



Prospectus of Proposed Project Opportunity **Submitted Jan 31, 2020**

Opportunity Title

Upper Wallowa River Restoration

Opportunity Lead

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Technical Contact

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Landowners

Wallowa Lake State Park, Oregon Parks and Recreation Department
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Phone: 541-432-8855
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Wallowa Lake Lodge
Address: 60060 Wallowa Lake Hwy, Joseph, OR 97846
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Email: james@eorlegacylands.org

Contacted: Yes

Supportive: Yes

Contribution: Wallowa Lake Lodge is allowing levee removal and stability/habitat structure installation on their property. Oregon Parks and Recreation Department has contributed substantial in-kind and cash

funding to the development of the project and has secured in-kind and cash funding for project implementation.

River

Name: Wallowa River
Mile: RM42-RM43
Tributary: Grande Ronde

Restoration Atlas

BSR: WLU-2
Tier: Tier 3
Initial Score: 23
Proposed Score: 23

Restoration Activities

2. Channel Reconstruction
3. Pool Development
7. Levee Modification: Removal, Setback, Breach
8. Remove - Relocate Floodplain Infrastructure
9. Restoration of Floodplain Topography and Vegetation
11. Perennial Side Channel
12. Secondary (non-perennial) Channel
13. Floodplain Pond - Wetland
14. Alcove
15. Hyporheic Off-Channel Habitat (Groundwater)
18. Riparian Buffer Strip, Planting
22. Barrier or culvert replacement/removal
26. Boulder Placement
27. LWD Placement
28. Modification or Removal of Bank Armoring
29. Restore banklines with LWD - Bioengineering
31. Improve Thermal Refugia (spring reconnect, other)

Species Affected

Focal: Bull Trout
Other: Kokanee Salmon, Sockeye (post dam reconstruction), bald eagles, resident rainbow trout

Description

This application seeks to address the deleterious, anthropogenic alteration of the form and function of the Upper Wallowa River above Wallowa Lake resulting from years of stream alteration meant to channelize the river and avoid private property damage. By restoring natural function

in this stream reach, habitat for fish and other wildlife will be enhanced. Additionally, the project will provide significant outreach opportunities due to its highly visible location, unlike many existing restoration projects. Lastly, the project will be a showcase for how habitat can be enhanced in a developed area.

The Wallowa River above Wallowa Lake originates as the West Fork and East Fork, in the Eagle Cap Wilderness in Wallowa County. Leaving the Wilderness, it passes through a developed area of private and state property before reaching the south end of Wallowa Lake. Development between the lake and the Wilderness traces back more than a century, in an area that was historically riparian and alluvial floodplain. Over the years, many efforts have been made to control river flooding to protect anthropogenic changes in the river corridor, with varying degrees of success. These efforts have included bank hardening and channelization, severely altering the quality and quantity of fish habitat in the river. Nevertheless, this section of the river still provides spawning habitat to an existing kokanee (*Oncorhynchus nerka*) fishery and historically hosted a Sockeye salmon (*O. nerka*) population, now extinct, and bull trout (*Salvelinus confluentus*), which are listed as threatened under the Endangered Species Act (ESA).

The current conditions also pose risks of catastrophic flooding to public (Wallowa Lake State Park) and private property. Restoring the area to its natural condition is unfeasible; the community is well established and provides a significant contribution to Wallowa County's economy during the vacation season.

We also anticipate restoration of Wallowa Lake Dam, which will raise lake water levels and exacerbate the current situation above the lake. The dam restoration is likely to result in the reintroduction of Sockeye (Cramer and Witty 1998)- increasing the importance of this upstream habitat restoration effort. Oregon law requires that any significant (more than 30%) construction at a dam that currently impedes passage where migratory fish were historically present is required to provide fish passage upon completion of construction. In the case of Wallowa Lake, unless they manage to retrofit the dam and limit the reconstruction to less than 30%, fish passage will be included with the new structure.

