

# CONSERVATION AGREEMENT FOR PACIFIC LAMPREY

*(ENTOSPHEMUS TRIDENTATUS)*

2022



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## **I. PURPOSE**

The Pacific Lamprey Conservation Initiative (PLCI) promotes implementation of conservation<sup>1</sup> measures for Pacific Lamprey across their range. There are three components to the PLCI: an Assessment (Luzier et al., 2011; USFWS, 2019); a Conservation Agreement (Agreement); and Regional Implementation Plans (RIPs). The Agreement represents a cooperative commitment among signatories and supporters to leverage available resources (both human and capital) to reduce threats to Pacific Lamprey in the face of climate change and to improve their habitats so that the species can express their full life cycle, including use of adult migration corridors.

The Agreement also aims to improve the status and support treaty-reserved and tribal harvest, as well as traditional tribal use of lamprey. As a tribal trust species and species of high conservation risk, it is critical to elevate the urgency and support for addressing lamprey threats across their current and historical distribution. Pacific Lamprey are a culturally significant first food source and tribal trust resource which requires serious attention so that the cultural connection to lamprey is not lost to current and future generations. Restoration and conservation actions need to be implemented with both urgency and sufficiency to avoid potential Endangered Species Act (ESA) listing of Pacific Lamprey. Actions will also need to take place globally and across boundaries due to their panmictic genetic structure. Cooperative efforts through the Agreement intend to increase awareness of and restore and protect Pacific Lamprey through the following objectives:

- 1) Identify global issues that are impacting Pacific Lamprey;
- 2) Evaluate Pacific Lamprey population structure;
- 3) Identify and characterize Pacific Lamprey status within the Regional Management Units (RMUs);
- 4) Identify and implement actions to enhance watershed conditions within the RMUs;
- 5) Restore Pacific Lamprey within the RMUs and across their range;
- 6) Promote data sharing;
- 7) Promote outreach and education.

## **II. PARTIES**

The parties to this Agreement will include interested tribes, states, federal agencies, non-governmental organizations, and other stakeholders. The parties who sign the Agreement will be called signatories. Upon signing, the signatories agree to coordinate their resources where possible, in terms of personnel and operational funding, and to seek additional funding to implement conservation actions for Pacific Lamprey to the extent that progress toward conservation objectives is measurable and documented. Signatories also agree to the extent practicable to implement those conservation actions outlined in the RIPs.

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<sup>1</sup> As used in this document the term “conservation” includes actions to restore lamprey populations.

Parties that are not signatories to the Agreement can participate and engage in PLCI activities and initiatives and develop additional cooperative actions (e.g., letters of support, etc.) in support of PLCI. These non-signatory parties will be called supporting entities, and are also encouraged to participate in regional implementation planning, the Assessment, and other PLCI committees and workgroups.

### III. STATUS AND DISTRIBUTION OF PACIFIC LAMPREY

Although Pacific Lamprey were historically widespread along the West Coast of North America, their abundance has declined, and their distribution is contracting throughout Oregon, Washington, Idaho, and California (Luzier et al. 2009). Current status in Alaska is unknown. Threats to Pacific Lamprey occur throughout much of the range of the species and include: restricted mainstem and tributary passage; reduced flows; dewatering of streams; stream and floodplain degradation; streams; degraded water quality; invasive species and predation; and changing marine and climate conditions. These threats, in conjunction with a restricted distribution and depressed abundance, affect the status of lamprey.

#### Regional Management Units and Regional Implementation Plans

For the purpose of implementing conservation actions, Pacific Lamprey distribution has been divided into 18 Regional Management Units (RMUs). This division facilitates a finer level of resolution for description of distribution, habitats and threats. It also provides an optimal structure for collaboration on conservation and restoration activities. Each of these RMUs includes several 4<sup>th</sup> level Hydrologic Unit Codes (HUCs), which are the finer scale geographic units used to evaluate lamprey status, threats, and conservation needs. The findings by HUCs are synthesized to determine the overall needs for the RMUs (USFWS, 2019). The RMUs also bring together lamprey experts from across their respective regions to develop RIPs which identify, prioritize, and find the means to implement key conservation actions to restore Pacific Lamprey. The RIPs are revised annually to incorporate current information. The RIPs build on existing restoration activities within the RMUs. The most recent versions of RIPs are available on the [PLCI website](https://www.pacificlamprey.org) (<https://www.pacificlamprey.org>).

