

FULL 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, Settlement Agreement Fund objectives and priorities, technical studies and assessments which support the proposed action and approach.

Full Proposal format:

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

The deadline for a Draft Full Proposal Form submission is **January 29, 2021**. Please submit materials to:

Erik Lesko
PacifiCorp
825 NE Multnomah Street, Suite 1800
Portland, OR 97232
Erik.lesko@pacificorp.com

1. Project Title
Clear Creek and Clearwater Creek Restoration Design
2. Requested Funding Amount \$333,520; total cost of design including In-kind funds \$345,520
3. Project Manager
Greg Robertson, greg.robertson2@usda.gov, (360) 395-3366
4. Identification of problem or opportunity to be addressed

Problem:

Sections of Clear Creek and Clearwater Creek contain essential habitat for species listed under the Endangered Species Act (ESA) and include Coho and Chinook salmon, and Steelhead trout. Effects to aquatic habitat in these creeks include the 1980 eruption of Mt. St Helens and past land management activities such as logging, road building, stream wood removal, and development of hydro-resources, which until recently has blocked all anadromous species access to the Upper North Fork Lewis River watershed. To ensure reintroduction efforts of salmon and steelhead into the Lewis River and its tributaries above the dams are successful, the Forest Service in partnership with the Aquatic Coordination Committee has implemented a variety of aquatic habitat improvement projects including; construction of acclimation ponds for juvenile spring Chinook salmon, road decommissioning, replacement of migration blocking culverts with bridges, and numerous streambank and instream fish habitat restoration projects. However, additional work remains to improve habitat for Chinook, Coho, and Winter Steelhead.

Past instream restoration projects in Clear and Clearwater Creeks were limited in scope and scale with project objectives focusing on bank protection and log scour rather than process-based restoration. Previous projects were not designed with 2D hydraulic model and were not designed or stamped by a certified hydraulic engineer. Many of the log jams and acclimation ponds washed out during floods in 2016. Lessons learned from past aquatic restoration projects in these creeks have highlighted the need for a broader-scale process-based restoration planning and design effort to improve aquatic habitat, build stream habitat resiliency, and improve floodplain and side channel connectivity.

Opportunity:

The Clear Creek and Clearwater Creek project is in alignment with Lewis River goals by benefiting federal ESA-listed species, through enhancing fish in habitat in the Lewis River Basin that will help support the reintroduction of anadromous fish throughout the basin. Clear Creek and Clearwater are above the Lewis River hydropower system, which has blocked upstream adult migration from the mid-1930s until eight years ago. As part of the most recent FERC license, PacifiCorp and Cowlitz PUD (utilities) are implementing salmon and steelhead reintroduction in the upper basin. Adult Coho, Steelhead, and spring Chinook are transported and released to the upper basin to spawn naturally. Coho are currently using the site in sufficient numbers to populate off-channel areas, and we anticipate greater numbers of upstream-bound adults as populations grow above the hydropower system. This project is well-timed to take advantage of increasing numbers of adults we expect to be using the reach in future years.

The 2010 Lower Columbia Salmon Recovery and Fish & Wildlife Subbasin Plan's EDT analysis predicts high potential for Coho production throughout the project area, and medium to low production potential for spring Chinook and winter steelhead. Spring Chinook is the only Primary population in the upper Lewis subbasin, and must be recovered to a high level of viability to meet regional recovery goals. Coho and winter steelhead are contributing populations and must be recovered to a medium level of viability to meet regional salmon recovery goals; the Tier-2 reach designation of Clear Creek and Clearwater Creek reflects the lower priority of Coho recovery. Surveyors have documented bull trout in the area, but their level and pattern of use is unknown.

The Gifford Pinchot National Forest are partnering with the Cascade Forest Conservancy (CFC) to accomplish several pieces of the project more fluidly. Cascade Forest Conservancy has better availability to lead the contracting of the design, with Forest Service staff will sharing design oversight responsibilities. In the future Forest Service can take on NEPA documentation for the implementation, CFC can contract out the implementation and we can work together for large wood sourcing for the project.

The Gifford Pinchot National Forest and the Cascade Forest Conservancy, propose to develop comprehensive habitat restoration designs for Clear Creek and Clearwater Creek with a focus on process-based geomorphic restoration to improve aquatic function and habitat, and build resiliency to the potential impacts of climate change. Clear Creek and Clearwater Creek Restoration Design planning and future implementation will focus on restoring broader stream function to encourage resilient aquatic ecosystems that will respond to climate change stressors.

Aquatic Funds would be used to contract a certified restoration engineering consultant to develop stamped project designs. This project will restore habitat in the Clear and Clearwater drainages by providing a holistic design in the expectation that future grant rounds will be utilized to implement designed stream restoration in the next several years.

