Northwest **Power** and **Conservation** Council

November 6, 2018

DECISION MEMORANDUM

TO: **Fish and Wildlife Committee members**

FROM: **Mark Fritsch**

SUBJECT: **Follow-up action for Project #2017-005-00, *Pacific Lamprey Conservation Initiative Columbia River Basin***

PROPOSED ACTION: Council staff recommends the Fish and Wildlife Committee support the continued implementation of a suite of lamprey conservation and restoration measures, via Project #2017-005-00, at a funding level of $238,682 in Fiscal Year 2019 and not to exceed $300,000 per year in the out years. This recommendation is conditioned on the project participating in annual reporting, beginning in 2020, as required with the Program's other umbrella type projects.

SIGNIFICANCE: The intent of this project is to address a critical emerging priority and support the efforts of the Conservation Agreement for Pacific Lamprey (Agreement) as outlined in the 2014 Fish and Wildlife Program. As conditioned in the initial funding recommendation, this is the first-year review of actions implemented under this project and the request to secure outyear funding.

BUDGETARY/ECONOMIC IMPACTS

First year funding associated with this project totaled $248,204 in expense funds for Fiscal Year 2018. For FY 2019 the request is for $238,692 and out year funding is

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requested at $300,000 per year to be derived from cost savings placeholder[1]. The project currently has a performance period of June 1, 2018 to May 31, 2019.

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 and 2008. In 2008, 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 previous work, the Columbia River Basin Lamprey Technical Workgroup (LTWG), 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 Pacific Lamprey 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 heath 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 otherwise work to eliminate threats to Pacific Lamprey. The goal of the Agreement is to achieve long-term persistence of Pacific Lamprey throughout their historical U.S. range.

This Agreement provides a mechanism for interested parties to collaborate and pool available resources to expeditiously and effectively implement conservation and restoration actions. The objectives of the Agreement are: 1) Evaluate Pacific Lamprey population structure; 2) Identify global issues that are impacting Pacific Lamprey; 3) Public outreach; 4) Data sharing; 5) Identify and characterize Pacific Lamprey for the Regional Management Units (RMUs); 6) Identify, secure and enhance watershed conditions contained in the RMUs; and 7) Restore Pacific Lamprey to the RMUs.

In an effort 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).

[1] Cost savings from existing projects that had decreasing expenditures or were closing out.

On November 16, 2017, and in response and follow-up to the Council's Programmatic Issue #8 (i.e., Lamprey) placed[2] 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 addressed previous questions and concerns.

Based on collaboration, regional support, the status of the Agreement and the TPLRP, and the critical need to provide additional support for Pacific Lamprey in the Columbia River Basin, the Council and Bonneville approached the Pacific Lamprey Conservation Team (CT) with an opportunity to develop a proposal to implement high priority lamprey restoration actions in the Columbia River basin via the cost savings placeholder.

On October 26, 2017 the Council and Bonneville received a submittal from USFWS for Proposal #2017-005-00, Pacific Lamprey Conservation Initiative Columbia River Basin Projects. The overarching goal of the project is to support the cooperative effort among agencies and tribes to achieve long-term persistence of Pacific Lamprey and support traditional tribal cultural use over the U.S. range by funding on-the-ground implementation of restoration actions that contribute to this effort. The purpose of the project is to facilitate funding for high priority lamprey restoration actions that are currently unfunded or partially funded in the Columbia River Basin. This project is an umbrella type project for Pacific Lamprey in the Basin. That is, the CT will utilize identified priority projects from the annually updated Regional Implementation Plans (RIPs) from Regional Management Units (RMU) within the Columbia and Snake River basins (i.e., Lower Columbia/Willamette, Mid-Columbia, Snake and Upper Columbia) that fit within agreed upon guidelines and support them through funding.

On October 27, 2017 the proposal was submitted to the ISRP and on November 28, 2017 the ISRP provided its review (ISRP document 2017-13) – due to the umbrella intent of the proposal the emphasis of the review focused on the operating guidelines and selection criteria that guide the identification of the priority lamprey actions. The ISRP found the proposal "Meets Scientific Review Criteria (Qualified)". The three qualifications raised by the ISRP are intended to generally strengthen the proposal as it is implemented. The ISRP found that the proposal provided a comprehensive confirmation of the proposal justification and acknowledged the large amount of effort it has taken for the Agreement Conservation Team to achieve what they have over the

[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*.

past five years in the development of a region-wide structure that can identify, coordinate, and support work needed to restore Pacific Lamprey.