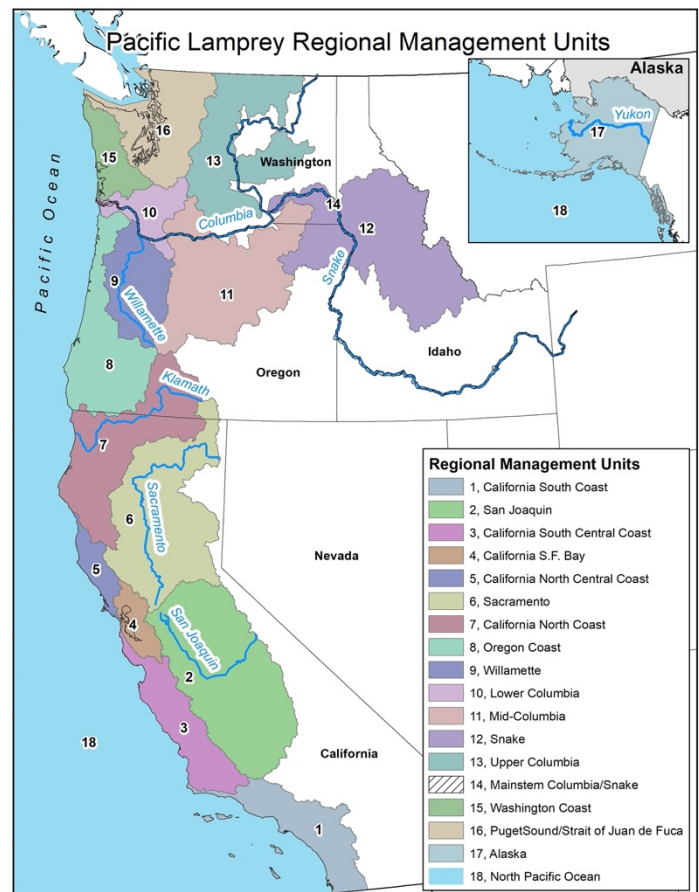


Figure 1: PLCI Regional Management Units

## **Assessment**

Every five years PLCI conducts an Assessment to rank demographic and threat factors to describe current species range and status; compare current to historical status; and calculate the relative risk of extirpation of Pacific Lamprey at the 4<sup>th</sup> field HUC watershed level. The data for the Assessment is collected through a series of RMU meetings with regional experts to compile existing data and to reach consensus on primary threats. This information is summarized by the RMUs to assess overall threat patterns. Results of relative risk and local threats are combined in the RIPs and used to guide the identification and prioritization of conservation priorities, actions, and data collection efforts for Pacific Lamprey. The most recent version of the Assessment (and previous iterations) can be found on [PLCI's website](#).

## **IV. GOAL**

The goal of this Agreement is to achieve long-term persistence of Pacific Lamprey and support treaty-reserved and tribal harvest, as well as traditional tribal use of Pacific Lamprey throughout their historical range. The intent of the parties is to achieve this goal by maintaining viable populations in areas where they exist currently, restoring populations where they are extirpated or at risk of extirpation, and doing so in a manner that addresses the importance of lamprey to tribal peoples. The parties envision a future where threats to Pacific Lamprey are reduced and the historical geographic range and ecological role of Pacific Lamprey are restored.

## **V. OBJECTIVES**

The following objectives pertain to conservation activities throughout the range of Pacific Lamprey, as well as within RMUs.

### **OBJECTIVES**

1. Identify global issues that are impacting Pacific Lamprey
2. Evaluate Pacific Lamprey population structure
3. Identify and characterize Pacific Lamprey status within the RMUs
4. Identify and implement actions to enhance watershed conditions contained within the RMUs
5. Restore Pacific Lamprey within the RMUs and across their range
6. Promote data sharing
7. Promote outreach and education

### ***Objective 1: Identify global issues that are impacting Pacific Lamprey***

To further understand the effects of global issues on Pacific Lamprey at the landscape level, parties will coordinate research, and monitoring and evaluation together and with large scale natural resource conservation initiatives as appropriate (e.g., National Fish Habitat Partnership (NFHP) and other fish habitat partnerships (FHPs)). Additionally,

threats that have been clearly identified to date will also be addressed.