5. 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 Clear Creek and Clearwater Creek Design project are above Swift Reservoir and North Fork Lewis River, WA, Skamania County. Each begin at the confluence with the Muddy River and end further up each stream to the upstream extent of anadromous habitat (Figure 1). Approximate restoration design river miles (RM) for Lower Clear Creek RM 0-6.2, Upper Clear Creek RM 6.2-8.7 and Clearwater Creek RM 0-5.2 (Table 1). The restoration design will focus on where excavator access is feasible and where the stream it is not accessible by excavator, to helicopter wood into those areas. This incorporates the strategy of implementing the excavator reaches first so as to capture mobilized wood that has been helicoptered or recruited naturally at a later date and to retain the wood in the system. Both Clear and Clearwater Creeks have a disrupted wood recruitment cycle through past land management and the eruption of Mt St Helens.

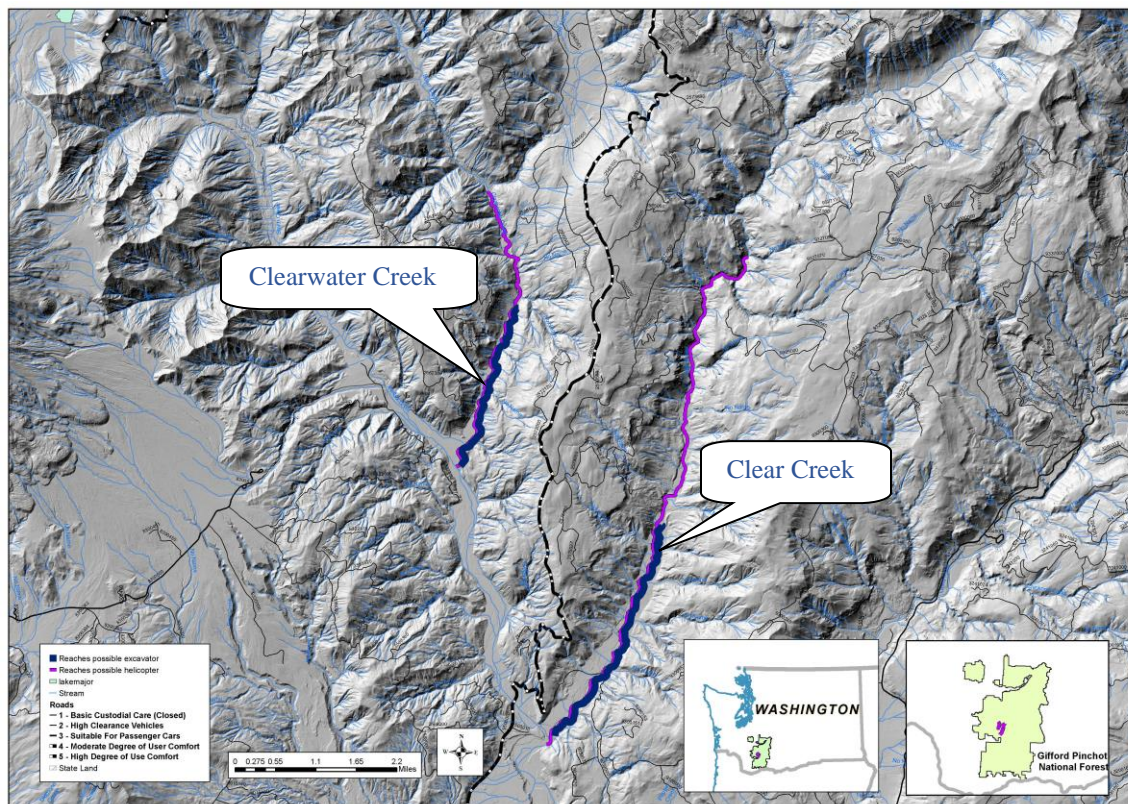


Figure 1. Clear Creek and Clearwater Creek stream restoration design locations.

Table 1. Fish resources present at the site and targeted by this project.

Reach Name	LCFRB Tier	Length		Tier Length	Strategy Excavator (Length)	Strategy Helicopter (Length)
	Ranking	Feet	Miles	Tier II	Tier II	Tier II
Lower Clear Creek	2	32646	6.2	6.2	3.8	2.4
Upper Clear Creek	2	13200	2.5	2.5	0	2.5
Clearwater Creek	2	27451	5.2	5.2	2.2	3.0

Focal fish species of both reintroduced anadromous and of resident life histories use Clear and Clearwater Creeks for spawning, incubation, rearing, and foraging as adults and would benefit from implementing the proposed design (Table 2). Recent data on the spatial distribution of spring Chinook and Coho from redd surveys collected by PacifiCorp in 2017 indicate that spring Chinook utilize both Clear and Clearwater Creeks for spawning, in addition to the mainstem North Fork Lewis below the Lower Lewis River falls and the confluence of Swift Reservoir, the Muddy River near the confluence of Clear Creek, and at Drift Creek near the confluence of Swift Reservoir (Figure 2). Coho have also used Clear and Clearwater Creeks and have distributed their presence within the Upper North Fork Lewis River at greater levels in both release from trap and haul and in numbers of redds (Figure 3).

