

Pelton Round Butte Project (FERC No. 2030)

Pacific Lamprey Passage Evaluation and Mitigation Plan

Section 4: Pacific Lamprey Mitigation and

Enhancement Fund Plan



Columbia Intertribal Fish Commission Photo

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Introduction

Portland General Electric Company ("PGE") and the Confederated Tribes of the Warm Springs Reservation of Oregon ("CTWSRO"), are the Joint Licensees for the Pelton Round Butte Hydroelectric Project (Project No. 2030). On June 21, 2005, the Commission issued an Order Approving Settlement and Issuing New License, *Portland General Electric Company & Confederated Tribes of the Warm Springs Reservation of Oregon*, 111 FERC W 61,450 (2005).

The license includes, as Appendix C, the Section 18 fishway prescriptions mandated by the United States Fish and Wildlife Service. Condition 18 of that appendix requires the Joint Licensees to file with the Commission, within one year of license issuance, a Pacific lamprey passage evaluation and mitigation plan as described in the Fish Passage Plan, Exhibit D to the Settlement Agreement, approved in Ordering Paragraph J of the license.

Pacific Lamprey Passage Evaluation and Mitigation Plan

The Pacific Lamprey Passage Evaluation and Mitigation Plan (PLEMP) was developed by the licensees with the approval of the appropriate Fish Agencies pursuant to their respective statutory authorities (PGE and CTWSRO 2006). The PLEMP has five sections (Figure 1), including: 1) habitat assessment to further define lamprey spawning and ammocoete (larval) rearing habitat in the Deschutes River Basin and use that information to quantify habitats suitable for production of lamprey both upstream and downstream of the Project; 2) passage assessment to assess the potential for outmigrant and adult Pacific lamprey passage through PRB with existing fish passage facilities; 3) experimental reintroduction of lamprey will occur after the assessment of lamprey passage through the Project; 4) alternative lamprey mitigation may be developed if passage is determined by the Fish Committee to be infeasible with existing facilities; and 5) re-initiation of passage efforts will be implemented if alternative lamprey mitigation occurs and new information demonstrates that passage is feasible.

Sections 2 through 5 all contain contingencies under which they may not be implemented. Section 2, *Assessment of Lamprey Passage*, will be implemented if sufficient habitats are identified upstream of the Project. Section 3, *Experimental Reintroduction of Lamprey* will be implemented if the lamprey passage feasibility study completed for Section 2 indicates passage with existing facilities is feasible. Section 4, *Alternative Lamprey Mitigation*, will be implemented if the lamprey passage feasibility study indicates passage is not feasible. Many of the habitat enhancements under this alternative lamprey mitigation will not be fully determined until further study and assessment of ammocoete and adult

lamprey habitat is realized by the implementation of section 1 (*Assessment of Lamprey Habitat*). Section 5, *Reinitiation of passage efforts*, will only be implemented if passage is initially not implemented, but substantial new information indicates passage is feasible. The Licensees will consult with the Fish Committee and appropriate fish agencies on an ongoing basis. A flow diagram showing the alternative paths forward is shown in Figure 1.

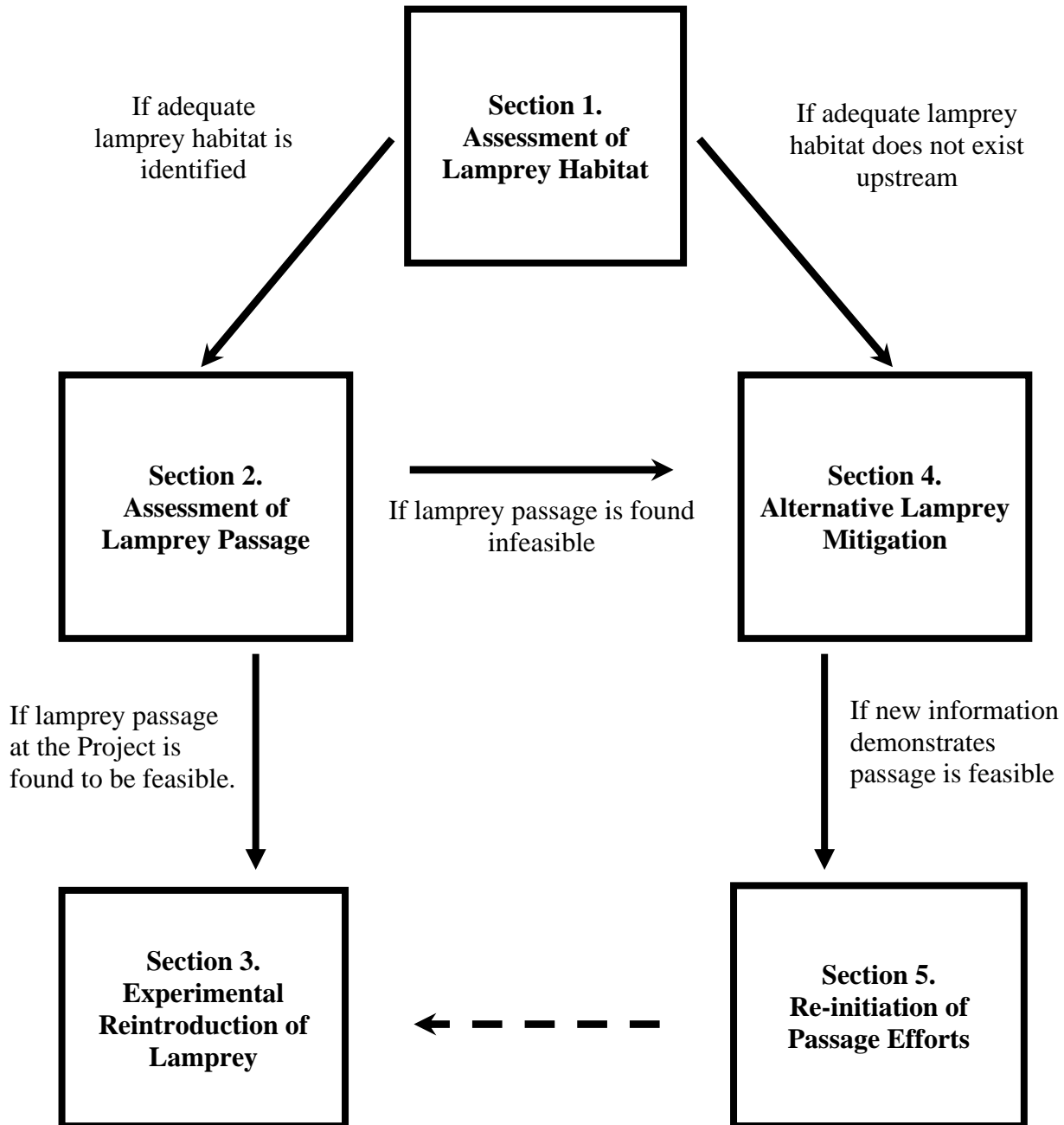


Figure 1. Flow diagram showing the relationships between, and the chronology of, possible implementation paths for the Pacific Lamprey Passage Evaluation and Mitigation Plan.

