonable and prudent measure 7:

p) Comply with term and condition h.

The following terms and conditions implement reasonable and prudent measure 8:

q) The Renewal Corporation shall monitor the sediment deposition that occurs during drawdown to ensure it does not extend further than the Iron Gate to Willow Creek reach (as described in FERC (2021a) Appendix J). The Renewal Corporation shall use these data to ensure the applicable threshold in Section 2.9.1.2.2 (using the extent of sediment deposition as a surrogate) is not exceeded. If monitoring data are available from existing survey efforts, the Renewal Corporation may use it for the purposes of this term and condition. The Renewal Corporation shall prepare a summary report of such monitoring data and provide it to NMFS by December 31st of the year following reservoir drawdown.

2.9.4.3 General Terms and Conditions

The following terms and conditions implement reasonable and prudent measure 9:

r) FERC shall include in any license surrender order or other authorization for the amended surrender application a condition that makes the order or other authorization subject to the reasonable and prudent Measures and terms and conditions of this Incidental Take Statement.

The following terms and conditions implement reasonable and prudent measure 10:

s) FERC shall include in any license surrender order or other authorization for the amended surrender application a specific condition that authorizes reopening the order or other authorization to incorporate any reasonable and prudent alternatives, reasonable and prudent measures, and terms and conditions resulting from any reinitiated consultation on the authorized action based on circumstances listed in 50 CFR 402.16.

2.10 Conservation Recommendations

Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Specifically, "conservation recommendations" are suggestions regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information (50 CFR 402.02).

NMFS makes the following recommendations:

2.10.1 Conservation Recommendations for SONCC coho salmon and Southern DPS eulachon

a) The Renewal Corporation should work closely with the NOAA Restoration Center to ensure restoration projects as described in Reservoir Area Management Plan (FERC 2021a Appendix C) are consistent with the terms of this biological opinion and improve coho and Chinook salmon habitat to the maximum extent practicable.

2.10.2 Conservation Recommendations for SRKWs

b) The Renewal Corporation should work with the ARG and/or other partners to evaluate and develop the potential utility of additional information streams and metrics for monitoring the overall survival and production of juvenile Chinook salmon from the Klamath River as available prey for SRKWs in the ocean following dam removal. These could include (but are not limited to) integration of models used to assess the ocean abundance of Klamath River Chinook salmon for harvest management, as well as other in-river data that may be collected by partners through monitoring efforts. These tools could be

used to further inform decision-making surrounding progress and execution of the proposed action by the Renewal Corporation, as well as guiding additional actions taken by the States, Tribes, and/or NMFS during and beyond the proposed action in the future to maximize the beneficial impact of the proposed action and promote the recoveryof SRKWs.

c) If the thresholds in section 2.9.1.2.2 regarding the surrogate for incidental take for reductions in hatchery production of Chinook salmon are not being met, the Renewal Corporation should convene and coordinate with the ARG to evaluate whether additional years of Chinook salmon hatchery production at Fall Creek Hatchery are necessary and appropriate, in conjunction with other factors being used to measure the progress and success of the action, including the status of Chinook salmon survival/productivity throughout the Klamath River system. Based on the evaluation, the Renewal Corporation in coordination with the ARG should make any recommendations regarding whether additional years of Chinook salmon hatchery production at Fall Creek Hatchery are necessary and appropriate to the appropriate agencies.

2.11 Reinitiation of Consultation

This concludes formal consultation for surrender and decommissioning of the Lower Klamath Project.

Under 50 CFR 402.16(a): "Reinitiation of consultation is required and shall be requested by the Federal agency or by the Service where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and: (1) If the amount or extent of taking specified in the incidental take statement is exceeded; (2) If new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion or written concurrence; or (4) If a new species is listed or critical habitat designated that may be affected by the identified action."

2.12 "Not Likely to Adversely Affect"' Determinations

FERC determined that the proposed action is not likely to adversely affect the southern DPS of North American green sturgeon or its critical habitat. Given the limited potential exposure of green sturgeon individuals, and the remote location of

designated critical habitat relative to the geographic extent of expected impacts of the proposed action, the increases in turbidity from the proposed action are unlikely to have more than a negligible impact on any green sturgeon individuals, and are not likely to adversely affect any PBFs that comprise green sturgeon critical habitat.

Under the ESA, "effects of the action" are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involvedin the action (50 CFR 402.02). In our analysis, which describes the effects of the proposed action, we considered 50 CFR 402.17(a) and (b). When evaluating whether the proposed action is not likely to adversely affect listed species or critical habitat, NMFS considers whether the effects are expected to be completely beneficial, insignificant, or discountable. Completely beneficial effects are contemporaneous positive effects without any adverse effects to the speciesor critical habitat. Insignificant effects relate to the size of the impact and should never reach thescale where take occurs. Effects are considered discountable if they are extremely unlikely to occur.

2.12.1 Southern DPS North American Green Sturgeon

The Southern DPS of North American green sturgeon is listed as a threatened species, and includes all green sturgeon originating from the Sacramento River basin and from coastal rivers south of the Eel River (exclusive) (50 CFR 223.102(e)). The only known spawning population is in the Sacramento River (71 FR 17757; April 7, 2006). Sub-adult and adult southern DPS of North American green sturgeon enter coastal bays and estuaries north of San Francisco Bay, CA,during the summer months to forage (Lindley et al. 2008). As such, individuals of the southern DPS of North American green sturgeon's potential occurrence in the lower Klamath River is limited to only the sub-adult and adult life stages, only during summer months, and only in the Klamath River estuary. Potential effects of the proposed action on the southern DPS of North American green sturgeon are related to elevated SSCs. However, the elevated suspended sediment concentration in the Klamath estuary and adjacent shore habitat will occur for approximately three months, and is expected to be minor given the relatively small amount of total sediment input, in comparison to the total annual sediment inputs to the nearshore environment, and given the fact that river plume sediment inputs are a naturally occurring process (DOI and CDFG 2012; Appendix K of FERC 2021a). During the summer foraging period of the drawdown year, monthly median SSC values for the 48-year modeling hydroperiod under the proposed action range from 20 to 496 mg/L, levels higher than under background conditions of 1 to 131 mg/L (FERC 2021a). Because green sturgeon are benthic foragers and rely on their barbels, not sight to find prey, the increased turbidity is not likely to impede their foraging abilities. In addition, sturgeon regularly occupy turbid

estuaries (Moser and Lindley 2007), are tolerant of turbid water since they prefer it for spawning (Gessner and Bartel 2000), and are adapted to turbid waters (Perrin et al. 2003). By the summer of Year 2, SSC values at the Klamath Station are expected to be within the range of background conditions. Based on this analysis, the increases in turbidity from the proposed action are unlikely to have more than a negligible, insignificant impact on any Southern DPS green sturgeon individuals exposed to them. Therefore, based on this analysis, NMFS concurs with FERC that the proposed action is not likely to adversely affect the subject listed species.