Table 2. Fish resources present at the site and targeted by this project.

Species	Life History Present (egg, juvenile, adult)	Current Population Trend (decline, stable, rising)	ESA Coverage (Y/N)	Life History Target (egg, juvenile, adult)
Coho	Egg, juvenile, adult	Rising (reintroduction)	Y	Egg, juvenile, adult
Spring Chinook	Egg, juvenile, adult	Rising (reintroduction)	Y	Egg, juvenile, adult
Winter Steelhead	Egg, juvenile, adult	Rising (reintroduction)	Y	Egg, juvenile, adult
Bull trout	Adult	Decline or stable	Y	Egg, juvenile, adult

Recent data on the spatial distribution of spring Chinook and Coho redd surveys (2017) shared by PacifiCorp indicate that spring Chinook have used both Clear and Clearwater Creeks for spawning. Other areas of spawning are focused in the mainstem North Fork Lewis below the Lower Lewis River falls and the confluence of Swift Reservoir, the Muddy River near the confluence of Clear Creek, and at Drift Creek near the confluence of Swift Reservoir (Figure 3, Figure 4).

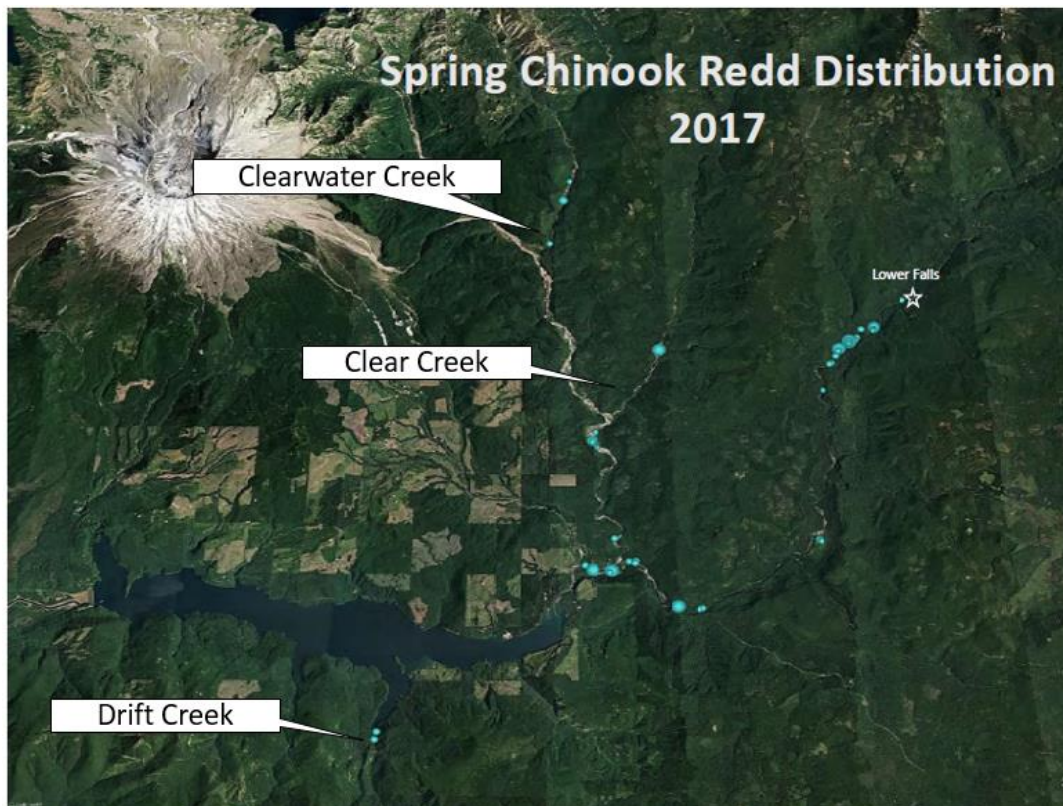


Figure 3. 2017 spring Chinook redd distribution within the Upper North Fork Lewis River. Source: PacifiCorp.

