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May 11, 2022

MEMORANDUM

TO: Council Members

FROM: Mark Fritsch

SUBJECT: Update on Pacific Lamprey Conservation and Restoration in the Columbia River Basin

BACKGROUND:

Presenter: Christina Wang, Deputy Project Leader from the U.S. Fish and Wildlife Service; Alicia Marrs Coordinator of the Pacific Lamprey Conservation Initiative (PLCI); Kelly Coates, Water and Environmental Resources Program Manager for the Cow Creek Band of Umpqua Tribe of Indians, and Ben Clemens, Statewide Lamprey Coordinator from the Oregon Department of Fish and Wildlife

Summary: Christina, Alicia, Kelly and Ben will review the status of Pacific Lamprey conservation and restoration throughout the U.S. range with an emphasis on the Columbia and also progress made in implementing the Program's PLCI Columbia River Basin Projects.

Relevance: The Fish and Wildlife Program (Program) recognizes Pacific Lamprey as not only an ecologically important species, but also a key cultural species in the Columbia Basin. This addresses the Program's emerging priority #5¹. In addition, the Program also addresses several specific measures in the Program's Lamprey strategy regarding lamprey passage and monitoring.

¹ Emerging priority #5 – Implement additional sturgeon and lamprey measures (passage and research).

Workplan: Fish and Wildlife Division work plan 2022; Program Implementation and performance. Lamprey are listed as an [emerging priority](#) in the Council's 2014 Fish and Wildlife Program

Background: Pacific Lamprey, *Entosphenus tridentatus* (formerly *Lampetra tridentata*), have inhabited the Pacific for millions of years. Historic runs of Pacific Lamprey in the Columbia River Basin numbered in the hundreds of thousands, but their distribution and abundance have decreased and currently they return in drastically smaller numbers. They migrate from the mouth of the Columbia River to Chief Joseph and Hells Canyon dams, in the mainstem Columbia and Snake rivers, respectively. Threats to Pacific Lamprey occur throughout the entire range of the species and include but are not limited to: restricted mainstem and tributary passage, reduced flows and dewatering of streams, stream and floodplain degradation, degraded water quality, predation and changing marine and climate conditions.

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*) proposed by the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) called for research and restoration of Pacific Lamprey throughout tribal ceded lands. This was followed by additional projects in 2002, 2007, 2008 and 2018 (see Table 1). 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 generally aim at establishing population status and trends, documenting distribution, identifying limiting factors, and develop reintroduction and supplementation actions.

Table 1: Projects currently funded through the direct Fish and Wildlife Program.

Project #	Project Title	Sponsors
1994-026-00	Pacific Lamprey Research and Restoration Project	Confederated Tribes of the Umatilla Indian Reservation, NOAA
2008-308-00	Willamette Falls Lamprey Escapement Estimate	Confederated Tribes of the Warm Springs
2008-470-00	Yakama Nation Ceded Lands Lamprey Evaluation and Restoration	Yakama Nation
2008-524-00	Implement Tribal Pacific Lamprey Restoration Plan	Columbia River Inter-Tribal Fish Commission
2011-014-00	Evaluate Status & Limiting Factors of Pacific in the lower Deschutes River, Fifteenmile Creek and Hood River Subbasins	Confederated Tribes Of the Warm Springs

2017-005-00	Pacific Lamprey Conservation Initiative	Pacific States Marine Fisheries Commission, US Fish and Wildlife Service
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Prior to and concurrent with the work above, the Lamprey Technical Workgroup (LTWG), active since 1995, assisted the region in providing guidance and recommendations 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 \(Assessment\)](#) and Template for Conservation Measures by USFWS in 2011 (and revised by PLCI partners in 2018) 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.

In addition, an aspect of [Project #2008-524-00, Implement Tribal Pacific Lamprey Restoration Plan](#), which is managed by the Columbia River Inter-Tribal Fish Commission working with the USACE, targeted development of a Passage Improvement Plan as part of the Agreement. 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.

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](#) (see page 94). This was also confirmed by the need to integrate and take the necessary steps to implement additional lamprey measures into the Program².

On March 14, 2018 the Council approved [Project #2017-005-00, Pacific Lamprey Conservation Initiative](#) as one of the most recent projects to be approved for the direct Program. The Oregon Department of Fish and Wildlife codified their [Conservation Plan for Lampreys](#), which includes Pacific Lamprey in 2019.

Every five years PLCI revisits the Conservation Agreement and Assessment, and in 2022 both are in the process of being updated.

² Emerging priority #5, page 116: Implement additional sturgeon and lamprey measures (passage and research).

Partners and supporters, including the Council and other organizations, are invited to join or recommit to the updated Conservation Agreement in 2022.