The initial contract year served as a pilot year for the program it was agreed upon that additional support of this project would be based on a performance review of implemented actions by the Council at the end of the first implementation season. This review needs to clearly demonstrate the benefit and value of this project and the types of work completed under it to Pacific Lamprey in the Columbia and Snake River basins.

On March 14, 2018, based on the ISRP review, the Council approved Project #2017-005-00, *Pacific Lamprey Conservation Initiative Columbia River Basin Projects* for implementation. The specific language of the recommendation is as follows.

The Council recommend Bonneville Implement Project proposal #2017-005-00, Pacific Lamprey Conservation Initiative Columbia River Basin Projects, conditioned on the following.

(1) funding at a level not to exceed $248,204 for Fiscal Year 2018;
(2) the project demonstrates benefit and value added through a performance review associated with the end of this first-year contract in November 2018; and
(3) further implementation in Fiscal Year 2019 will be based on the performance review and the availability of funds.

On October 31, 2018 the project sponsors and the Pacific Lamprey Conservation Team provided the Council summaries of their implementation accomplishments during their first-year contract (FY 2018) and a request for secured out year funding.

ANALYSIS

Prior to 2018, there were five projects funded through the F&W Program that focused on Pacific Lamprey. These projects have a variety of goals and objectives, but aim at establishing population status and trends, documenting distribution, identifying limiting factors, and develop reintroduction and supplementation actions. Funding for these five projects totals $2,335,186[3] 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
2008-470-00	Yakama Nation Ceded Lands Lamprey Evaluation and Restoration	Yakama Confederated Tribes, @ $304,601

[3] Reflects FY2018 contracted amount.

2008-524-00	Implement Tribal Pacific Lamprey Restoration Plan	Columbia River Inter-Tribal Fish Commission (CRITFC), @ $700,582
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

Last year, with the approval of Project #2017-005-00, *Pacific Lamprey Conservation Initiative Columbia River Basin* this non-accord project was able to provide an opportunity to pursue the implementation of additional high priority lamprey actions in the Columbia River basin, as intended.

During the first year of implementation three high priority restoration actions were completed through the efforts of the *Pacific Lamprey Conservation Initiative Columbia River Basin Projects.* Summaries of the three actions are found in attachments 1 – 3. As demonstrated by effective implementation, please note the short contractual time frame and the minimal overhead cost of the implemented actions, the project has achieved its overarching goal to support, facilitate and assist efforts in the Columbia River Basin toward lamprey restoration. It should be noted that this Project demonstrates that it is accomplishing the intent of the Fish and Wildlife priority as defined in the 2014 Fish and Wildlife Program[4] and addressing the needs of the species as an emerging priority.

As per the Council recommendation of March 2018 there is a need to provide a future path for this project. Based on the demonstrated success for this first year of implementation, and the foundation created by the Conservation Team to achieve what they have over the past several years in the development of a region-wide structure that can identify, coordinate, and support work needed to restore Pacific Lamprey, the Council staff recommends that this project continue to be implemented. In addition, the sponsor wants to ensure support to projects that assess threats and evaluate actions that will inform, through best management practices, and open future efforts to restore Pacific Lamprey throughout the Columbia Basin and the Pacific Region. Funding for continued implementation of the project can be secured through the cost savings placeholder in the out-years.

For 2019 the Conservation Team reviewed potential implementation actions totaling $1,013,000. Based on the Conservation Team's review criteria for implementation through Project #2017-005-00, *Pacific Lamprey Conservation Initiative Columbia River Basin*, the high priority actions from the Regional Implementations Plans for the Columbia and Snake River Regional Management Units (RMUs) totaled $579,000, of which $238,682 can be implemented in 2019 (see following table). From this assessment and in an effort to demonstrate success and capacity to ensure the actions get completed in a timely manner, allow for planning purposes and to account for adjustments to indirect adjustments, the sponsors are asking for an annual funding

[4] Part Six, II, Emerging program priorities, #5. Implement additional sturgeon and lamprey measures (passage and research).

stream of $300,000 to assist in their conservation and restoration measures in the Basin.