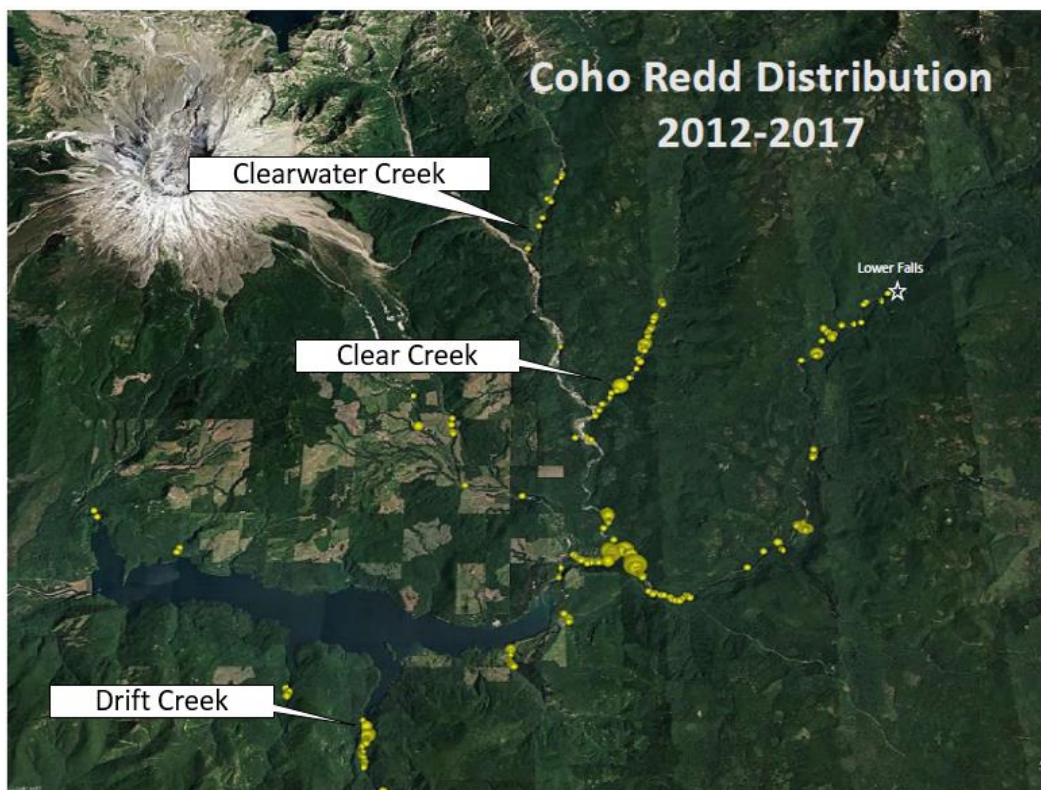


Figure 4. 2012-2017 Coho redd distribution within the Upper North Fork Lewis River. Source: PacifiCorp.

Lower Columbia River Salmon Recovery Board, Ecosystem Diagnosis and Treatment Analysis, and Aquatic Coordination Group Synthesis Rankings

Clear Creek

The 2009 Lower Columbia Salmon Recovery Board (LCFRB) identifies Clear Creek (Reach 23) as a Tier 2 medium priority reach. Ecosystem Diagnosis and Treatment (EDT) analysis identifies medium production potential for spring Chinook, high for winter Steelhead, and low potential for Coho. The ACC Synthesis Matrix rated this section of the river as having low restoration potential and as a Primary Coho population area, and a low rating for Coho reach potential. Habitat needs in this reach were identified as low for instream LWM, and high for competition and predation. It has a Primary population designation for Chinook, a Contributing population designation for Coho, and a Contributing population designation for winter Steelhead.

Table 3. Lower Clear Creek (Tier 2) RM 0-8.7 reach and multiple species priority LCFRB ranking.

Species	Reach Potential
Coho	H
Spring Chinook	M
Winter Steelhead	L
Restoration Needs	Multiple Species Priority
Floodplain function and channel migration Process	H
Instream flows	H
Off channel & side channel habitat	H
Riparian conditions & functions	H
Stream channel habitat structure and bank stability	H
Watershed conditions & hillslope processes	H
Access to blocked habitats	L
Regulated stream management for habitat functions	L
Water quality	L

Clearwater Creek

The Lower Columbia Salmon Recovery Board identifies this as a Tier 2 reach. For Coho salmon it has an Overall Preservation rank of 4 of 100, and Overall Restoration rank of 21 of 103, this means it is highly valued and should respond very well to restoration efforts. An EDT analysis concludes there are high concerns from lack of habitat diversity and quantity and altered thermal regimes as well as excessive sediment load and lack of food. Moderate concerns were identified for channel stability, hatchery fish competition, and water flow (EDT). This reach is also designated as a Contributing Population for Coho and has Coho reach potential rating of High. It is designated a Primary Population for Chinook and has Chinook reach potential rating of Medium. It is also designated as a Stabilizing Population for Steelhead and has a steelhead reach potential rating of Medium. Bull trout are not officially documented in Clearwater Creek, although presence is noted in several anecdotal accounts.

Table 4. Clearwater Creek (Tier 2) RM 0-5.2 reach and multiple species priority LCFRB ranking.

