

1. Project Title

Little Creek Fish Habitat Restoration

2. Project Manager

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3. Identification of problem or opportunity to be addressed

Problem:

In the Upper North Fork Lewis River there is scarce quality non-mainstem spawning/rearing habitat. This habitat is essential for species listed under the Endangered Species Act (ESA) that use the Lewis River Basin, including coho and Chinook salmon, steelhead trout, and bull trout. These species have endured many effects that threaten the survival of the species. Effects to their habitats in the Upper North Fork Lewis River include past land management activities such as logging, road building, and development of hydro-resources, which until recently has blocked all access into the upper basin for anadromous species. To ensure reintroduction efforts of salmon and steelhead into the upper basin are successful the Forest Service has worked with PacifiCorp on a variety of projects including acclimation ponds for juvenile spring Chinook salmon, road decommissioning, replacement of migration blocking culverts with bridges, and various streambank and instream fish habitat restoration projects.

Opportunity:

This project proposal helps to ensure successful fish reintroduction into the upper North Fork Basin. This project of restoring instream fish habitat in Little Creek to its full potential prioritizes opportunities for ESA listed fish species. Enhancement and restoration of instream habitat will increase the overall abundance of functional habitat in the upper basin.

The Forest Service proposes to enhance 2,700' of Little Creek with instream structures composed of large woody material with rootwads. Little Creek has cooler summer water temperatures than many of the streams entering the Lewis River and meanders through a meadow reach before flowing into the Lewis River. It currently lacks large woody material, but because of the low gradient meander qualities of the stream it has the potential to provide excellent rearing and refugia habitats. Enhancing the stream with large woody material should bring it to its full potential and create desirable habitat for fish (Everest et al. 1985; Everest et al. 1986).

A tracked excavator will place 20 structures constructed from approximately 200 pieces of large wood, into the stream. The large wood will come from Peppercat unit 21 and be delivered to the project site using a contract helicopter. A tracked excavator will access the area via an abandoned road, and will assemble the instream structures. Structures will

be keyed into the stream bank by trench-excavating and backfilling over 2/3 of each log length.

This project could be implemented at the same time as the Lewis River Side Channel 4 project which would save helicopter and equipment move in costs. Any cost savings due to this will be returned to the ACC for future project awards. The Forest Service will also collect water temperature readings to establish likelihood of bull trout use.

4. Background

Reconnaissance surveys conducted for this project occurred during September 2012. Little Creek crosses FR 90 passing through a large culvert. Below the FR 90 crossing, the creek flows down a fairly steep channel and turns into a low gradient stream when it enters a grassy meadow. The banks of the stream in the meadow are sandy and the minimal wood that is currently instream is not functioning to create pool or hiding cover for fish.

A stream survey of the lower 0.4 miles of Little Creek was completed in June 7th 1990. A spot water temperature was taken at that time documenting the stream at 8 Degrees Celsius. Little Creek has several braid channels as it flows through the meadow. At the time of the survey there was an old road with a log bridge that crossed Little Creek in the meadow. The area was clear cut logged in the past, but currently the riparian zone has recovered and is consists predominately of Alder and some mid seral stands. In 1990 the average wetted width was 11 feet and the average depth was 1.4 feet. Pools had a residual depth of 1.8 feet. Instream large wood was minimal. Since 1990, the channel has shifted in the meadow and enters the Lewis River about 500 feet downstream of where it once did. Cutthroat trout were documented using electrofishing techniques in 1984.

During the 2012 reconnaissance it was determined that fish habitat in Little Creek is presently limited due to lack of cover and instream large wood. Minimal hiding cover in the form of grasses and forbs is present as the creek winds through the meadow. Currently, only a few pieces of large wood are present and generally are not functioning to form pools, and only provide minimal cover. Additions of LWD will provide cover in Little Creek allowing full use of the creek by juvenile salmonids, particularly coho salmon. In addition to cover, gravels will be sorted during high flow events increasing spawning opportunities. If cool water temperatures are currently present, bull trout may use this creek after restoration efforts are completed.

The Lower Columbia Salmon Recovery Plan 2009 Six Year Habitat Work Schedule identifies this as a Tier 3 reach. For coho salmon it has an Overall Preservation rank of 56 of 100, and Overall Restoration rank of 63 of 103. Concern ratings were high for habitat diversity, sediment loads, and channel stability. The ACC Synthesis Matrix rated this section of the river as having low restoration potential and as a Primary coho population area with a medium rating for coho reach potential.