Based on the first-year success the Council staff recommends to the Fish and Wildlife Committee support for the continued implementation of this project at $238,682 in Fiscal Year 2019 and at a funding level not to exceed $300,000 per year in the out years. This recommendation is conditioned on the project participating in the annual reporting at the end of each calendar year including administrative costs and a summary of projects implemented as required with the Program's umbrella projects, beginning in 2020.

Following is a table of the proposed prioritized and discussed projects for the FY 2019 Pacific Lamprey Conservation Initiative Columbia River Basin Projects.

RMU	Project	Threat Addressed	Partners[5]	Request
Mid-Columbia	Klickitat Lamprey Passage Improvement	Adult Passage	**YN**, WDFW	$25,000
Upper Columbia	Reduction of Larval/Juvenile Lamprey Entrainment	Juvenile Passage	**BOR**, WDFW, Yakama Nation, USFWS, CCPUD	$62,630
Lower Columbia	Southwest Washington Lamprey Assessment	Status and Distribution Data Gaps	**WDFW**, USFWS	$15,622
Lower Columbia	Assessments of Lamprey Passage at Fish Hatchery Fishways and Barrier Dams	Adult and Juvenile Passage	**USFWS**, ODFW, WDFW and private parties	$28,760
Multiple RMUs	BMPs for Evaluating Lamprey Passage at Culverts	Adult and Juvenile Passage	**Stillwater Sciences**, USFWS, Lamprey Technical Workgroup	$15,000
Willamette	Improving Adult Lamprey Counts in the McKenzie River	Status and Distribution Data Gaps	**ODFW,** USACE, EWEB	$27,500
Upper Columbia	Juvenile Passage Lower Yakima and Columbia	Juvenile Passage	**USGS**, BOR, YN, Irrigation Districts	$37,292
			Subtotal	**$211,804**
			PSFMC Indirect @12.69%	**$26,878**
			Total	**$238,682**

[5] Bold text represents the sponsor.

Title: Lower South Fork McKenzie River Floodplain Enhancement Project
Total Project Cost: $1,910,946
Funding Sources: BPA, US Forest Service, Oregon Watershed Enhancement Board, MWA
Implementation Dates: June 1, 2018 – August 16, 2018
Partners: USFS, McKenzie Watershed Alliance (Council), ODFW, USACE

Background

The Lower South Fork McKenzie River Floodplain Enhancement Project (Project) took place on the South Fork McKenzie River (South Fork) within the McKenzie River Sub-basin located in Western Oregon. The installation of U.S. Army Corps of Engineers (USACE)-operated Cougar Dam, placement of berms in the floodplain, removal of instream wood, and timber harvest from floodplain forests degraded and greatly simplified aquatic and terrestrial habitat within the 4.2 river miles downstream of the dam. These practices essentially transformed the lower South Fork from a low-gradient depositional system with low energy floodplain-connected environments to an incised transport system with historic floodplain terraces that were rarely inundated. This transformation dramatically altered most fluvial processes and the resulting habitat complexity historically associated with alluvial valleys.
In 2015, the Willamette National Forest (WNF) and McKenzie Watershed Council (MWC) began planning a large-scale restoration project focused on the lower South Fork. (The McKenzie Watershed Alliance (MWA) is the fiscal sponsor of the MWC). Project design followed an approached developed by a group of USFS restoration practitioners that is well defined in the literature by Cluer and Thorne (2013) as Stage 0 of the Stream Evolution Model. The Stage 0 approach focuses on reconnecting valley bottoms by filling incised channels and removing any constraints such as berms, roadbeds, or manipulated floodplains while placing large wood. The Stage 0 approach creates a well-connected alluvial valley and improves key fluvial processes such as flood storage, sediment retention, sorting of substrates, channel migration, and the creation of complex habitats at all flows. This is accomplished without the construction of engineered channels or habitat features within existing incised channel typically associated with traditional stream restoration methodology.

Implementation

The Project was completed over an 11-week period in the summer of 2018. The initial step was to clear over 15 acres of floodplain forest of trees and shrubs, which was stockpiled for later placement. Contractors then began excavation of “cut” zones within the cleared areas with a combination of excavators, dozers, and off-highway dump trucks. The Project redistributed over 80,000 cubic yards of sediment from cut zones to fill 0.6 miles of the incised mainstem South Fork channel 3-8 feet. Cut and fill elevations were designed to recreate a well-connected floodplain surface that encourages deposition and habitat development. The design included numerous “leave islands” where floodplain sediment was not removed and native vegetation was retained to provide shade and act as a seed source.
Contractors used an excavator to place nearly 2,500 pieces of large wood, along with smaller slash material throughout the lower 0.6 miles liner stream miles and 15-plus acres of disturbed floodplain. Wood was placed in a combination of small and large jams, and in a “lattice” patchwork of individual pieces in order to maximize coverage and complexity. An additional 450 pieces of large wood were placed by helicopter throughout 110 acres of undisturbed floodplain, primarily in relic channels. Large wood was sourced from floodplain cut areas, a series of 3-5 acre upland gaps and thinning treatments, and two 3-acres clearings utilized as staging areas for the helicopter.