Species	Reach potential
Coho	H
Spring Chinook	M
Winter Steelhead	M
Restoration Needs	Multiple Species Priority
Floodplain function and channel migration Process	H
Instream flows	H
Off channel & side channel habitat	H
Riparian conditions & functions	H
Stream channel habitat structure and bank stability	H
Watershed conditions & hillslope processes	H
Access to blocked habitats	L
Regulated stream management for habitat functions	L
Water quality	L

Climate Change Resiliency

The Gifford Pinchot National Forest completed a climate change vulnerability assessment in October 2019. With respect to watershed stewardship, this analysis focused on potential thermal impacts to anadromous fish species, emphasizing the need to build aquatic habitat resiliency and connectivity. Key themes from this analysis include strategic prioritization and restoration of natural thermal, hydrologic, and wood regimes, and management of fluvial connectivity and assisted migration.

Previous Restoration Efforts

Previous instream projects have occurred on both Clear and Clearwater Creeks in 2010 and 2013 respectively. The Clear Creek restoration effort added approximately 950 trees from river mile 0-1.3 in 36 structure sites and the Clearwater Creek restoration effort added 900 trees from river mile 0-1.7 in 62 structure sites. Both projects structure implementation and construction mainly focused on bank protection and channel margin work and (Figure 4).



Figure 5. Example of a bank protection structure constructed on Clear Creek, 2010. Approximately 50 trees were used in this structure.

After an approximate 50-year recurrence flood event in December of 2016 there were many waterways within the Upper North Fork Lewis River that experienced significant channel change. This flood induced movement of placed wood in Clear and Clearwater Creeks, failures at the acclimation ponds on the Muddy River and Clear Creek and also impacted several additional projects funded through the Aquatic Fund.

6. Project Objective(s)

This project aims to restore hydrologic function and aquatic/riparian ecological function of Clear and Clearwater Creeks to benefit aquatic species and riparian dependent species. The objectives of the project are:

- Restore instream fish habitat for all accessible miles of fish habitat for native fish species;
- Improve water storage and hyporheic exchange by restoring floodplain connectivity;
- Establish reconnection with floodplain terraces to help restore riparian areas and decrease erosive power. Riparian/Instream restoration will strengthen ecosystem resistance against extreme floods and altered surface flows anticipated from climate change;
- Strengthen linkages between aquatic and terrestrial systems, making both more resilient and resistant to the stresses imposed by climate change.

These objectives will lead to improved habitat complexity and diversity increasing the number, area, and depth of pools, increase stable wood accumulations, increase the extent and age of riparian and island vegetation, and increase the amount of suitable spawning and rearing habitat (i.e., species-appropriate depth, velocity, substrate, and cover) for

coho, spring Chinook, and winter steelhead. Providing refugia during winter flows for juvenile salmonids, rearing opportunities for juvenile salmonids during summer months and increased spawning opportunities for adult salmonids.

The project fits well with regional recovery plan and habitat strategy guidance. This project is proposed in reaches identified in the Priority Reaches document and high priority reaches in the LCFRB habitat strategy (Each Stream is designated as Tier 2). EDT analysis that underpins the Lower Columbia's habitat strategy indicates that the reaches identified will benefit from restoration efforts, with off-channel & side channel habitat, riparian conditions & functions, and stream channel habitat structure and bank stability all meriting high multi-species priorities.

This project addresses the following Aquatic Fund priorities:

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

Lower Columbia ESU Chinook, Coho, and Steelhead trout are listed as a threatened species under the ESA. This project will contribute to the recovery of these species by increasing the amount and quality of water and pools. In addition, constructed log complexes will increase spawning habitat.

Priority 2: Support the reintroduction of anadromous fish throughout the basin.

This proposal will complete the design for enhancement of over 13 miles of rearing and refugia habitat for juvenile anadromous salmonids. Once implemented, the project will improve the habitat characteristics that will promote survival and promotion of reintroduced anadromous fish.

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 and will restore and enhance habitat in Clear Creek and Clearwater Creek, which are tributaries to the North fork Lewis River. This project will improve aquatic function and increase instream habitat diversity and is expected to contribute toward increasing fish production in the North Fork Lewis River and its tributaries.

