

1. Project Title

Lewis River Side Channel IV Instream 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 minimal high quality side channel spawning and 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 develops the opportunity to ensure fish reintroduction efforts into the upper North Fork Basin are successful. This project of restoring instream fish habitat in two side channels of the Lewis River 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 place 25 large wood structures composed of 300 pieces of Large Woody Material in two side channels in the Lewis River near the confluence of Little Creek to improve habitat for juvenile salmonids. Research has shown that side channels provide preferred summer and overwintering habitat for juvenile coho (Everest et al. 1985; Everest et al. 1986). Each structure will contain an average of 12 pieces of large wood, and be strategically located to maximize summer and winter rearing habitat for coho and spring Chinook salmon, winter steelhead, and possibly bull trout. The project will improve a total of 0.75 miles of side channel habitat on both sides of the mainstem Lewis. The Forest Service will hire a contract helicopter to import wood to the project site. A tracked excavator will access the area via an abandoned road, and will assemble the instream structures. Wood for this project would come from USFS lands Peppercat unit 21 and/or from Swift Reservoir cleaning operations. If the ACC funds this proposal, the Cowlitz Indian Tribe will seek additional funding for this project from the

Salmon Recovery Funding Board to cover helicopter contract costs and leverage ACC funds.

4. Background

Reconnaissance surveys conducted for this project occurred during September 2012. Water flows year round into the side channel located on the east side of the river. The amount of flow is controlled by an island at the head of the channel. Side channel flows vary with increase river flows. An outlet to the river is always flowing, providing easy access into and out of the side channel. The outlet is located approximately 500 feet upstream from the confluence of Little Creek. The side channel varies between 20 and 30 feet in width, and is well protected by a stable island. The side channel on the west side of the river has minimal flows during summer months; however it provides excellent refugia for juveniles during high winter flows. The outlet for this channel is approximately 600 feet upstream from the confluence of Little Creek and on the opposite side of the river. This side channel varies in width from 12 to 20 feet wide and is protected by a large gravel bar.

Presently, habitat in the side channels is limited due to lack of cover and large woody material (LWM). Some hiding cover in the form of grasses and forbs is present near the top of the east side channel which is where the majority of fish (approximately 200 juvenile coho) have been located. Large woody material will provide additional cover in the side channel allowing full use of the channel by juvenile salmonids. In addition to cover, gravels will be sorted during high flow events increasing spawning opportunities.

The Lower Columbia Salmon Recovery Plan 2009 Six Year Habitat Work Schedule identifies this as a Tier 1 (highest priority) reach. EDT analysis identifies high production potential for spring Chinook and winter steelhead, and medium potential for coho. EDT results suggest that off channel and side channel habitat and channel structure restoration are high multi-species priorities in the reach. The ACC Synthesis Matrix rated this section of the river as having low restoration potential and as a Primary coho population area, 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 the side channel using LWM
- ◆ 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

rearing pools in side channels. 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 in side channels, 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 accomplished during the summer and fall of 2013. The final document should be completed 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.
- 2) A laser level will be used to obtain a longitudinal profile and cross-sectional information as we finalize designs.
- 3) 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 after 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 300 pieces of LWM would be harvested during thinning operations from a nearby timber sale unit which would allow us to use long stems (60+ 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 effecting 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 10 to 15 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. The overall design will appear natural and meet scenery management objectives.

8. Specific Work Products

Deliverable 1: Completed project.

Deliverable 2: A report describing the project. Report to include project narrative, financial information, and photographs of completed projects.

Deliverable 3: Monitoring Report.

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 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	\$45,000 In-kind
LCFRB	Helicopter funds	\$70,000 Cash-(proposed)
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 and Cowlitz Indian Tribe Restoration Ecologist Eli Asher.

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 and Hydrologist		\$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 300 Pieces of LWM with rootwads				\$45,000 (IK)	
Contract Payables					
Excavator Contract				\$15,000 (ACC)	
Helicopter Contract				\$70,000 (SRFB)	
Logging and hauling of trees				\$25,000 (ACC)	
Materials and Supplies			\$ 1,000(ACC)		
Total ACC Funds	\$60,000	\$8,000	\$4,000	\$44,000	\$3,000
<i>Total FS Funds</i>	<i>\$59,000</i>	<i>\$4,000</i>	<i>\$5,000</i>	<i>\$50,000</i>	
<i>Total Partner Funds</i>	<i>\$72,000</i>			<i>\$70,000</i>	<i>\$2,000</i>
Project Total	\$191,000				
FS personnel estimated as \$400/day.					

