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August 7, 2017

DECISION MEMORANDUM

TO: Council members

FROM: Mark Fritsch, project implementation manager

SUBJECT: Step review of the Master Plan - *Pacific Lamprey Artificial Propagation, Translocation, Restoration, and Research.*

PROPOSED ACTION: The Fish and Wildlife Committee recommends to the Council the implementation of the work outlined in the Master Plan through Phase 3, Objective 5, for Projects #1994-026-00, *Pacific Lamprey Research and Restoration Project (CTUIR)*, #2008-470-00, *Yakama Nation Ceded Lands Lamprey Evaluation and Restoration Project (YN)* and #2008-524-00, *Tribal Pacific Lamprey Restoration Plan (CRITFC)*. With this recommendation the Council requests that Bonneville and the sponsors address the following.

- Assess whether these projects will be adequately funded through this phase of the Master Plan.
- Provide a status review for the ISRP and Council decision prior to the initiation of Objective 6 of Phase 3 in 2022.

SIGNIFICANCE: The intent of this Master Plan is to address the delivery and results of objectives, for the involved projects, from past Council reviews and recommendations. In addition, the Master Plan also supports efforts and recommendations of the Tribal Pacific Lamprey Restoration Plan and Conservation Agreement for

Pacific Lamprey as recognized in the 2014 Fish and Wildlife Program, as well as addressing a critical emerging priority.

BUDGETARY/ECONOMIC IMPACTS

There are three projects that have work elements associated with the goal and intent of the Master Plan. One project, CRITFC Project #2008-524-00, *Implement Tribal Pacific Lamprey Restoration Plan*, funded and coordinated the development of the Master Plan and will continue to assist in that role during the proposed phases of the Master Plan. The two other projects are to address the implementation of the Master Plan - CTUIR Project #1994-026-00, *Pacific Lamprey Research and Restoration Project* (FY 2018 contracted amount of \$670,848) and YN Project #2008-470-00, *Yakama Nation Ceded Lands Lamprey Evaluation and Restoration* (FY 2018 contracted amount of \$304,601).

It is important to note that the YN and the CTUIR approach to the implementation of Phase 1 and 2 of the Master Plan is to utilize existing equipment and upgrades and expansion at existing facilities to achieve design, construction and operational efficiencies.

It is expected that facility upgrades and equipment needs to initiate the implementation of the Master Plan approximates \$205,000 and operations and recurring maintenance would vary among years and phases. Generally, costs associated with Phases 1 through 3 (Objective 5) would likely range from approximately \$100,000 to \$350,000 annually per each of the two projects (see Table 5-12 and 5-13 in the Master Plan).

BACKGROUND

In 1994, the Council approved the first lamprey project in the Fish and Wildlife Program. The project (Project #1994-026-00, *Pacific Lamprey Research and Restoration Project*) was proposed by the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) and called for research and restoration of Pacific Lamprey throughout tribal ceded lands. This effort was followed by additional projects in 2002, 2007, 2008 and 2018. Currently, there are six active projects that focus on Pacific Lamprey funded through the F&W Program. These projects have a variety of goals and objectives, but aim at establishing population status and trends, documenting distribution, identifying limiting factors, and developing reintroduction and supplementation actions. Funding for these six projects totals \$2,726,888¹ in FY 2018 (see table below).

| Project # | Title | Sponsor |
|-------------|--|---|
| 1994-026-00 | Pacific Lamprey Research and Restoration Project | National Oceanic and Atmospheric Administration (NOAA), Umatilla Confederated Tribes (CTUIR), @ \$670,848 |
| 2008-308-00 | Willamette Falls Lamprey Escapement Estimate | Confederated Tribes of Warm Springs, @ \$182,760 |

¹ Reflects FY2018 contracted amount.

| | | |
|-------------|---|---|
| 2008-470-00 | Yakama Nation Ceded Lands Lamprey Evaluation and Restoration | Yakama Confederated Tribes, @ \$304,601 |
| 2008-524-00 | Implement Tribal Pacific Lamprey Restoration Plan | Columbia River Inter-Tribal Fish Commission (CRITFC), @ \$844,080 |
| 2011-014-00 | Evaluate Status & Limiting Factors of Pacific Lamprey in the lower Deschutes River, Fifteenmile Creek and Hood River Subbasins | Confederated Tribes of Warm Springs, @ \$476,395 |
| 2017-005-00 | Pacific Lamprey Conservation Initiative | Pacific States Marine Fisheries Commission, @ \$248,204 |