7. Tasks

- 1) **Hire consultant.** The Cascade Forest Conservancy (CFC), as a project partner, will solicit proposals from certified engineering consulting firms to complete the technical work necessary for this project. CFC and Forest Service staff will perform project management and stakeholder coordination. CFC and Forest Service staff will work closely to ensure that the consultant selection process and outcomes serve both parties and that design is suitable for implementation on Forest Service land. Based on preliminary discussions with qualified consultants, the general tasks to be completed as part of the design contract will include:

- 2) **Topographic survey.** A survey crew will use Total Station or RTK GPS technology to create a base layer for hydraulic modeling and project design. Since the project reach is relatively large, we will evaluate the cost effectiveness of flying a new LiDAR dataset to inform the model and design. Consultants will take bed and bank sediment samples to assist in modeling and assessment.
- 3) **Hydraulic Modeling.** 2D hydraulic analysis (or other acceptable modeling recommended by consultant). Consultants will develop a hydraulic model to inform design criteria for ELJs or other in-stream structures. Final hydraulic model selection will be the contracted design team's preference in consultation with the FS and CFC, but we expect them to use 2-D hydraulic model such as HEC-RAS. The model will help determine floodplain inundation at a variety of discharges, calculate maximum probable scour at structures to ensure stability, estimate 100-year flood elevations to inform design heights of self-ballasted structures and buoyancy calculations on structures designed to be overtopped. The model outputs will also inform sediment transport characteristics in the reach and provide the potential for self-sustaining scour pools to form at structures.
- 4) **Geomorphic/hydraulic assessment.** A geomorphologist will examine historical aerial photographs, sediment samples, and model results to evaluate the likely response to a range of treatment alternatives and target restoration efforts in reaches proposed for treatment.
- 5) **Stamped Project Design Package Suitable for Contracting.** Designs will be developed by progressing through typical design stages (e.g., Concept, Preliminary, and Final) including specs and engineer's estimate of probable cost. Project may be designed to implement log placement by helicopter, excavator, and/or a combination of both.
- 6) **Cost Estimates** - Engineer's cost estimate to implement the project
- 7) **Wood sourcing** (while design is occurring)- CFC will initiate the planning phases and secure nearby wood banks for the sourcing and storage of non-commercial wood, e.g., fallen trees on Forest Service roads and hazard trees that will be used for the instream work. The Forest Service will also be looking at nearby stands to evaluate where wood can come from to implement the project successfully.

Post Project Design (Future):

Post Design Task 1: Project NEPA (Forest Service will ensure all requirements are met) Forest Service staff will initiate NEPA documentation for the project and work with the design team to ensure proposed treatments comply with recent revisions in Forest Service programmatic biological opinion coverage.

Post Design Task 2: Project Implementation – Future funding needed.

8. Methods

This proposal is a standalone design project. Designs will include bankfull width, plan view drawing overlaid with proposed actions of specific dimensions, and project profile and cross sections at important project locations showing water surface elevations relevant to the design including design flows. Structure design will also be provided for instream projects involving large wood. Design will take into account implementation and cost and look for the most effective and cost efficient instream work that is possible.

9. Specific Work Products

Deliverables on Clear Creek and Clearwater Creek:

- 2D hydraulic analysis or similar model
- Engineered Large Wood Structure placement (Concept, Preliminary, and Final design)
- Delineation of off channel and floodplain connectivity features
- Access routes needed for construction implementation (including if sites are helicopter only).
- Pieces of Wood needed based on what the Forest Service has available and other identified sources.
- Cost estimates for implementation.

10. Project Duration

The design will occur begin in 2021 with a possibility of being pushed out one to two years depending on consultant availability.

Provide a detailed project schedule to include:

- Initiation of project- As soon as funding is available (Spring 2021)
- Completion date for each milestone or major task
 - 2D hydraulic analysis or similar model (Winter 2021)
 - Delineation of off channel and floodplain connectivity features (Spring, Summer 2022)
 - Discussion and decision on implementation strategy effectiveness and cost efficiency. Wood placement by excavator, helicopter, and or both. (Summer, Fall 2022)
 - Engineered Large Wood Structure placement (Concept, Preliminary, and Final design) (Winter 2022-Spring 2023)
 - Access routes needed for construction implementation (Winter 2022-Spring 2023)
 - Pieces of Wood needed based on what the Forest Service has available and other identified sources (Winter 2022 -Spring 2023)
 - Cost estimates for implementation (Winter 2022 – Spring 2023)
- Project close-out site visit (with PacifiCorp, Cowlitz PUD, and ACC representatives) (Summer/Fall 2023)

- Final Design Results (Fall 2023)

During and after completion of the design, the wood sourcing process will be underway. Once a design is completed for work further funds will be requested to implement project design.

11. Permits and Authorizations

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. Obtain permission of all owners of land used for access to and completion of the project. **Landowner(s) must sign PacifiCorp's Release Agreement prior to finalization of a Funding Agreement with PacifiCorp.**

No permits are needed to initiate project design. Project designs will be consistent with provisions in the Forest Service's MOU with WDFW, the Aquatic Restoration Biological Opinion II, Regional General Permit 8 with the US Army Corps of Engineers, and the WA Department of Ecology Water Quality Certification, an Appendix of RGP-8.

12. Matching Funds and In-kind Contributions

The Forest Service and the CFC will provide project design oversight and provide resources necessary to the consultant (Table 5)

Table 5. USFS in-Kind funds for the Clear and Clearwater Creek Design.