Southern DPS of North American Green Sturgeon Critical Habitat

In 2009, NMFS designated critical habitat for the southern DPS of North American green sturgeon (74 FR 52300; October 9, 2009). The area identified as critical habitat includes: (1) all U.S. coastal marine waters out to the 60 fathom depth bathymetry line (relative to mean lower low water) from Monterey Bay, California north and east to include waters in the Strait of Juande Fuca, Washington; (2) the following freshwater riverine areas in California: the Sacramento River, Lower Feather River, and Lower Yuba River; (3) the Sacramento-San Joaquin Delta; and (4) Suisun, San Pablo, San Francisco, and Humboldt bays in California (50 CFR 226.219(a)). The Klamath River and estuary is not designated as critical habitat for southern DPS green sturgeon. The expected effects of the action overlap with only a small portion of the coastal marine area of the designated critical habitat, adjacent to the mouth of the Klamath River. The specific PBFs of coastal marine areas include food resources, water quality, and migratory corridors (50 CFR 226.219(b)(3)). Fine sediment released as part of the proposed action is anticipated to initially deposit on the seafloor shoreward of the 60-meter isobath along the coast, with greater quantities depositing in close proximity to the mouth of the Klamath River (DOI and CDFG 2012). After this initial deposition, resuspension during the typical winter storms will likely occur before final deposition and burial. Much of this sediment will eventually be transported further offshore to the mid-shelf and into deeper water off-shelf through progressive resuspension and fluid-mud gravity flows. This sediment deposition and resuspension may affect benthic food resources of green sturgeon. Food resources in the nearshore environment include crabs, shrimp, clams, annelid worms, and other invertebrates, as well as small fish like anchovies and sand lances (74 FR 52300). Many of these food resources are mobile and will not be affected by sediment deposition. NMFS concurs with FERC's determination that the proposed action is anticipated to have minimal to no effect on critical habitat due to the dilutive effects of the marine environment. Based on NMFS' analysis of the information available, the quantity, quality, or availability of the PBFs of the coastal marine area designated critical habitat are not likely to decline as a result of being exposed to the mobilized sediment or any other stressors associated with the proposed action, and these stressors are not likely to exclude green sturgeon from designated critical habitat. Based on this analysis, NMFS concurs with FERC that the proposed action is not likely to adversely affect designated critical habitat for the southern DPS of North American green sturgeon.

APPENDIX D
Incidental Take Statement included in the U.S. Department of Interior's Fish and Wildlife Service's Biological Opinion for the Surrender, Decommissioning, and Removal of the Lower Klamath Project, P-14803

Issued on December 22, 2021

INCIDENTAL TAKE STATEMENT

Introduction

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened animal species, respectively, without special exemption. Take is defined by the ESA as actions that harass, harm, pursue, hunt, shoot, wound, kill, trap, capture orcollect, or to attempt to engage in any such conduct (ESA section 3(18)). Harm is further defined as an act that actually kills or injures fish or wildlife (50 CFR § 17.3). Such an act may include significant habitat modification or degradation where it actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding or sheltering (50 CFR §17.3). Incidental take is defined as takings that result from, but are not the purpose of, carrying out of an otherwise lawful activity conducted by the Federal agency or applicant (50 CFR § 402.02).

The Service's regulatory definition of harass is constrained to "an intentional or negligent act or omission which creates the likelihood of injury to wildlife 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" and therefore is not considered incidental take (50 CFR § 17.3). If intentional acts are determined to be a form of take (trap, capture, harass, etc.), when the Service analyzes those activities as part of the proposed action and includes them in an Incidental Take Statement, that is considered adequate to serve as the exemption for that take. Under the terms of Sections 7(b)(4) and 7(o)(2) of the ESA, taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking, provided that such taking is compliant with the terms and conditions of this Incidental Take Statement.

The reasonable and prudent measures, and terms and conditions, described below are non- discretionary, and must be undertaken by the action agency so that they become binding conditions of any grant or permit issued or authorization provided by the federal action agency to the applicant, as appropriate, for the exemption in section 7(o)(2) to apply. The action agency has a continuing duty to regulate the activity covered by this Incidental Take Statement. If the action agency: (1) fails to include the terms and conditions in its authorizing decision; or (2) fails to exercise

oversight to ensure compliance that any applicant adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant or authorizing document; or (3) fails to retain discretion to ensure compliance with the terms and conditions through the extent of the project, the protective coverage and exemption provided in section 7(o)(2) may not apply. In order to monitor the effect of incidental take, the action agency must ensure that its grant, permit, or authorization includes all reporting requirements, including reporting the progress of the proposed action and its impact on the species to the Service as specified in the Incidental Take Statement [50 CFR § 402.14(i)(3)].

Amount or Extent of Take Anticipated

As described in Chapters 6, 8 and 9 of the accompanying Biological Opinion, the proposed action will remove approximately 107,470 acre-feet of reservoir habitat currently occupied by the Lost River sucker and shortnose sucker. The proposed action will also create conditions that facilitate upstream migration and colonization by Chinook salmon and steelhead to the upper Klamath Basin, and areas occupied by the Lost River and shortnose sucker. The proposed action includes a conservation measure to capture and translocate adult Lost River suckers and shortnose suckers prior to reservoir drawdown activities (BA pp. 80-81).

ITS-1.1. Incidental Take of Lost River Sucker and Shortnose Sucker Adults

The proposed action will result in the incidental take of Lost River sucker and shortnose sucker adults in the form of capture, harm, and kill (Table 6).

The Service anticipates the proposed action is reasonably certain to take 5,540 adult listed suckers through: 1) capturing and translocation; 2) harm due to injury from reduced fitness for sheltering or feeding; or 3) killing. This amount of take is based on the adult population estimates of listed suckers in the hydroelectric reach reservoirs that are likely to be exposed to toxic sediments, reduced dissolved oxygen levels, increased pH levels, acoustic shock, or direct mortality throughout the implementation of pre-drawdown, drawdown, and dam removal activities. It also includes those adults that will be harmed from injury or mortality during capture, handling, transport and translocation.

Action 2 of the Conservation Measure – Capture and Translocation of Adults

The Service is reasonably certain that 600 adult listed suckers would be taken through capture and translocation.

- Prior to drawdown, the Renewal Corporation (FERC's designated non-Federal representative), and its contractors and agents, will capture and translocate

adult Lost River suckers and shortnose suckers from J.C. Boyle Reservoir, Copco No. 1 Reservoir,and Iron Gate Reservoir prior to final drawdown activities using trammel nets, tangle nets, or electrofishing equipment.

- As described in section 1.3 of the Biological Opinion, an approximate 600 adult listed suckers will be captured from the three reservoirs during a two-week sampling effort.

- Adult suckers will be physically handled in order to allow for identification to species and sex, to collect physical measurements and fin clips, and to receive passive integrated transponder (PIT) tags. They will be placed in net pens and aerated live wells and driven to the translocation sites where they will receive an external parasite treatment and be released.