Of these six projects, three have aspects and work elements associated with Pacific Lamprey artificial propagation and translocation. Since 2000 and 2008, respectively, the Yakama Nation (YN) and CTUIR projects, with support from Columbia River Inter-Tribal Fish Commission (CRITFC), have done work on artificial propagation including research into spawning and rearing techniques and, translocation, restoration, and research activities.

In addition to the projects listed above, the USACE developed a Passage Improvement Plan as part of the MOA with Tribes and CRITFC. The goal of this 10-year plan was to improve adult and juvenile passage and survival through the Federal Columbia River Power System with emphasis on improvements at Bonneville, John Day, and McNary dams.

Prior to and concurrent with the work conducted by the projects above, the Columbia River Basin Lamprey Technical Workgroup, active since 1995, assisted the region in providing guidance and recommendations as a subcommittee to the Anadromous Fish Committee of the Columbia Basin Fish and Wildlife Authority. In 2011, the [Tribal Restoration Plan for the Columbia River Basin](#) (TPLRP) was completed which outlined objectives to halt the decline of Pacific Lamprey and restore them throughout their historical range for ecological health and tribal cultural use. With the development of the Pacific Lamprey Assessment and Template for Conservation Measures by USFWS in 2011 which noted and built upon the needs and actions identified in the TPLRP, there was a need to solidify regional commitments for lamprey actions and in response a [Conservation Agreement for Pacific Lamprey](#) (Agreement) was signed in 2012 by tribal, state and federal partners in the region to collaborate on efforts that reduce or eliminate threats to Pacific Lamprey. The goal of the Agreement is to achieve long-term persistence of the species.

To demonstrate and reaffirm the importance of Pacific Lamprey to the ecological needs of the Basin and to respect the importance to the Tribal sovereigns, the Council recognized, and supported the TPLRP and Agreement in the 2014 Fish and Wildlife Program. This was also confirmed by the need to integrate and take the necessary

steps to implement additional lamprey measures into the Program (i.e., Emerging Priorities).

In addition, on November 16, 2017, and in response to the Council's Programmatic Issue #8 (i.e., Lamprey) placed² on the Program's lamprey projects as part of the [Research, Monitoring and Evaluation and Artificial Production category project review recommendation of June 2011](#), the Council received a submittal titled [Synthesis of Threats, Critical Uncertainties, and Limiting Factors in Relation to Past, Present and Future Priority Restoration Actions for Pacific Lamprey in the Columbia River Basin](#). On February 9, 2018, based on the ISRP review ([ISRP document 2018-2](#)), the Council found that the synthesis provided a "comprehensive" summary of the current understanding of Pacific lamprey in the basin and has addressed previous questions and concerns.

Master Plan

On March 28, 2018 the Council received the Master Plan - [Pacific Lamprey Artificial Propagation, Translocation, Restoration, and Research \(Master Plan\) – Conceptual phase to address Step 1 review elements](#). The goal of this plan is to evaluate the feasibility of using artificial propagation and translocation techniques to better understand and ultimately restore Pacific Lamprey throughout its range, with emphasis on the Columbia River basin population segment. This submittal was anticipated as part of the project review decisions associated with [Project #2008-470-00, Yakama Nation Ceded Lands Lamprey Evaluation and Restoration Project](#) and [Project #2008-524-00, Tribal Pacific Lamprey Restoration Plan](#) in 2009 and 2010, respectively.

I. Pacific Lamprey Artificial Propagation, Translocation, Restoration, and Research

The master plan is intended to evaluate the feasibility of using artificial propagation and translocation techniques to better understand and ultimately restore Pacific Lamprey throughout its range, with emphasis on the Columbia River basin population segment.

This Master Plan summarizes and builds on over two decades of research and implementation, including adult translocation and artificial propagation efforts of all the lamprey work, as well as identifies facilities needed to meet artificial propagation actions associated with the three projects that are acting together to accomplish the overall goal of the Master Plan.

