

**PROPOSAL FORM -
*Lewis River Aquatic Fund***

Form Intent:

To provide a venue for an applicant to clearly indicate the technical basis and support for proposed project. Specifically the project's consistency with recovery plans, SA Fund objectives, technical studies and assessments which support the proposed action and approach.

Proposal format:

Please complete the following form for your proposal. Maps, design drawings and other supporting materials may be attached.

The deadline for Proposal Form submission is January 31, 2013. Please submit materials to:

Frank Shrier
PacifiCorp – LCT 1500
825 NE Multnomah
Portland, OR 97232

1. Project Title

Cedar Creek Reach 1A Restoration

2. Project Manager

Peter Barber
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3. Identification of problem or opportunity to be addressed

Summarize information about the problem or opportunity addressed by your proposal.

LCFEG was recently awarded a \$209,108 Salmon Recovery Funding Board (SRFB) grant to construct the Cedar Creek Reach 1A restoration project. This restoration project will design, permit, and install large wood through 1,525 linear feet of lower Cedar creek to increase spawning and rearing habitat benefitting ESA listed chum, Chinook, coho and steelhead.

As part of the SRFB project, PacifiCorp agreed to provide large wood from its reservoirs to support this project which is the equivalent of a \$53,000 local match. This proposal is tendered as a contingency plan in the event suitable wood is not available in the reservoirs and must be purchased prior to construction in 2014.

4. Background

Provide information related to how this project fits into greater watershed objectives and any previously collected information at the project site (e.g. fish surveys, habitat delineation, etc)

The proposed project begins at the Cedar Creek confluence with the NFK Lewis River and extends upstream 1,575' feet to the remnant concrete dam footing. Aerial photo review and site visits by LCFEG staff show current site conditions consist of a continuous glide/ riffle spanning 1,350' from the Etna road bridge upstream to a relict concrete dam. The concrete dam is a hydro-electric dam (Shane Hawkins, WDFW pers. comm.) that was also used to trap adult coho for brood stock for the salmon hatchery. The dam was abandoned in place in 1946 and now represents the only habitat forming structure observed in lower Cedar creek. The hydraulics associated with the structure reveal the presence of extensive spawning gravels but elsewhere the channel substrate is a cobble/ gravel mixture with some embedment present. The dam structure is the only hydraulic break in an otherwise bedrock confined valley with limited flood/ velocity refuge present (except the dam). The structure may be responsible for maintaining and/ or protecting the floodplain terrace immediately downstream on the left bank which is vegetated with reed canary grass, blackberry and a few alder. The site visit in April 2012 showed no signs of erosion to the toe of the bank or deposition of fine sediments or debris on top of the floodplain surface which indicates the creek is incised and seldom exceeds bank full elevation.

The creek is a single thread channel with a bank-full width of 50' containing a deep pool at the dam and at the bridge separated by 1,350' of riffle-glide habitat that is incised against the bedrock toe on the right bank. The absence of wood or any other velocity breaks in the reach increases velocity through this section of the creek. There is a 250' long back water channel area located immediately upstream of the Etna road bridge. The bridge constricts the floodplain width from an average of 300' down to 50'. This constriction is located just 140' upstream of the confluence with the NFK Lewis. The floodplain is confined laterally by a basalt toe on each side of the valley. The channel has been stable at least since 1990 and the only wood in the lower mile of Cedar creek is caught on the concrete dam, none of which meets the definition of a key piece of LWD.

The road constriction and abandoned dam likely increase fine sediment deposition in addition to the natural backwater events caused by high flows in the NFK Lewis. This would explain the long riffle immediately upstream of the confluence and the lack of any changes in morphology at least back to 1991. Historically this low gradient reach would have been filled with logjams and individual pieces of old growth wood. However, stream adjacent logging, fire, snagging wood from the channel and use of splash dams to drive timber downstream to the NFK Lewis have resulted in the virtual absence of large wood structure in the channel and adjacent floodplain. This is remarkable given the relatively small size of the stream and the location of the project at the lower extremity of the watershed. Future large wood recruitment may resume as riparian forests recover in response to current forest practice rules but until then there is no reason to expect habitat conditions in this reach will change.

Limiting factors in this reach include lack of pools, lack of cover, reduced connectivity to floodplain surfaces and high water velocity. Perhaps the greatest limiting factor in Reach 1A is the lack of velocity breaks and cover along the channel margins (wood) which constrains the ability of juvenile salmonids to volitionally move back and forth between the NFK Lewis and Cedar creek. The presence of large wood in this reach would increase the frequency of pool: riffle complexes to provide cover and reduce flow velocity which would allow juvenile salmonids to migrate freely between the cold sterile water in the NFK Lewis and the warmer biologically rich water in Cedar creek, and vice versa. However, high stream velocity and lack of cover prevent

juvenile fish from migrating into lower Cedar creek to take advantage of the seasonal differences in water chemistry, flow, temperature and food.