Historic Distribution of Pacific Lamprey in the Deschutes upstream of the Project

There is very limited information on the historic distribution and abundance of Pacific lampreys in the Deschutes River basin upstream of the Project dams. It is assumed that lampreys would have occupied similar reaches as salmon and steelhead, which would include the middle Deschutes upstream to Big Falls (and possibly further upstream), the Metolius River, and most of the Crooked River drainage. When the Reregulating Dam and Pelton Fish Trap were constructed in 1956, few lampreys were caught, and none were recorded as being passed. No lampreys have been observed at or immediately below the Pelton Fish Trap for approximately 30 years (Don Ratliff, retired PGE Biologist Personal Communication). However, there is no doubt that lamprey did historically ascend above the Project, and in fact, downstream-migrant lamprey (macrophthalmia) were observed in the downstream-migrant facility at Pelton Dam as late as 1972 (Don Ratliff, retired PGE Biologist, Personal Communication).

Assessment of Lamprey Habitat

Section 1 of the PLEMP included studies conducted by the CTWSRO Branch of Natural Resources (CTWSRO 2011). The first step was to survey habitats in the lower Deschutes River and tributaries to determine timing and distribution of spawning, overwintering and rearing, as well as the habitat associations with each life stage. Adult lamprey collected at Sherars Falls from 2005-2009 were tracked using radio telemetry to determine migration behavior, overwintering and spawning locations. Originally it was presumed that lamprey spawned primarily in tributaries on the Warm Springs Reservation, however it was found that more than 60% of adults remained and presumably spawned in the mainstem of the lower Deschutes River.

CTWSRO (2011) developed two models to quantify potential ammocoete rearing habitats available upstream of the Pelton Round Butte Project if Pacific lamprey passage was reinitiated. The capture efficiency (CE) model was developed to determine the effectiveness of specialized electrofishing gear used to sample ammocoetes. The ammocoete abundance model (AAM) quantified the relationship of ammocoete abundance in different substrate types and habitat unit types in rearing habitats in the lower Deschutes River and tributaries. The most significant variables determining presence/absence and rearing density were stream temperature and presence of silt or sand substrate in depositional habitats. The two models were applied to stream reaches upstream of the Pelton Round Project with suitable temperatures and substrates to develop estimated potential capacity for rearing ammocoetes. Using temperature data provided by USGS and habitat survey data collected by ODFW and USFS, the estimated ammocoete capacity was 4.8 million (95% confidence estimate 3.7 to 7.5 million) (CTWSRO

2011). The conclusion of Section 1 was that adequate rearing and spawning habitat is potentially available upstream of the Pelton Round Butte Project. In accordance with the PLEMP, the next step was to complete an assessment of Pacific lamprey passage feasibility (Figure 1).

Assessment of Lamprey Passage Feasibility

An assessment of passage feasibility for Pacific lamprey at existing facilities at the Pelton Round Butte Project was completed by Karchesky et.al (2013) as required by Section 2 of the PLEMP. The passage feasibility review evaluated lamprey behavioral characteristics and requirements for passage, including swimming burst speed, screen specifications, fishway design, and preferred migration routes. Project passage facilities, including the Pelton ladder, Pelton adult trap, SWW bottom intake, SWW surface intake and fish processing facilities, and transport and release equipment were evaluated for potential feasibility for passage of adult and juvenile lamprey. Several potential problems were identified. The greatest problems are associated with downstream passage of juveniles.

Lamprey macrophthalmia are weak swimmers and lack swim bladders, so they migrate deep in the water column. The bottom outlet of the SWW is screened, with no collection facilities. If juveniles do reach the SWW, the surface intake screens and separator bars may cause impingement. Fish holding and processing facilities, are not designed to crowd, sort and process lamprey macrophthalmia, which have suckorial disks used to attach to raceway walls. Existing upstream passage facilities at the Pelton fish ladder and adult trap were also determined to be inadequate for trapping upstream migrating adult lamprey. The finger weir at the upstream end of the ladder does not have smooth solid surface for lamprey to attach and climb over. The false bottom, crowder, and open vestibules in the Buckley style adult trap would act as dead-end inaccessible hiding locations for adult lamprey. Karchesky et al. (2013) conducted an assessment of lamprey passage (Figure 1 Section 2), and concluded that lamprey passage is not feasible, and reintroduction of lamprey upstream of the project should not be attempted. Habitat for spawning and rearing is available in upstream tributaries, however passage would not be successful.

Alternative Lamprey Mitigation

Since passage was determined not to be feasible, the PLEMP requires the licensees to develop and implement a plan for Section 4, alternative lamprey mitigation (Figure 1). If alternative Pacific lamprey mitigation is implemented, attempts to pass Pacific lamprey may be reinitiated if substantial new information demonstrates that passage is feasible. The determination whether to reinitiate passage efforts shall be made in consultation with the Fish Committee. As with the experimental reintroduction, any renewed Pacific lamprey passage efforts will not require new construction or retrofit of existing upstream or downstream passage facilities unless new technologies, methodologies, or information, make Lamprey passage feasible in a manner that is not cost or operationally prohibitive. Cost or operationally prohibitive includes but is not limited to the meanings: 1) requires an amount of money to construct or operate that would make operation of the project unprofitable; 2) requires a change to operations that would jeopardize fish reintroduction efforts; or 3) requires modifications to the facilities that impair efficiency or safety.

The PLEMP states “The goal of this [mitigation] plan will be to enhance Pacific lamprey populations in the Deschutes basin downstream of the Pelton Round Butte Project.” Specific restoration actions were not identified, as little was known about the status, life history, and limiting factors of the Deschutes basin lamprey populations at the time. The PLEMP identified a framework for the types of information that would be necessary for development of an alternative mitigation plan:

- Determine Stock Composition of Pacific Lamprey in the Deschutes Sub-basin
- Establishing Basin-Wide Escapement Goals
- Tributary Production Goals
- Identify and Evaluate Limiting Factors

Warm Springs Branch of Natural Resources Deschutes Basin Lamprey Studies

The CTWSRO Branch of Natural Resources Fisheries Program staff has conducted research on Pacific lamprey in the Deschutes River since 2003 (Baker et al. 2015). Additional work has included Fifteenmile Creek, Hood River, and Willamette River. Some of the studies were funded by the licensees to support development of PLEMP Section 1, and discussed in the Assessment of Lamprey Habitat Section (CTWSRO 2011). Additional research was funded by the Bonneville Power Administration and the US Fish and Wildlife Service.