USFS In-Kind Funds	Quantity	Cost
Resource Exchange with Consultant (data, field visits, etc.)	30 days @ \$400/day	\$12,000

13. Peer Review of Proposed Project

Proposed Project has been reviewed by FS employees, Cascade Forest Conservation and Interfluvé.

14. Budget

Table 6. Budget for the Concept, Preliminary, and Final Clear and Clearwater Creeks Design.

For CFC general project coordination work/admin work and labor/time focused on setting the foundation for wood sourcing and possibly beginning those efforts, estimates:	
Item	Cost
Administration and general project coordination:	\$16,220
Labor associated with the planning phases of wood sourcing and banking for the implementation phases of the instream work	\$18,300
For Site Assessment and Existing Conditions Hydraulic Model – estimated 11.4 total miles of stream, with 6 miles of excavator access and 5.4 miles of helicopter access. An assumed higher level of design and lower mobility tolerance for the excavator access portions of the site.	
Item	
Fieldwork, desktop work, and survey	
Drone mapping for the entire length	
Assumes a higher level of survey detail for the excavator-accessible reaches; survey in the helicopter reaches would be rapid and more focused on structure placement locations and relative channel measurements (e.g., bankfull widths and depths, etc)	
Includes the use of the survey data to build 2D hydraulic models for existing conditions	
Includes geomorphic analysis to understand how structure size, configuration, and placement can influence channel processes to achieve the goals (rearing and spawning habitat creation)	
Cost of data collection and interpretation:	\$170,000
For Design completion	
Item	
Includes drawings, cost estimates, and reporting for each stage of design (Concept, Preliminary, and Final)	
Includes an interim Draft Final design step that is critical for success	
Includes proposed conditions 2D hydraulic modeling at each phase of design	
Assumes more strict performance criteria for the excavator-accessible reaches (to keep wood in the system at design flows), requiring a higher level of design and analysis	
Cost of design:	\$129,000
Total Funding Request	333,520

There are some options in reducing cost. Either reduce field effort or reduce the performance criteria for the structures. Options for reducing the field survey effort include collecting green LiDAR but that does not eliminate the field survey effort. We can also reduce the performance criteria. As mentioned above, we assumed that some portion (i.e., the excavator-accessible reaches) would need to be designed to withstand larger magnitude floods, maybe this is just the lower mile or so of each creek, as an example. The Forest Service and CFC will try to create the most effective and cost-efficient implementation designs as possible. Current estimates are for the “Cadillac of survey and designs.” We believe this is necessary because currently there is not a way to ask for more funds from ACC fund if needed. We would rather ask for possible total than fall short. **All funds that are not spent will be given back.**

15. Photo Documentation (*Per National Marine Fisheries Service's Biological Opinion for Relicensing of the Lewis River Hydroelectric Projects – August 27, 2007*):

Photos will be collected during design field exploration and shared during 60% design.

16. Insurance. All qualifying applicants shall comply with PacifiCorp's insurance requirements set forth in Appendix A. The policy limits are deemed sufficient by PacifiCorp for project activities involving significant risk, including placement of large woody debris in navigable waterways, and are presumed to be sufficient for all activities likely to be funded under this Full Proposal Form. Should applicant's insurance program not meet these requirements, bid pricing should include any additional costs applicant would incur to comply with these requirements

**Appendix A
Insurance Requirements**

(Risk Mgmt to evaluate risk by project and report needed insurance limits to Lewis River Project Coordinator)

1. INSURANCE

Without limiting any liabilities or any other obligations of [CONTRACTOR], [CONTRACTOR] shall, prior to commencing the Project, secure and continuously carry with insurers having an A.M. Best Insurance Reports rating of A-:VII or better the following insurance coverage:

1.1 Workers' Compensation. [CONTRACTOR] shall comply with all applicable Workers' Compensation Laws and shall furnish proof thereof satisfactory to PacifiCorp prior to commencing the Project.

All Workers' Compensation policies shall contain provisions that the insurance companies will have no right of recovery or subrogation against PacifiCorp, its parent, divisions, affiliates, subsidiary companies, co-lessees, or co-venturers, agents, directors, officers, employees, servants, and insurers, it being the intention of the parties that the insurance as effected shall protect all parties.

1.2 Employers' Liability. Insurance with a minimum single limit of \$1,000,000 each accident, \$1,000,000 disease each employee, and \$1,000,000 disease policy limit.