5. Project Objective(s)

GOAL:

Enhance the quality of fish habitat in the Lewis River by:

- ◆ Improving habitat complexity and diversity in Little Creek using Large Woody Material
- ◆ Providing refugia during winter flows for juvenile salmonids.
- ◆ Providing increased spawning opportunities for adult salmonids.

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.*

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 pools in Little Creek. In addition, spawning areas will be associated with the log complexes.

Lower Columbia ESU coho salmon are listed as a threatened species under the ESA

Lower Columbia ESU steelhead trout are listed as a threatened species under the ESA

Lower Columbia ESU Chinook Salmon are listed as a threatened species under the ESA

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

Juvenile anadromous salmonids will have a quality rearing and refugia area when this project is complete, thus ensuring survival and promotion of the various species during reintroduction efforts.

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. This project consists of large woody material placed instream, designed specifically to enhance and restore fish habitat. This project will increase instream habitat diversity, and in turn it is expected that this project will contribute to increasing fish production in this area.

6. Tasks:

Task 1: NEPA and required permits.

- 1) Complete NEPA documentation. Field work for this NEPA document would be completed during the summer and fall of 2013. The final document should be crafted and signed by March 2014, and the project would be implemented July 2014.
- 2) Instream restoration activities are covered within the WDFW-MOU, and the Regional Permit with the Army Corps of Engineers.

Task 2: Project Design.

- 1) Finalize project design and project preparation details. Preliminary designs were completed during reconnaissance visits in 2012. A laser level will be used to obtain a longitudinal profile and cross-sectional information as we finalize designs.
- 2) Secure materials. We have a 35 acre Peppercat timber sale unit set aside to use for fish habitat restoration activities over the next ten years. We will layout an area

within this stand to thin and prepare for harvest operations. Additional material may be acquired from PacifiCorp Swift Reservoir Cleaning operations.

Task 3: Project Implementation

- 1) Develop helicopter contract. A standard RFQ contract will be developed to deliver logs with a helicopter from a staging area to the side channel.
- 2) Develop equipment and logging contract. A standard RFQ contract will be developed specifying the scope of the project and project requirements. We will use an equipment rental contract to perform the actual work, which will allow us the flexibility to make changes to the project as implementation is occurring.
- 3) Administer contract. A Fish Biologist or Fisheries Technician will administer the contract to ensure contract compliance and project specifications are met.

Task 4: Monitoring

- 1) Perform baseline monitoring. This monitoring will occur prior to project implementation and include a longitudinal profile, cross-sections, pebble counts, photo-documentation and snorkel surveys. Mount St. Helens Institute (MSHI) will provide two interns and volunteers including urban youth to perform monitoring work. They will perform all aspects of the monitoring with supervision and training from the Forest Service.
- 2) Perform post project monitoring. This monitoring will occur following project implementation and will continue on an annual basis for several years following project completion. MSHI will provide two interns and volunteers for this portion of the work supervised by the Forest Service.
- 3) Monitoring Report. A monitoring report will be written each year following project implementation. MSHI will provide raw data in excel format, the Forest Service will provide analysis of data and report.

7. Methods:

The Mt. St. Helens Fisheries department will oversee all phases of this project including project design, implementation and monitoring.

Approximately 200 pieces of LWM would be harvested during thinning operations from a nearby timber sale unit which would allow us to use long stems (50+ feet) with attached rootwads. Woody material will be trucked via Forest Road 9310 and stockpiled at the 9310 junction with the 9310240 road. From there, the wood will be flown in by helicopter to the project site. Once at the site, the logs will be moved and placed by an excavator. The excavator would gain access to the Lewis River using a decommissioned road on the south side of Rush Creek. The reason a helicopter is a preferred method to deliver the trees to the creek is to keep the access road near Rush Creek in a decommissioned state to continue to avoid negatively affecting bull trout. Wood for this project would primarily come from USFS lands; however any opportunity to acquire large wood from Swift Reservoir cleaning operations will also be pursued.