Lewis River Side Channel IV 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) \$1,000 (ACC)	
	Hydrologist	2			
	Fish Technician	5.5			
Project Management	Fish Biologist	10	\$400 per day per person	\$4,000 (IK) \$3,000 (ACC)	
	Fish Technician	7.5			
	Mileage	2000 miles			\$0.50
Construction	Contract Administration/Prep	21	\$400 per day per person \$0.50	\$4,500 (IK) \$4,000 (ACC) \$500 (IK) \$25,000(ACC) \$15,000 (ACC) \$70,000 (LCFRB)	
	Transportation	1,000 miles			
	Logging contract				
	Equipment contract				
	Helicopter contract				
Materials & Supplies	Field Equipment, Notebooks, Misc Supplies			\$1,000 (ACC)	
Trees with rootwads		300		\$45,000 (IK)	
Monitoring <i>MSHI</i> <i>USFS</i>	Supervisor	10	\$300 per day per person	\$1,500 (IK) \$2,500 (ACC)	
	Assistant Fish Biologist				
	Volunteers	25		\$20	\$500 (IK)
	Transportation	1,000		\$0.50	\$500 (ACC)
Total				\$191,000	

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

Lewis Side Channel IV Equipment Budget 2013

Item	Cost per unit	Number of units	ACC cost	Total Cost
Excavator Operator/Fuel/Supplies, misc	\$125 hour	108	\$13,500	\$13,500
Excavator Move in/out	\$1,500	1	\$1,500	\$1,500
Logging and Hauling cost: Based on Previous Contract	\$25,000	1	\$25,000	\$25,000
Total			\$30,000	\$40,000

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.

Lewis River Side Channel near Little Creek

WDFW: Need better breakdown of budget. How will the structures be anchored. Need additional information on how fish will use area in high and low flows. Please explain the need for helicopter.

The budget has been broken down and is available in the budget section of this proposal. Structures will be anchored by burying them into the stream bank, no cable will be used. An excavator will dig a long trench and then bury 30 feet or more of the bole of the tree, the rootwad and a portion of the bole will be in the water. The reason a helicopter is being proposed is because a decommissioned road near Rush Creek will be used get the excavator to the river. This is the road that WDFW and PacifiCorp currently walk down to access PIT tag detectors. If we opened the road to vehicle traffic and log trucks it will negatively affect the recovery of riparian area and make the public aware of the previous roadbed that accesses Rush Creek, and in particular the deeper pool which bull trout occupy during summer months.

LCFRB: To fully evaluate this project it is important to know if the side channels are currently functional and are they accessible year round or seasonally. In addition to providing greater habitat diversity, would large wood structures also enhance or maintain flows in the side channels? A diagram showing approximate structure locations

and elaborating on the type, location and scale of expected habitat outcomes (sort gravel, provide juvenile rearing, etc...) should be included in a final proposal. A full description of existing habitat and the improvement resulting from this project would assist in evaluating this project.

The side channel on the east side of the river is currently functional and accessible to fish year round. There are no functional amounts of functional LWD in the side channel. The west side channel is not functional during the summer months of July, August and September, but is functional the rest of the year, providing refugia from high flow events. Actual flows into the side channel would not be affected by this project. A diagram has been included in this proposal that addresses above concerns.

Reconnaissance surveys conducted for this project occurred during September 2012. Water flows year round into the side channel located on the east side of the river. The amount is controlled by an island at the head of the channel and side channel flows vary with increase river flows. An outlet to the river is always flowing, providing easy access into and out of the side channel. The outlet is located approximately 500 feet upstream from the confluence of Little Creek. The side channel varies between 20 and 30 feet in width, and is well protected by a stable island. The side channel on the west side of the river has minimal flows during summer months; however it provides excellent refugia for juveniles during high winter flows. The outlet for this channel is approximately 600 feet upstream from the confluence of Little Creek and on the opposite side of the river. This side channel varies in width from 12 to 20 feet wide and is protected by a large gravel bar.