***Objective 2: Evaluate Pacific Lamprey population structure***

Continue analyses of Pacific Lamprey population structure throughout their range to refine delineation of RMUs as needed.

***Objective 3: Identify and characterize Pacific Lamprey status within the RMUs***

Identify historical and present distributions of Pacific Lamprey in each RMU and monitor them to detect changes in distribution and status as conservation actions are implemented.

***Objective 4: Identify and implement actions to enhance watershed conditions contained within the RMUs***

Protect areas with healthy habitat conditions and improve watershed conditions and migratory corridors where needed. These efforts will focus on threats that are not being addressed through restoration efforts for other species (e.g., Pacific salmon and Bull Trout recovery plans). To focus efforts, parties will:

- a. Identify habitat conditions necessary to support all life stages of Pacific Lamprey.
- b. Identify and protect habitat areas within an RMU capable of supporting Pacific Lamprey life stages.
- c. Identify and prioritize threats to Pacific Lamprey in RMUs, emphasizing threats not addressed through restoration efforts for other species (e.g., Pacific salmon and Bull Trout).
- d. Implement targeted lamprey restoration projects to reduce prioritized threats (e.g., improve passage at human caused stream barriers, restore lamprey spawning and rearing habitats, and consider lamprey life stages during in-stream work).
- e. Develop and implement protocols for monitoring habitat status, Pacific Lamprey status, and restoration effectiveness.

***Objective 5: Restore Pacific Lamprey within the RMUs and across their range***

Identify unoccupied and sparsely occupied watersheds where Pacific Lamprey may be restored to their historical range and levels of abundance. Where feasible implement artificial propagation and translocation experiments to develop methods and strategies for reintroducing Pacific Lamprey to extirpated areas and advancing Pacific Lamprey conservation through establishing self-sustaining populations within RMUs.

***Objective 6: Promote data sharing***

Continue to collaborate on standardized methods of data collection. Build and maintain Pacific Lamprey databases and Geographic Information System (GIS) layers (to be maintained by USFWS Region 1) to facilitate information sharing among partners.

***Objective 7: Promote outreach and education***

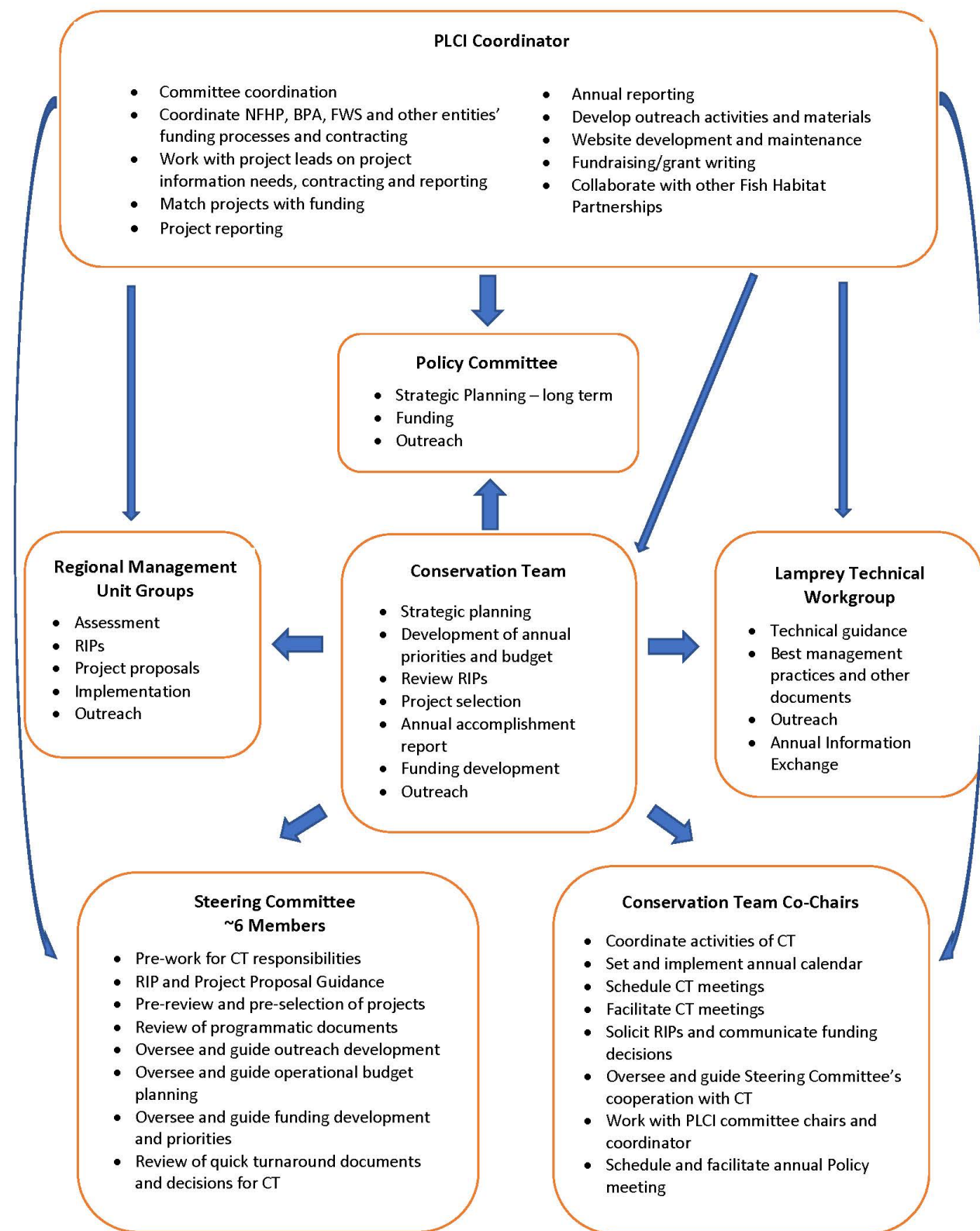
Develop and implement outreach efforts to increase awareness of Pacific Lamprey specifically addressing conservation, biology, unique life history, habitat needs, cultural importance, and interface with salmonid restoration activities.