Approximately 8 to 10 pieces of LWM will be used at each structure location to form complex habitat. Structures will protrude 1/2 to 1/3 of the way into the channel to minimize water shear stress and create a meandering thalweg. Key pieces of wood at each location will be anchored into the streambanks using an excavator to dig trenches up to 30 feet long, and to bury the wood. Other pieces of LWM will be interwoven into these key pieces and riparian vegetation.

8. Specific Work Products

Deliverable 1: A NEPA Document with associated permits

Deliverable 2: Completed project. Twenty structures will be created using 200 pieces of LWD.

Deliverable 3: Construction Completion Report describing the project. Report to include project narrative, lessons learned and photographs of completed projects.

Deliverable 4: Monitoring Report.

Deliverable 5: Final Report describing the entire process and the status of the project two years after implementation.

9. Project Duration

Monitoring for this project would begin during the summer of 2013. Project implementation would occur July 15th 2014 and is expected to take two weeks to complete. 'As built' documents will be completed by December 31st, 2014. An initial report documenting fish response to the structures will be completed by December 31st, 2015. The first monitoring report with pre and post project data will be available December 31, 2015. If funding or LWM supply becomes an issue, project dates would be delayed by one year from above.

A project closeout meeting would occur at an ACC meeting following project completion.

10. Permits

NEPA- Field work will be completed during the summer and fall of 2013. The NEPA document will be completed Spring 2014.

The Gifford Pinchot National Forest has a Memorandum of Agreement with the Washington State Department of Ecology (DOE). The agreement recognizes the Forest Service will ensure that 1) all waters on National Forest lands meet or exceed water quality laws and regulations (Sections 301, 302, 303, 306 and 307) of the Clean Water Act and 2) activities on those lands are consistent with the level of protection of the Washington Administrative Code relevant to state and federal water quality requirements. This agreement is neither a fiscal nor a funds obligation document.

The Gifford Pinchot National Forest has a Memorandum of Understanding (MOU) with the Washington State Department of Fish and Wildlife Regarding Hydraulic Projects conducted by USDA Forest Service Northwest Region (2005). Compliance with the instream restoration provisions within this MOU replaces the need for an individual hydraulic project approval (HPA). This fish habitat enhancement project will be conducted within the provisions set forth in this MOU.

The Clean Water Act (as amended by the Water Quality Act of 1987, Public Law 100-4) authorizes the states to regulate the “fill and removal” activities of Federal agencies. In Washington, the Forest Service has authorization for its fill and removal projects through the MOU with WDFW when the projects comply with the provisions of the MOU.

The US Forest Service has a state wide Regional General Permit (RGP) with the Army Corps of Engineers to perform aquatic restoration activities in waterways. Permit CENWS-OD-RG-RGP-8 authorizes the USFS to perform 13 restoration activities including Large Wood, Boulder and Gravel Placement on National Forest Lands.

Land ownership in this section of the Lewis River is comprised of public lands. The project is wholly on public lands.

11. Matching Funds and In-kind Contributions

Partner	Contribution	Funds
Forest Service	Project development, Contracting, Permitting, Monitoring	\$14,000 In-kind
Materials from USFS	Trees with rootwads	\$30,000 In-kind
Mt. St. Helens Institute	Monitoring	\$2,000 In-kind

12. Professional Review of Proposed Project

This project proposal was reviewed by Gifford Pinchot National Forest (GPNF) Soil and Water Program Manager, Ruth Tracy.

13. Budget

	NEPA	Final designs	Project Mgmt	Construction	Monitoring/Labor /Reporting/Coord.	
Personnel Costs						
FS - Zone Team or Contract	\$8,000 (ACC)					
FS –Fish Bio, Hydrologist and Bio technician		\$4,000 (IK) \$1,000 (ACC)				
FS - Fish Bio and Bio Technician			\$5,000 (IK) \$3,000 (ACC)		\$1,000 (ACC)	
FS - Contract administrator -				\$3,000 (IK) \$4,000 (ACC)		
FS - Contract Specialist				\$2,000 (IK)		
Mt St. Helens Institute					\$2,000 (IK)	
Mt. St. Helens Institute Community Education					\$2,000 (ACC)	
Materials						
Forest Service 200 Pieces of LWM with rootwads				\$30,000 (IK)		
Contract Payables						
Excavator Contract				\$12,000 (ACC)		
Helicopter Contract				\$40,000 (ACC)		
Logging and hauling of trees				\$15,000 (ACC)		
Materials and Supplies			\$1,000 (ACC)			
Total ACC Funds	\$87,000*	\$8,000	\$1,000	\$4,000	\$71,000	\$3,000
<i>Total FS Funds</i>	<i>\$44,000</i>	<i>\$4,000</i>	<i>\$5,000</i>	<i>\$35,000</i>		
<i>Total Partner Funds</i>	<i>\$2,000</i>				<i>\$2,000</i>	
Project Total	\$133,000					
FS personnel estimated as \$400/day.						
*Total ACC Funds would be \$69,000 if the Lewis River Side Channel 4 project is funded and equipment move-in and NEPA costs are shared between the projects.						