Update on Pacific Lamprey Conservation & Restoration in the Columbia River Basin

Northwest Power & Conservation Council

May 18, 2022



PLCI Conservation Team Co-Chairs and Coordinator



Kelly Coates
Cow Creek Umpqua Tribe
PLCI Tribal Co-Chair



Benjamin Clemens
Oregon Department of Fish & Wildlife
PLCI State/Federal Co-Chair



Christina Wang
U.S. Fish & Wildlife Service
Past PLCI State/Federal Co-Chair



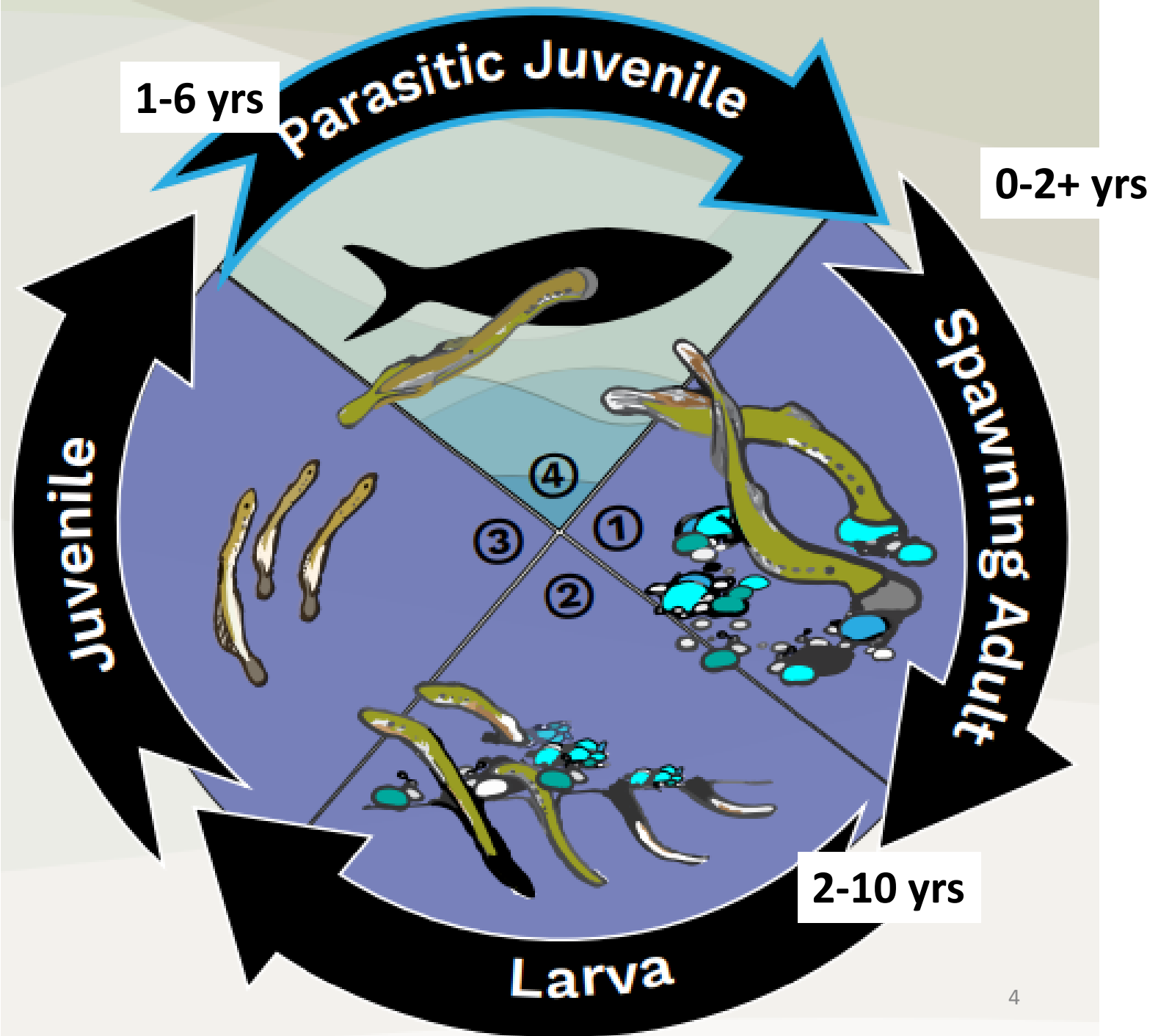
Alicia Marrs
PLCI Coordinator

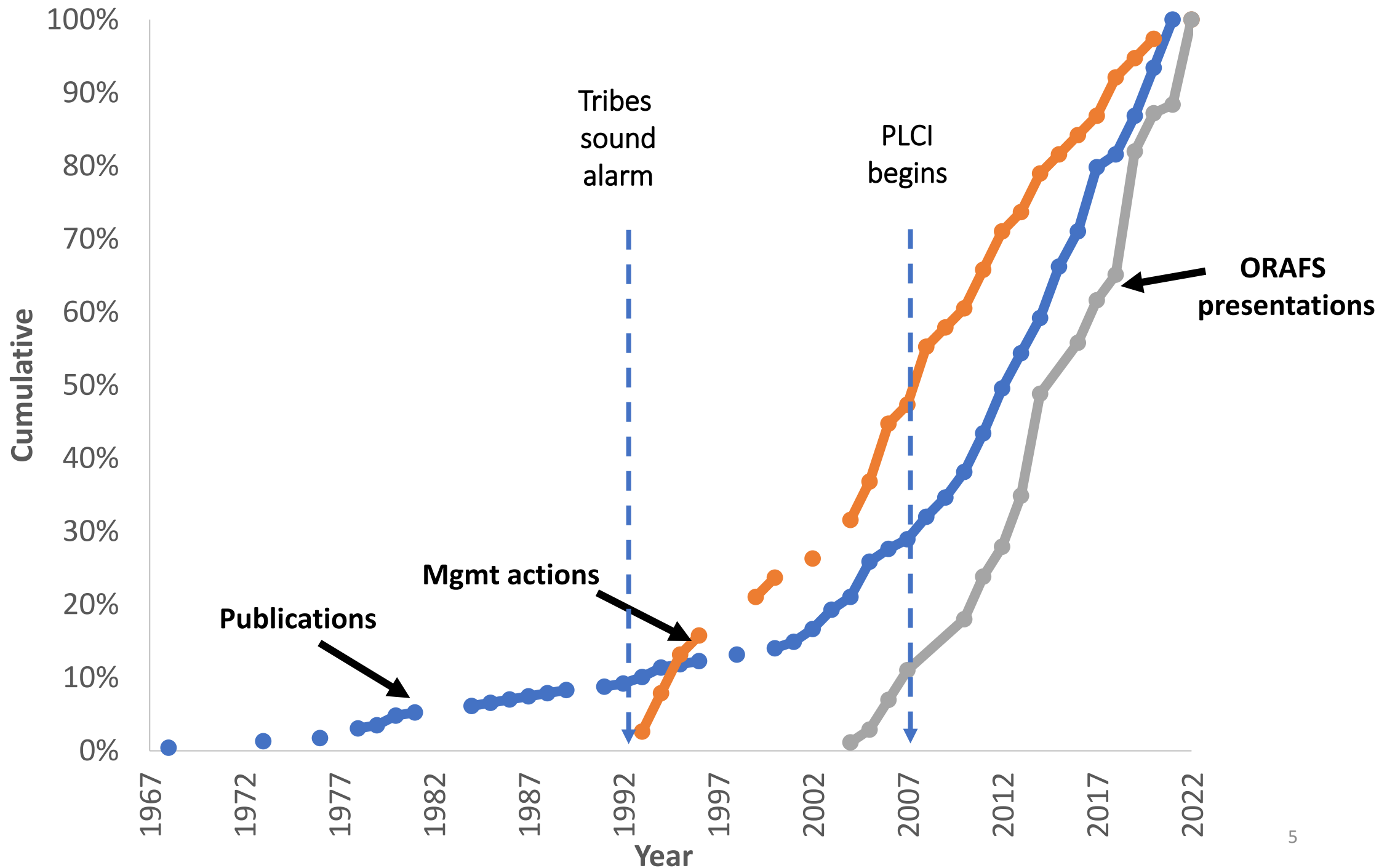


Agenda

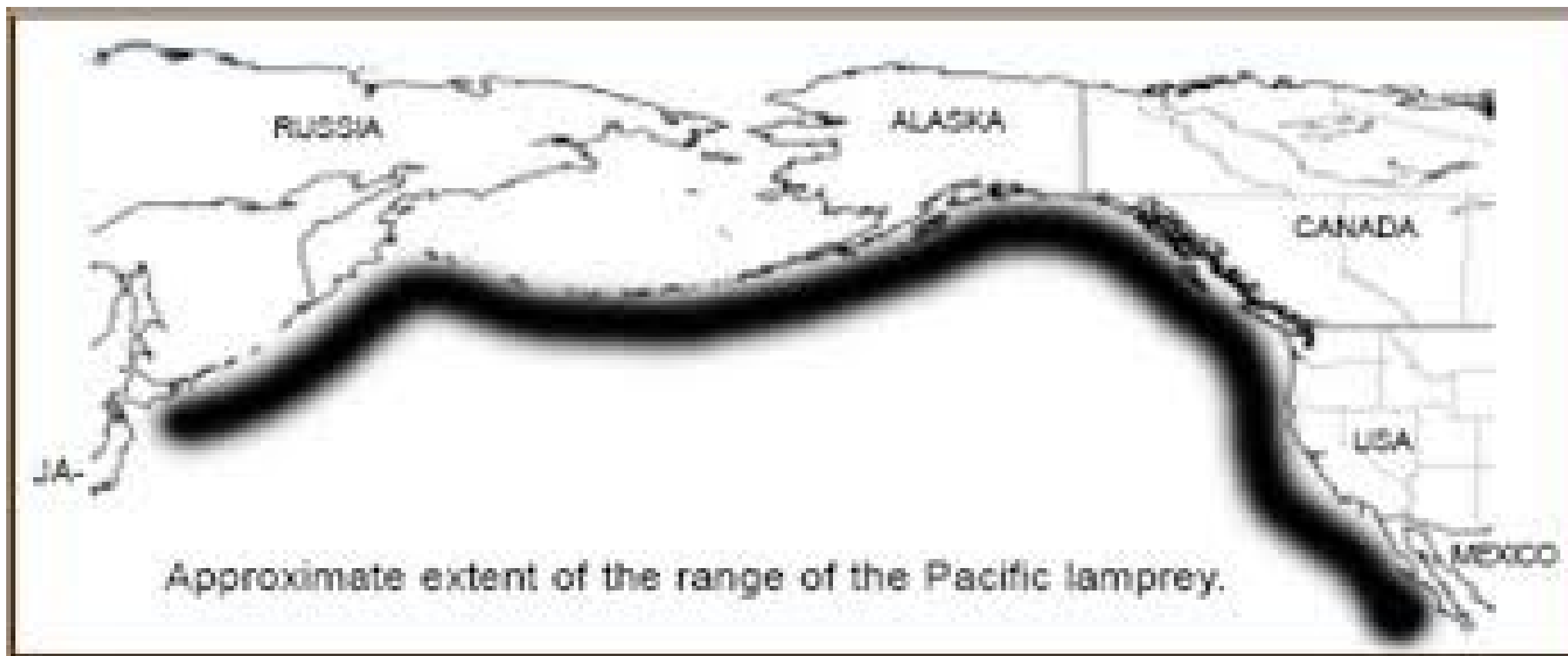
- Introductions
- What are Pacific Lamprey?
- Pacific Lamprey Status in U.S. and Columbia River Basin
- Overview of PLCI
- Project Implementation & Funding
- Increased PLCI Reach & Engagement