² The synthesis was a condition placed on the ongoing Pacific lamprey projects in the Program - *The synthesis should summarize results and develop conclusions on the data gathered so far about the status and trends of lamprey populations, limiting factors, and critical uncertainties and risks. The report should also prioritize actions based on these conclusions. Critical questions to analyze include the value of tributary habitat projects in helping to improve lamprey returns, whether mainstem dam passage is the key limiting factor, and the relative role of other factors such as ocean conditions and toxic contaminants.*

The Master Plan describes a phased (1 - 4) approach, emphasizing adaptive management, with the goal of making progress towards the artificial propagation research goals and biological objectives identified in the TPLRP, LCA, Framework, subbasin plans, the NPCC's Program, and the Columbia Basin Fish Accords within a feasible, cost effective, and biologically conservative manner. Phase 1 is ongoing through 2020 and Phase 2 is planned for 2018 through 2026. Results from this period will be synthesized during Phase 3 and will inform the future direction of the Master Plan (Phase 4). The phased approach also facilitates adaptive management and decisions. The geographic scope includes multiple subbasins within the middle to upper portions of the Columbia River Basin, including the Yakima, Methow, Umatilla, Grande Ronde, Walla Walla, and Tucannon River subbasins.

Phase 1 (2012-2020), initiated in 2011, and based on a previous decision associated with the YN and CRITFC projects, is characterized as the initial efforts towards successfully propagating and rearing larval lamprey through the first 6-12 months of their life history. This effort will continue, as well as the ongoing translocation of adult Pacific Lamprey into the Yakima, Methow, Umatilla, and Grande Ronde subbasins.

Phase 2 (2018-2026) is characterized as initiating a variety of lamprey re-introduction strategies as per experimental designs described in the Master Plan. These would include adult translocation, a continued activity, and outplanting of larval and early juvenile lamprey from a laboratory environment into the natural environment, a new activity, to determine post-release survival and habitat use, densities, growth, health, movements, and ultimately an understanding of extended larval survival for each strategy. In addition, some of the production beyond the needs of the study designs can be used as surrogates for natural fish in other research efforts such as entrainment into irrigation facilities/diversions or in survival evaluations at hydroelectric dams. This phase will also establish and study population segments utilizing translocated adults and artificially propagated larval/juvenile Pacific Lamprey in the Yakima, Methow, Umatilla, Grande Ronde, Walla Walla, and Tucannon subbasins, with the Entiat, Klickitat, John Day, and Imnaha subbasins serving as controls.

Phase 3 (2022-2029) is characterized as analysis of results obtained in Phase 2 and development of management alternatives identifying how best to proceed with the application of artificial propagation and translocation as continued research and supplementation tools.

Phase 4 (2027 – 2029+) is characterized as a comprehensive implementation of a restoration strategy for Pacific Lamprey within the Upper Columbia and Snake River systems if warranted under Phase 3.

II. Facilities

Currently, both the YN and CTUIR have facilities to maintain propagated larval lamprey and hold adult lamprey at densities that these spaces allow for. The YN has

established the capacity to spawn, fertilize, incubate, and rear lamprey at the YN Prosser Fish Hatchery (PFH) in Prosser, WA, with assistance from other projects through surplus equipment and technical assistance. The CTUIR began holding brood stock in 2000. Currently, two existing facilities are used for adult lamprey brood stock holding, the South Fork Walla Walla (SFWW) facility located near Milton-Freewater, Oregon and the Minthorn Springs Acclimation facility located near Mission, Oregon. As part of Phases 1 and 2 the CTUIR are proposing to continue use of the facilities at the Water and Environmental Center (WEC) at Walla Walla Community College (Walla Walla, WA) and at the Mukilteo Research Station (MRS) in Mukilteo, WA operated by the NOAA Fisheries.

The YN intends to enhance the existing facilities at PFH to provide for additional research capacity, efficiency, staff safety and convenience as part of Phase 2 implementation. The primary developments will include the addition of a 65' x 35' pole building on the East Facility to house eight additional 14-ft-long trough tanks, eight additional 7-ft-deep shallow trough tanks, and four additional 6-foot circular tanks. Yakama Nation estimates costs associated with these enhancements to the PFH would total \$135,000 over the first two years of project implementation.