Little Creek expanded budget 2013

Item	Personnel	Estimated Days/units*	Cost Per Unit	Total*	
NEPA Environmental Assessment required by Federal Law	Fish Biologist	4	\$400 per day per person	\$8,000 (ACC)	
	Wildlife Biologist	3			
	Hydrologist	3			
	Botanist	3			
	Archeologist	3			
	Soil Scientist	1			
	Recreation	0.5			
	Forester	0.5			
	NEPA Coordinator	2			
Final Designs	Fish Biologist	5	\$400 per day per person	\$4,000 (IK)	
	Hydrologist	2		\$1,000 (ACC)	
	Fish Technician	5.5			
Project Management	Fish Biologist	10	\$400 per day per person	\$4,000 (IK)	
	Fish Technician	7.5		\$3,000 (ACC)	
	Mileage	2000 miles		\$0.50	\$1,000 (IK)
Construction	Contract Administration/Prep	21	\$400 per day per person	\$4,500 (IK)	
				\$4,000 (ACC)	
	Transportation	1,000 miles		\$0.50	\$500 (IK)
	Logging contract				\$15,000(ACC)
	Equipment contract				\$12,000 (ACC)
	Helicopter contract			\$40,000 (ACC)	
Materials & Supplies	Field Equipment, Notebooks, Misc Supplies			\$1,000 (ACC)	
Trees with rootwads		200		\$30,000 (IK)	
Monitoring <i>MSHI</i> <i>USFS</i>	Supervisor Assistant Fish Biologist	10	\$300 per day per person	\$1,500 (IK)	
				\$2,500 (ACC)	
	Volunteers	25		\$20	\$500 (IK)
	Transportation	1,000		\$0.50	\$500 (ACC)
Total				\$133,000	

*Values are rounded up or down as need to display whole number and days

Little Creek Equipment Budget 2013

Item	Cost per unit	Number of units	ACC cost	Total Cost
Excavator Operator/Fuel/Supplies, misc	\$125 hour	84	\$10,500	\$10,500
Excavator Move in/out	\$1,500	1	\$1,500	\$1,500
Helicopter Contract	\$40,000	1	\$40,000	\$40,000
Logging and Hauling cost: Based on Previous Contract	\$15,000	1	\$15,000	\$15,000
Total			\$67,000	\$67,000

Questions from ACC members

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.

Little Creek Fish Habitat Restoration

WDFW: *Is helicopter service funded with this project or is it dependent on funding project #1 through aquatics funds or SRFB funding. Need explanation of how structures will be anchored.* Funding for the helicopter is entirely through PacifiCorp Aquatics Fund for this grant. If Project #1 (Lewis River Side Channel 4) project is funded there will be costs savings on the helicopter because of a fixed rate move-in cost. Structures will be anchored into the streambanks by digging a trench with an excavator, burying key pieces of material, and then backfilling the trench. At least 2/3rds of the log will be buried in the streambanks because trenches will be between 30 and 40 feet in length depending upon the length of the log used.

LCFRB: *A diagram showing approximate structure locations and elaborating on the type, location and scale of expected habitat outcomes should be included in a final proposal.* Please see attached maps and tables that addressed this question.