## **VI. OTHER SPECIES INVOLVED**

The primary focus of this Agreement is the conservation and enhancement of Pacific Lamprey and their habitats across their range. The important role of Pacific Lamprey in the food-web (as prey at all life stages, and as a source of marine-derived nutrients that fuel tributary ecosystems) would suggest benefits to a broad array of species: other anadromous and resident lampreys; anadromous salmonids; resident fishes; freshwater mussels; aquatic and terrestrial based wildlife; aquatic and semi-aquatic vegetation; riparian zones; and upland vegetation. These other aquatic species are also expected to benefit from Pacific Lamprey conservation activities that ameliorate threats.

## **VII. AUTHORITY**

1. This Agreement is subject to, and is intended to be consistent with, all applicable federal, tribal and state laws and interstate compacts. Nothing in this Agreement shall be construed to affect, modify, restrict, or expand any right or legal obligation of any signatory. The signatories recognize they each may have specific statutory or non-statutory responsibilities that cannot be delegated with respect to the management and conservation of wildlife, wildlife habitat and development and management of water resources. Nothing in this Agreement is intended to abrogate the responsibilities or authorities of any signatory.
2. Nothing in this Agreement is intended to restrict signatories from participating in similar activities with other public or private agencies, organizations or individuals.
3. Nothing in this Agreement is intended to waive any immunity provided by federal, state, local or tribal laws. Signatories fully retain all immunities and defenses provided by law with respect to any action based on, or occurring as a result of, this Agreement. In addition, signing the Conservation Agreement does not prohibit any organization from participating in a future petition to list any lamprey species.
4. The Tribal signatories maintain jurisdictional authority relative to species, habitat, and land use management on areas of tribal jurisdiction.
5. Nothing in this Agreement shall be construed as:
  - (1) affecting, modifying, diminishing, or otherwise impairing the sovereign immunity from suit enjoyed by an Indian tribe; or
  - (2) authorizing or requiring the termination of any existing trust responsibility of the United States with respect to the Indian people.
6. Modifications to this Agreement must be mutually agreed upon by all signatories and all changes shall be executed in writing as an addendum to the original Agreement.



**Figure 2: PLCI Organizational Structure**



## VIII. CONSERVATION ACTIONS

### *Coordinating Conservation Activities and Schedules*

PLCI uses a variety of committees, teams, and working groups to implement conservation activities on behalf of Pacific Lamprey. The coordination of these groups and their work is overseen and directed by the Conservation Team co-chairs, the Steering Committee, and the PLCI coordinator. Brief descriptions of these entities are below, and PLCI's organizational structure is illustrated in Figure 2 (above).