The studies have documented the distribution of lamprey ammocoetes, developed methodologies for quantitative sampling, identified migration behavior and overwintering and spawning locations of adult lamprey, developed mark/recapture estimates of adult escapement at Sherars Falls, determined habitat preference of ammocoetes, and estimated potential habitat available upstream of the Pelton Round Butte Project.

Chapter 12 of the Baker et al. report is a synthesis of Pacific lamprey research conducted by the CTWSRO and addresses critical uncertainties and informs recovery planning. Significant progress has been made in development of research and monitoring techniques, as traditional fisheries methods are not applicable to the unique life history and behavior of lampreys. Some understanding of the framework for alternative mitigation has been gained. However, additional research will be helpful to identify specific mitigation projects. Status and recommendations identified by Baker et al. (2015) for the Deschutes basin are summarized below:

Determine Stock Composition of Pacific Lamprey in the Deschutes Sub-basin

Previously completed genetic studies suggest there has been considerable gene flow between populations of Pacific lampreys across their native range from Japan to California. From sampled populations in the Columbia River drainage there is indication of some regional differentiation (minor differences in populations west vs. east of the Cascades). However, lamprey are not philopatric (homing to their natal streams), and adults may return to the Deschutes River from other tributaries. Recommendation: continue to take nonlethal tissue samples for genetic analysis of Deschutes basin lamprey. Parentage analysis of adults and migrating juveniles will be used to identify age at migration.

Establishing Basin-Wide Escapement Goals

Basin-wide escapement goals for Pacific lamprey in the Deschutes Basin have not been established. Many of the life history parameters that are traditionally used for stock/recruitment analysis are unknown. Lamprey life history is complex compared to anadromous salmonids. Spawning escapement may include adults from multiple cohorts and from multiple natal streams. Additionally, some adults overwinter in the Deschutes and tributaries for multiple years before spawning. Survival of juvenile stages from egg to emergence and ammocoete to macrophthalmia are unknown. Larval development takes many years, and out-migrating macrophthalmia may also include many cohorts. Recommendations: the fish managers (CTWSRO and ODFW) continue to monitor escapement at

Sherars Falls, resurvey ammocoete distribution and abundance every two to five years, and monitor migration patterns.

Tributary Production Goals

Estimation of Pacific lamprey production from Deschutes basin tributaries has not been completed. Based on radio telemetry studies, more than 60% of lamprey adults tagged at Sherars Falls overwintered and presumably spawned in the mainstem of the Deschutes rather than using tributaries (Warm Springs River and Shitike Creek) on the Warm Springs Reservation. Spawning sites were identified in Shitike Creek, Warm Springs River, Beaver Creek and Badger Creek. Ammocoete abundance and distribution in 2009 was correlated to substrate and temperatures. For similar rearing conditions, ammocoete densities were relatively higher in Shitike Creek than Warm Springs River, Beaver and Badger Creeks, suggesting possible under-seeding of available habitat. Follow up surveys were done in 2012 and 2013. Observed ammocoete densities did not agree with predicted values based on the AAM. Larval lamprey densities were highly variable across sites and years, so much so that, the high variance is likely to have obscured all but large differences across sites. Recommendations: Relevant fish agencies develop mark-recapture methodology for estimating escapement at the Warm Springs Fish Hatchery barrier dam following installation of lamprey passage structures. The passage structures will be installed in early 2017 (personal communication from David Hand, US Fish and Wildlife Service).

Identify and Evaluate Limiting Factors

Changes in gradient, sediment composition, anthropogenic barriers, velocity and water temperature may determine the distribution of lamprey in the lower Deschutes Sub-basin. Cold water temperatures may limit lamprey spawning distribution in the upper portions of the Warm Springs River and Beaver Creek. Lack of lamprey in the mainstem Deschutes River upstream of Shitike Creek may be due to the absence of perennial tributaries containing suitable spawning and rearing habitat. Larvae that were collected in the Deschutes River downstream of Shitike Creek were found in habitats that differed from that in tributaries where larvae were located. Rather than low velocity, fine sediment habitats, larvae in the mainstem were generally found in locations near transitional cobble river bottom and nearshore coarse sand. Larvae were also associated with slow-water habitat types (*e.g.*, alcoves, pools and glides), woody debris, and fine sediment depositional areas. Further sampling will improve understanding of limiting factors specific to areas/waters where lampreys are found.

Proposed Pacific Lamprey Mitigation

The Licensees propose alternative mitigation in lieu of passage at the Pelton Round Butte project through establishment of a Pacific Lamprey Mitigation and Enhancement Fund (Lamprey M&E Fund). Many aspects of the Lamprey M&E Fund will be adapted from the Pelton Round Butte Fund Implementation Plan, Exhibit H to the Settlement Agreement. The Licensees have limited ability to implement restoration projects that are outside of the project boundaries as part of mitigation. A mitigation and enhancement fund will facilitate other entities (private, tribal, state, local or federal) to implement projects that will mitigate for infeasibility of lamprey passage at the Pelton Round Butte project.

In addition to the Lamprey M&E Fund, the Licensees will fund and participate in the design and implementation of a Pacific Lamprey Research Fund (Lamprey Research Fund) over a period of ten years. The two funds are described in detail in the following sections.

The plan will establish a Lamprey Fund Advisory Committee to provide review of the Lamprey M&E Fund and the Lamprey Research Fund project applications. The Lamprey Fund Advisory Committee shall be comprised of six signatories of the Settlement Agreement, including one representative or designee from the following agencies or organizations:

1. Licensees (Portland General Electric, Confederated Tribes of the Warm Springs [one representative collectively])
2. CTWSRO Branch of Natural Resources (“CTWSRO BNR”)
3. US Fish and Wildlife Service (“USFWS”)
4. Bureau of Indian Affairs (“BIA”)
5. Non-Governmental Organizations (American Rivers, Freshwater Trust, Trout Unlimited, Native Fish Society, WaterWatch of Oregon [one representative collectively])
6. Oregon Department of Fish and Wildlife (“ODFW”).