Pacific Lamprey





Pacific Lamprey Distribution





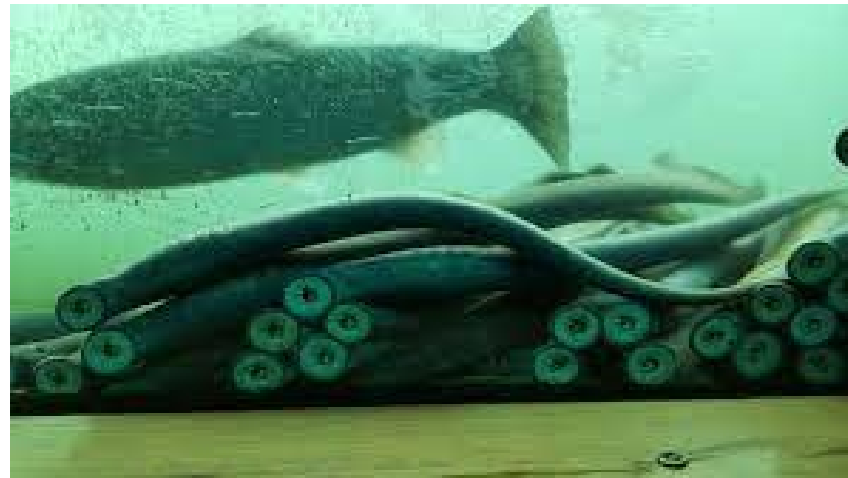
Pacific Lamprey vs Salmonids

Pacific Lamprey

- Don't home to natal streams
- Can climb vertical, wetted surfaces
- Can't jump
- Need attachment surfaces and resting areas in fishways

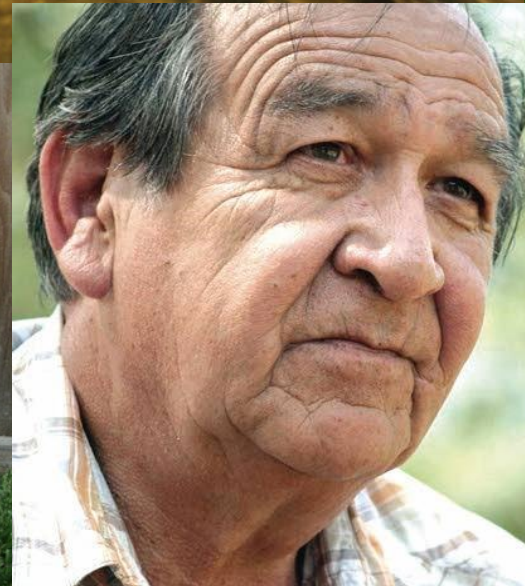
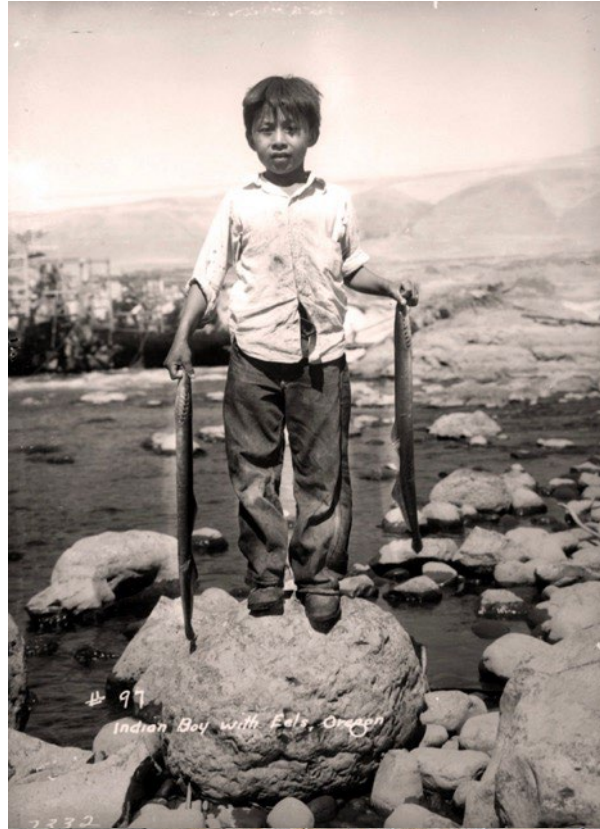
Salmon & Steelhead

- Home to natal streams
- Can't climb
- Can jump
- Strong burst and endurance swimmers





Cultural Significance of Pacific Lamprey



“We are the circle. That’s what life is all about. We take care of one another. So, when we have someone in trouble, that’s when the rest of us have to step in.” Elmer Crow Jr.