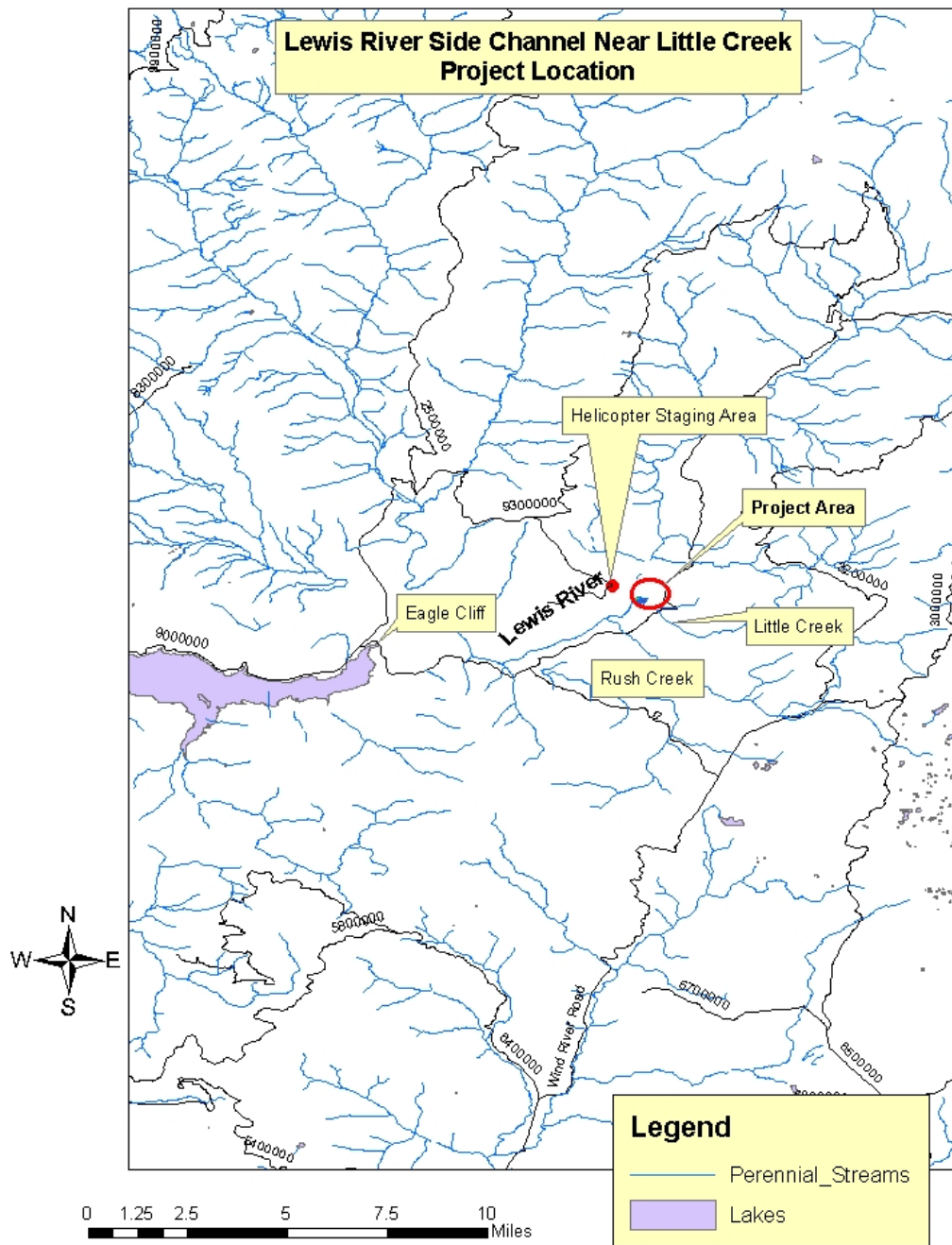
Habitat in the side channels is presently limited due to lack of cover and lack of LWM. Some hiding cover in the form of grasses and forbs is present near the top of the east side channel which is where the majority of fish (approximately 200 juvenile coho) have been located. Additions of LWD will provide cover in the side channel allowing full use of the side channel by juvenile salmonids. In addition to cover gravels will be sorted during high flow events increasing spawning opportunities.