- Captured individuals will be translocated to the Klamath Falls National Fish Hatchery,the Klamath Tribes' sucker rearing facility, or the Tule Lake National Wildlife Refuge. Individuals may be translocated to other suitable translocation sites, identified through further planning and agreement between the Service, the Klamath Tribes, Oregon Department of Fish and Wildlife, California Department of Fish and Wildlife, and the Renewal Corporation, if needed.

- All of these individuals will experience impairment of essential behavioral patterns resulting in harm. Any of these adults may also be injured or killed during the capture or translocation effort. The Service assumes, based on recent relocation efforts of adult listed suckers, that up to five percent may be killed during the capture and transport activities (Z. Tiemann, personal communication, October 21, 2021).

- Monitoring during the capture and translocation effort, and reporting after this effort, is part of the proposed action as a conservation measure. This monitoring and reporting is practicable and necessary to validate the Service's estimates of the number of listed suckers taken through the capture and translocation effort, and it is necessary to inform the reinitiation trigger regarding incidental take.

- Refer to the respective Reasonable and Prudent Measures, Terms and Conditions, and Monitoring and Reporting Requirements below.

Other Project Activities – Adults

The Service is reasonably certain the remaining 4,940 adult listed suckers not captured and translocated would be taken through direct injury, harm from reduced fitness for sheltering or feeding, or killing, throughout implementation of the other pre-drawdown activities, and during drawdown and dam removal.

- While additional adults beyond the 600 individuals described above may be captured and translocated, and not subject to this specific take, we have made a reasonable effort to estimate take as the maximum anticipated amount. Our estimate here, and for larvae and juveniles below, is based on the highest number resulting from the best information we have, rather than using the lowest number.

ITS-1.2. Incidental Take of Lost River Sucker and Shortnose Sucker Juveniles and Larvae

The proposed action will result in the incidental take of Lost River sucker and shortnose sucker juveniles and larvae in the form of harm and kill (Table 6).

The Service is reasonably certain that 2,825 juveniles and 365,229 larvae would be taken through harm due to injury from reduced fitness for sheltering or feeding, or killing. This take would result from juveniles and larvae being exposed to toxic sediments, reduced dissolved oxygen levels, increased pH levels, acoustic shock that impair essential behavioral patterns, or direct mortality throughout the implementation of pre-drawdown, drawdown, and dam removal activities. Juveniles and larvae will not be captured and translocated under Action 2 of the conservation measure.

Approximately 98% of the total anticipated take of Lost River suckers and shortnose suckers would be larvae, with approximately 0.76% as juveniles and 1.5% as adults.

Take Summary

The amount of take reasonably certain to occur for adults, juveniles and larvae is not quantifiable by species. The adult population estimates are based on sampling that did not clearly estimate the number of each adult species in the reservoirs. The Service is reasonably certain however, based on all prior and more recent sampling efforts, that only shortnose sucker occurs in Iron Gate Reservoir (see Table 6). Our juvenile and larval population, and reasonable estimates of incidental take, are based on the Service's prior estimates of these age classes that are expected to survive in the hydroelectric reach on an annual basis, from upstream entrainment or drift at Keno Dam (Service 2013a, see also the accompanying Biological Opinion, section 5.4).

Therefore, the number of listed suckers anticipated to be incidentally taken is estimated and cannot be precisely quantified by species. We have made a reasonable effort to estimate take as the maximum anticipated amount, based on the highest number resulting from the best information we have, rather than using the lowest number. This was done to ensure that we do not underestimate the effect of the taking in our Jeopardy analysis (see Table 6).

Adult Lost River and shortnose suckers will be taken during Action 2 of the conservation measure and those adults that are not captured and translocated will be injured or killed during the pre-drawdown activities, reservoir drawdown or dam removal. Juveniles and larvae will not be captured under Action 2 of the conservation measure. Juveniles and larvae of both species will be injured or killed during other pre-drawdown activities, reservoir drawdown or dam removal.

In summary, the Service anticipates the proposed action is reasonably certain to result in incidental take through capture, injury, or killing of up to a combined 373,594 Lost River sucker and shortnose sucker adults, juveniles and larvae (Table 6). Most of the incidental take will occur from the loss of larvae (98%), with approximately 0.76% from the loss of juveniles and 1.5% from the loss of adults.

The incidental take, which includes take from capture and translocation of adults that are expected to survive, as well as take that occurs during the other project activities where suckers will be injured or killed, will affect approximately six percent of the rangewide adult population of the Lost River sucker and shortnose sucker.

Table 4. Summary of incidental take of Lost River and shortnose sucker as a result of the proposed action.

Species	Cause of Take	Location of Take	Type of Take	Life Stage Affected	Incidental Take
Lost River and Shortnose Sucker	Pre-Drawdown Activities Drawdown Dam Removal	J.C. Boyle Reservoir Copco No. 1 Reservoir Copco No. 2 Reservoir Iron Gate Reservoir (shortnose sucker only)	Injure and/or Kill	Larvae Juveniles Adults	365,229 larvae injured *and* killed 2,825 juveniles injured *and* killed 4,940 adults injured *or* killed
	Conservation Measure Capture and Translocation of Adults	J.C. Boyle Reservoir Copco No. 1 Reservoir Iron Gate Reservoir (shortnose sucker only)	Capture, Injure or Kill	Adults	600 adults captured – Some proportionof this number maybe injured or killed

Effect of the Take

In Chapter 9 of the Biological Opinion, the Service concluded that the effects of the proposed action, including this level of anticipated take, is not likely to jeopardize the continued existence of the Lost River sucker or shortnose sucker.

Reasonable and Prudent Measures

Pursuant to 50 CFR § 402.14(i)(1)(ii) and (iv), the incidental take statement specifies those reasonable and prudent measures (RPMs) that are considered necessary or appropriate to minimize the impact to such incidental taking on the species, and terms and conditions (including reporting requirements) that must be complied with by the action agency or applicant to implement the RPMs. These must be carried out for the exemption in section 7(o)(2) to apply.

For the established RPMs and Terms and Conditions below, both the FERC and the Renewal Corporation as the applicant are considered the responsible parties.

As part of the overall project design, the FERC and its designated non-federal representative, the Renewal Corporation, have taken steps to avoid and minimize impacts to listed species through the incorporation of numerous conservation measures (see section 1.3 of the accompanying Biological Opinion and BA pp. 75-84) and best

management practices. The Service's evaluation of jeopardy and incidental take is premised upon implementation of the conservation measure specific to Lost River and shortnose sucker and the best management practices for: (1) prohibiting herbicide application near water; and (2) implementing erosion control measures during drawdown. Any subsequent changes to the timing or application of the conservation measure or to the best management practices described in the BA may constitute a modification of theproposed action and may warrant reinitiating formal consultation, as specified at 50 CFR § 402.16 and in the Reinitiation - Closing Statement below.