Lamprey Mitigation and Enhancement (M&E) Fund

Purpose of the Lamprey M&E Fund

The purpose of the Lamprey M&E Fund is to provide funding for projects that satisfy the goals identified in the PLEMP: “to enhance Pacific lamprey populations in the Deschutes basin downstream of the Pelton Round Butte Project”. Implementation of Lamprey M&E Fund projects will mitigate for lack of reintroduction of Pacific lamprey to historic habitats upstream of the Pelton Round Butte project.

Lamprey M&E Fund Project Area

Until or unless effective lamprey passage technology or methodology is developed that may prove successful at re-establishing passage at the Pelton Round Butte hydroelectric project (rkm 161), eligible projects for the Lamprey M&E Fund must be located where Pacific lamprey currently exist or historically existed within the lower Deschutes River basin from the confluence with the Columbia River upstream to the project and tributaries to historic distribution barriers (Figure 2). The fund dollars will not be distributed for work in streams considered ephemeral. At such time that reassessment of proven passage technology or methodologies suggests that passage at the project is possible, the Lamprey Fund Advisory Committee may meet and agree to consider funding eligible projects in the upper basin.

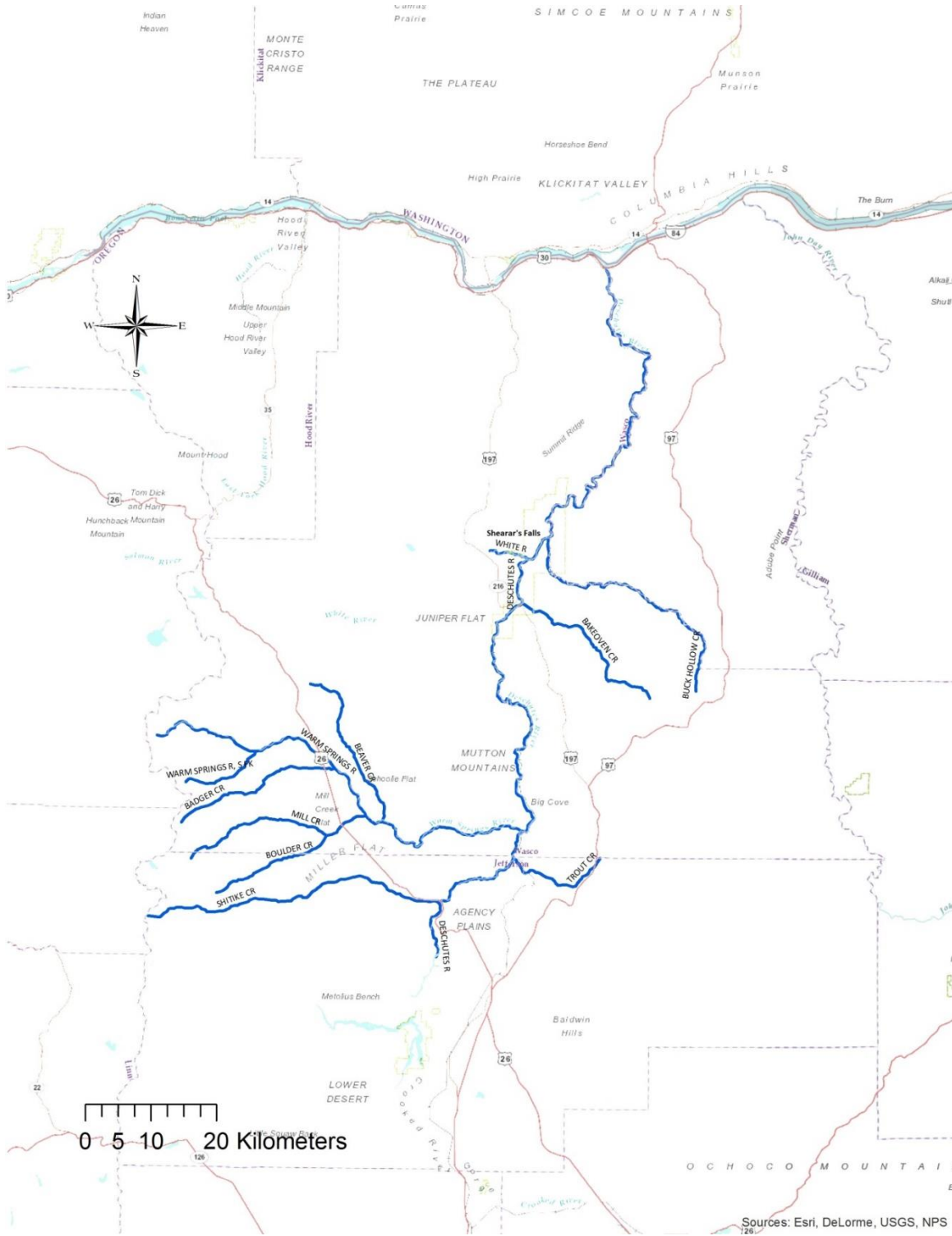


Figure 2. Map of lower Deschutes River basin showing reaches eligible for Lamprey Fund mitigation projects.

Creating the Lamprey M&E Fund and Funding Cycles

The Lamprey M&E Fund will include a total of \$1,500,000 (in 2020 dollars). The goal of the Lamprey M&E Fund will be to enhance Pacific lamprey populations in the Deschutes basin downstream of the Pelton Round Butte Project. The Licensees will provide funding three times during the life of the license. \$500,000 will be deposited in 2020, 2025, and 2030 (adjusted for 3% annual inflation from 2020). Any unspent funds remaining in the Lamprey M&E Fund will continue to accrue interest until the end of the license period (June 1, 2055) and will remain open for qualifying projects until no funds remain or until a new license is issued.

Use and Administration of the Lamprey M&E Fund

Eligible Projects

The following categories identify the types of projects which will be eligible for Lamprey M&E Fund awards:

- Barrier removal/passage improvement
- Instream habitat modification and enhancement
- Translocation of adults and/or juveniles to under-seeded or newly accessible habitat
- Development of artificial propagation for rearing ammocoetes for release
- Construction, installation, or testing of new passage technology if approved by Lamprey Fund Advisory Committee

Application Process

The Licensees, upon approval and establishment of the Lamprey M&E Fund, shall develop an online site describing the Lamprey M&E Fund, with application materials and capability for application submission. Applications and evaluation criteria will be developed by the Licensees in coordination with the Lamprey Fund Advisory Committee by December 31, 2019. An example application, based on the Pelton General Fund is included for reference in Appendix 1. Project applications will include the following information:

- Contact information for project sponsors
- Description of the Project
 - Location and ownership of project site
 - What problems exist that create need for the project

- How will the project result enhance the lamprey population
- Project description
 - Background
 - Methods/design
 - Schedule
 - Budget
 - Monitoring plan
 - Maintenance plan (passage and habitat projects)
 - Potential impacts/benefits to ESA listed species
 - Potential impacts to important cultural resources
 - Documentation of required permits and landowner permission as applicable

The Licensees and Lamprey Fund Advisory Committee will develop screening criteria for application acceptance and evaluation criteria for determination of whether to award funding.

