

1. Project Title Upper Lewis River Spawning Grounds and Habitat Restoration Inventory

2. Project Manager

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3. Identification of problem or opportunity to be addressed

ESA listed Upper Lewis River bull trout only spawn in 2.74 km of Rush Creek, 12.9 km of Pine Creek and 4 km of the unnamed tributary of Pine Creek (P-8). Bull trout spawning concentrations have not been identified at this time. This project will implement a series of weekly spawning ground surveys to GPS redd locations, flag redds, and document redd persistence, and digitize redd locations. In the process, staff will indicate which redd areas in the upper Lewis Basin are most at risk and require habitat improvement or protections.

Additionally, environs of spawning streams will be evaluated to determine areas where habitat might be improved. A prioritized list of those sites needing specific habitat improvements will be identified for interested rehabilitators to evaluate and proscribe solutions to improve the damaged habitats.

4. Background

Upper Lewis River bull trout have been dramatically declining from an estimated 1,297 adults in 2004, to 414 in 2011, which is a 68% drop within seven years. Pine Creek, on the flanks of Mt St. Helens, has a very unstable floodplain consisting primarily of loose ash and pumice with little riparian vegetation. Redd damage and loss of young of the year from winter storm erosion has been viewed as a partial cause for this decline.

Hydro licensing actions have created an aquatic habitat restoration fund (\$300,000 annually) with a portion devoted to bull trout recovery projects. Thus, a substantial pool of dollars exists to fund habitat activities, but no complete spawning habitat inventory exists within the basin to guide the investment of these funds to benefit bull trout recovery.

Since 2006 a total of \$151,039 was allocated for bull trout habitat improvements, but \$42,763 was returned due to projects being cancelled or deferred. Only \$106,039 was actually spent on bull trout habitat enhancement. A major portion of the problem is that

many stakeholders, engaged in habitat improvement, are not familiar with the upper Lewis drainage and have expended most of their efforts below the dams. This will guide rehabilitators where bull trout devoted dollars should be spent to have maximum effect.

This project would identify current bull trout spawning reaches, and collect vital habitat information; providing the data necessary to prioritize funding of future recovery projects. Currently, there is no other mechanism in place to gather this information. This project will deliver a prioritized list of projects to those rehabilitators unfamiliar with the upper basin and will also provide guidance to the Lewis River Aquatic Coordination Committee, the steering group that recommends projects to receive funding from the aforementioned habitat restoration fund.

5. Project Objective(s)

GOAL:

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

- ◆ Identifying existing bull trout spawning locations
- ◆ Evaluating current spawning habitat throughout the spawning tributaries accessible to bull trout
- ◆ Provide a prioritized list of sites suitable for habitat restoration to regional habitat rehabilitators
- ◆ Generates a snapshot of bull trout spawning habitats prior to the full re-colonization of anadromous species, which will provide the baseline to assess the effects of anadromous spawning within bull trout streams and identify positive or negative interactions, due to competition or redd superimposition.

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.*

Bull trout are listed as a threatened species under the ESA. This project will contribute to the recovery of this species by identifying habitats crucial to successful spawning and prioritizing a list of project to enhance spawning habitats.

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

Interactions between reintroduced anadromous fish and bull trout will doubtlessly occur. This project will provide the baseline to evaluate potential for redd competition and redd superimposition, when full reintroduction occurs.

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

An itemized list of crucial existing spawning habitats will be developed and a prioritized list of habitat improvement projects will be developed, to allow rehabilitators to realize more bang for their restoration dollars.

6. Tasks:

Task 1: Project Design

- 1) Finalize survey design and habitat monitoring details. Potentially, tasks could be completed by WDFW staff solely, or done in conjunction with a mix of additional stakeholders or rehabilitators.

Task 2: Project Implementation

1. Six weekly walking surveys on 2.7 km of Rush Ck., 4 km of the unnamed tributary to Pine Creek (P-8) and 12.9 km of Pine Ck. will be conducted to document bull trout adult presence and redd construction. Surveys will occur from mid- September, through mid-October 2012. Staff will locate, GPS, and flag bull trout redds in all three streams (Rush Creek, Pine Creek and P-8); collect standardized redd parameters (size, depth and flow); and monitor redd persistence. Redd locations with habitat threats will be identified and reported.
2. Selected stream habitats will be evaluated, and a prioritized list of protection or restoration activities associated with each of these areas will be developed.

Task 3: Analysis and Report

1. The amount of potential spawning area is relatively small (19.6 km); therefore, all areas accessible to spawners should be surveyed documented in one year, and a list of protection or restoration activities associated with each of these areas will be developed. A written report will be produced and delivered by spring of the following year.

7. Methods:

Beginning in mid-September weekly walking surveys on 2.7 km of Rush Ck., 4 km of the unnamed tributary to Pine Creek (P-8) and 12.9 km of Pine Ck. would be conducted to document bull trout adult presence and redd construction. Surveys will occur through mid-October 2012. WDFW staff will locate, set GPS coordinates and flag and label bull trout redds in all three streams. Additionally, standardized redd parameters (size, depth and flow) and redd persistence will be recorded.

A detailed list of parameters; temperature, gradient, flow velocity percent overhead cover, substrate size and mix, wetted width, bank full width, water depths at $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$ distance across the wetted width, mean depth and maximum depth of spawning locations and potential rehab areas will be recorded and analyzed. Using this information, a prioritized inventory of habitats needing protection; and habitats suitable for restoration will be developed.

8. Specific Work Products

Deliverable 1: An inventory of existing spawning areas in the upper Lewis River basin, including Rush Creek, Pine Creek and the unnamed Pine Creek tributary P-8.

Deliverable 2: A prioritized list of rehabilitation projects focusing on improving bull trout spawning habitat.

Deliverable 3: A guide to be made available to rehabilitators (Cowlitz tribe, PacifiCorp, LCFRB, LCFEG, etc.) for potential habitat recovery activities to be funded through the ACC Habitat Fund.

9. Project Duration

The amount of potential spawning area is relatively small (19.6 km); therefore, all areas accessible to spawners should be surveyed documented in one year and a prioritized list of potential rehabilitation sites developed by spring of the following year. Field assessments should take approximately 1.5 months.

10. Permits

Since the redd surveys and habitat analysis does not involve physically moving or disturbing habitat, no permits (including a HPA) are necessary. If habitat projects, developed from the prioritized list do occur, necessary permits (HPA, NEPA etc.) will need to be secured at that time.

11. Matching Funds and In-kind Contributions

Partner	Contribution	Funds
WDFW	Project development, Surveying, Prioritizing data compilation, Report	Could do ½ month of Bio time. This is not reflected in budget numbers
Open to additional stakeholders.	Assistance, labor. Could be deducted from WDFW Sci. Tech \$\$	Funds not reflected in budget scheme

12. Professional Review of Proposed Project

This proposal was reviewed by Patrick Frazier WDFW Regional Fish Program Manager and Donna Bighouse WDFW Watershed Steward.

13. Budget

Personnel Costs Salary & Benefits	Amount
Biologist 3 (1 month @ \$7,369/month) Could do ½ month of in kind Bio time.	\$ 7,369
4 Sci tech 2's (1.5 mo. @ \$4,112/mo.	\$24,672
Goods and Services	\$166
Equipment	\$600
Travel (2,100miles @ \$0.42/mile)	\$880
Total	\$33,687
Overhead (@ 23.51%)	\$7,920
Grand Total	\$41,607

Staff time and salaries could be shared with other entities: Cowlitz tribe, PacifiCorp, LCFRB, LCFEG, etc.