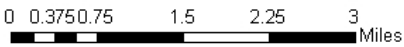
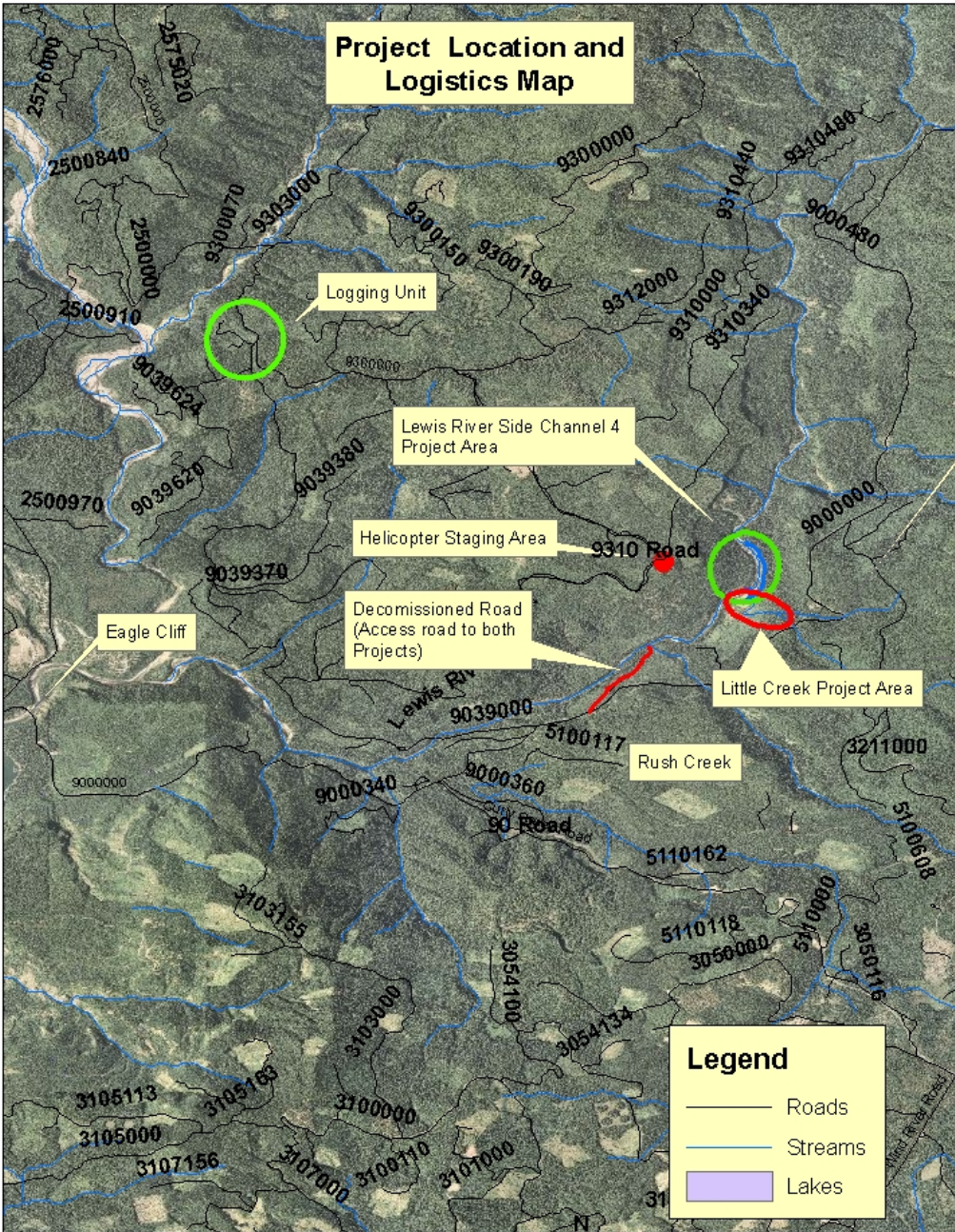
USFS: Please expand on project need and current fish usage; Please explain why helicopter is needed (vs. ground based/use of current abandoned road); Please clarify what scenario is if SRFB helicopter costs are not received; Please show map of proposed structure locations (e.g. zoomed aerial map with asterisks or symbols where log placement); Please describe more on "opportunity to treat invasives"; Recommend describing how fits into and contributes to Forest restoration plans.

The need for this project is to enhance critical side channel habitat in the Upper Lewis River System. Functional side channel habitat is in short supply in the Upper Lewis River Basin and it is well documented the role side channels play in a river system. (Everest et al. 1985; Everest et al. 1986). Several hundred juvenile coho were observed in the grassy portion at the upper end of the east side channel, the only area with hiding cover in the side channel.

The reason a helicopter is being proposed is because a decommissioned road near Rush Creek will be used to move the excavator to the river. This is the road that WDFW and PacifiCorp currently walk down to access PIT tag detectors. If we opened the road to vehicle traffic and log trucks it will negatively affect the recovery of the riparian system and make the public aware of the previous roadbed that accesses Rush Creek, and in particular the deeper pool which bull trout occupy during summer months. If funds from

SFRB are not received, we will go back to the ACC and ask for more money to fund the helicopter portion. If the ACC group does not want to fund the helicopter portion, then the project will either be dropped or we will apply for funds through other granting agencies such as Ecotrust. A diagram/map has been included in this proposal that addresses above concerns. Based on discussions in the ACC group invasive weed treatments will be limited to areas directly affected by implementation of the project.