Pacific Lamprey Conservation Initiative

What is the Pacific Lamprey Conservation Initiative?

The Pacific Lamprey Conservation Initiative (PLCI) is a collaboration of Native American tribes, federal, state, municipal and local agencies, and non-profits working together to conserve Pacific Lamprey.

Our Mission

Achieve long-term persistence of Pacific Lamprey and their habitats, and support their traditional tribal use throughout their historical range (AK, CA, ID, OR, WA).

www.pacificlamprey.org

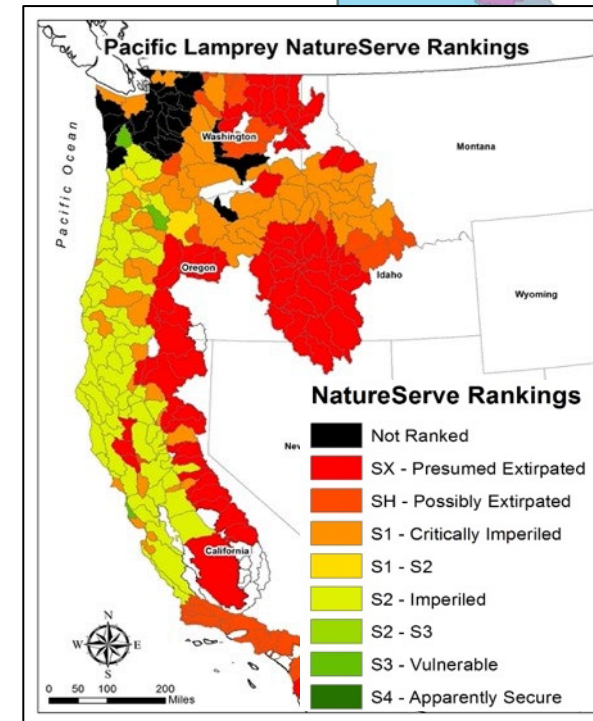
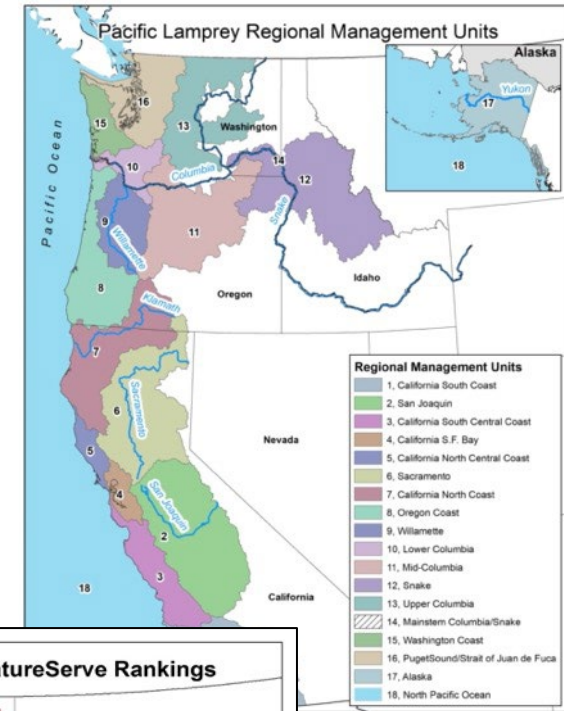
PLCI by the Numbers

- 176 partners
- 33 signatories to the Conservation Agreement
- 18 Regional Management Units
- 5 Western States
- 1 of 20 Fish Habitat Partnerships
- More than 1500 contacts on listserv



Three Components of PLCI

- **Assessment:** Partners evaluate Pacific Lamprey habitat condition, population demographics, distribution, and threats every 5 years to characterize conservation risk across their range.
- **Conservation Agreement:** First signed in 2012, voluntary commitment to collaborate to reduce or eliminate threats to Pacific Lamprey.
- **Regional Implementation Plans:** Developed by 18 Regional Management Units (RMUs) spanning Pacific Lamprey's range in the U.S.