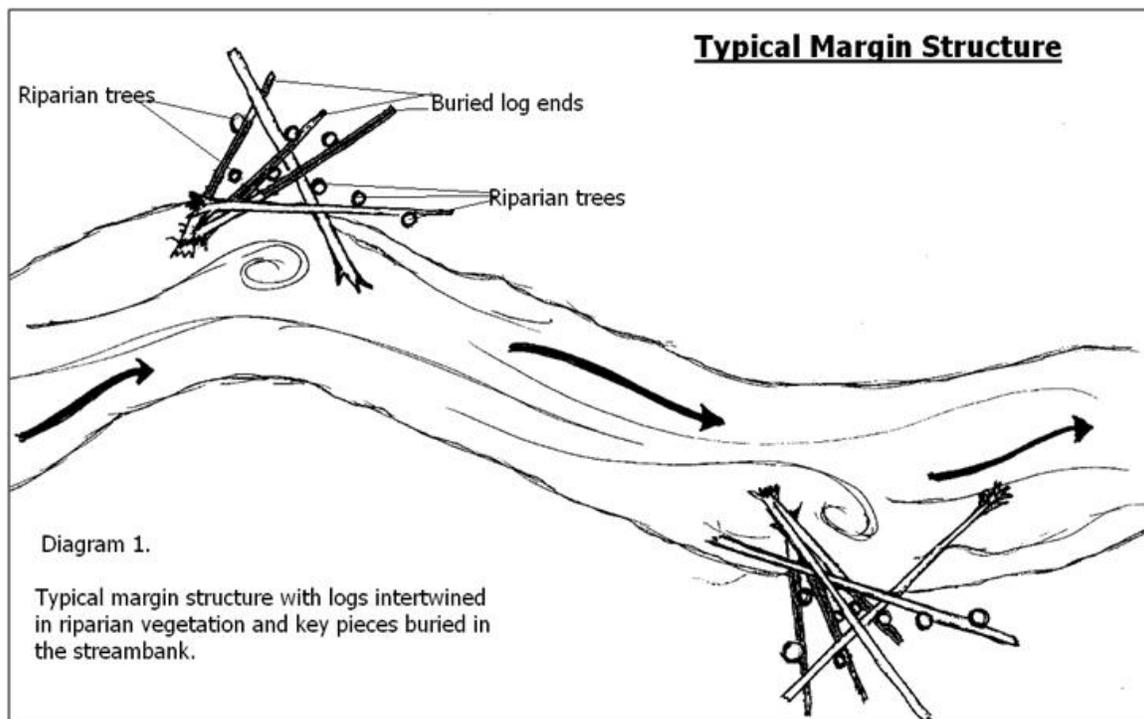
USFS: *Please expand on project need and current fish usage; like the invasive treatment as part of appropriate stewardship; recommend describing how fits into and contributes*