The following RPMs and corresponding Terms and Conditions are intended to minimize the incidental take of the Lost River sucker and shortnose sucker. They also serve to clarify important steps of Action 2 of the conservation measure that is incorporated into the proposed action by the FERC and Renewal Corporation. The Service considers the conservation measure as incorporated into the proposed action and the RPMs and Terms and Conditions necessary and appropriate to minimize the impacts of incidental take of the Lost River sucker and shortnose sucker from the proposed action.

In order to be exempt from the prohibitions of section 9 of the ESA, the action agency and Renewal Corporation must comply with all of the RPMs and corresponding Terms and Conditions listed below.

RPM-1. FERC shall include in any license surrender order or other authorization for the amended surrender application for the Lower Klamath Project a condition that makes that license order or other authorization subject to the Reasonable and Prudent Measures, Termsand Conditions, and the Monitoring Requirements of this Incidental Take Statement.

RPM-2. FERC shall include in any license surrender order or other authorization for the amended surrender application for the Lower Klamath Project a reopener clause providing for the possible amendment of the order or other authorization to incorporate any reasonableand prudent alternatives, reasonable and prudent measures, terms and conditions, and monitoring requirements resulting from any reinitiated consultation on the authorized action.

RPM-3. FERC and the Renewal Corporation, and its contractors and agents, shall ensure compliance with the criteria and guidelines specified in the Biological Assessment and Biological Opinion and this Incidental Take Statement for the capture, translocation, and monitoring of Lost River and shortnose sucker to minimize incidental take from the captureand translocation.

Terms and Conditions

To be exempt from the prohibitions of Section 9 of the ESA, the action agency must fully comply with the following Terms and Conditions that implement the reasonable and prudent measures described above. These terms and conditions are nondiscretionary with respect to species listed under the ESA. To assure this compliance, the action agency (FERC) will include in any issued authorization, or license transfer document, the following Terms and Conditions.

1. To meet RPM-1, FERC shall include in any license surrender order or other authorization for the amended surrender application a condition that makes the order or other authorization subject to the Reasonable and Prudent Measures, Terms and Conditions, and Monitoring Requirements of this Incidental Take Statement.

2. To meet RPM-2, FERC shall include in any license surrender order or other authorization for the amended surrender application a specific condition that authorizes reopening theorder or other authorization to incorporate any reasonable and prudent alternatives, reasonable and prudent measures, terms and conditions, and monitoring requirements resulting from any reinitiated consultation on the authorized action based on circumstances listed in 50 CFR 402.16.

3. To meet RPM-3, FERC and the Renewal Corporation must fully comply with the conservation measure for the Lost River sucker and shortnose sucker, described as part of the proposed action. This includes all methods, timing, coordination, monitoring and reporting described for Action 2 of this conservation measure in the Biological Assessment, and the California and Oregon Adaptive Management Plans for Suckers. This will ensure the capture and translocation effort occurs prior to the drawdown year, in accordance with the described methods, thereby minimizing the effect of the taking.

4. To meet RPM-3, FERC and the Renewal Corporation will ensure the Renewal Corporation, and its agents or contractors, coordinates and communicates with the Service, the Klamath Tribes, the Oregon Department of Fish and Wildlife, and the California Department of Fish and Wildlife regarding the estimated date for capture and translocation. This is to ensure the translocation areas and staff at the Klamath Tribes' sucker rearing facility, the Klamath Falls National Fish Hatchery, the Tule Lake National Wildlife Refuge, or any other translocation site, are prepared to receive adult Lost River suckers and shortnose suckers, and thereby minimize any harm or mortality when the suckers are received at these translocation sites. Most critically, the FERC

and the Renewal Corporation will notify the Klamath Tribes and the Klamath Falls National Fish Hatchery through e-mail correspondence no later than three months before the capture and translocation is planned to occur. This is to ensure that any additional holding ponds, or other holding facilities, are constructed and prepared well in advance to thereby minimize any harm or mortality when the suckers are received at these translocation sites.

5. To meet RPM-3, FERC and the Renewal Corporation will ensure the capture and translocation efforts for Lost River sucker and shortnose suckers are conducted by experienced staff. These staff shall have prior experience conducting capture and sampling of suckers using trammel nets, tangle nets or electrofishing equipment. At least one month prior to conducting this activity, FERC and the Renewal Corporation shall submit a list of staff, with a summary of their qualifications, who will conduct the captureand translocation effort to the Service. The list and summaries shall be provided to both Field Supervisors of the Klamath Falls and Yreka Fish and Wildlife Field Offices. If volunteers participate in this effort, the action agency and Renewal Corporation will ensure the volunteers receive training from experienced staff on capture and handling techniques and that they are monitored by experienced staff. This will help minimize handling stress during the capture and processing of adult suckers.

6. To meet RPM-3, FERC and the Renewal Corporation will ensure that staff from the Klamath Tribes' sucker rearing facility and the Klamath Falls National Fish Hatchery are onsite at both the reservoirs, and the translocation locations, when capture and translocation of Lost River and shortnose suckers occurs, in order to help guide and assist with this process. The action agency and the Renewal Corporation will notify the Field Supervisor of the Klamath Falls Fish and Wildlife Field Office and the Klamath Tribes through e-mail correspondence at least three weeks in advance of the capture and translocation effort. This will assure that these experienced staff are present during the capture and translocation activities to thereby minimize any harm or mortality.

7. To meet RPM-3, FERC and the Renewal Corporation will ensure the Renewal Corporation, and its agents, contractors, or volunteers, will minimize stress as much as possible during capture and relocation of listed suckers.

8. To meet RPM-3, FERC and the Renewal Corporation will ensure the Renewal Corporation, and its agents, contractors, or volunteers, comply with NMFS' Backpack Electrofishing Guidelines (June 2000) when using backpack

electrofishing equipment. Following these guidelines will help minimize the effect of the taking.

9. To meet RPM-3, FERC and the Renewal Corporation will ensure the Renewal Corporation, and its agents, contractors, or volunteers, uses a new or pre-sterilized needle for each individual injection when passive integrated transponder tags (PIT-tags) are inserted into listed fish. Following this procedure will help minimize the effect of the taking.

10. To meet RPM-3, FERC and the Renewal Corporation will ensure the Renewal Corporation, and its agents, contractors, or volunteers, scans and weighs each sucker prior to loading into the live wells to: 1) record the PIT-tag identification; and 2) ensure the suckers are stocked into the live wells at densities appropriate to their size and species and the stocking density should be 1 lb. of fish per gallon of water. Following these guidelines will help minimize the effect of the taking.

11. To meet RPM-3, FERC and the Renewal Corporation will ensure the Renewal Corporation, and its agents, contractors, or volunteers, comply and are consistent with the"USFWS Klamath Basin Sucker Rearing Program Fish Handling Guidelines" when capturing, handling, and transporting listed fish. Following these guidelines will help minimize the effect of the taking.