Prior to implementation of in-stream restoration activities, the WNF and MWC worked with the USACE to lower flows in the South Fork to 330 cfs. The entire South Fork was then diverted into a relic side channel via a 1,000 foot constructed channel. Sediment fill “super-sacks” and earthen material were utilized to create the dam that diverted the river into the temporary channel. A railroad flatcar bridge and series of five culverts allowed for access over the diversion channel to the project area. Prior to the completion of dewatering, ODFW and a team of MWC volunteers spent over five days salvaging over 3,600 fish including an adult Pacific lamprey, 75 ammocoetes, 3 adult spring Chinook salmon, and 583 juvenile Chinook. The entire 125 acres project area was re-watered over a three day period in mid-August as the diversion dam was slowly removed and the diversion channel filled. The slow re-watering process was deliberate and intended to minimize downstream turbidity impacts. The South Fork is now flowing through multiple channels and surfaces within the 1-mile wide valley. The Project was managed by the Kate Meyer, McKenzie River Ranger District Fisheries Biologist and Jared Weybright, MWC Executive Director.

NEZ PERCE TRIBE
Department of Fisheries Resources Management

Administration • Enforcement • Harvest • Production • Research • Resident Fish • Watershed

Translocating Adult Lamprey past Mainstem Dams to Snake Basin
October 16, 2018

Goal: Substantially increase numbers of juvenile Pacific lamprey in the Snake River Basin to improve species abundance, maintain emittance of larval pheromones to attract adults, geographic diversity, and ecological function.
Partners: Nez Perce Tribe, USFWS, CRITFC, USACE
FY 2018 Bonneville Power Administration Contract (PSMFC):
Amount: $30,000 **Period**: 06/01/2018-05/31/2019

Problem: Mainstem passage has been identified as the most serious limiting factor affecting Pacific Lamprey in the Snake Basin, with mainstem dams being the most serious threat (Luzier et al. 2011). The average adult per dam passage rate for the eight mainstem dams leading to the Snake Basin is estimated to be about 50%. Consequently, the majority of watersheds in Upper Columbia and Snake Basins are considered possibly or presumed extirpated, with the remainder ranked as critically imperiled. Translocation of adult lamprey past the mainstem dams is the only means currently available to expeditiously and effectively reestablish substantive larval and juvenile presence in the Snake Basin, where many watershed populations are at or near extirpation.

Project: The Nez Perce Tribe began translocating Pacific Lamprey in 2006, with the first release of adults in 2007. Translocated lamprey are transported to adult holding facilities at the Nez Perce Tribal Hatchery for overwintering. The project provides the means to:

1) Upgrade existing facilities used to overwinter adult lamprey captured in the lower Columbia River ($20,000 – flow alarm system, adult holding shed enclosure) in a safe and reliable manner so as to decrease potential for mortality or stress ($13,600).
2) Provide added support staff and equipment to allow adult collection, transporting, processing (disease control, genetic sampling, and release group management), inventorying and release of additional translocated fish ($9,900).
3) Indirect costs ($6,500).

Accomplishments: Collection and transport of adult Pacific lamprey was completed on August 22, 2018. Under this contract, 48 of 160 contract hours (30%) were dedicated to this effort. The 2018 collection year set a new record for the Nez Perce Tribe, with 1,166 adults collected. An early release of 212 adults took place on June 26, 2018, due to space limitations at the secondary holding facility.

Details for ordering and installing flow meters and alarms at the primary and secondary holding facilities are being pursued. The upgrades are scheduled to be completed by April 30, 2019.

