United States Department of the Interior

FISH AND WILDLIFE SERVICE

Washington Fish and Wildlife Office
Central Washington Field Office
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Wenatchee, WA 98801

In Reply Refer To:
01EWFW00-2018-CPA-0003
X Ref: 01EWFW00-2017-CPA-0022

NOV 2 1 2017

Alene Underwood
Public Utility District No. 1 of Chelan County
P.O. Box 1231
Wenatchee, WA 98807-1231

Dear Ms. Underwood:

Re: U.S. Fish and Wildlife Service Comments on the October 18, 2017
Chelan PUD Tumwater Fishway Improvements Technical Memorandum
Rocky Reach Hydroelectric Project, FERC Project No. 2145

The U.S. Fish and Wildlife Service (Service) has reviewed the Chelan PUD Tumwater Fishway Improvements Technical Memorandum (Technical Memorandum) dated October 18, 2017 for the Tumwater Dam which is a facility of the Rocky Reach Hydroelectric Project (Project), FERC No. 2145, located on the Wenatchee River, Chelan County, WA. Public Utility District No. 1 of Chelan County (Chelan PUD) is the owner and operator of the Project, including Tumwater Dam. The following comments are provided as the Service's response to Applicant in accordance with Federal Power Act (FPA), as amended; the Endangered Species Act, as amended; and the Fish and Wildlife Coordination Act, as amended.

BACKGROUND

The Service was involved in the relicensing of the Project resulting in a new operating license order issued by the Federal Energy Regulatory Commission on February 19, 2009. That order includes fishway prescriptions for the Project developed by the Service for salmon and steelhead, bull trout, and Pacific lamprey in accordance with Section 18 of the Federal Power Act (16 U.S.C. 811). Due to procedural issues pertaining to the FERC boundary for the Project, that relicensing effort did not contemplate the potential effects of the Tumwater Dam on aquatic and terrestrial resources, including the upstream passage of Pacific lamprey at this facility. Prior to the issuance of the February 19, 2009 order, the Service also consulted with Chelan PUD on the relicensing of the Project under section 7 of the Endangered Species Act, with a specific focus on

the potential impacts of the Project, including the upstream fishway and broodstock capture facilities at the Tumwater Dam on bull trout. Our biological opinions (USFWS 2008) memorialized terms and conditions for bull trout at the Project as well as Tumwater Dam and are simultaneously included in the February 19, 2009, license order. Since the issuance of the license order, the Service has been providing technical assistance to Chelan PUD, including ways to address upstream passage of Pacific lamprey at Tumwater Dam (Rainey et al. 2015). While the Service appreciates the efforts on the part of Chelan PUD to develop this Technical Memorandum, to characterize it as a "voluntary effort" does not accurately portray the requirement under Section 18 of the Federal Power Act to assess the upstream and downstream passage of all relevant fish species which may interact with *all* facilities associated with the Project, including Tumwater Dam.

GENERAL COMMENTS

The Service generally agrees with the approach that Chelan PUD has taken in the development of the Technical Memorandum, but it appears to lack the scale of detail needed to understand the implementation and evaluation of the Preferred Alternative. It appears to follow the guidelines of section 18 of the FPA (USFWS 2002) where work is completed to gather existing information pertaining to an existing fishway, determining the need for additional fishways at a site; and planning, modeling, and developing fishway designs. After the respective fishways are constructed and operational, Chelan PUD and the Service would work together to evaluate, monitor, and inspect the fishways to ensure they are performing as needed for Pacific lamprey. In any program where fishway improvements are being considered and a feasibility study is being conducted, there is typically a well-conceived bilateral implementation plan and schedule. It should include baseline behavioral studies, feasibility study, final design, construction, and post-construction evaluation. The Service is willing to provide technical assistance to Chelan PUD that would provide clearer detail regarding these milestones.

We note that the Technical Memorandum appears to lack a step in which further Pacific lamprey behavioral data is collected to interpret how lamprey approach the downstream portion of the Tumwater Dam (i.e., tailrace), and whether or not upstream lamprey movement is predominantly focused on the left bank or right bank of the tailrace. This type of data collection would help determine if your Preferred Alternative is compatible with actual lamprey behavior and avoids the pitfalls of a veritable "trial and error" approach. While some lamprey data have been collected at the Project during Yakama Nation lamprey translocation efforts and via limited radio-telemetry techniques with some applicability to Tumwater Dam, we recommend that 2018 be utilized as a "research year" to collect more radio-telemetry data to fine-tune the implementation of an upstream passage alternative for Pacific lamprey at the facility.

The Preferred Alternative, *Lamprey Passage System (LPS) Within Existing Fishway*, would use ramps at the existing fishway entrances, an LPS entrance ramp, LPS transport ramp and rest boxes, and a LPS exit structure. A number of items are named in the Technical Memorandum that appeared in the Service's *Rapid Assessment Report* (Rainey et al. 2015), such as transition ramps at the fishway entrances and vertical slots. These options have been proven not to interfere with the upstream passage of salmon and steelhead on other hydroelectric projects on

the mid-Columbia River and we request that these options be considered as part of the Preferred Alternative.

