



Oregon

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MEMORANDUM

TO: Water Resources Commission

FROM: Richard Whitman, Special Assistant to the Director

SUBJECT: Agenda Item L, November 16, 2023
Water Resources Commission

Klamath Dam Removal Update

I. Introduction

This report provides an update on the removal of the four hydroelectric dams owned by PacifiCorp on the Klamath River in Oregon and California, along with work to prepare the basin for the reintroduction of salmon following dam removal. *This is an informational report.*

II. Integrated Water Resources Strategy Recommended Action

- 7.A – Develop and upgrade water and wastewater infrastructure (including decommissioning at end of useful life)

III. Background

In 2009, PacifiCorp and many partners, including the State of Oregon and the State of California, agreed to remove four hydroelectric dams on the Klamath River that have blocked fish passage for over 100 years. The hydroelectric license for the dams from the Federal Energy Regulatory Commission (FERC) expired in 2006 and relicensing the dams would have required extensive improvements and costs to ratepayers. California agreed to provide \$250 million in bond funding for removal, and the Oregon Legislature (2020 SB 76) and the Public Utilities Commissions of Oregon and California approved a rate surcharge for PacifiCorp customers to provide another \$200 million.

Initially, the dam removal agreement (the Klamath Hydroelectric Agreement - KHSA) required congressional approval and was paired with a broader agreement (the Klamath Basin Restoration Agreement - KBRA) resolving water right contests in the Klamath Adjudication, as well as providing funding for watershed restoration, reduced power costs, and water use efficiencies. The KBRA was contingent on the approval of federal legislation by no later than the end of 2015. It also did not address issues in the Upper Klamath Basin. The Upper Klamath Basin issues were resolved in a third agreement (the Upper Klamath Basin Comprehensive Agreement - UKBCA) in 2014 that was negotiated at the behest of Oregon's two senators, Congressman

Walden, and Governor Kitzhaber. Nevertheless, the U.S. House of Representatives failed to pass the required legislation to implement the agreements and, at the end of 2015, the KBRA and the UKBCA terminated.

Following the termination of the other agreements, the principal parties to the KHSA met over the course of several months and negotiated a revised agreement (AKHSA) that retained the same approach to funding dam removal, but that required approval of FERC. The AKHSA also provided for Oregon and California to form a new non-profit corporation to carry out dam removal.

The Klamath River Renewal Corporation (KRRRC) was formed in 2016, and (along with PacifiCorp) filed for transfer of PacifiCorp's license and for approval of license surrender and decommissioning. FERC approved partial transfer of the license, but initially required PacifiCorp to stay on the license during dam removal, which conflicted with the AKHSA. The principal parties again negotiated amendments to the AKHSA, with Oregon and California agreeing to become co-licensees with the KRRRC, and PacifiCorp and the states agreeing to provide additional financial backing. FERC approved the revised arrangement and finally approved the surrender order and decommissioning plan in 2022. FERC continues to provide significant oversight over the project.

IV. Dam Removal Activities

KRRRC's work is on track and on budget. The first of the four dams, Copco 2, was removed earlier this year. Preparatory work for drawdown of the remaining three reservoirs and removal of the structures is nearly complete, and initial drawdown is set to occur at all three reservoirs in January of 2024.

Deconstruction of the dams and spillways will begin when the risk of high flows from spring runoff has ended, likely in May or June of next year. The deconstruction of the dam structures is expected to be completed at all of the dams by next fall, restoring the river to a free-flowing condition for the first time in over 100 years. The timing of deconstruction is designed to maximize the flushing of fine sediments from the restored river channel over a one-to-two-year period. More detail on the steps in deconstruction, and the timing of the project will be provided in the PowerPoint presentation to the commission at its meeting.

Dam removal is only one part of this enormous project, the largest dam removal effort in the world. Work will begin on restoration of the reservoir pools and river reaches between the dams. In addition, the project includes the construction of several new bridges, a new water intake and line for the City of Yreka, and a new fish hatchery. The restoration work is likely to continue for a period of five-to-ten years after dam removal, until the restoration plans approved by FERC have been fully implemented.

V. The Broader Context and the Klamath Basin After Dam Removal

With the removal of the four PacifiCorp hydroelectric dams on the mainstem of the Klamath

River, the ecology of the river and its fisheries will soon change. According to the environmental analyses carried out in conjunction with dam removal,¹ although there will be some short-term adverse effects from fine sediment transport (from the former reservoirs), in the long-term the effects of dam removal will be overwhelmingly beneficial to the environment. The analyses predict that the project will increase populations of salmon in the Klamath River in the long-term by tens of thousands of returning fish on an annual average basis²

Such a significant increase, particularly in the Fall Chinook fishery, should reduce the frequency of fishery closures and increase tribal fisheries.³ The Klamath Tribes have noted recently⁴ that these changes in the ecosystem following dam removal may diminish or eliminate the rationale for flushing flow releases from Upper Klamath Lake by the Bureau of Reclamation under prior federal agency and court direction. While the U.S. Bureau of Reclamation (US BOR) is now completing a five-year “bridge” operations plan, dam removal and ecosystem change is bringing the opportunity to re-think some of the fundamental parameters that have guided water management in the Klamath Basin over the past ten years.