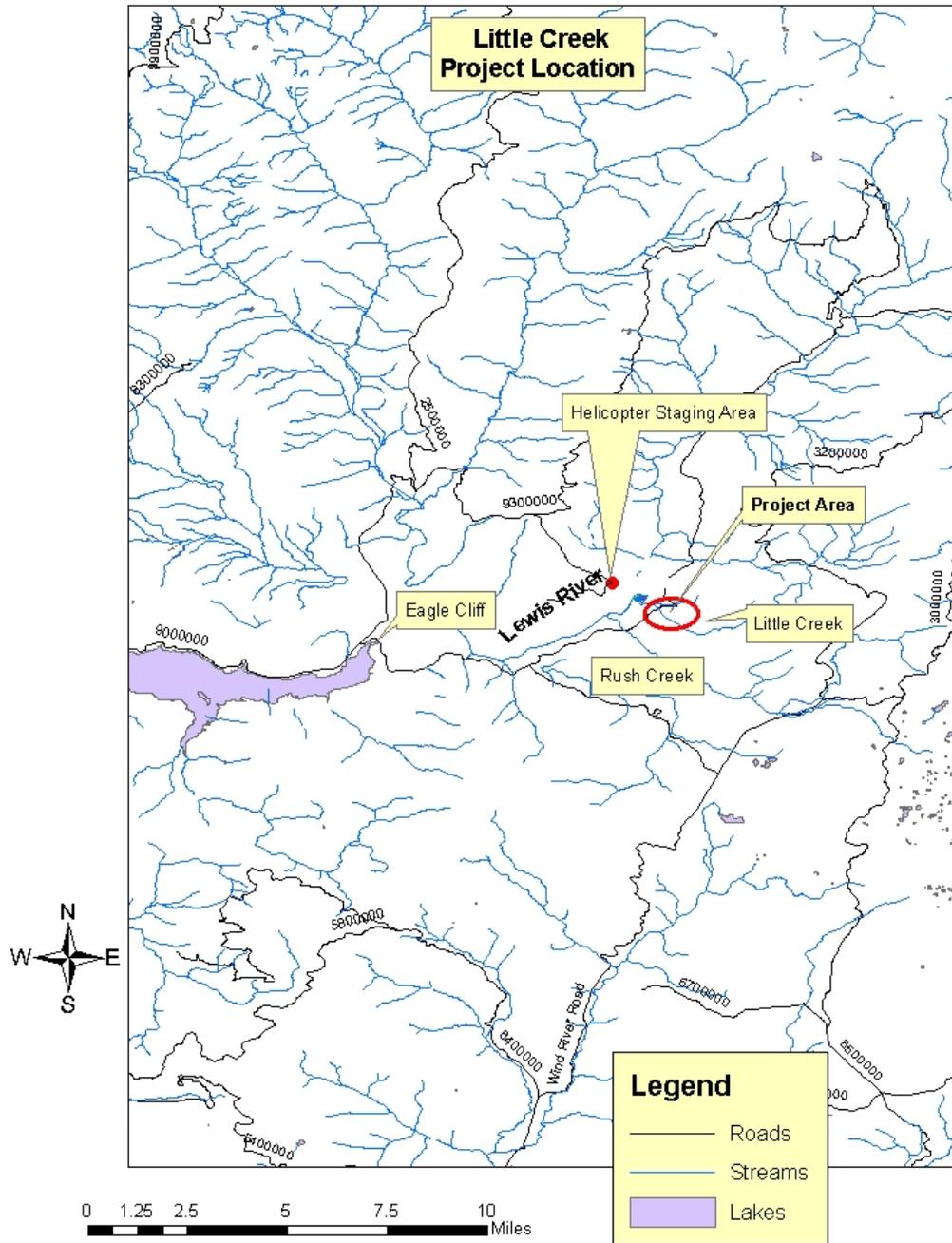
to Forest restoration plans In the Upper North Fork Lewis River there is scarce quality non-mainstem spawning/rearing habitat. This habitat is essential for species listed under the Endangered Species Act (ESA) that use the Lewis River Basin, including coho and Chinook salmon, steelhead trout, and bull trout. These species have endured many impacts effects that threaten their survival of the species in the watershed. Impacts Effects to their habitats in the Upper North Fork Lewis River include past land management activities such as logging, road building, sediment inputs and development of hydro-resources, which until recently has blocked all access into the upper watershed basin for anadromous species. To ensure reintroduction efforts of salmon and steelhead into the upper basin are successful the Forest Service has worked with PacifiCorp on a variety of projects including acclimation ponds for juvenile spring Chinook salmon, road decommissioning, replacement of migration blocking culverts with bridges, and various streambank and instream fish habitat restoration projects.