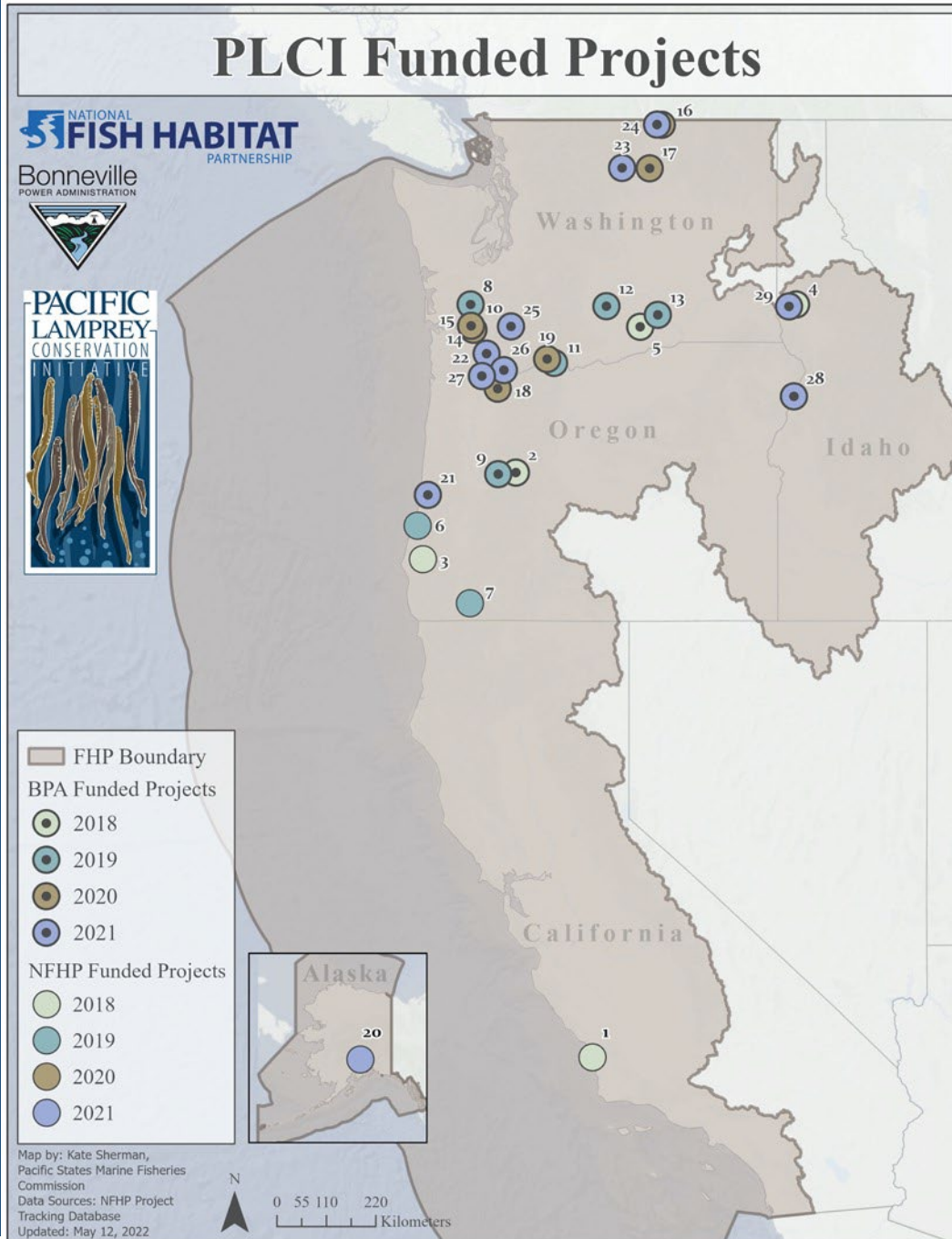


Origins of the PLCI/CRB Lamprey Umbrella Project

- **Informed by threats & conservation needs** identified by
 - PLCI Regional Management Units (annually)
 - Pacific Lamprey Assessment (every 5 years)
- **Developed through a partnership** between PLCI, NWPCC, and BPA
 - Led to **dedicated annual funding** support from BPA for lamprey projects in the CRB
- Program has successfully
 - **implemented projects** in multiple RMUs
 - **engaged** a diverse range of partners
 - **addressed** threats across the CRB



Expanding Opportunities for Funding Lamprey Projects (2018-2021)



29 lamprey projects funded since 2018

- 24 projects funded by BPA

Bonneville Power Administration

- Providing \$300K annually since 2018
- Funding available to projects in the Columbia River Basin

National Fish Habitat Partnership

- PLCI became eligible for project funding in FY22
- Funding available to projects in any RMU

Updated Project Selection Process

- Two distinct funding cycles in 2022 for BPA and NFHP



Lamprey Projects Funded Annually BPA

\$300k/year

2022

- **Six projects** funded by BPA
 - Upper Columbia
 - Lower Columbia
 - Multi-RMU (Upper Columbia x3)
 - Multi-RMU (Mid Columbia)

2018

- **Three projects** funded by BPA
 - Snake
 - Upper Columbia
 - Willamette

2019

- **Eight projects** funded by BPA
 - Upper Columbia
 - Mid Columbia
 - Lower Columbia Willamette
 - Multi-RMU