1. The **Policy Committee** (PC) is made up of high-ranking decision makers from each of the signatories and supporting entities. The PC meets annually, and provides visioning and guidance on long-term strategic planning, identification of funding sources, and outreach.
2. The **Conservation Team** (CT) includes representatives that have technical or management expertise as selected by the signatories and supporting entities and is the primary body that supports implementation of the Agreement. The CT meets quarterly and operates under the guidance and direction of the PC. Their core function is coordination and oversight of the activities performed by various PLCI committees and working groups. The CT is responsible for strategic planning, development and implementation of operational guidelines and budgets, development of annual priorities, oversight of the Regional Management Units (RMUs) and the RIP process, annual project proposal development and selection process, and accomplishments reporting. The CT shall make recommendations for the conservation of Pacific Lamprey to the signatories and supporting entities based on activities of the RMUs and Lamprey Technical Workgroup.
3. The **Steering Committee** is a subset of the Conservation Team that meets on a more frequent basis to provide timely guidance and oversight of the CT's responsibilities.
4. Day-to-day implementation of the CT's responsibilities is overseen by the two **CT Co-Chairs** - one representing a state or federal agency signatory or supporting entity and the other representing a tribal signatory or entity. The main role of the Co-Chairs is to ensure the CT is managed effectively and operates per the guidance and direction provided by the PC through the CT. The Co-Chairs and Steering Committee oversee the PLCI Coordinator, who supports and coordinates all aspects of PLCI.
5. The **Lamprey Technical Workgroup** (LTWG) is the technical committee of PLCI and made up of a large, diverse, and active membership representing a variety of organizations from across the geographic range of the PLCI. The LTWG provides technical guidance to PLCI and consists of technical subgroups studying topics such as passage, juvenile entrainment, dredging, contaminants, climate change, restoration, ocean phase, tagging, genetics, other lamprey species, and outreach.
6. Pacific Lamprey distribution has been divided into 18 **Regional Management Units** (RMUs) for the purpose of assessing distribution, status, threats, and

implementing conservation actions.

- a. Each year the RMUs develop and update **Regional Implementation Plans (RIPs)** that strategically identify threats and conservation priorities specific to their RMU. These RIPs include high priority research and conservation needs, with the CT recommending projects for available funding.
  - b. The **Assessment** will be updated during the last year of each five-year Agreement period by the RMU Leads in coordination with partners. It will include updated information on the current distribution, population size, short term trend and threats to Pacific Lamprey. This information will be used to evaluate the foreseeable risks and general population health of existing RMUs. This Assessment will also discuss progress towards meeting goals and objectives in the Agreement. Based on the revised Assessment the CT will make recommendations on the need for extending and revising the Agreement.
  - c. Updates to the Pacific Lamprey data clearinghouse will be informed by the activities of the RMUs (RIPs, Assessment, etc.).
7. Meetings of the PC, CT LTWG and RMUs will be open to the public. Meeting summaries and progress reports will be available to the signatories, supporting entities and other interested parties.
  8. In 2016, PLCI became the 20<sup>th</sup> nationally recognized **fish habitat partnership (FHP)** in the United States under the National Fish Habitat Partnership (NFHP). Together, PLCI and the other FHPs seek to advance their own conservation goals, and those of NFHP to protect, restore, and enhance the nation's fish and aquatic communities through partnerships that foster fish habitat conservation and improve quality of life for all Americans. The PLCI coordinator serves as PLCI's primary representative to NFHP and facilitates opportunities for collaboration on conservation projects and funding opportunities through NFHP.

### ***Funding Conservation Actions***

1. Funding for implementing conservation actions will be sought from a variety of sources. Subject to availability of funds, federal, state, and local agencies may provide or secure funding to support Pacific Lamprey conservation according to their priorities.
2. It is understood that all public funds required for and expended in accordance with this Agreement are subject to approval by the appropriate local, state or federal appropriation laws. This Agreement is neither a fiscal nor a funds obligation document. Any endeavor involving reimbursement or contribution of funds among signatories to this Agreement will be handled in accordance with applicable laws, regulations, and procedures, including those for Government procurement and printing. Such endeavors will be outlined in separate agreements that shall be made in writing by representatives of the signatories and shall be independently authorized by appropriate statutory authority. This Agreement does not provide such authority. Specifically, this Agreement does

not establish authority for noncompetitive awards to the cooperator of any contract or other agreement.