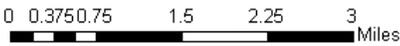
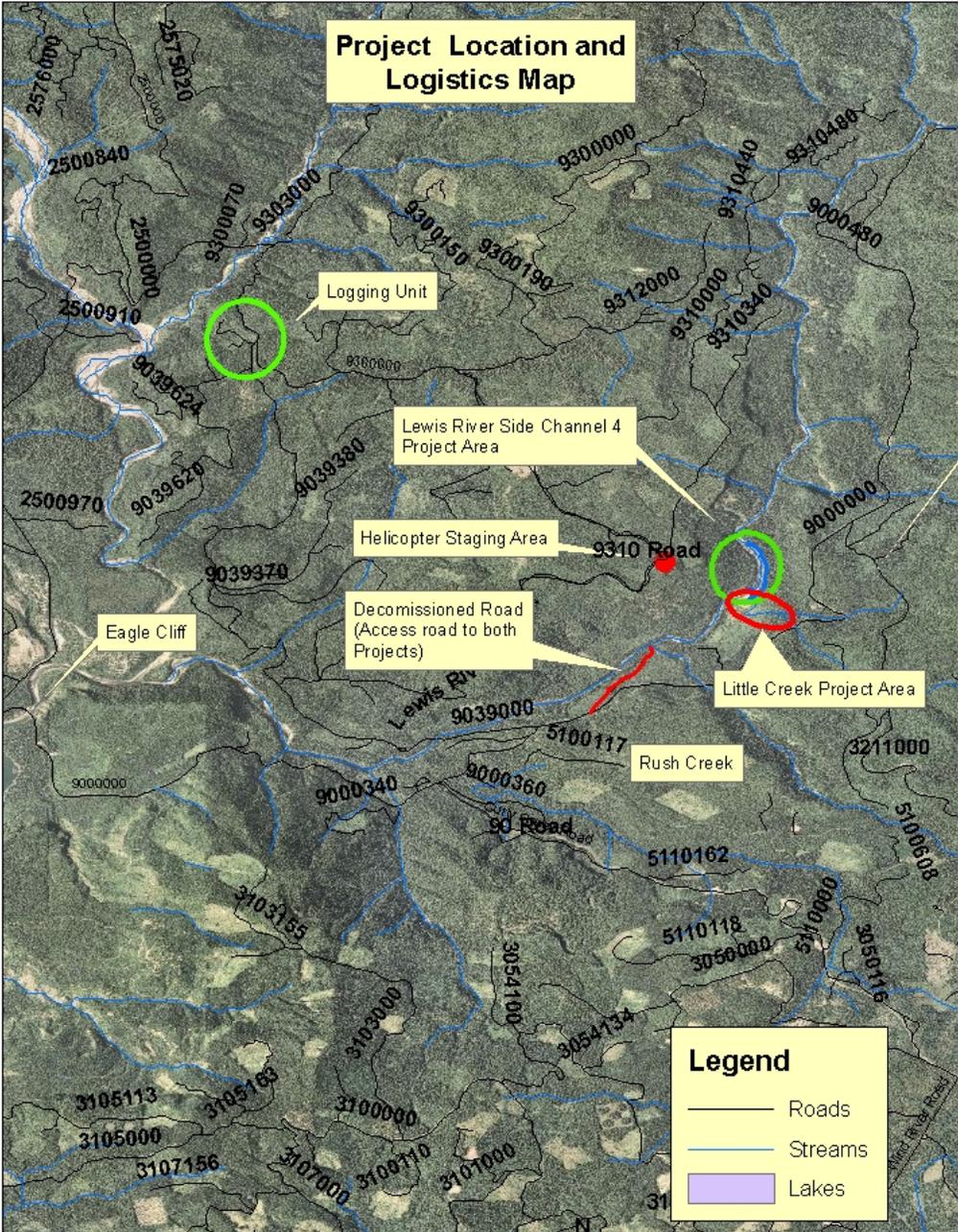
Current documented fish use includes cutthroat trout. Anadromous fish released into the basin through the Habitat Preparation Process have not found their way into Little Creek based on a observation in September 2012.

Based on discussions in the ACC group, invasive weed treatments will be limited to areas directly affected by implementation of the project.

PacifiCorp: *Need more specificity about weed control.* Based on discussions in the ACC group, invasive weed treatments will be limited to areas directly affected by implementation of the project.