The basic construct for managing major water allocation decisions in the Klamath Basin has consisted of (1) volumes of water being allocated from Upper Klamath Lake for downstream

¹ See, e.g., FINAL APRIL 2020 Environmental Impact Report for the Lower Klamath Project License Surrender, available at https://klamathrenewal.org/wp-content/uploads/2020/07/2.-lkp_final_feir_vol_iii_att_1.pdf. Hereafter “California EIR.”

² The California Water Board estimates the overall impact of dam removal on Fall Chinook salmon as follows:

“It is likely that following dam removal under the Proposed Project, recolonization of the 80 miles of habitat downstream of Keno Dam would be rapid, with a longer timeframe for habitat in the Upper Klamath River and connected waterbodies (and contingent on fish passage being provided at Keno Impoundment/Lake Ewauna). The EDRRA model prediction is that with dam removal there would be substantially more (median increase greater than 10,000) returning adult Chinook salmon in the Klamath Basin that without dam removal, where the prediction is based solely on access to habitat between Iron Gate and Keno dams. California EIR, at AT1-552

“Median escapements to the Klamath Basin [as a whole] are predicted to be higher (median increase greater than 30,000) with the Proposed Project than under existing conditions.” Id.

³ “The potential for ocean harvest is also predicted to be greater with the Proposed Project due to increased Chinook salmon adults in the ocean. This logically would decrease the probability of low escapement leading to fishery closures under the Proposed Project.” Id.

⁴ Letter from Klamath Tribal Chair Clayton Dumont to Alan Heck, dated August 7, 2023, regarding Klamath Project ESA Consultation Stakeholder Feedback (Letter on file with the author).

“Major ecosystem changes are expected for the Klamath River following dam removal particularly related to the distribution and abundance of the freshwater annelid *Manayunkia speciosa*, which is host for the parasite *Ceratonova shasta* that infests and kills salmon. The still-operational 2019 NMFS Biological Opinion (BiOP) calls for flushing flows during the spring to induce movement of fine sediments below Iron Gate Dam in order to reduce the populations of the annelid host of *C. shasta*, thus reducing the incidence and severity of the parasite. With dam removal it is anticipated that, in a free-flowing Klamath River, these sorts of additional water releases of water from UKL will not be necessary and that *C. shasta* will no longer be a serious threat for salmon survival in the Klamath River. A new proposed action [U.S. Bureau of Reclamation operations plan] should reflect this welcome change.” Letter at page 2.

fisheries (primarily Southern Oregon Northern California Coho salmon listed as threatened under the federal Endangered Species Act - ESA) to both maintain mainstem flows as spawning habitat and to disrupt the processes that lead to disease, and (2) required minimum lake levels tied to access to spawning habitat for Lost River and Shortnose suckers (C'waam and Koptu), also listed under the ESA as endangered. With dam removal, and with recent research regarding sucker spawning and survival, the biological bases for these "boundary conditions" may be in question. Over the next five years, there is a significant opportunity for the tribal nations, irrigators, and other stakeholders in the Klamath to set a new table for integrating water rights and requirements under the federal Endangered Species Act. Doing so will require collaboration to resolve open questions of science as well as a collective agreement that sustainability for agriculture in the basin must be premised on reworking irrigation infrastructure and practices to be a part of species recovery rather than in tension with it.

VI. The Klamath Power and Facilities Agreement

When parties agreed to the AKHSA in 2016, most also agreed to help prepare the basin for the reintroduction of salmon and to help irrigators with the continued economic sustainability of irrigated agriculture. This agreement, the Klamath Power and Facilities Agreement (KPFPA), was signed at the same time as the AKHSA and is an important element of reducing the level of conflict over water resources in the basin.

The KPFPA was negotiated and signed in 2016 to provide certain benefits to Klamath basin irrigators, recognizing that the reintroduction of salmon via the AKHSA has the potential to increase regulatory burdens on water users, and that there is a significant need for investment in infrastructure that can help agriculture support a healthy ecosystem in the basin. In return, the water user signatories agreed to refrain from opposing implementation of the AKHSA.

Oregon has been working actively to help the federal government uphold commitments under the KPFPA. The KPFPA provided benefits for irrigators including, but not limited to agreements: (1) of the Department of the Interior (DOI) and US BOR for BOR to accept the donation of Keno dam to the Bureau from PacifiCorp (as PacifiCorp will have no reason to operate Keno dam following the removal of its four hydroelectric dams), and to operate Keno at no cost to the irrigator-signatories; (2) of the parties to investigate and where possible, develop low-cost sources of electricity for operation of the Klamath Reclamation Project; (3) of the parties to support funding for evaluation, design, construction and extraordinary maintenance of facilities to reduce entrainment of salmonids; (4) of the parties to seek a revised comprehensive agreement resolving water disputes in the basin; and (5) to support federal legislation implementing the KPFPA.

Oregon is working actively with water users in the Klamath Reclamation Project and with federal agencies to advance work on the KPFPA. The BOR will take ownership of Keno Dam in early 2024 and assume operational responsibility for Link River Dam from PacifiCorp. The Oregon Department of Fish and Wildlife recently submitted a funding request to NOAA to begin work on the fishway at Keno dam and Oregon, along with many partners, and continues to work with districts and irrigators interested in screening. Finally, Oregon is working closely with the Klamath Water Users Association (KWUA) on additional federal legislation to fully implement

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