SPECIFIC COMMENTS ON THE TECHNICAL MEMORANDUM

Key Design Criteria (page 2): Adult lamprey migration timing in the Wenatchee River is discussed in this section and assumed to be from late June through September. Spawn timing in the Technical Memorandum is assumed to be approximately June through August. This is not entirely accurate. Adult migration is typically from June through October with a subsequent migration the following March through August until the end of spawning. There is also an occasional winter migration. The spring run appears to be an important component in the tributaries.

Key Design Criteria (page 2): This section describes maximum lamprey burst speeds as "on the order of 8-9 feet per second and sustained swimming speeds are on the order of 2-4 feet per second." This statement is not entirely correct. Please refer to the Pacific Lamprey Technical Work Group white paper from 2017 for more complete criteria (USFWS 2017).

Key Design Criteria (page 3): We recognize that "a streamflow of 3,000 cubic feet per second" was identified as a potential upper limit for lamprey passage in the Technical Memorandum as well as the Service's *Rapid Assessment Report* (Rainey et al. 2015). Please keep in mind that this is a generalized conclusion and in reality there is no clear upper limit in migration in terms of cubic feet per second in natural streams and rivers.

Table 1. Hydrology and Hydraulics (page 4): As the designs of the Preferred Alternative evolve over time, please ensure this lamprey passage system is sheltered adequately from flooding, which could wipe out the device at high flows. It should also be modular, and it components should be readily accessible for repair and start-up after flood events.

Hydrology and Hydraulics (page 4): The hydraulics of the Tumwater Dam fishway are described in part in the following discussion, "The velocity at the vertical slot baffles averages approximately 5.5 feet per second over the range of conditions. The centroid of the water jet at both locations will have a velocity higher than the average, while lower velocities will exist at the perimeter. The average velocities at both locations are within the burst speed capability of lamprey." We need to verify whether or not this is an accurate measurement because it will be difficult for lamprey to navigate this velocity from weir to weir within the Tumwater Dam fishway depending on which alternative is ultimately selected.

Preferred Alternative (page 9): The Service recommends placement of a steep ramp with sheet flow adjacent to the downstream, high-flow fishway entrance (similar to Three-Mile Dam). This entrance would be sheltered from flow over the dam, and would cater to all lamprey in the immediate fishway tailrace, not just to those able to enter into the fishway entrance pool. We also request that Chelan PUD explore the use of 4-inch flex tube as applied to the Eel River in California. These additions to the alternatives analysis may provide a low budget but effective conveyance structure for lamprey passage at Tumwater Dam.

Implementation of the Preferred Alternative (page 11): This section states, "A biological monitoring and evaluation (M&E) plan should be developed in conjunction with the prototype LPS to evaluate the effectiveness of the entrance and overall lamprey passage." This statement implies that a M&E plan will not be comprehensive and assess all respective components and metrics associated with the LPS structural itself as well as all of the appropriate biological metrics to be used in assessing the LPS' effectiveness. We recommend this M&E plan include an assessment of all phases of the LPS' implementation and evaluation.

Chelan PUD Tumwater Fishway Modifications Literature Review (page 3, Attachment 2): Will 45° ramps be used in the design of the LPS (Preferred Alternative)? Please clarify this design criteria in the subsequent draft of the Technical Memorandum.

SUMMARY COMMENTS

Effective fishways for Pacific lamprey at Tumwater Dam such as those contemplated in the Technical Memorandum and the Service's Rapid Assessment Report (Rainey et al. 2015) are in the public interest and are an appropriate project purpose because they are an important means to protect the nation's fish resources. The Service appreciates the opportunity to comment on the Technical Memorandum and hope our comments are useful to Chelan PUD. In the event that Chelan PUD has technical questions or concerns regarding these comments, please contact Steve Lewis at (509) 665-3508 extension 2002 (e-mail Stephen_Lewis@fws.gov).

Sincerely,

For Eric V. Rickerson, State Supervisor
Washington Fish and Wildlife Office

cc:

USFWS, Portland, OR (K. Freund)
USFWS Leavenworth, WA (J. Craig)
WDFW, Ephrata, WA (P. Verhey)
Yakama Nation, Toppenish, WA (B. Rose)
CRITFC, Portland, OR (T. Skiles)
FERC, Washington, D.C. (K. Bose)

LITERATURE CITED

Rainey, Steve et al. 2015. Draft Rapid Assessment of Adult Lamprey Passage at Tumwater Dam. August 4, 2015.

USFWS (U.S. Fish and Wildlife Service) 2002. Interagency Guidance for the Prescription of Fishways Pursuant to Section 18 of the Federal Power Act. Washington, D.C.

USFWS (U.S. Fish and Wildlife Service) 2008. Biological Opinion for the Rocky Reach Hydroelectric Project Proposed License. U.S. Fish and Wildlife Service, Region1, Wenatchee, WA. 190pp.

USFWS (U.S. Fish and Wildlife Service) 2017. Technical White Paper: Practical Guidelines for Incorporating Adult Pacific Lamprey Passage at Fishways April 2017 FINAL DRAFT to the Lamprey Technical Workgroup. 25 April.