Little Creek Project Proposal Structure Locations

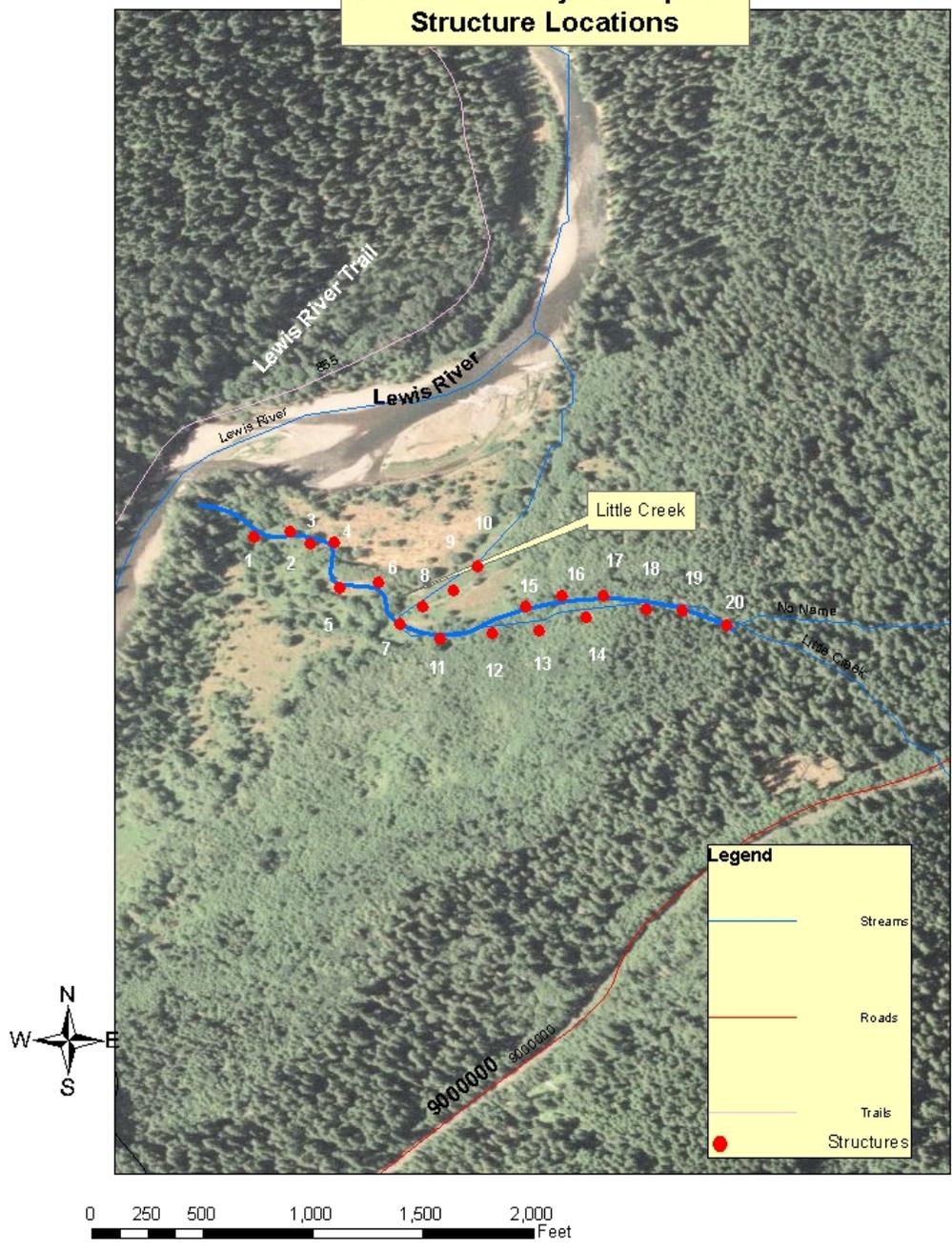


Table of structure design criteria and expected outcomes

Structure Number	Hiding Cover	Overwintering Refugia	Summer Rearing	Pool Formation	Gravel Sorting	Bank Stability
1	x	x	x	x	x	x
2	x	x	x	x	x	x
3	x	x	x	x	x	x
4	x	x	x	x	x	x
5	x	x	x	x	x	x
6	x	x	x	x	x	x
7	x	x	x	x	x	x
8	x	x	x	x		x
9	x	x	x	x		x
10	x	x	x	x		x
11	x	x	x	x	x	x
12	x	x	x	x		x
13	x	x	x	x		x
14	x	x	x	x		x
15	x	x	x	x	x	x
16	x	x	x	x	x	x
17	x	x	x	x	x	x
18	x	x	x	x		
19	x	x	x	x		
20	x	x	x	x		



1. Typical Section of Little Creek



2. Typical Section of Little Creek



3. Typical Section of Little Creek



4. Typical Section of Little Creek

References

Everest, Fred, James Sedell, John Wolfe, 1985. "Fisheries Enhancement in the Fish Creek Basin", Project No. 1984-01100, 234 electronic pages, (BPA report DOE/BP-16726-1)

Everest, Fred H. Gordon H. Reeves, James R. Sedell, Pacific Northwest Forest and Range Experiment Station 1986. Abundance, Behavior, and Habitat Utilization by Coho Salmon and Steelhead in Fish Creek, Oregon as Influenced by Habitat Enhancement 1985 Annual Report.