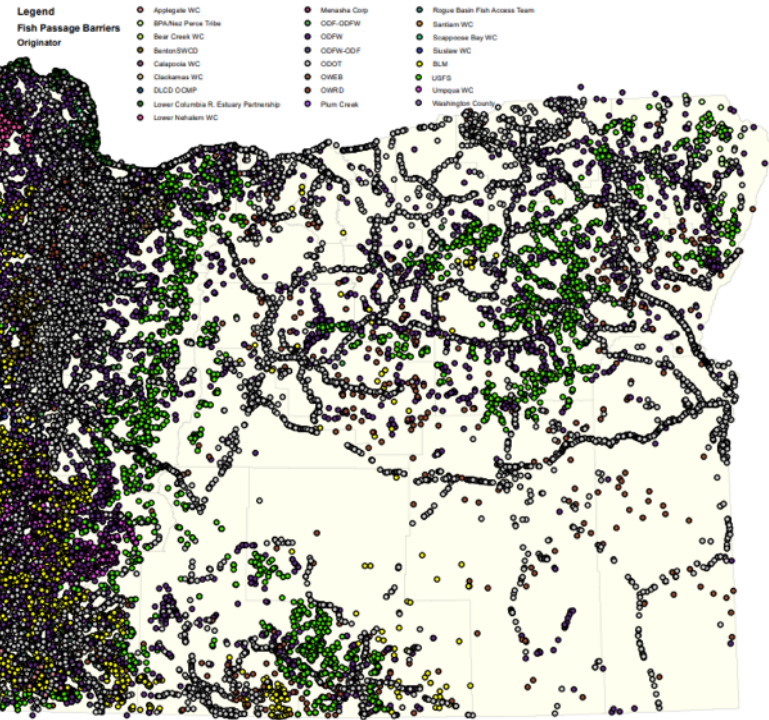
2021

- **Nine projects** funded by BPA
 - Snake
 - Upper Columbia
 - Lower Columbia
 - Willamette/North Coast Oregon
 - Multi-RMU

2020

- **Six projects** funded by BPA
 - Upper Columbia
 - Lower Columbia
 - Multi-RMU

Oregon Fish Passage Barriers 9/30/2019





FY22 PLCI CRB Projects – Contracting in Process

Project Name	Project Lead & Partners	RMU
Lamprey-Specific Electrofishing Techniques: Impacts to Target and Non-Target Species	U.S. Geological Survey, U.S. Fish & Wildlife Service	Multi-RMU (Upper Columbia)
Developing a cell line for Pacific Lamprey Disease Research	Confederated Tribes of the Umatilla Reservation	Multi-RMU (Mid Columbia)
Lamprey ID & Integrating Lamprey into Restoration Projects Workshop Series (Phase 1)	PLCI/LTWG Restoration Subgroup, USFWS, Washington Dept of Fish & Wildlife, Yakama Nation Fisheries, etc.	Multi-RMU (Upper Columbia)
North North Fork Klaskanine Fish Passage Project	Graham Klag North Coast Watershed Association	Lower Columbia
RNA Distinguishes Life Stage and Sex in Relatives of Pacific Lamprey: The Need for Environmental RNA Markers to Monitor Spawning and Rearing	Cramer Fish Science and Yakama Nation Fisheries	Upper Columbia
Lethal Air Temperatures for Dewatered Lamprey: Research to Improve Best Management Guidance	U.S. Geological Survey, U.S. Fish & Wildlife Service, Washington Dept. of Fish & Wildlife, Cowlitz Indian Tribe	Multi-RMU (All CRM RMUs)



New PLCI Website!



[Home](#) [About PLCI](#) [Get Involved](#) [Intranet](#)

A large, high-quality underwater photograph of a Pacific lamprey. The lamprey is the central focus, shown from a side profile as it swims. Its body is a pale, silvery-grey color, and its head is slightly angled towards the right. The background is a soft, out-of-focus underwater scene with some light filtering through the water.

Pacific Lamprey Conservation Initiative

A COLLABORATIVE EFFORT TO RESTORE OUR
ANCIENT FRIEND

www.pacificlamprey.org

- Lamprey Technical Workgroup (1995 – present)
- ~ 175 members representing diverse organizations
- 12 subgroups providing specialized expertise
- Facilitates sharing of information and techniques
- Hosts Annual Lamprey Information Exchanges
- Participation open to all lamprey enthusiasts
 - Contact the LTWG Chair, Christina Wang (USFWS)
 - christina_wang@fws.gov

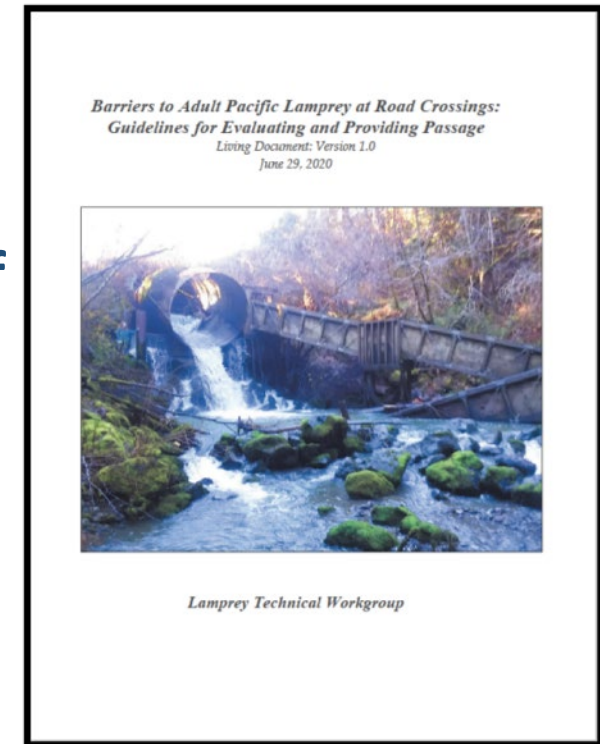


Lamprey Technical Workgroup



Lamprey Technical Workgroup Publications

1. **Passage guidelines for Pacific Lamprey in fishways (2017; 2022)**
2. **Monitoring & minimizing the effects of dredging on lampreys (2021)**
3. **Overview of eDNA & applications for research & monitoring of lampreys (2021)**
4. **Barriers to adult Pacific Lamprey at road crossings: Guidelines for evaluating & providing passage (2020)**
5. **Best management guidelines for native lampreys during in-water work (2020)**