Lewis River Side Channel Near Little Creek Structure Locations

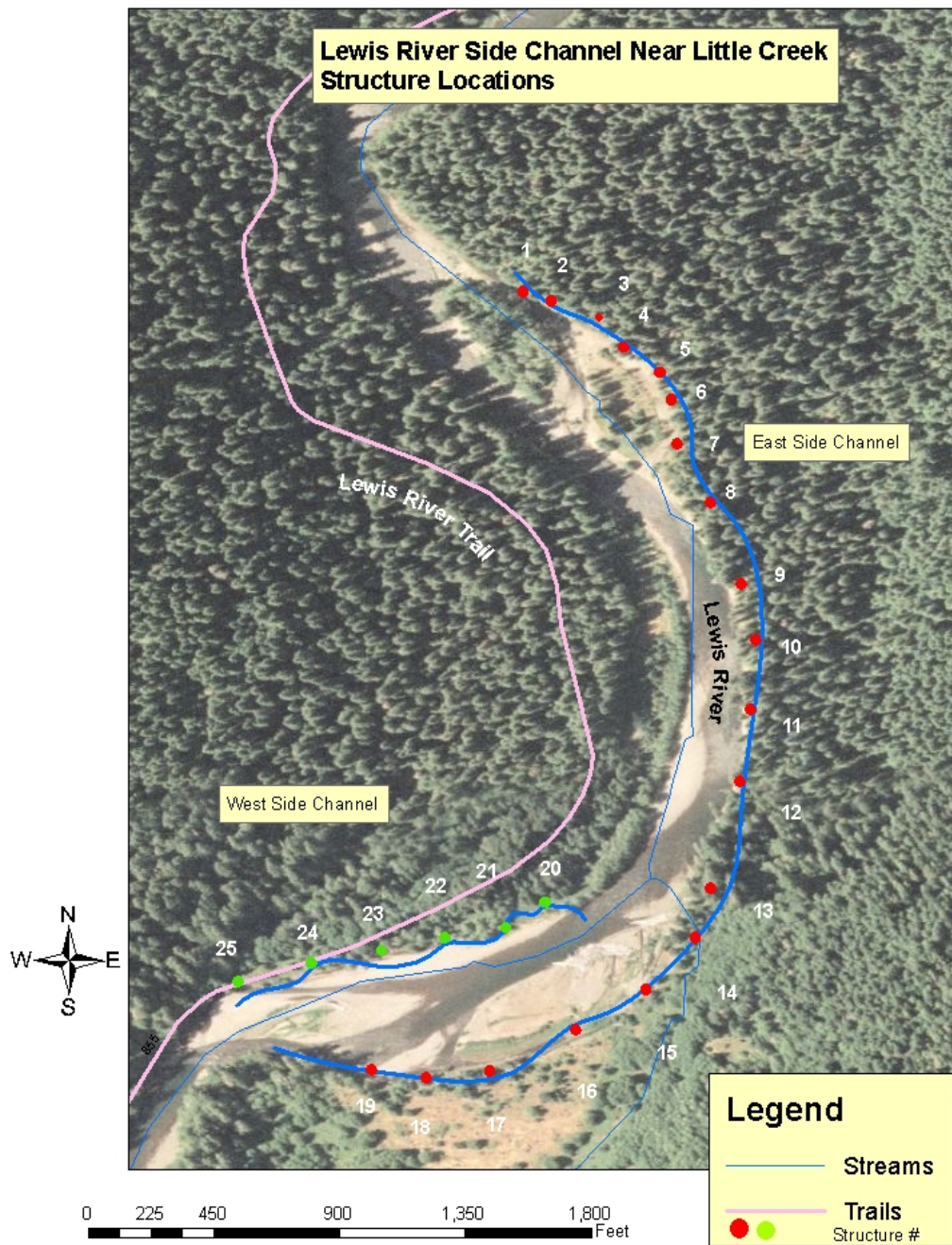


Table of structure design criteria and expected outcomes

Structure Number	Hiding Cover	Overwintering Refugia	Summer Rearing	Pool Formation	Gravel Sorting	Bank Stability
1	x	x	x	x		
2	x	x	x	x		
3	x	x	x	x		
4	x	x	x	x	x	
5	x	x	x	x	x	
6	x	x	x	x	x	
7	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	
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		x
19	x	x	x	x		x
20	x	x		x		
21	x	x		x		
22	x	x		x		
23	x	x		x		
24	x	x		x		
25	x	x		x		



1. Photo of Typical Section of East Side Channel



2. East Side Channel



3. West Side Channel

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.