#### ***Conservation Progress Assessment***

The CT will report annually on conservation action progress to the PC. In addition, the range-wide status assessment (Assessment) will be updated during the last year of each five-year Agreement period. The Assessment will be distributed by the CT to signatories, supporting entities, and interested parties and made available to the public on the [PLCI website](#).

### **IX. DURATION OF AGREEMENT**

The term of this Agreement shall be five years and may be extended for five-year intervals as desired by the signatories. Any signatory may withdraw from this Agreement with sixty days written notice to the other parties.

### **X. FEDERAL AGENCY COMPLIANCE**

1. During the performance of this Agreement, and to the extent not in conflict with the Indian preference authorized for Self Determination Act contracts by 25 U.S.C. § 450(e)(b), the signatories agree to abide by the terms of Executive Order 11246 on non-discrimination and will not discriminate against any person because of race, color, religion, sex or national origin.
2. No member or delegate to Congress or resident federal Commissioner shall be admitted to any share or part of this Agreement, or to any benefit that may arise there from, but this provision shall not be construed to extend to this Agreement if made with a corporation for its general benefit.

## **XI. ACRONYMS**

**Conservation Agreement (Agreement)**

**Conservation Team (CT)**

**Fish Habitat Partnership (FHP)**

**Hydrologic Unit Code (HUC)**

**Lamprey Technical Workgroup (LTWG)**

**National Fish Habitat Partnership (NFHP)**

**Pacific Lamprey Assessment (Assessment)**

**Pacific Lamprey Conservation Initiative (Initiative)**

**Policy Committee (PC)**

**Regional Implementation Plan (RIP)**

**Regional Management Units (RMUs)**

## **XII. SIGNATORIES**

### **XIII. SUPPORTING ENTITIES**

#### **XIV. LETTERS OF SUPPORT**

## XV. LITERATURE

CRITFC (Columbia River Inter-Tribal Fish Commission). 2011. Tribal Pacific lamprey restoration plan for the Columbia River basin. Final Draft Decision Document, Dec. 16, 2011, Columbia River Inter-Tribal Fish Commission, Portland, Oregon. 183 pp with Appendices.

Goodman, D. H., S. B. Reid, M. F. Docker, G. R. Haas, and A. P. Kinziger. 2008. Mitochondrial DNA evidence for high levels of gene flow among populations of a widely distributed anadromous lamprey *Entosphenus tridentatus* (Petromyzontidae). *Journal of Fish Biology* 72:400-417.

Lin, B., Z. Zhang, Y. Wang, K. P. Currens, A. Spidle, Y. Yamazaki, and D. Close. 2008a. Amplified fragment length polymorphism assessment of genetic diversity in Pacific lamprey. *North American Journal of Fisheries Management* 28:1182-1193.

Luzier, C. W., and 7 coauthors. 2009. Proceedings of the Pacific lamprey conservation initiative work session – October 28-29, 2008. U.S. Fish and Wildlife Service, Regional Office, Portland, Oregon.

Luzier, C.W., H.A. Schaller, J.K. Brostrom, C. Cook-Tabor, D.H. Goodman, R.D. Nelle, K. Ostrand and B. Streif. 2011. Pacific Lamprey *Entosphenus tridentatus* Assessment and Template for Conservation Measures. U.S. Fish and Wildlife Service, Portland, Oregon. 282 pp.

Spice, E.K., D.H. Goodman, S. B. Reid, and M. F. Docker. 2012. Neither philopatric nor panmictic: microsatellite and mtDNA evidence suggest lack of natal homing but limits to dispersal in pacific lamprey. *Molecular Ecology* doi: 10.1111/j.1365-294X.2012.05585.x.

USACE (U.S. Army Corps of Engineers). 2009. Pacific Lamprey passage improvements final implementation plan 2008 – 2018. U.S. Army Corp of Engineers, Portland District, Portland, Oregon.

USBR (U.S. Bureau of Reclamation). 2012. Assessment of U.S. Bureau of Reclamation projects in the Columbia river basin effects on Pacific lamprey (*Lampetra tridentata*). Bureau of Reclamation. Boise, ID.