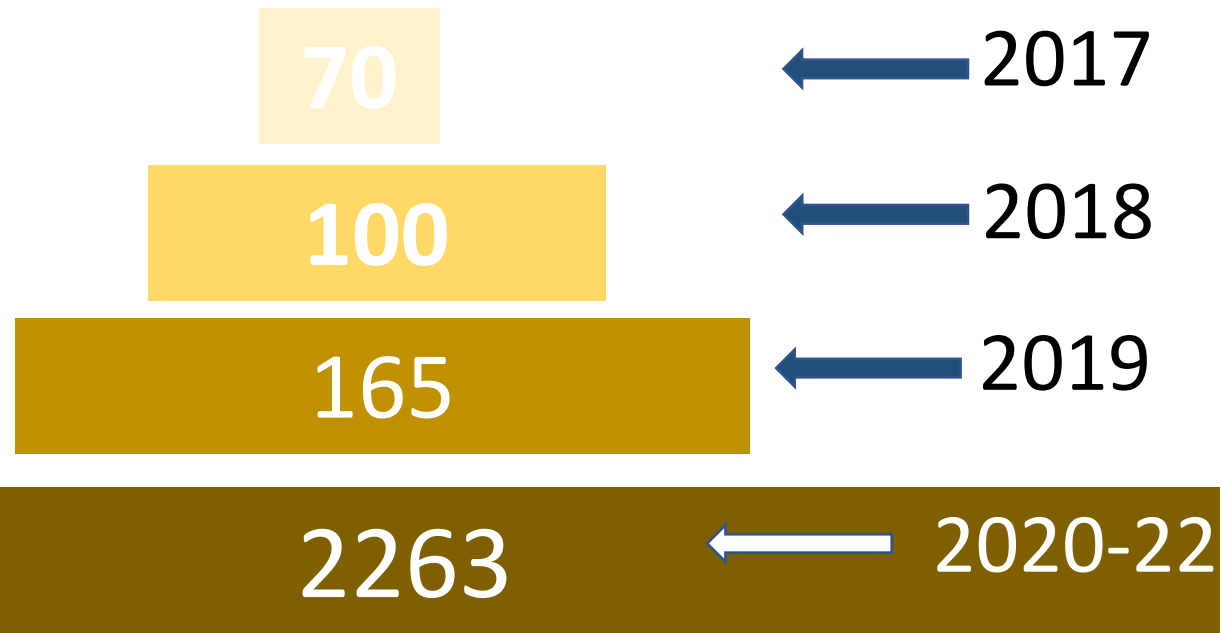


Available here: <https://www.pacificlamprey.org/ltwg/>



Annual Lamprey Information Exchanges

- Hosted by the Lamprey Technical Workgroup
- **Goal:** To share information and techniques throughout the lamprey research and conservation community
- Pivoted to virtual format in 2020



Increased
Awareness
& Engagement



5th Annual
Lamprey
Information
Exchange

2022 Lamprey Info Exchange Monthly Webinar Series

Dec 7: Celebrating the Cultural & Historical Significance of Lampreys!

Dec 9: Lampreys Around the World!

January 11: Using eDNA to Study Lampreys

February 8: Lampreys & Climate Change

March 8: Lamprey Passage

April 12: Restoration, Entrainment, and Salvage of Lampreys

May 10: Supplementation & Disease

Recordings of these and past webinars are available in PLCI's webinar archive:

<https://www.gotostage.com/channel/plci>



2022 Update to Conservation Agreement

- Conservation Agreement is revisited every 5 years
 - 2022 is the first time it is being updated
 - No changes made in 2017 – only added signatories
 - 2022 Conservation Agreement reflects a comprehensive review by PLCI's Conservation Team to capture current status and progress made by PLCI and partners in support of lamprey conservation since 2012
 - Review currently underway by signatories
 - Opportunity for new partners to commit to Pacific Lamprey conservation by signing in 2022
- **All supporting parties will need to sign the 2022 Conservation Agreement in order to become or maintain status as a signatory. ****

CONSERVATION AGREEMENT FOR PACIFIC LAMPREY

(ENTOSPHENUSTRIDENTATUS)

in the States of
Alaska, Washington, Oregon, Idaho, and California

2012





Lamprey Summits

Lamprey Summit I (2003)

Petition to List

Lamprey Summit II (2007)

Workshop to lay the ground work to est. PLCI

Lamprey Summit III (2012)

First Conservation Agreement signed (photo right)

Lamprey Summit IV (2017)

Recommitment to Conservation Agreement & Revised Assessment



Join us for Lamprey Summit V!

December 2022

- Celebrate PLCI's achievements over the last 5 years
- Opportunity for new signatories to the revised Conservation Agreement
- Presentation of findings from 2022 Pacific Lamprey Assessment
- Strategize and plan for next 5 years of actions in support of science, conservation and restoration of Pacific Lamprey



Questions?

Benjamin Clemens
State/Federal Co-Chair
ben.clemens@oregonstate.edu

Kelly Coates
Tribal Co-Chair
Kcoates@cowcreek-nsn.gov

Christina Wang
USFWS
Christina_Wang@fws.gov

Alicia Marrs
PLCI Coordinator
Alicia@pacificlamprey.org