RECLAMATION
Managing Water in the West

Contact: Pat Monk, Yakima Field Office, (509) 573-5105

Prosser Dam Lamprey Passage Structures

Proponent/Funding Source: Bureau of Reclamation/Bonneville Power Administration
Funding Amount: FY18: $40,000
Project Dates: August 2018-March 2019
Project Partners: Yakama Nation Fisheries, US Fish and Wildlife Service

Project Description:

Prosser Dam is located on the Yakima River 47 miles upstream from the confluence with the Columbia River. Constructed in the 1940's, the dam diverts water for hydroelectric power production and to deliver irrigation water to the Kennewick Irrigation District. In the mid 1980's the fish ladders and fish screens were reconstructed to meet modern fish passage criteria by Reclamation and BPA. The dam has three vertical slot fishways on right, center, and left banks of the river.

While these fishways function well for passing salmon and steelhead, recent studies indicated they are not effective for adult lamprey passage. From 2012 – 2014, the USFWS conducted radio-telemetry evaluations of adult Pacific Lamprey passage at Yakima River diversion dams, including Prosser Dam. The study found less than half of the adult lamprey approaching the dam were able to successfully pass upstream through the veritical slot fishways. Following that study, USFWS and Yakama Nation Fisheries installed Vertical Wetted Wall (VWW) passage structures on the right and left bank ladders to test the ability of lamprey to climb over the dam. Testing of VWW structures showed that lamprey could find them and use them to pass over the dam. In the spring of 2017 over 50 lamprey were found to use the right bank VWW while in 2018 over 210 lamprey migrated upstream on the left bank VWW, suggesting lamprey migrate in different areas depending on season, flow, temperature, and other factors, and can use the walls effectively.

Prosser Dam Lamprey Passage Structures project will install two more VWW structures on the center fishway, so that all three fishways have lamprey passage structures. We also propose to convert the VWW from traps, which were useful for testing, in to voluntary passage structures, so lamprey can pass over the dam unimpeeded. We intend to install video and PIT tag monitoring equipment to track fish use and monitor effectiveness.

The US Bureau of Reclamation-Yakima Field Office has staff and expertise to construct and install two VWW structures on Prosser Dam center fishway and to convert the existing VWW's to voluntary passage. Reclamation plans to start acquiring materials and supplies beginning in the fall of 2018, with installation by March 1, 2019. We also plan to use flexible tubing to test for and provide volitional passage. Reclamation staff will monitor and O&M the structures in the future.

U.S. Department of the Interior
Bureau of Reclamation

Pacific Lamprey Conservation Initiative Columbia River Basin Projects

Pacific Lamprey Conservation Agreement
Brian McIlraith – HDR Engineering
Christina Wang – USFWS
NPCC F&W Committee – November 13, 2018

Pacific Lamprey Columbia River Basin Projects

- The intent of this project is to address a critical emerging priority and support the efforts of the Pacific Lamprey Conservation Agreement as outlined in the 2014 Fish and Wildlife Program
- Purpose – to implement high priority, unfunded or partially funded, lamprey restoration actions in the Columbia River basin
- Works in parallel with other programs that are currently funding lamprey restoration projects
- Uses identified priority projects from Regional Implementation Plans

FY2018 Projects

1. Lower South Fork McKenzie River Floodplain Enhancement Project (USFS, MWA) - $150,000
2. Translocating Adult Lamprey Past Mainstem Dams to Snake Basin (Nez Perce) - $30,000
3. Adult Passage Improvement in Lower Yakima River (BOR) - $40,000