12. To meet RPM-3, FERC and the Renewal Corporation will comply with all other Federal,State, and local laws and regulations. This includes any permits associated with transporting fish across state lines. Following these regulations will help minimize the effect of the taking.

Monitoring and Reporting Requirements

When incidental take is anticipated, the Terms and Conditions must include provisions for monitoring to report the progress of the proposed action and its impact on the listed species as specified in the Incidental Take Statement (50 CFR §402.14(i)(3)).

The amount of incidental take of listed suckers is based on the best available information the Service has from prior and recent sampling of adults, and prior entrainment estimates of larvae and juveniles. We will be able to ensure monitoring and reporting on the progress of the capture and translocation effort (Action 2 of the conservation measure), and its impact on the two species. See below.

However, monitoring the amount or extent of take of Lost River suckers and shortnose suckers during the in-water construction activities, and from habitat loss as a result of the proposed action, is impractical. Monitoring and reporting on any other forms of

take of Lost River sucker and shortnose sucker from the proposed action will be impractical to detect and measure for the following reasons: (1) precise quantification of the number of listed adults, juveniles and larvae in the hydroelectric reach would require nearly continuous sampling, handling, and identificationof these individuals; (2) their cryptic coloration makes detection difficult; (3) the likelihood of finding injured or dead suckers in a relatively large and extensive area, such as a reservoir, is very low; and (4) a high rate of removal of injured or killed suckers by predators or scavengers islikely to occur, which also makes detection and reporting difficult. Furthermore, listed suckers will die from causes unrelated to the project operations and determining the cause of death is unlikely.

Because of these difficulties, we have developed the following monitoring requirements. Monitoring of incidental take shall be conducted by the action agency or any applicant asfollows. These reporting requirements are established in accordance with 50 CFR §§402.14(i)(1)(iv), 402.14(i)(3), 13.45. To assure this compliance, the action agency (FERC)will include in any issued authorization, the following Monitoring Requirements.

1. The Renewal Corporation will track and process the Lost River sucker and shortnose sucker capture, handling, transport and translocation data, including information on when capture occurred, the number of captured and transported suckers, and the water quality constituents at the capture locations and translocation areas. The number of individuals lost during handling and transport will also be included (see item 5a below).

2. The Renewal Corporation will provide the data described above to the FERC, the Service, CDFW, ODFW, USGS, and the Klamath Tribes. The data shall be provided in an electronic format (e.g., Microsoft Excel spreadsheet, Word) and shall include any photographs of listed suckers from the capture and translocation effort.

3. The Renewal Corporation will assure the data for the collected fin clips is linked to the individual unique PIT tag identification numbers for each captured sucker. The Renewal Corporation will provide this data in an electronic format, along with the fin clips, to theService for genetic analysis.

4. Summary Reports will be submitted to the FERC and Service within three months of completing the capture and translocation effort.

5. The Summary Reports shall contain, at a minimum, the following information:

    a. Data for any suckers that die during the capture and translocation effort. This includes information on when an individual died

(e.g., during capture, holding, or transport), and the species, sex, measurements, and photographs.

b. Information on transport densities in the live wells and the dates of transport. The stocking densities of the live wells (e.g., number of fish per lb. of water) when the fish are transported.

c. The date, time, and location data for each translocation including water temperature data at the translocation site, time of translocation (e.g., dusk).

d. The results of disease and pathogen screening by ODFW and USFWS FHC,information on sex ratio.

e. All fin clip data with the associated passive integrated transponder (PIT) tagcodes.

DISPOSITION OF SICK, INJURED, OR DEAD SPECIMENS

Upon locating a dead, injured, or sick endangered or threatened species specimen, this must be reported to the U.S. Fish and Wildlife Service's Law Enforcement Division (916-414-6660) and prompt notification must be made to the nearest Service Law Enforcement Office (Wilsonville, Oregon; telephone: 503-682-6131), the Klamath Falls Fish and Wildlife Office (Klamath Falls, Oregon; telephone: 541-885-8481), and the Yreka Fish and Wildlife Office (530) 842-5763). Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed. The Service is to be notified in writing within three working days of the accidental death of, or injury to, a threatened or endangered species, or of the finding of any dead or injured specimen during implementation of the proposed action. Notification must include the date, time, and location (including GPS location information in UTM, NAD 83) of the incident or discovery, as well as any pertinent information on circumstances surrounding the incident or discovery. Care should be taken in handling sick or injured specimens to ensure effective treatment and care, or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered or threatened species or preservation of biological materials, the finder has the responsibility to carry out instructions provided by Service Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

The endangered Lost River suckers and shortnose suckers captured and / or killed through Action 2 of the conservation measure are considered exempt from the aforementioned reporting requirements. This is because specific information on injured or dead individuals will be recorded during the capture and translocation effort and reported after this effort, as stipulated inthe above Monitoring and Reporting Requirements.

CONSERVATION RECOMMENDATIONS

Sections 2(c) and 7(a)(1) of the ESA direct Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species and the ecosystems upon which they depend. Regulations in 50 CFR §402.02 define conservation recommendations as discretionary measures suggested by the Service to minimize or avoid adverse effects of a proposed action on a listed species or critical habitat, to help implement recovery plans, or to develop information.

We propose the following conservation recommendations:

1. If a spring capture and translocation effort before drawdown does occur and is unsuccessful, then a fall capture and translocation effort before drawdown shall be completed to help achieve the goals of the conservation measure.

2. Per Term and Condition 7 above, FERC and the Renewal Corporation will ensure the Renewal Corporation, and its agents, contractors, or volunteers, minimize stress as much as possible during capture and relocation of listed suckers. This includes possible anesthetization (following label requirements and the USFWS Klamath Basin Sucker Rearing Program Fish Handling Guidelines) of listed fish to avoid injuring or killing them during handling (measuring, PIT-tagging, and fin clipping); the fish must be allowed to recover before being released. Anesthetization will be implemented if staff from the Klamath Falls National Fish Hatchery, the Service, or CDFW recommend this action based on fish responses.

3. The Renewal Corporation will coordinate with ODFW and the Service on their monitoring efforts for bull trout in Long Creek, Boulder/Dixon Creek, Deming Creek, Leonard Creek and Brownsworth Creek.

In order for the Service to be informed of actions minimizing or avoiding adverse effects or thatbenefit listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION – CLOSING STATEMENT

This concludes formal consultation on the Lower Klamath Project. As provided in 50 CFR § 402.16, reinitiation of consultation is required and shall be requested by the Federal Agency, or by the Service, where discretionary Federal involvement or control over the action has been retained or is authorized by law and:

(1) If the amount or extent of taking specified in the incidental statement is exceeded.

(2) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;

(3) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this Biological Opinion or written concurrence; or

(4) If a new species is listed or critical habitat is designated that may be affected by the identified action.