5. Project Objective(s)

State the objectives of your proposal including how the project is consistent with Aquatics Fund objectives and recovery plans. **Clearly describe the biological benefits and expected outcome of your project.** Describe the technical basis for the objectives including the identification of any supporting technical references. Identify biological metrics to help quantify the benefit of the project.

The goal of this project is to increase stream habitat function *in a manner* that leads to increased reproductive success of anadromous and freshwater salmonids in EDT Reach 1A of Cedar creek, tributary to NFK Lewis River. This will be accomplished by installing large root wads and small multi-log structures along channel margins and within the active channel to create the desired habitat conditions to benefit both rearing and spawning salmonids. The project proposes to increase the frequency of pool: riffle habitat, increase channel margin cover, and increase connectivity with adjacent floodplain features.

The objectives identified for this project are:

- Install >15 pieces of large wood material per 100ft in the lower 1,525' of Cedar Creek
- Increase pool frequency from 1:500ft to 1:100ft of stream channel
- Reduce flow velocity along channel margins; increase habitat diversity; increase spawning and rearing habitat function

This project addresses Aquatic Fund priorities #1 & #3:

Priority 1: *Benefit fish recovery throughout the North Fork Lewis River, with priority to federal ESA-listed species.*

Cedar Creek is the largest tributary to the NFK Lewis (below Merwin) and contains ESA listed (threatened) populations of Fall & Spring Chinook, Lower Columbia chum, Type S (early) & N (late) coho, Winter and Summer steelhead, and Pacific Lamprey (*Entosphenus tridentatus*) which are identified by WDFW as a species of concern. This project will contribute to the recovery of these species by increasing the amount and quality of complex rearing pools in lower Cedar creek, and will increase the function of spawning habitat associated with the wood complexing.

Priority 3: *Enhance fish habitat in the Lewis River Basin-, with priority given to the North Fork Lewis River.*

This project is located in the North Fork Lewis River basin, at the confluence of NFK Lewis and Cedar creek. The project directly benefits all salmonids originating in and returning to Cedar creek, as well as juvenile fish produced in the NFK Lewis River upstream of the confluence with Cedar creek. Fish produced in the Lewis upstream of Cedar creek will use the restored habitat in lower Cedar creek for off-channel rearing.

6. Tasks

State the specific actions which must be taken to achieve the project objectives.

January 2013 thru July 2014

- Acquisition of large wood materials via PacifiCorp reservoir wood or ACC fund.
- Coordination with USFWS and WDFW to assess Pacific lamprey presence/absence within project reach.
- Project design and permitting with Interfluve.
- Installation of photo reference points.
- Installation of riparian plantings.

August - September 2014

- Lamprey monitoring- removal if necessary
- Installation of large wood structure.
- Photo documentation

November 2014 - June 2015

- Installation of riparian plantings, monitoring of wood structures and fish response, documentation of channel changes, lamprey monitoring

July 2015 thru August 2015

- Project maintenance (if required)
- Lamprey documentation
- As-built survey, photo documentation

October 2015 thru December 2015

- Complete final reports, closeout project

7. Methods

Describe methods to be used. When using Best Management Practices (BMPs) identify sources of BMPs and how they will protect resource values.

Methods for design and construction have and will follow established protocols that have a proven track record for successfully improving habitat conditions in the Lewis River Basin and in the Lower Columbia Region as a whole. Design and construction techniques, as well as benefits of proposed enhancements for fish habitat, are well-documented (e.g. Washington Stream Habitat Restoration Guidelines). The design process will be guided by well-established design criteria to ensure all objectives are met. The project sponsor and project consultants have extensive experience designing these types of enhancement features. Project design will be conducted by engineers, habitat biologists, hydrologists, and fluvial geomorphologists who have been successfully designing and constructing similar habitat enhancement features for decades.

Best Management Procedures (BMP's) for Pacific Lamprey (*Entosphenus tridentatus*) have been recently (Spring 2010) developed by U.S. Forest Service and Bureau of Land Management. Project staff will work in close coordination with USFWS and WDFW to ensure lamprey data will be incorporated into our project design to ensure minimal lamprey impacts and protection of existing ammocoete rearing habitat.