Any person, or private or governmental entity, including the Licensees, may submit a project to the Licensees for Lamprey M&E Fund funding. Proposed projects must be consistent with federal, state, local and tribal laws and policies in effect at the time of application. Applications may be submitted at any time after January 1, 2020 and will be reviewed and considered for funding by the Lamprey Fund Advisory Committee. The Advisory Committee will meet up to twice annually (typically June and/or December) to review applications.

Project applicants are encouraged to seek funding from additional sources to cost-share the project. Lamprey-specific projects that meet criteria for the Pelton General Fund may apply for both Pelton Fund in 2020 and Lamprey M&E Fund support.

Project Application Review and Evaluation

The Licensees, with input from members of the Lamprey Fund Advisory Committee shall meet up to twice annually (typically June and/or December) to review project applications. The Lamprey Fund Advisory Committee shall be comprised of six signatories of the Settlement Agreement, including one representative or designee from the following agencies or organizations:

1. Licensees (Portland General Electric, Confederated Tribes of the Warm Springs [one representative collectively])

2. CTWSRO Branch of Natural Resources (“CTWSRO BNR”)
3. US Fish and Wildlife Service (“USFWS”)
4. Bureau of Indian Affairs (“BIA”)
5. Non-Governmental Organizations (American Rivers, Freshwater Trust, Trout Unlimited, Native Fish Society, WaterWatch of Oregon [one representative collectively])
6. Oregon Department of Fish and Wildlife (“ODFW”).

The Lamprey Fund Advisory Committee shall (typically June and/or December). Applications will be accepted on a rolling basis. Applications will be reviewed for completeness and screened for qualification of eligible project types. If an application does not meet screening criteria, the Licensees may either reject the project, or request the applicants modify the project with suggestions for changes needed to meet criteria.

Project applications that meet initial screening criteria will then be scored by rating criteria (to be developed by the Licensees and Lamprey Fund Advisory Committee). The Licensees and Lamprey Fund Advisory Committee may request project sponsors to provide a tour of the project site to gain better understanding of the proposed project. The Licensees will summarize the ratings and prepare a recommendation for the Lamprey Fund Advisory Committee. The recommendation will be whether to fund the project and whether to fund at full requested amount. Recommendations for partial funding may include suggested components of the project to eliminate or reduction of scope, or if the request exceeds remaining funds, sponsors may be awarded the balance and encouraged to seek alternate partnerships.

The Lamprey Fund Advisory Committee will confirm that the Licensees applied rating criteria effectively, propose modifications to the Licensees as needed, and vote to determine if the project application will receive funding. If a project receives a simple majority of the parties present it will be approved. The committee members, if unable to attend the annual meeting/phone conference, can designate a proxy, provide vote in writing to Licensee facilitator, or choose not to participate for that meeting.

Upon project approval, the Licensees shall implement the project or fund implementation by the project sponsor, under terms and schedule established by the Licensees and accepted by the project sponsor.

Monitoring and Reporting Requirements

Project sponsors will be required to submit annual progress reports to the Licensees. The reports will summarize work completed, monitoring, and expenditures. The Licensees will prepare a summary report of all Lamprey M&E Fund activities and submit to the Lamprey Fund Advisory Committee and Fish Committee in years following the funding cycles, for example for funding in 2020 the Licensees will prepare a report in 2021. The report of award years' activities will be provided by December 31 following each funding cycle (funding in 2020, 2025, and 2030).

Lamprey M&E Fund Administration and Technical Support

The Lamprey M&E Fund will be active until all funds have been distributed to project sponsors or until the issuance of a new license. The first phase of the Lamprey M&E Fund will be available for project applications in 2020. Any remaining funding will be carried forward and will accrue interest at a rate of 3% annually from 2020. At the completion of final award, the Licensees will notify the Lamprey Fund Advisory Committee, the Fish Committee, and the Commission. If sometime in the future, full effective lamprey passage is restored at the project, the existing Lamprey Fund account balance and further distribution would cease.

Costs for administration of the Lamprey M&E Fund, including advertisement, application review, consultation with the Advisory Committee, contract development, and implementation shall be paid by the Licensees.

Lamprey Research Fund

In 2003, the CTWSRO initiated a project to assess the status of Pacific lamprey in the Lower Deschutes River Sub-basin. The objectives were to document the distribution of lamprey larvae and determine species composition, evaluate habitat associations of larvae, estimate lamprey emigrants from the Warm Springs River and Shitike Creek, and estimate abundance, harvest, and escapement of lamprey at Sherars Falls. Pacific lamprey escapement and harvest estimates at Sherars Falls have been ongoing since 2003. From 2005 to 2009, radio telemetry was used to determine adult lamprey over-wintering and spawning habitats, spawn timing, and redd characteristics. One result of the radio telemetry study was that it showed that a significant number of the adult lamprey that were passed above Sherars Falls over-wintered and spawned in the mainstem Deschutes River. Currently, little information exists with regards to lamprey use in the mainstem, as the aforementioned studies focus on lamprey use within tributaries of the reservation.

Purpose of the Lamprey Research Fund

The Lamprey Research Fund will be established as part of the larger lamprey mitigation package. Primarily research actions should focus on the mainstem lower Deschutes River in order to establish an understanding of the lamprey population below the Pelton-Round Butte Hydroelectric Project.

These actions may include:

- Installing several passive integrated transponder (PIT tag) arrays in order to detect the migratory behavior and habitat occupancy of adult lamprey.
- Expanding PIT tagging of returning lamprey adults at Sherars Falls.
- Radio tagging a select number of returning lamprey adults to track their movements. Radio tagging is different from PIT tagging as it will allow for the monitoring of discrete movements of fish.
- Determining an effective population size for lamprey by obtaining tissue samples of returning adults and rearing juveniles in order to conduct parentage analyses.
- Comparing results from the parentage analyses collected from juveniles within tributaries and the mainstem Deschutes River in order to determine migratory interactions between tributaries and the mainstem.
- Mapping core spawning and rearing areas.