APPENDIX E
Eagle Take Permit issued by the U.S. Department of the Interior's Fish and Wildlife Service for the Surrender, Decommissioning, and Removal of the Lower Klamath Project, P-14803

Issued on October 17, 2022

EAGLE TAKE ASSOCIATED WITH BUT NOT THE PURPOSE OF AN ACTIVITY

Permit Number: MBPER0055522

Version Number: 0

Effective: 2022-10-17 **Expires:** 2027-10-16

Issuing Office:

Department of the Interior

U.S. FISH AND WILDLIFE SERVICE

MB Sacramento Permit Office
2800 Cottage Way - Room W-2606
Sacramento, California 95825
permitsR8MB@fws.gov
Tel: 916-978-6183

Digitally signed by
Digitally signed by DANIEL BLAKE
Date: 2022.10.14 13:04:47 -07'00'

Eagle Permit Coordinator

Permittee:

Klamath River Renewal Corporation
2001 Addison St, Suite 317
Berkeley, California 94704
U.S.A.

Authority: Statutes and Regulations: 16 U.S.C. 668 (a) 50 CFR 13, 50 CFR 22.26

Location where authorized activity may be conducted:

The Project area includes the deconstruction of J.C. Boyle Dam and Powerhouse (located in Oregon), Copco No. 1 and No. 2 Dams and Powerhouses, and Iron Gate Dam and Powerhouse (located in California), as well as other associated features. See Figure 1 (Permit Attachment 1).

Reporting requirements:

Annual Report due January 31st each year. See permit Condition I for additional reporting requirements.

EAGLE TAKE ASSOCIATED WITH BUT NOT THE PURPOSE OF AN ACTIVITY

Permit Number: MBPER0055522

Version Number: 0

Effective: 2022-10-17 **Expires:** 2027-10-16

Authorizations and Conditions:

Permit Contacts:

Permit Biologist: Heather Beeler, heather_beeler@fws.gov (mailto:heather_beeler@fws.gov), 775-861-6304

Migratory Bird Permit Office Notification: fw8_eaglepermits@fws.gov, (916) 978-6183

Office of Law Enforcement: (916) 414-6660

Send notification of all incidents and other required reports via email to each of the following: heather_beeler@fws.gov and f8_eaglepermits@fws.gov. See additional reporting requirements (Condition I).

A. General conditions set out in Subpart B of 50 CFR 13, and specific conditions contained in Federal regulations cited below, are hereby made a part of this permit. All activities authorized herein must be carried out in accordance with and for the purposes described in the application submitted. Continued validity, or renewal of this permit is subject to complete and timely compliance with all applicable conditions, including the filing of all required information and reports.

B. Permittee is responsible for ensuring that the permitted activity is in compliance with all federal, tribal, state, and local laws and regulations applicable to eagles.

C. This Permit is valid for use by Permittee named above and any subpermittees (see Condition M).

D. **Definitions**:

In-use nest: An eagle nest characterized by the presence of one of more eggs, dependent young, or adult eagles on the nest in the past ten days during the breeding season.

Alternate nest: One of potentially several nests within a nesting territory that is not an in-use nest at the current time. When there is no in-use nest, all nests in the territory are alternate nests.

E. **Authorized Take**: Permittee is authorized under the Bald and Golden Eagle Protection Act (Eagle Act) 50 CFR 22.80 for the following:

1. Subject to the conditions contained with this Permit, the Klamath River Renewal Corporation (Permittee) is authorized for the incidental take from disturbance to and loss of annual productivity from disturbance of breeding eagle pairs caused by activities at the Lower Klamath Project (Federal Energy Regulatory Commission [FERC] Project No. 14803) (Project).

The Permittee is authorized to take by disturbance over the five year duration of this permit within two miles of Project activities:

EAGLE TAKE ASSOCIATED WITH BUT NOT THE PURPOSE OF AN ACTIVITY
Permit Number: MBPER0055522
Version Number: 0
Effective: 2022-10-17 **Expires:** 2027-10-16

- 26 incidents of bald eagle take
- 17 incidents of golden eagle take

2. Take must be incidental to otherwise lawful activities associated with the Project activities as described in the permit application and Project's Eagle Conservation Plan (Permit Attachment 1)

This permit does not authorize intentional take of eagles. This permit does not authorize incidental injury or mortality of eagles, nor does it authorize the take/removal of eagle nests.

F. **Avoidance and Minimization Measures:** Permittee must comply with the avoidance and minimization measures set forth below:
1. Wherever possible, conduct clearing, cutting, and grubbing activities outside of the eagle nesting period (January 1 through August 31).
2. Whenever possible, avoid the repeated use of aircraft utilized for project implementation purposes over eagle nests during the breeding season (January 1 through August 31). After April 15th, at nest sites that have been verified by a qualified eagle biologist as not containing eggs or young, aircraft buffers would no longer be required. Should project activities necessitate occasional aircraft flights over in-use eagle nests the following helicopter/aircraft buffers for horizontal and vertical ground and helicopter/aircraft will be implemented:

a. Bald eagle horizontal and vertical nest buffers for aircraft will be 1,000 feet.
b. Golden eagle horizontal and vertical nest buffers for aircraft will be one mile.

Should implementation of aircraft avoidance measures be deemed not practicable by the Permittee for particular bald or golden eagle nest sites near project aircraft activities, the Permittee may utilize their take authorizations accordingly.

Aircraft nest protection buffers do not apply to infrequent or occasional aircraft flights utilized for eagle nest monitoring as required under Condition H of this permit.

3. Over the 5-year duration of the permit, should monitoring data determine the Permittee has utilized their full take authorization for either bald or golden eagles, the following take avoidance and minimization measures will be implemented for project-related activities.

EAGLE TAKE ASSOCIATED WITH BUT NOT THE PURPOSE OF AN ACTIVITY
Permit Number: MBPER0055522
Version Number: 0
Effective: 2022-10-17 **Expires:** 2027-10-16

Species specific spatial buffers will be implemented as described below at all nest sites during the breeding season and through the post-fledging dependency period for young eagles (from January 1 through August 31). The buffer will be implemented throughout the courtship and egg laying phases of the breeding season (January 1 – April 15). After April 15, nest buffers will remain in effect until it is verified by the third-party monitor that either the eagles did not lay eggs, or, if eggs are laid, until the nests are no longer in-use either because they have fledged young or failed.

a. Bald eagle:
   i. A 0.5-mile spatial buffer will be provided for blasting activities.
   ii. A 660-foot spatial buffer will be provided for most project activities.
   iii. A 330-foot spatial buffer will be provided for non-motorized human activities.
   iv. A 1000 ft buffer will be provided for aircraft flights.
b. Golden eagle:
   i. A two-mile spatial buffer will be provided for blasting activities.
   ii. A one-mile spatial buffer will be provided for all other project activities.
   iii. A one-mile vertical and horizontal buffer will be provided for aircraft flights over nest sites.
c. Once the third-party monitor confirms that a nest is not in-use, and the Service's Regional Migratory Bird Program has concurred, the spatial no disturbance required buffer may be removed.