Projects Total	$220,000
PSMFC Indirect@12.82%	$28,204
Total	$248,204

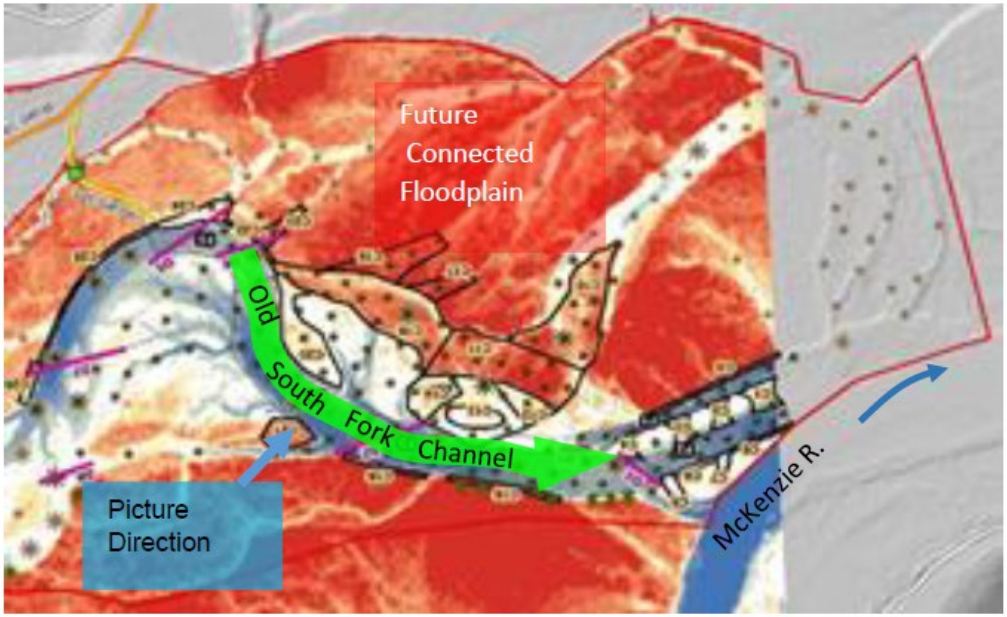
Lower South Fork McKenzie River Floodplain Enhancement Project

- **Location:** South Fork McKenzie River (major tributary to the McKenzie River in the Willamette River Basin)
- **Problem:** Stream and floodplain degradation has been identified as a primary threat for Pacific Lamprey in the Willamette Regional Management Unit.
- **Goal:** Restore and enhance habitat for native fish, including Pacific Lamprey
- **Requested funds:** $150,000 (Total Project cost of $1,557,724)
- **Partners:** USFS - Willamette National Forest, McKenzie Watershed Alliance, OWEB, USACE, ODFW, NMFS, USFWS and EWEB
- **Project completed summer of 2018**