The above is not intended to be a complete list of the research that could be conducted with the Lamprey Research Fund. Funding priority will be given to projects directed at answering questions regarding lamprey use of the mainstem lower Deschutes River. However, this does not preclude consideration by the Lamprey Fund Advisory Committee of other lower Deschutes Basin research proposals.

Lamprey Research Fund Project Area

Until or unless effective lamprey passage technology or methodology is developed that may prove successful at re-establishing passage at the Pelton Round Butte /hydroelectric project (rkm 161), as with the Lamprey M&E Fund, eligible projects for the Lamprey Research Fund must be located where Pacific lamprey currently exist or historically existed within the lower Deschutes River basin from the confluence with the Columbia River upstream to the project and tributaries to historic distribution barriers (Figure 2). The fund dollars will not be distributed for work in streams considered ephemeral. At such time that reassessment of proven passage technology or methodologies suggests that passage

at the project is possible, the Lamprey Fund Advisory Committee may meet and agree to consider funding eligible projects in the upper basin.

Creating the Lamprey Research Fund and Funding Cycles

The Lamprey Research Funds will include a total of \$1,500,000 (in 2020 dollars) to be distributed over 10 years. The goal of the Lamprey Research Fund will be to conduct research related to Pacific Lamprey populations, leading to enhancement of Pacific Lamprey populations in the Deschutes basin downstream of the Pelton Round Butte Project. The Licensees, upon approval and establishment of the Lamprey Research Fund, shall develop an online site describing the Fund, with application materials and capability for application submission. Applications and evaluation criteria will be developed by the Licensees in coordination with the Lamprey Fund Advisory Committee by December 31, 2019. The full amount of the research fund will be available in 2020 and will be eligible for application until all funds are expended or the period of ten years ends. Any unspent funds remaining in the Lamprey Research Fund at the end of the ten-year period will be deposited into the Lamprey M&E Fund and will be available for eligible projects through the life of that fund.

Use and Administration of the Lamprey Research Fund

Eligible Projects

The following categories identify the types of projects which will be eligible for Lamprey Research Fund awards:

- Population research and monitoring
- Distribution and abundance monitoring
- Spawning escapement estimates
- Adult and juvenile migration studies
- Genetic sampling and abundance for stock identification and parentage studies
- Monitoring effectiveness of habitat enhancement and passage improvement projects
- Development of habitat/abundance models
- Identification of limiting factors

Lamprey Research Fund project application review and evaluation

The Licensees, with input from members of the Lamprey Fund Advisory Committee shall review the Research Fund project plans developed by the project sponsor. The Lamprey Fund Advisory Committee

shall meet up to twice annually (typically June and/or December) to review project applications. Applications will be accepted on a rolling basis. Applications will be reviewed for completeness and screened for qualification of eligible project types. If an application does not meet screening criteria, the Licensees may either reject the project, or request the applicants modify the project with suggestions for changes needed to meet criteria.

The Licensees and Lamprey Fund Advisory Committee will develop screening criteria for application acceptance and evaluation criteria for determination of whether to award funding. The Lamprey Research Fund criteria and evaluation shall promote the specific objectives of lamprey research as stated above under Purpose of the Lamprey Research Fund.

Any person, or private or governmental entity, including the Licensees, may submit a project to the Licensees for Lamprey Research Fund funding. Proposed projects must be consistent with federal, state, local and tribal laws and policies in effect at the time of application. Applications may be submitted at any time and will be reviewed and considered for funding by the Lamprey Fund Advisory Committee.

Monitoring and Reporting Requirements

The project sponsors will work in cooperation with the Licensees to provide an annual work plan to the Lamprey Fund Advisory Committee and Fish Committee. The two groups will have the opportunity to comment on the annual work plans. Project sponsors will be required to submit annual progress reports and a final completion report to the Licensees and Lamprey Fund Advisory Committee. The annual reports will summarize work completed, monitoring, and expenditures for that preceding year, while the final completion report, filed at the conclusion of all study activities, will summarize the findings of the entire research effort conducted by each project sponsor. The annual progress reports and annual work plan may be combined into a single annual document.

The project sponsor may be requested to present to the Fish Committee at a regular meeting and/or at the Annual Fisheries Workshop.

Lamprey Research Fund Administration and Technical Support

The Lamprey Research Fund will be active for a ten-year period or until all funds have been distributed (whichever is reached first). Funding of \$1,500,000 will be available starting January 1, 2020 and the Licensees will distribute funds after review and upon award from the Lamprey Fund Advisory

Committee. Any remaining funding after the ten-year period will be rolled into the Lamprey M&E Fund.

Costs for administration of the Lamprey Research Fund project, including consultation with the Advisory Committee, contract development and implementation, shall be paid by the Licensees.

Re-Initiation of Passage Efforts

If research and development of Pacific lamprey passage or modification of existing passage facilities indicates that reintroduction upstream of the Pelton Round Butte Project may be feasible, the Licensees will reevaluate the PLEMP. Determination to reinitiate passage efforts will be made by the co-management agencies (CTWSRO, ODFW, USFWS, BIA) with input from the Fish Committee and the Lamprey Fund Advisory Committee. All unexpended funds in the Lamprey M&E and Lamprey Research Funds will be held by the Licensees. Re-initiation of passage efforts would involve updating habitat availability assessments, assessment of passage facilities, and development of Pacific lamprey reintroduction and monitoring plans (Figure 1 Section 5). Following development of the reintroduction plan, an experimental reintroduction program will be initiated (Figure 1, Section 3).

References

- Baker, C., A.Wildbill, and J. Santos. 2015. Synthesis of Pacific lamprey studies conducted by the Confederated Tribes of the Warm Springs Reservation of Oregon, 2003 to 2013. Confederated Tribes of the Warm Springs Reservation of Oregon Branch of Natural Resources. Warm Springs, Oregon.
- CTWSRO (Confederated Tribes of the Warm Springs Reservation of Oregon). 2011. Pacific Lamprey Passage Evaluation and Mitigation Plan: Phase I – Habitat Assessment for Potential Re-introduction of Pacific Lamprey Upstream of Pelton-Round Butte Hydroelectric Project. Prepared by Confederated Tribes of the Warm Springs Reservation of Oregon.
- Karchesky, C.M., D.J. Domina, R.D. McDonald. 2013. Fish Committee Review Draft: Section 2 – Passage assessment for potential reintroduction for Pacific lamprey upstream of the Pelton-Round Butte Project. Prepared by Normandeau Associates Inc. for Portland General Electric Company (PGE), Portland, OR, and Confederated Tribes of the Warm Springs Reservation of Oregon (CTWSRO), Warm Springs, OR
- Portland General Electric(PGE) and Confederated Tribes of Warm Springs Reservation of Oregon(CTWSRO). 2006. Pacific lamprey passage evaluation and mitigation plan. Portland General Electric and Confederated Tribes of Warm Springs Reservation of Oregon Warm Springs, OR.