G. **Compensatory/Offsetting Mitigation:**

1. We have determined that the Project's permanent removal of electric-utility power poles and infrastructure, including removal of 220 low to medium voltage power poles of a design that is not eagle safe, will fulfill the Permittee's required 1.2:1 mitigation obligation to fully offset impacts to golden eagles. The number of electric poles being removed from the landscape exceeds our Resource Equivalency Analysis (REA) (Service 2013) calculation for required mitigation of 171 long-term retrofits or removals. Removal of approximately 70,000 feet of associated power lines will further benefit bald and golden eagles by reducing the risk of collision with those lines.
2. Permittee must **provide documentation** of having fulfilled the compensatory mitigation requirement for 17 incidents of golden eagle take from disturbance no later than **one year from electric-utility power poles and infrastructure removals.** As long as removals

EAGLE TAKE ASSOCIATED WITH BUT NOT THE PURPOSE OF AN ACTIVITY
Permit Number: MBPER0055522
Version Number: 0
Effective: 2022-10-17 **Expires:** 2027-10-16

stay ahead of actual take, changes to this timeline may be made with written permission from the Regional Migratory Bird Program.

H. Eagle Monitoring:

1. Third Party Monitor: Monitoring of the project area for the purposes of assessing impacts and/or identifying where eagles may be nesting proximate to Project activities must be conducted by qualified, independent third parties, with whom the Service has signed a valid memorandum of agreement. Monitors must report directly to the Service and provide a copy of the reports and materials to the Permittee.
2. Annual Monitoring: The Permittee will conduct **annual monitoring** of eagle nesting habitat **within two miles** of planned Project blasting areas, and **within one mile** of all other Project activities every year the Permit is valid. The purpose is to identify breeding eagle activity and nest locations to account for incidents of take, and so that appropriate avoidance and minimization buffers maybe implemented as described in Condition F of this permit.

Each nesting season during the 5-year permit term, the surveys occur during three periods:

a. January through February to confirm territory occupancy and identify new nests/breeding territories and initial activity at nest sites.
b. March through mid-April to determine if eagles are nesting; and
c. June to July to determine the fate of all breeding attempts.

Reasonable adjustments to this protocol may be made with written permission from the Regional Migratory Bird Program.
3. Impact assessment: The Permittee will monitor the eagle breeding population as described in H(2) each year for which the permit is valid, evaluate and validate impacts to the breeding eagle territories. Changes to this timeline may be made with written permission from the Regional Migratory Bird Program.
4. Protocol: The Permittee will implement the survey methods found in Pagel et al. 2010, with the exception of the area described in H(2).

I. Reporting:

1. *Annual Monitoring Reports:* Permittee must provide the Migratory Bird Program contact with a report summarizing survey methods, dates, and results each year. Data collected should include the following information for each monitoring session. This data must be maintained in your permit files for the duration of the permit term, and for an additional three years after your permit expires. This data should be summarized in the Project's annual reports. This data is not required to be submitted, but must be available should your Migratory Bird Program contact upon request.
a. Date and length of time eagles were observed;
b. Time of day;

EAGLE TAKE ASSOCIATED WITH BUT NOT THE PURPOSE OF AN ACTIVITY
Permit Number: MBPER0055522
Version Number: 0
Effective: 2022-10-17 **Expires:** 2027-10-16

c. Occupancy status of the eagle territory;
d. Number and age of eagles observed (i.e., juvenile, immature, subadult, adult); if age is not known, provide description;
e. Observed behavior (e.g. perching, feeding, sitting on or attending nest, in flight);
f. Status of any eagle nesting attempt; and
g. A description of any human or project activity at the time eagles are observed

Final reports and analyses of the project area eagles must be submitted by January 31st for the previous monitoring year. With written permission or direction from the Regional Migratory Bird Permit Office, report due dates may be altered if necessary.

The **Permitee' s Responsible Officer must sign a cover page** attached to the annual report validating its accuracy prior to submission. Submit to:

Migratory Bird Program (Eagle Permits)
US Fish and Wildlife Service
fw8_eaglepermits@fws.gov (mailto:fw8_eaglepermits@fws.gov)

2. *Eagles and Threatened/Endangered Species injury or mortality*: For any eagles found dead or injured, you must call a U.S. Fish and Wildlife Service Office of Law Enforcement (OLE) agent for instructions and approval before collecting or moving the remains or parts. It may be necessary to preserve the remains or parts onsite until an agent or other Service or State representative arrives to collect it.

For impacts to T/E Species not exempted by an Incidental Take Statement or authorized under an ESA section 10 permit, a representative for Permittee must call the Service, Office of Law Enforcement (see the contact information at the top of this permit) for instructions and approval **PRIOR** to collecting or moving the T/E remains.

A list of threatened and endangered species by State may be found in the Service's Threatened and Endangered Species System (TESS) database at https://www.fws.gov/endangered/ (https://www.fws.gov/endangered/) and the Service's Information for Planning and Consultation system (IPAC) at https://ecos.fws.gov/ipac/ (https://ecos.fws.gov/ipac/)

J. **Adaptive Management:** If monitoring data demonstrates that the Permittee has utilized their allocated take authorized for either species of eagle, the take avoidance and minimization measures described in Condition F(4) of this permit will be implemented. Should monitoring data demonstrate the Permitee has exceeded the amount of take

EAGLE TAKE ASSOCIATED WITH BUT NOT THE PURPOSE OF AN ACTIVITY
Permit Number: MBPER0055522
Version Number: 0
Effective: 2022-10-17 **Expires:** 2027-10-16

allowed in this authorization, (e.g., an additional breeding territories are disturbed by mining activities resulting in take), you will consult with us to discuss appropriate measures. Measures may include the permittee requesting an amendment to this permit to allow for additional take authorizations.

K. **Injured Birds:** If an eagle is injured, Permittee must immediately contact a permitted migratory bird rehabilitator or a licensed veterinarian (see and follow their instructions for transport, care, and/or disposition of birds). We encourage you to offset the costs of treating injured eagles by paying the expenses through donations, in-kind assistance, or other means. See Condition I for reporting instructions.

L. **Subpermittees:** Any person who is under Permittee's direct control or employed by or under contract to Permittee for the activities specified in this permit, or to whom Permittee has provided written authorization to conduct permitted activities may exercise the authority of this permit. As the Permittee, Permittee is legally responsible for ensuring that its subpermittees are in compliance with the terms and conditions of this permit, are qualified to perform these authorized activities and adhere to the terms of this permit. Permittee is also responsible for maintaining current records of anyone designated as a subpermittee, including copies of communications provided to the subpermittees authorizing them to conduct the permitted activities.