Access for construction will occur from Etna road which will require equipment crossings. Once on the other side of the creek we can access the entire project area "in the dry". The areas disturbed by construction will be re-planted with native riparian species. The donated fish habitat wood will be anchored on the margins using a combination of wood piling, boulder ballast and epoxy/threaded-rod anchors drilled into the bedrock walls.

8. Specific Work Products

Identify specific deliverable results of the project. Project managers will be required to provide status updates with submission of project invoices.

Benefits of project will be increased number of complex pools and spawning habitat associated with the placement of over 100 pieces of wood. We anticipate the number of pools will increase from 1 to a minimum of 6, as a direct result of project. Project staff expects to observe an increase of spawning adults building redds as well as in increase of Pacific lamprey usage which will be documented via post project surveys.

Deliverables:

- 1) Topographic survey data
- 2) Hydraulic model
- 3) Preliminary and Final Design packages
- 4) Design narrative
- 5) Permits
- 6) Construction, including placement of >100 pieces of wood.
- 7) Tech memo of monitoring results

9. Project Duration

- a. Identify project duration. Note that duration of a project funded from Fiscal Year 20xx appropriations may extend beyond the end of the fiscal year.

2013 – December, 2015

- b. Provide a detailed project schedule to include:
 - Initiation of project.
 - Completion date for each milestone or major task.
 - Project close-out site visit (with PacifiCorp, Cowlitz PUD, and ACC representatives)

Project schedule listed above #6.

10. Permits

Identify any applicable permits and resource surveys required for project. Please include timeline for obtaining and any action taken to-date. Applicant will be responsible for securing all such necessary permits. Landowner permission is required prior to finalization of a Funding Agreement with PacifiCorp.

On-the-ground (dirt moving) projects will be required to be in compliance with Sections 401 and 404 of the Clean Water Act, Sections 7 and 10 of the Endangered Species Act, and the National Historic Preservation Act of 1966, as well as Department of the Interior regulations

on hazardous substance determinations. Project site surveys may be required in order to comply with these and other regulations.

The Cedar Creek Reach 1A project will require the following permitting documents; USACE NWP 27, DAHP, WDFW HPA and a landowner (WDFW) agreement.

11. Matching Funds and In-kind Contributions

\$45,000 LCFEG in-kind
\$209,108 SRFB

12. Peer Review of Proposed Project

It is encouraged that the proposal be reviewed by an independent resource professional prior to submission for funding. Focus of such review should be on biological value and proposed methodology. Please note who completed the review and contact information. This does not have to be a third party review, and can come from someone associated with the sponsoring organization.

This proposal is part of a larger restoration proposal reviewed and approved for funding by numerous resource professionals on behalf of the Lower Columbia Fish Recovery Board and Salmon Recovery Funding Board.

13. Budget

Attached.

14. Photo Documentation (Per National Marine Fisheries Service's Biological Opinion for Relicensing of the Lewis River Hydroelectric Projects):

Monitoring procedures will be developed collaboratively with WDFW & USFWS during the design phase of the project. Reporting of results will be done using ACC protocols (if existing), or standard SRFB protocols which include a final as-built report and photo summary.

Attachment 2

ACC Comments and Questions on Pre-Proposals Lower Columbia Regional Fisheries Enhancement Group - Eagle Island North Channel Restoration and Cedar Creek Reach 1A Restoration

Note: Questions that follow are directly from emails and/or discussions by the ACC.

All projects: Proposals should demonstrate that the project is scientifically supported, has a clear nexus to the Lewis River hydroelectric projects, and clearly supports the Aquatic Fund objectives. Please prepare the document with the assumption that the reader is not familiar with the Lewis River basin, its issues, or its resources.

Cedar Creek Reach 1A Restoration

WDFW - WDFW is very concerned with Lamprey impacts. When will the amount of donated wood be known?

LCFRB - When will it be known whether sufficient donated wood is available? Should the grant funds for wood be contingent on donated wood not being available?

USFS - Encourage the incorporation of and consideration for neglected Lamprey species;

1/28/2013 Conversation with Kurt Naler from PacifiCorp - Current surplus wood gathered from Swift reservoir has been designated to support USFS restoration projects during 2013. We do not know if USFS will still require additional reservoir wood for project during 2014. If all or a portion of the required wood becomes available in 2014 we will be able to reduce the amount of ACC funds requested.