1.3 Commercial General Liability. The most recently approved ISO policy, or its equivalent, written on an occurrence basis, with limits not less than \$1,000,000 per occurrence/ \$2,000,000 general aggregate (on a per location and/or per job basis) bodily injury (with no exclusions applicable to injuries sustained by volunteers working or participating in the Project) and property damage, including the following coverages:

- a. Premises and operations coverage
- b. Independent contractor's coverage
- c. Contractual liability
- d. Products and completed operations coverage
- e. Coverage for explosion, collapse, and underground property damage
- f. Broad form property damage liability
- g. Personal and advertising injury liability, with the contractual exclusion removed
- h. Sudden and accidental pollution liability, if appropriate
- i. Watercraft liability, either included or insured under a separate policy

1.4 Business Automobile Liability. The most recently approved ISO policy, or its equivalent, with a minimum single limit of \$1,000,000 each accident for bodily injury and property damage including sudden and accidental pollution liability, with respect to [CONTRACTOR]'s vehicles whether owned, hired or non-owned, assigned to or used in the performance of the Project.

1.5 Umbrella Liability. Insurance with a minimum limit of \$4,000,000 each occurrence/aggregate where applicable to be provided on a following form basis in excess of the coverages and limits required in Employers' Liability insurance, Commercial General Liability insurance and Business Automobile Liability insurance above. [CONTRACTOR] shall notify PacifiCorp, if at any time their minimum umbrella limit is not available during the term of this Agreement, and will purchase additional limits, if requested by PacifiCorp.

In addition to the requirements stated above any and all parties providing underground locate, engineering, design, or soil sample testing services including [CONTRACTOR], subcontractor and all other independent contractors shall be required to provide the followings insurance:

Professional Liability: [CONTRACTOR] (or its contractors) shall maintain Professional Liability insurance covering damages arising out of negligent acts, errors or omissions committed by [CONTRACTOR] (or its contractors) in the performance of this Agreement, with a liability limit of not less than \$1,000,000 each claim. [CONTRACTOR] (or its subcontractors of any tier) shall maintain this policy for a minimum of two (2) years after completion of the work or shall arrange for a two (2) year extended discovery (tail) provision if the policy is not renewed. The intent of this policy is to provide coverage for claims arising out of the performance of work or services contracted or permitted under this Agreement and caused by any error, omission for which the [CONTRACTOR] its subcontractor or other independent contractor is held liable.

Except for Workers' Compensation insurance, the policies required herein shall include provisions or endorsements naming PacifiCorp, its affiliates, officers, directors, agents, and employees as additional insureds.

To the extent of [CONTRACTOR]'s negligent acts or omission, all policies required by this Agreement shall include provisions that such insurance is primary insurance with respect to the interests of PacifiCorp and that any other insurance maintained by PacifiCorp is excess and not contributory insurance with the insurance required hereunder, provisions that the policy contain a cross liability or severability of interest clause or endorsement, and that [CONTRACTOR] shall notify PacifiCorp immediately upon receipt of notice of cancellation, and shall provide proof of replacement insurance prior to the effective date of cancellation. No required insurance policies, except Workers' Compensation, shall contain any provisions prohibiting waivers of subrogation. Unless prohibited by applicable law, all required insurance policies shall contain provisions that the insurer will have no right of recovery or subrogation against PacifiCorp, its parent, affiliates, subsidiary companies, co-lessees, agents, directors, officers, employees, servants, and insurers, it being the intention of the Parties that the insurance as effected shall protect all parties.

A certificate in a form satisfactory to PacifiCorp certifying to the issuance of such insurance shall be furnished to PacifiCorp prior to commencement of the Project by [CONTRACTOR] or its volunteers or contractors. If requested, [CONTRACTOR] shall provide a copy of each insurance policy, certified as a true copy by an authorized representative of the issuing insurance company, to PacifiCorp.

[CONTRACTOR] shall require subcontractors who perform work at the Project to carry liability insurance (auto, commercial general liability and excess) workers' compensation/employers' or stop gap liability and professional liability (as required) insurance commensurate with their respective scopes of work. [CONTRACTOR] shall remain responsible for any claims, lawsuits, losses and expenses including defense costs that exceed any of its subcontractors' insurance limits or for uninsured claims or losses.

PacifiCorp does not represent that the insurance coverage's specified herein (whether in scope of coverage or amounts of coverage) are adequate to protect the obligations [CONTRACTOR], and [CONTRACTOR] shall be solely responsible for any deficiencies thereof.

Appendix B

Response to ACC Requests for Clarification

Request: Is project occurring in a mapped floodway, per FEMA?

The project is in an area where floodways have not been mapped by FEMA. However, the project is located within the channel and floodplain of Clear and Clearwater creeks. Project activities are designed to restore natural channel and floodplain function, and will likely raise water levels in areas where channel incision has resulted in altered flood elevations. The risk to Forest Service or private infrastructure from the project is minimal. The project is located entirely on National Forest System Lands, with no private lands on Clear or Clearwater Creeks downstream of the project area. In addition, there are no roads or other infrastructure adjacent to or downstream of the project.