M. Acceptance of this permit serves as evidence that the Permittee and any person under the direct control of the Permittee or who is employed by or under contract to the Permittee for the activities specified in this permit (subpermittees) agree to abide by the terms of this permit and all sections of the *Title 50 Code of Federal Regulations* (CFR) part 13 §22.80, pertinent to issued eagle take permits. The Bald and Golden Eagle Protection Act, as amended, provides for civil and criminal penalties for failure to comply with the permit conditions. Failure to comply with the conditions of this permit could be cause for permit suspension, revocation, and/or citation.

The permit conditions above do not establish a precedent for future actions and do not represent a decision in principle about future consideration or the structure of future eagle-take permit conditions. The Service will analyze the issuance of each permit on a case-by-case basis and the details of each permit's conditions could be

EAGLE TAKE ASSOCIATED WITH BUT NOT THE PURPOSE OF AN ACTIVITY

Permit Number: MBPER0055522

Version Number: 0

Effective: 2022-10-17 **Expires:** 2027-10-16

different.

Standard Conditions

All of the provisions and conditions of the governing regulations at 50 CFR part 13 and 50 CFR 22.80 are conditions of your permit. Failure to comply with the conditions of your permit could be cause for suspension of the permit and/or citation. The standard conditions below are a continuation of your permit conditions. If you have any questions regarding these conditions, refer to the regulations and forms, or to obtain contact information for your issuing office, visit: https://www.fws.gov/birds/policies-and-regulations/permits/permit-policies-and-regulations.php (https://www.fws.gov/birds/policies-and-regulations/permits/permit-policies-and-regulations.php).

1. This permit does not authorize you to conduct activities on federal, state, tribal, or other public or private property without additional prior written permits or permission from the agency/landowner.

2. You remain responsible for all outstanding monitoring requirements and mitigation measures required under the terms of the permit for take that occurs prior to expiration, transfer, suspension, revocation, or cancellation of the permit. Provisions for discontinuance of permit activity are outlined in 50 CFR 13.26.

3. You must maintain records as required in 50 CFR 13.46 and 50 CFR part 22. Your records must also include the data gathered for monitoring and reporting purposes. All records relating to the permitted activities must be kept at the location indicated in writing by you to the migratory bird permit issuing office.

4. Acceptance of this permit authorizes the U.S. Fish and Wildlife Service to inspect and audit or copy any permits, books or records required to be kept by the permit and governing regulations (50 CFR 13.47).

5. You must allow Service personnel, or other qualified persons designated by the Service, access to the areas where eagles are likely to be affected by your project activities, at any reasonable hour, and with reasonable notice from the Service, for purposes of monitoring eagles at the site(s) while the permit is valid and for up to 3 years after it expires. (§ 22.26(c)(4)).

6. The Service may suspend, or revoke a permit issued under this section if necessary to safeguard local or regional eagle populations. This provision is in addition to the general criteria for amendment, suspension, and revocation of Federal permits set forth in 50 CFR §§13.23, 13.27, and 13.28.

7. To renew this permit if the activities described in Condition E have not been completed by the expiration date of this permit, Permittee must meet issuance criteria at the time of renewal and must be in compliance with permit conditions, including all monitoring and reporting requirements of the original permit. Permit conditions may be modified based on changed circumstances.

EAGLE TAKE ASSOCIATED WITH BUT NOT THE PURPOSE OF AN ACTIVITY

Permit Number: MBPER0055522

Version Number: 0

Effective: 2022-10-17 **Expires:** 2027-10-16

8. The U.S. Fish and Wildlife Service is not liable for any damage or injury to person, wildlife, or property that occurs as the result of carrying out the activities associated with this permit.

APPENDIX F
Map of the Lower Klamath Project Area

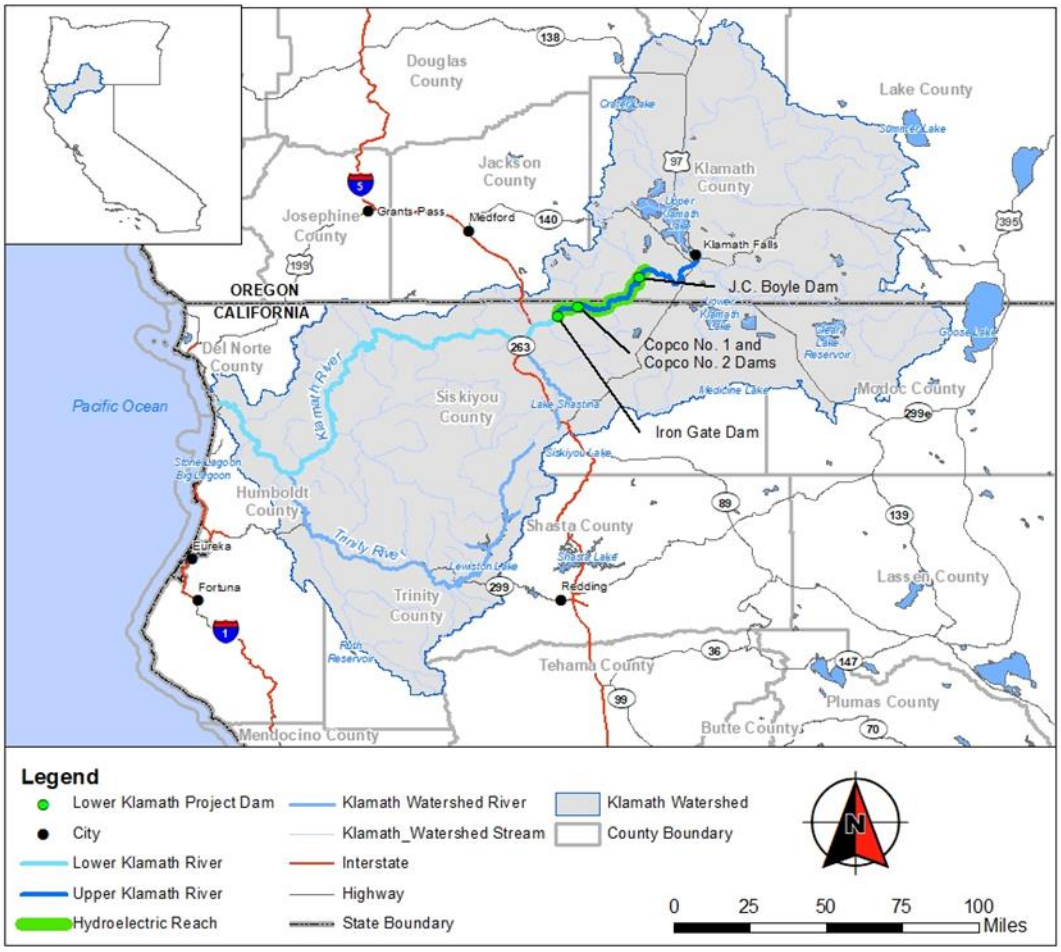

Figure 1. Lower Klamath Project Area (Source: Staff).