Pre-construction


During construction

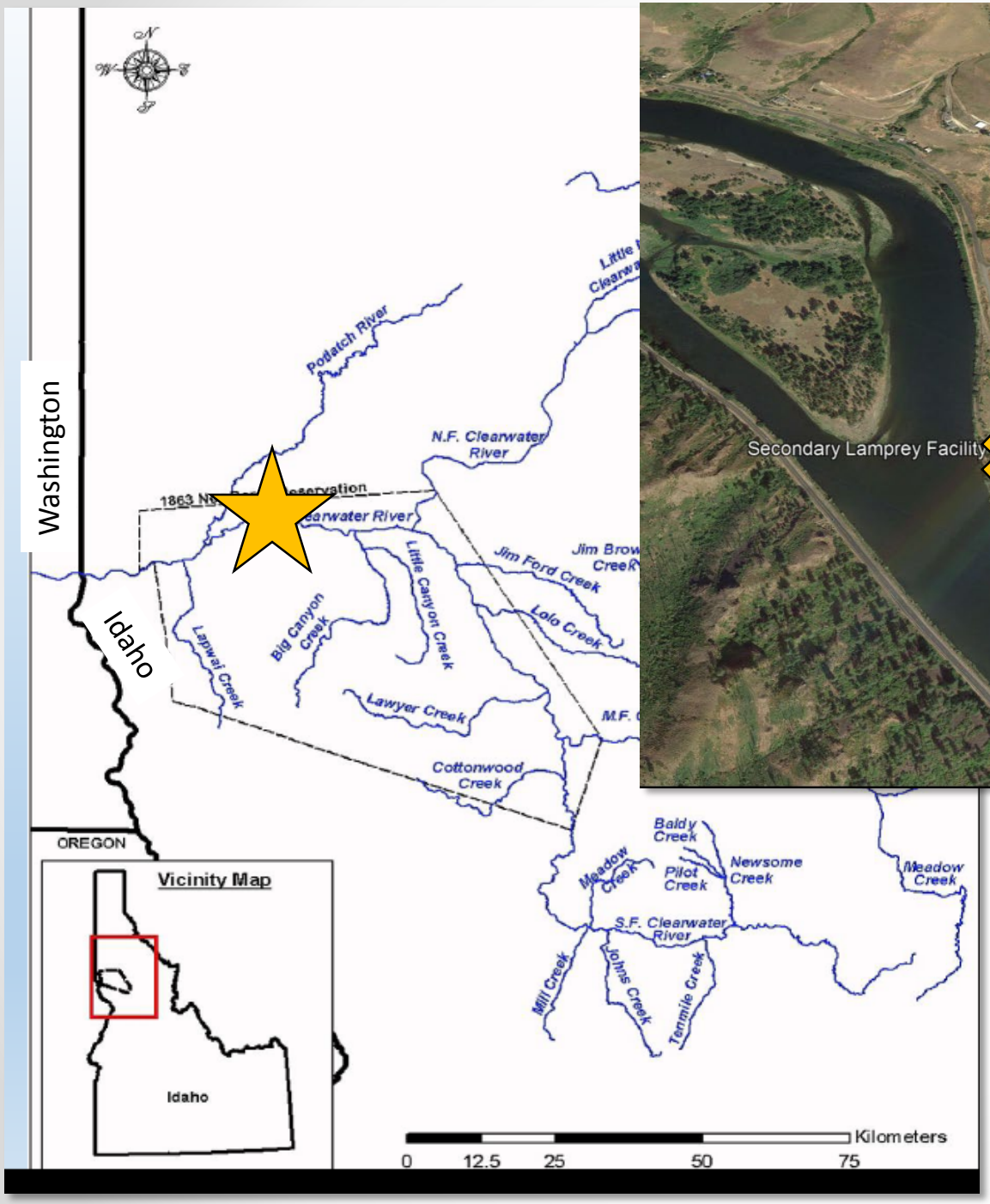
Project completed summer of 2018



Post-construction

Translocating Adult Lamprey Past Mainstem Dams to Snake Basin

- **Location:** Headwaters and tributaries of the Snake River
- **Problem:** Average adult passage rates per mainstem dam 40-60%. Many watershed populations are at or near extirpation.
  - Translocation of adults is the only means to rapidly reestablish substantial larval and juvenile presence in the upper basins
- **Goal:** Improve species abundance, maintain emittance of larval pheromones to attract adults, geographic diversity, and ecological function. Upgrade adult holding facilities, flow alarm system.
- **Requested Funds:** $30,000
- **Partners:** Nez Perce Tribe, State of Idaho, USFWS, CRITFC, USACE and University of Idaho
- **Expected completion = April 30, 2019**



- **Nez Perce Tribal Hatchery located on the Clearwater River**
- **Primary and secondary lamprey facilities**