The CTUIR has also proposed to renovate the currently unused Ozone building at the SFWW facility to permit Phase 2 expansion of the CTUIR lamprey propagation program. This will include a 32' x 36' building that can be supplied with either South Fork Walla Walla River water or well water to maintain three, 4' circular tanks for adult holding and 36, 8' troughs for larval rearing. Costs associated with retrofitting the former Ozone building at SFWW and the minor expansion of the facilities at MSR and WEC totals \$70,000 over the first three years of project implementation.

III. Major Project Review (The Three-Step Process)

On March 28, 2018 the Council received a submittal from the Columbia River Inter-Tribal Fish Commission (CRITFC), a [Master Plan](#) titled *Pacific Lamprey Artificial Propagation, Translocation, Restoration, and Research*. This Master Plan was prepared by the CRITFC, the Confederated Tribes and Bands of the Yakama Nation (YN), the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), and the Nez Perce Tribe (NPT). This submittal is intended to initiate the review process associated with artificial production initiatives (i.e., [Three-Step Review Process](#)) in the F&W Program. Specifically, the Master Plan addresses the conditions placed on the CRITFC Project and the YN Project in 2009 and 2010, respectively.

On May 16, 2018 the Council received the ISRP review ([ISRP document 2018-5](#)). The ISRP found the Master Plan *meets scientific review criteria (qualified)*.

ANALYSIS

The ISRP found that the proposal provided requirements to meet the Step 1 review elements for this phase of the initiative. The review panel acknowledges the recognition

of the managers and their strong rationale for the progression associated with translocation and propagation of Pacific lamprey for the recovery of this species in the Columbia River Basin. The six qualifications raised by the ISRP are to be addressed as part of the Step 2 review (Qualifications #1, #2 and #3) or are intended to strengthen the implementation of the MP or ensure compliance to review elements (#4³, #5 and #6). Specifically, needs associated with the anticipated Step 2 review include; quantitative objectives regarding the artificially propagated lamprey (#1), details regarding the analytical approaches to evaluate outplantings at different life stages (#2), and the evaluation of different supplementation strategies (#3).

Currently it is not known if supplementation (via artificial propagation) can promote the restoration of Pacific lamprey in the Columbia Basin. Translocation efforts to date appear to have been successful, but more rigorous analyses would be beneficial according to the proponents. The investigations and comparisons presented in the Master Plan will help determine if artificial propagation is a feasible and effective restoration tool for lamprey.

The foundational planning approach within the Master Plan for Phases 1 through 3 is to develop lamprey artificial propagation, translocation, restoration, and research activities within existing facilities, thereby reducing associated costs to the greatest extent possible.

Due to the experimental nature and Phased approach, and the prolonged time frame associated with the Master Plan a review should occur during Phase 3 prior to Objective #6⁴ being implemented in 2022. This review would not only allow for a status update to the region, but also ensure that the qualifications are in process of being addressed and/or will be as part of the anticipated Step 2 review at the end of Phase 3.

Based on the ISRP review the Fish and Wildlife Committee recommends to the Council the implementation of the work outlined in the Master Plan through Phase 3, Objective 5⁵, for Projects #1994-026-00, *Pacific Lamprey Research and Restoration Project* (CTUIR), #2008-470-00, *Yakama Nation Ceded Lands Lamprey Evaluation and Restoration Project (YN)* and #2008-524-00, *Tribal Pacific Lamprey Restoration Plan* (CRITFC). With this recommendation the Council requests that Bonneville and the sponsors assess whether these projects will be adequately funded⁶ through this phase of the Master Plan and provide a status review for the ISRP and Council decision prior to the initiation of Objective 6 of Phase 3 in 2022.

³ At a future phase, dependent on the outcome and findings of the proposed work, development of an HGMP could potentially be initiated after review and approval of other components of this Master Plan.

⁴ *Phase 3, Objective 6. Utilize results from supplementation research strategies to inform development of restoration actions.*

⁵ *Phase 3, Objective 5. Cross compare and evaluate supplementation monitoring results to determine most successful strategies.*

⁶ When those details are available from Bonneville's ongoing Fiscal Year 2019 budget adjustment negotiations.