United States Department of the Interior

BUREAU OF RECLAMATION
Mid-Pacific Region
Klamath Basin Area Office
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VIA ELECTRONIC AND GROUND MAIL

Memorandum

To: Field Supervisor, U.S. Fish and Wildlife Service
Attn: Mr. Daniel Blake

From: *Jeffrey Nettleton*
Area Manager Acting For

Subject: Addendum to the Proposed Action included in the Bureau of Reclamation's December 21, 2018, *Final Biological Assessment on the Effects of the Proposed Action to Operate the Klamath Project from April 1, 2019 through March 31, 2029 on Federally-Listed Threatened and Endangered Species*

This letter provides the National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS; collectively, the Services) an addendum that includes modifications to, and clarifications of, components of the Proposed Action (PA) described and analyzed in the Bureau of Reclamation's December 21, 2018, *Final Biological Assessment on the Effects of the Proposed Action to Operate the Klamath Project from April 1, 2019, through March 31, 2029 (2018 BA).* These modifications and clarifications to the 2018 BA are largely the result of discussions that began in late 2018 and culminated in a January 30, 2019, meeting between Reclamation and the Services, though some additional minor modifications are also included as described below.

The following information describes the modifications and clarifications that update Reclamation's 2018 BA to address this and other issues.

Term of Proposed Action

The term of the PA included in the 2018 BA is from April 1, 2019, to March 31, 2029. As a result of discussions between Reclamation and the Services, it was agreed that the term of the PA should be reduced from ten years to five years. As such, the modified term for the PA to be considered and analyzed by the Services will be from April 1, 2019 to March 31, 2024. This decision was determined to be prudent given the anticipated removal of PacifiCorp's four hydroelectric dams on the Klamath River. Furthermore, the modified term for the PA decreases the likelihood of experiencing consecutive years with extreme hydrologic conditions (i.e., extreme drought year or extreme high flow year) outside of those contemplated in the modeling of the 2018 PA and within the existing POR. Reclamation believes that this reduces the risk that

coho salmon or Lost River and shortnose suckers would experience conditions that could result in persistent negative effects greater than those considered in Reclamation's effects analysis.

Enhanced May/June Flows in Years of Concern

In late 2018, concerns were raised by NMFS that the May and June Iron Gate Dam releases (Klamath River flows) proposed in Reclamation's 2018 BA would result in a reduction in available habitat for juvenile coho salmon. Reclamation proposes that when the April 1 Environmental Water Account (EWA) estimate is greater than 400,000 acre-feet (AF) (407,000 AF in even years) and less than 576,000 AF (which occurs in 13 of the 36 years in the period of record [1981 - 2016]; years of concern) an additional volume of water was necessary to address the concern.

Based on these discussions, Reclamation and the Services agreed on a revised model run that augmented May and June Iron Gate Dam flow targets with an additional 20,000 AF (10,000 AF from Project Supply and 10,000 AF from live flow and Upper Klamath Lake (UKL)) in the years of concern. The additional volume of water in May and June will increase the amount of available habitat for juvenile coho salmon relative to the PA contained in the 2018 BA. Therefore, Reclamation revised the PA to augment May and June Iron Gate Dam flows with an additional 20,000 AF in years of concern. Specific changes to operations and model code are detailed in the attached modified PA (*see* Part 4.3.2.2.2.2.5) and revised Appendix 4 (*see* Part A.4.4.8).

Changes to UKL elevations proposed in this modification alter the range of elevations that were analyzed in the 2018 BA. However, USFWS participated in the development of the new May/June flow criteria and believe that conditions in UKL presented by this modification are still protective of suckers during critical life stages. USFWS will incorporate this new range of conditions into their effects analysis to be included in their forthcoming Biological Opinion. The modified PA results in both lower and higher end of month (EOM) UKL surface elevations. EOM UKL elevations decrease by a maximum of 0.31 feet (ft) (e.g., EOM July and EOM August in 2003) and increase by up to 0.08 ft (e.g., EOM October 2015). On average, UKL EOM elevations will be reduced by 0.05 ft. Thus, for suckers, this modification usually results in slightly lower UKL elevations in approximately 68 percent of the months in the modeled Period of Record. However, UKL elevations are slightly higher in approximately 17 percent of months and the modification results in no change in approximately 16 percent of months. In dry years, UKL elevations are usually slightly higher than those modeled in the 2018 BA. The differences result in an average decrease of 0.02 ft during sucker spawning from EOM February to EOM May and an average decrease of 0.07 ft for EOM August and EOM September that results in slightly less habitat available to adults in late summer in preferred depths in the northern part of UKL. However, the minimal additional impacts are within the range previously analyzed in Chapter 7 of the 2018 BA.

Increased flows in May and June are likely to improve outmigration conditions for juvenile coho salmon due to increases in the amount of suitable habitat for juvenile salmonids, the ability to optimize the usage (timing and distribution) of the additional 20,000 AF in May and June, and potential reductions in daily water temperatures. Similarly, increased usable habitat area and potentially reduced temperatures are likely to benefit coho salmon and critical habitat as well as essential fish habitat for coho and Chinook salmon, and should reduce competition between

hatchery and natural-origin salmonids through additional habitat availability and improved outmigration conditions.

Change to Tule Lake Sump 1A Minimum Elevation
Reclamation is proposing to change the April 1 through September 30 Tule Lake Sump 1A minimum elevation from 4,034.6 ft to 4,034.0 ft. The purpose of this modification is increased flexibility in Tulelake Irrigation District and Pumping Plant D operations, which will thereby provide more flexibility for Lower Klamath National Wildlife Refuge deliveries. *See* Part 4.3.2.2.7 in the attached revised PA for specific revisions.

Past seasonal water level operations of 4034.0 ft (Oct 1 – March 31) and 4034.6 feet (ft; April 1-Sept 30) have resulted in water levels in Tule Lake sumps (1A and 1B) generally less than 5 ft water depth. These operations and resultant water depths appear to provide adequate habitat for larval and juvenile Lost River and shortnose sucker life stages (USFWS 2008; 2013). A year-round minimum surface elevation of 4034.0 ft is likely to preserve areas of Sump 1A with a water depth of at least 4 ft, providing adult suckers with protection from fish-eating birds.

Relative to water quality, the slightly lower surface elevation of 4034.0 ft may permit emergent wetland vegetation to establish seasonally in Sump 1A, which could enhance water quality conditions during the growing season via nutrient uptake (Geiger 2001 *in* USFWS 2008).

The proposed change in operation at Tule Lake Sump 1A to a year-round minimum surface elevation of 4034.0 ft is not anticipated to have negative impacts to suckers or sucker habitat in the sump.

Reclamation believes that the above modifications and clarifications are responsive to and meet the goals and intent of our recent discussions. Reclamation is appreciative of the collaboration and inter-agency coordination that has taken place to date and will continue to make every effort to aid the Services in the consultation process. If you have any questions, please contact Kristen Hiatt at 541-883-6935, or via e-mail at khiatt@usbr.gov.

Attachments (2)

cc: Jim Simondet