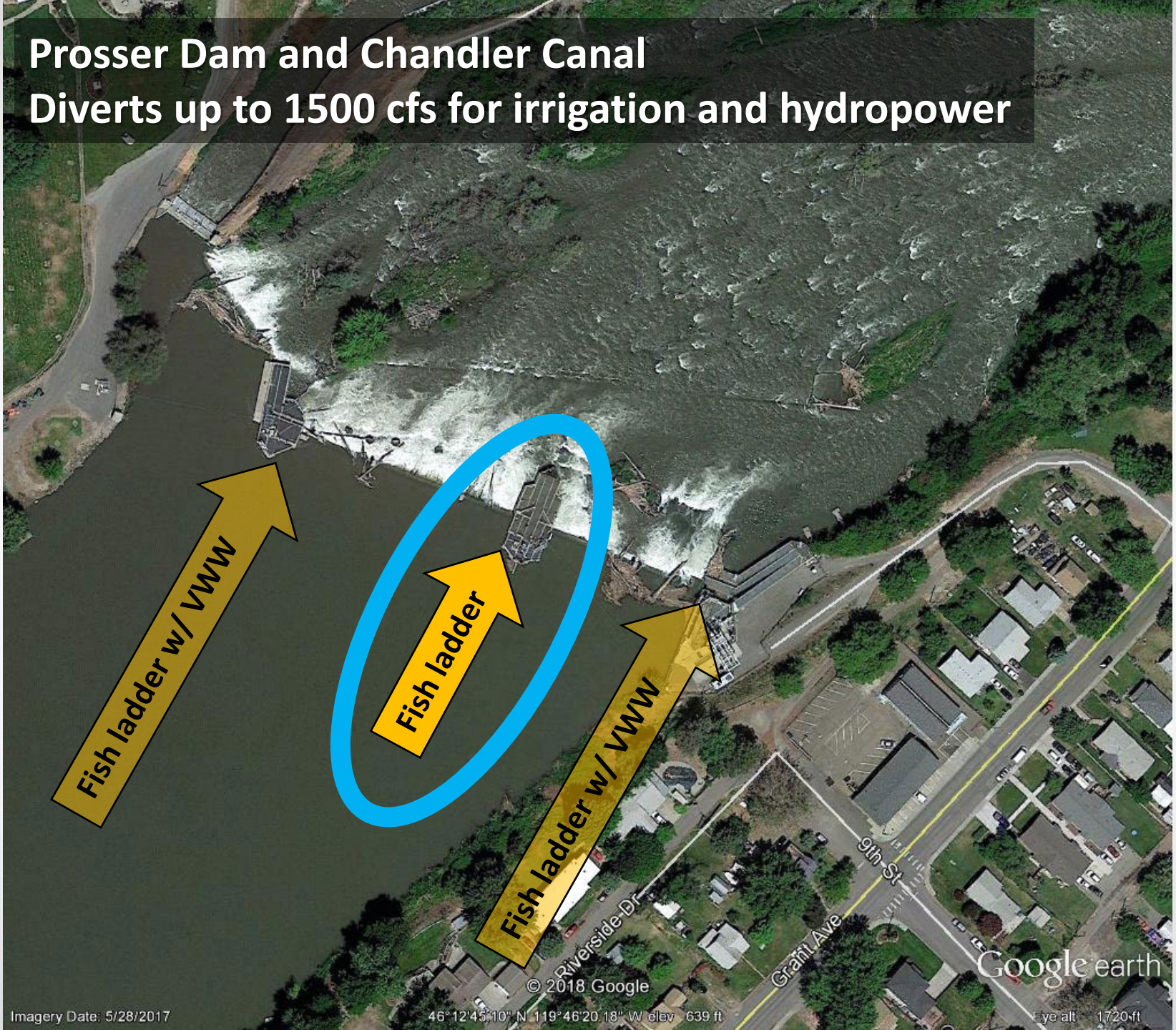
NPT primary lamprey facility

NPT secondary lamprey facility

Expected completion date of April 30, 2019

Adult Passage Improvement in Lower Yakima River

- **Location:** Prosser Dam, center fishway, Yakima Subbasin (second lowest dam on the Yakima River)
- **Problem:** Adult passage rates at Prosser Dam 45-50%. Adults approach all three existing fish ladders based on season.
  - Adding a Vertical Wetted Wall (VWW) structures in strategic locations at all ladders, expectation = increases in adult passage rates and decreases in passage times
- **Goal:** Improve adult Pacific Lamprey passage
- **Requested funds:** $40,000
- **Partners:** Bureau of Reclamation, USFWS, Yakama Nation, WDFW, and NRCS
- **Expected completion date = March 1, 2019**


Prosser Dam and Chandler Canal
Diverts up to 1500 cfs for irrigation and hydropower
Fish ladder w/ VWW
Fish ladder
Fish ladder w/ VWW
Riverside Dr
9th St
Grant Ave
© 2018 Google
Google earth
Imagery Date: 5/28/2017
46°12'45.10" N 119°46'20.18" W elev 639 ft
ye alt 1720 ft

Proposed location for Vertical Wetted Wall at Prosser middle fish ladder

Example of existing Vertical Wetted Wall structure at Prosser

Expected completion date = March 1, 2019

- **September 2018** – Tests of various types of tubing and discharges at existing left and right bank VWWs at Prosser Dam.
- With these tests done, proponents plan to use flexible 4” tubing to allow fish to migrate from upper trap box to river upstream of dam
- Final install – Jan/Feb 2019

FY2019 – Pacific Lamprey Columbia River Basin Projects

- Proposed Action - Council staff recommends that the Fish and Wildlife Committee support proposal #2017-005-00 for implementation. This recommendation is conditioned on the following:

1. Be funded at a level of $238,682 for Fiscal Year 2019
2. The project demonstrates benefit and value added through a performance review associated with the first season contract due in November 2018
3. Further implementation in 2019 will be based on the performance review and the availability of funds

RMU	Project	Threat Addressed	Partners	Request
Mid-Columbia	Klickitat Lamprey Passage Improvement	Adult Passage	**YN**, WDFW	$25,000
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Willamette	Improving Adult Lamprey Counts in the McKenzie River	Status and Distribution Data Gaps	**ODFW,** USACE, EWEB	$27,500
Upper Columbia	Juvenile Passage Lower Yakima and Columbia	Juvenile Passage	**USGS**, BOR, YN, Irrigation Districts	$37,292
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			Total	**$238,682**

Questions?