Record of Consultation

Sub-group meeting 6/14/2018 2:00 PM

Attendees: Terry Shrader, PGE; Jessica Graeber, PGE; Taylor McCroskey, ODFW; Jason Grant, CTWS BNR

Outline of an alternative mitigation plan was discussed and refined. Each attendee provided additional information for inclusion into the plan

Sub-group meeting 7/31/2018 9:00 AM

Attendees: Terry Shrader, PGE; Jessica Graeber, PGE; Taylor McCroskey, ODFW; Jason Grant, CTWS BNR

A draft plan was reviewed and revised. Funding amounts were discussed and revised. The Licensees incorporated the changes and comments and redistributed the plan to the sub-group.

The Licensees and subgroup members provided the draft plan to management for comment. Comments were incorporated, and a revised draft was provided to the sub-group in January.

Jason Grant from the CTWS branch of natural resources provided comments over the phone to the Licensees on February 19, 2019 and all comments were incorporated.

The Licensees initiated consultation with the Fish Committee on February 20, 2019 via email:

From: Jessica Graeber [mailto:Jessica.Graeber@pgn.com]

Sent: Wednesday, February 20, 2019 4:18 PM

To: Jeisner@blm.gov; scott.carlon@noaa.gov; NIGG Eric <Eric.Nigg@state.or.us>; mriehle@fs.fed.us; Peter_Lickwar@fws.gov; CFerrari@tu.org; J_Manion@wspower.com; jason.grant@ctwsbnr.org; Ryan.M.Moon@state.or.us; david.redhorse@bia.gov; brett.l.hodgson@state.or.us

Cc: robert.brunoe@ctwsbnr.org; ted.g.wise@state.or.us; jennifer@nativefishsociety.org; rod.a.french@state.or.us; stacy.a.strickland@state.or.us; scott.turo@ctwsbnr.org; jennifer.frozena@sol.doi.gov; shaun.m.montgomery@state.or.us; dale.bambrick@noaa.gov; rhile@blm.gov; Taylor.McCroskey@state.or.us; ndachtler@fs.fed.us; chris.brun@ctwsbnr.org; Megan Hill <Megan.Hill@pgn.com>; Becky Burchell <Rebekah.Burchell@pgn.com>; Terry Shrader <Terry.Shrader@pgn.com>

Subject: PRB: Lamprey Alternative Mitigation Plan for Fish Committee 30-day Comment Period

Greetings Fish Committee,

Attached you will find the final draft of the Lamprey Alternative Mitigation Plan for your review and comment. The sub-group of Licensees, ODFW and CTWS BNR have worked together on the details of this plan over the past year. Please provide me any comments by March 22, 2019. We will also be presenting an overview of the plan at the March 20th Fish Committee meeting which will be an opportunity for you to ask general questions or provide last minute feedback.

Jessy Graeber

Project Manager, Environmental Compliance and Licensing
Portland General Electric Co., Environmental Compliance & Licensing Services
121 SW Salmon St, 3WTC0403 | Portland, Oregon 97204 | 360-481-4672

The Licensees received comments from ODFW on March 14, 2019 via email.

From: Stacy A Strickland <Stacy.A.Strickland@state.or.us>
Sent: Thursday, March 14, 2019 12:18 PM
To: Jessica Graeber <Jessica.Graeber@pgn.com>
Subject: RE: Lamprey Alternative Mitigation Plan for Fish Committee 30-day Comment Period

*****Please take care when opening links, attachments or responding to this email as it originated outside of PGE.*****

Hi Jessy,

I just had a few minor grammatical edits.

Thanks,

Stacy

The Licensees received comments from USFWS at the March 20, 2019 Fish Committee meeting.

Comments were incorporated into the final document to provide clarity on the duration of fund availability for the Lamprey research fund.

No other comments were received.

Appendix

Appendix 1. Example Lamprey Fund Application and instructions, modified from the 2013 Pelton General Fund application. This application will be adapted in accordance with consultation with the Lamprey fund advisory committee as specified in the Plan.



Confederated Tribes of the Warm Springs
Reservation of Oregon



Portland General Electric

Application Processing Information (to be completed by the Licensees):

Application #: 201x-

Date Received

Date Acted On:

Licensees' Recommendation:

Lamprey Fund Advisory Board Action:

Pelton Round Butte Lamprey Fund RESOURCE PROJECT APPLICATION

1 GENERAL INFORMATION

1.1 Pelton Round Butte Lamprey Funds Requested Total Project Cost

Round to nearest dollar Round to nearest dollar

1.2 Name of Resource Project (five words or fewer)

1.3 Resource Project Location (if more than one, include location/landowner information on each map in #2 below)

Basin/Watershed

County

*Township
applicable)*

Range

Section

River or Creek Name (if applicable)

River Mile (if

1.4 Have you also submitted an application for other funding sources (example, OWEB or NFWF) for this project, or one similar to it on the same property?

Yes No

If yes, explain:

2 CONTACT INFORMATION

| | | | |
|-------------------------|---------------|---------------------------|--|
| 2.1 Applicant: | | Applicant Contact: | |
| Mailing Address: | | Zip: | |
| Phone: | Email: | | |

| | | | |
|---------------------------|---------------|-------------|--|
| 2.2 Landowner(s): | | | |
| Landowner Address: | | Zip: | |
| Phone: | Email: | | |

| | | | |
|---------------------------|---------------|-------------|--|
| 2.3 Landowner(s): | | | |
| Landowner Address: | | Zip: | |
| Phone: | Email: | | |

| | | | |
|---|---------------|-------------|--|
| 2.4 Project Manager for the Applicant: | | | |
| Project Manager Address: | | Zip: | |
| Phone: | Email: | | |

| | | | |
|------------------------------|---------------|-------------|--|
| 2.5 Fiscal Agent: | | | |
| Fiscal Agent Address: | | Zip: | |
| Phone: | Email: | | |

| | | | |
|-------------------------------|---------------|--|--|
| 2.6 Technical Contact: | | | |
| Phone: | Email: | | |

3 RESOURCE PROJECT INFORMATION

3.1 Type of resource concern addressed by the proposed Resource Project (Chose ONE; see application instructions):

Population research and monitoring

Barrier removal/passage improvement

Instream habitat modification and enhancement

Translocation of adults and/or juveniles to under-seeded or newly accessible habitat