Cedar Creek Reach 1A Restoration

ACC Funds - Expanded Budget

| Description | Unit | Quantity | Unit Cost | SRFB Funds | ACC Funds | LCFEG Match | Total Cost | Comment |
|--|------|----------|-----------|------------------|------------------|-----------------|-------------------|---|
| Mobilization and demobilization | LS | 1 | \$5,000 | \$5,000 | \$0 | \$0 | \$ 5,000 | mob excavators to project site |
| LWD- straight logs | EA | 50 | \$265 | \$0 | \$13,250 | \$0 | \$ 13,250 | 40' logs 18" diameter; PacifiCorps reservoir donation or ACC funds |
| LWD- straight logs | EA | 25 | \$550 | \$0 | \$13,750 | \$0 | \$ 13,750 | >2' on big end x >50' long, PacifiCorps reservoir donation or ACC funds |
| LWD- Standard Rootwads | EA | 25 | \$500 | \$0 | \$12,500 | \$0 | \$ 12,500 | 35' long x 18" dia. x 5' dia. rootwads; PacifiCorps reservoir donation or ACC funds |
| LWD- Racking wood | LS | 5 | \$2,200 | \$0 | \$11,000 | \$0 | \$ 11,000 | small diameter logs 3-8" dia.; PacifiCorps reservoir donation or ACC funds |
| LWD- Slash | LS | 5 | \$500 | \$0 | \$2,500 | \$0 | \$ 2,500 | 300 cu. yds. small wood debris; PacifiCorps reservoir donation or ACC funds |
| LWD- Wood pile logs | EA | 100 | \$80 | \$8,000 | \$0 | \$0 | \$ 8,000 | Wood piling; PacifiCorps reservoir donation or ACC funds |
| Materials hauling | LS | 1 | \$20,000 | \$20,000 | \$0 | \$0 | \$ 20,000 | Haul donated materials down from Swift Res. Or transport ACC wood |
| Wood placement- Trackhoe | HR | 220 | \$220 | \$48,400 | \$0 | \$0 | \$ 48,400 | 330 excavator w/ clamshell bucket & pile driver to move & install LWD |
| Misc. Project Materials | LS | 1 | \$25,000 | \$25,000 | \$0 | \$0 | \$ 25,000 | epoxy, chain, threaded rod, nuts, washers, anchors |
| Misc.rented/ purchased tools and equipment | LS | 1 | \$5,000 | \$5,000 | \$0 | \$0 | \$ 5,000 | 180 cfm air compressor; gas cut-off saw, rock drill & bits |
| Riparian plants- live stakes | EA | 1,000 | \$0.63 | \$0 | \$0 | \$380 | \$ 380 | \$0.63 per 3' live willow/ dogwood cutting |
| Riparian plants- containerized | EA | 1,000 | \$2 | \$0 | \$0 | \$2,000 | \$ 2,000 | native trees/ shrubs, LCFEG nursery grown |
| Donated tools and equipment | LS | 1 | \$2,000 | \$0 | \$0 | \$2,000 | \$ 2,000 | LCFEG equipment package |
| Labor- LCFEG Construction Mgmt. | HR | 160 | \$45 | \$7,200 | \$0 | \$1,040 | \$ 8,240 | LCFEG/ contracted construction supervisor |
| Labor- LCFEG Crew Supervision | HR | 350 | \$35 | \$12,250 | \$0 | \$0 | \$ 12,250 | LCFEG construction foreman |
| Labor- DOC Contract | LS | 30 | \$130 | \$3,900 | \$0 | \$0 | \$ 3,900 | 130.00 per day to cover DOC officer & transport |
| Labor- Donated | HR | 0 | \$0 | \$0 | \$0 | \$42,000 | \$ 42,000 | DOC crew labor to fasten large wood, install riparian plantings |
| Permits | LS | 1 | \$5,000 | \$5,000 | \$0 | \$0 | \$ 5,000 | Acquire permits |
| Construction Sub-Total | | | | \$139,750 | \$53,000 | \$47,420 | \$ 240,170 | |
| Sales Tax (approx. 8.2% of purchased goods and services) | | | | \$9,358 | | | | |
| A&E (\$35,000 engineering), audit, project management, administration | | | | \$60,000 | | | | |
| Project Sub-Total | | | | \$209,108 | | | | |
| Funded SRFB Project Amount | | | | \$209,108 | | | | |
| LCFEG Project Match | | | | | | \$47,420 | | |
| ACC Request or value PacifiCorp wood donation | | | | | \$53,000 | | | |
| Project Grand Total | | | | | \$309,528 | | | |

Key

- LS = Lump sum
- CY = Cubic yard
- LF = Lineal foot
- SF = Square foot
- AC = Acre
- EA = Each
- HR = Hours