Development of artificial propagation for rearing ammocoetes for release

Briefly summarize how the proposed Resource Project addresses the priorities identified above:

Describe the current watershed **PROBLEM(s)** you are seeking to address. When describing the problem, please reference existing federal, state, Tribal, Licensee, or other formal large-scale land use evaluations and watershed analysis. (PLEASE REFER TO THE INSTRUCTIONS FOR ADDITIONAL QUESTIONS TO CONSIDER)

Describe the **SOLUTION(s)** you are proposing to use to address the problems identified above (attach a site map, project drawing, and/or photos). If the solution is based on any type of determination or action listed in a formal watershed assessment document please provide a reference in this section. (PLEASE REFER TO THE INSTRUCTIONS FOR ADDITIONAL QUESTIONS TO CONSIDER)

Please describe your technical preparations including the technical guidance sources you anticipate using for your project. (PLEASE REFER TO THE INSTRUCTIONS FOR ADDITIONAL CONSIDERATION)

Summarize your technical resources

Describe and document your technical plans

How are you planning for contingencies?

Practical considerations (see application instructions):

How long will it take to plan and complete the project? Please attach a project schedule showing key milestones and critical paths

Will the project provide benefits for at least the life of the PRB Project license (through 2055)?

Yes No

Will activities be cost-shared with other funding sources?

Yes No

If yes, list all agencies and organizations from which funding is anticipated for the proposed Resource Project.

| Agency/Organization (list) | Cost-share (check all that apply and specify dollar amount) | | | | |
|----------------------------|---|------------------------------|------------------------------|------------------------------|-------------|
| | Cash | In-Kind | Secured | Pending | Amount (\$) |
| | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes | |
| | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes | |
| | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes | |
| | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes | |

Describe steps taken (or proposed) to gather community support for the proposed Resource Project and summarize any support and/or opposition to the proposed project.

Monitoring and Evaluation Reporting Requirements

How will success be determined and what are the measurable desired outcomes from this project?

Have you read the guidance on the expected duration and frequency of status and monitoring reports and can you meet this expectation?

Yes No

How the project be monitored (See application instructions)?

| Type of Action (monitoring/evaluation) | By Whom? | What? | How? | # of years / # of times/year |
|--|----------|-------|------|------------------------------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Who will be responsible for writing the Monitoring and Evaluation Reports?

Name **Phone**

Address

Email:

Have the required permits been obtained for the proposed Resource Project?

Yes No Not Required

If “yes”, what permits have been issued (attach copies)?

If “no”, what permits must be acquired, and by when?

Is the proposed Lamprey Fund Project required as a condition of a local, state, tribal or federal permit, order, or enforcement action (e.g., a manure storage and management project required by ODA permit)?

Yes No

Will a species listed as Threatened or Endangered under the federal Endangered Species Act benefit from the proposed activity?

Yes No

Explain:

Please identify similar projects (if applicable) that have been completed in the Deschutes Basin or are under way and compare relative costs and benefits of these projects as compared to what is being proposed here.

Identify all groups, volunteers, or agencies participating in the proposed Lamprey Fund Project and what they will do.

Lamprey Fund Project Budget. Itemize projected costs for each of the following expense categories that apply to your proposed project. See application instructions and additional team conditions for further guidance.

| Expense Category | No. of Units | Unit Cost | Cost Share In-Kind | Requested PRB Funds | Description (what will be purchased and who will provide it, if it is claimed as match.) |
|---|--------------|-----------|--------------------|---------------------|--|
| PROJECT Management (Payroll expenses) | | | | | |
| | | \$ | \$ | \$ | |
| TRAVEL | | | | | |
| | | \$ | \$ | \$ | |
| | | \$ | \$ | \$ | |
| CONTRACTED SERVICES (Work crews, establishing plants, equipment operation, etc.) | | | | | |
| | | \$ | \$ | \$ | |
| | | \$ | \$ | \$ | |
| | | \$ | \$ | \$ | |
| SUPPLIES/MATERIALS (Seed, fencing, pipes, gravel, logs, plants, film, etc.) | | | | | |
| | | \$ | \$ | \$ | |
| | | \$ | \$ | \$ | |
| | | \$ | \$ | \$ | |
| EQUIPMENT (See application instructions) | | | | | |
| | | \$ | \$ | \$ | |
| | | \$ | \$ | \$ | |
| | | \$ | \$ | \$ | |
| PRE-IMPLEMENTATION (Design, permits, inspection — see application instructions) | | | | | |
| | | \$ | \$ | \$ | |
| | | \$ | \$ | \$ | |
| PRB Fund Subtotal | | | | \$ | |
| Fiscal agent admin. (optional; see instructions) | | | \$ | \$ | |
| Monitoring/Eval. Rpt. (optional; see instructions) | | | \$ | \$ | |
| Project Total | | | \$ | \$ | |

We, the undersigned, attest that to the best of our knowledge the information contained in this application is true and that the proposed Resource Project is not required by a local, state, tribal or federal agency directive. We understand that the submitted application is a matter of public record. Also, should funding be awarded, 1) we understand that we may not incur any project expenses until all designated signatories have signed a PRB Fund grant agreement, and that 2) we will be required to provide proper accounting of project expenses, and necessary and normal maintenance to sustain the value of the Resource Project once it is completed. By their signatures, the landowner(s) attest that they have no plans to sell their property as of the date of this application, and they agree to provide, upon prior request and at a mutually acceptable time, site access to the applicant or representatives of the Licensees for a period up to two years following Project completion to allow project work to be implemented, monitored, and maintained.

 Applicant Date

 Landowner Date

 Landowner (if more than 1) Date

 Fiscal Agent Date

ATTACHMENT CHECKLIST

Project location map

Color photographs of site

Site drawings/diagrams (if applicable)

Agreement with Fiscal Agent

Schedule (if required – see question 3.6a)

Other materials

Documentation of secured matching funds

OPTIONAL AT APPLICATION STAGE

Cooperative agreement, if two or more landowners

Other Materials:

Other Materials:

Submission Instructions:

1. Complete, print, and sign the Pelton Round Butte Application Form
2. Send the completed and signed applications to:
 PRB Lamprey Fund Administrator
 Portland General Electric
 121 SW Salmon Street
 3WTC0403
 Portland, Oregon 97204
3. Include with your application 3 hard copies of all required and optional attachments PLUS electronic versions (on CD media) of the application and any other attachments for which electronic data formats are available