Wallowa Lake once supported a native population of kokanee, but experienced a population collapse in the early 1960's. The lake was then stocked periodically, with the last supplementation occurring in 1982. While the native kokanee population is considered to have been eliminated, the current population is believed to be self-sustaining (Cramer and Witty 1998) and still serves important ecological and economic roles. A recent survey by PacifiCorp found that Reaches 1 and 2 of the UWRR project area supported 86% of the total number of spawning kokanee within the West Fork Wallowa River (PacifiCorp 2015). This project would increase spawning and rearing habitat according to specifications provided by ODFW (Yanke pers. comm. 2016) by creating favorable substrate, water depth, water velocities and additional habitat complexity.

Fluvial and resident bull trout are present in the East Fork Wallowa River. The fluvial bull trout migrate to Wallowa Lake through the UWRR project

area. These bull trout are part of the Wallowa River-Minam River Recovery Plan Core Area (USFWS 2015). The Mid-Columbia Recovery Unit Implementation Plan (USFWS 2015) prescribes actions to aid in the species' recovery. Key steps recommended for the Wallowa/Minam Core Area include, "increasing instream habitat complexity, off-channel habitat, and high flow refugia by adding large wood; increasing sinuosity; managing riparian areas for a future supply of large wood, adequate shade [...]." All of these actions are included in the UWRR Project.

The project has state-wide educational significance to raise public awareness and understanding of stream restoration activities. Wallowa Lake State Park is visited by more than half a million visitors each year. It is very unusual to have a project completed in such a highly-visible and highly-visited area. This will amplify the effect of the planned education and outreach opportunities. OPRD offers interpretive programs at the park and plans to make this project a major focus. The restoration plans also include interpretive signage and Nature Play opportunities where children can interact with the creek without detrimental effects to fish habitat.

The goals of this project are multifaceted. They will have immediate as well as long-term and far-reaching educational, ecological, and economic impacts. To summarize, the project will:

- Enhance and restore habitat for all life stages of kokanee salmon and bull trout consistent with the Wallowa County-Nez Perce Tribe Salmon Habitat Recovery Plan (Revised 1999) and the Bull Trout Recovery Plan (USFWS 2015).
- Enhance river floodplain form and function in the reach adjacent to the State Park, which is of highest value for spawning and rearing, and poses the greatest risk of flooding to the State Park.
- Help protect State Park and Wallowa Lake Lodge property from the effects of catastrophic flooding by providing a significant side channel in high flows and by maintaining or improving bank stability.
- Increase public awareness of the value of restoration through a highly-visible and highly-visited project including an educational interpretive site with Nature Play area.
- Provide a model for how ecological and economic interests can both be preserved along the more developed sections of the Wallowa River.

References:

Cramer, S. P. and K. L. Witty. 1998, The Feasibility for Reintroducing Sockeye and Coho Salmon in the Grande Ronde Basin. Report to the U.S. Department of Energy.

Yanke, J. 2016. ODFW and NPT feedback on 80% design plans: Guidance on suitable habitat for kokanee spawning. Memo to the Upper Wallowa River Project Team dated December 12, 2016.

PacifiCorp Energy. 2015. Wallowa Falls Hydroelectric Project (FERC No. P-308), Final License Application for Minor Water Power Project with Modification to Proposed Action, Volume II (Exhibit E - Environmental

Report). Report to the U.S. Federal Energy Regulatory Commission.

U.S. Fish and Wildlife Service. 2015. Recovery plan for the coterminous United States population of bull trout (*Salvelinus confluentus*). Portland, Oregon.

Wallowa County and Nez Perce Tribe (1993; revised in 1999). Salmon Habitat Recovery Plan with Multi-Species Habitat Strategy. Nez Perce Tribe, Lapwai, Idaho.

Objectives

Objective #1: Increase quantity and quality of areas suitable for adult kokanee and bull trout spawning and rearing.

This project would increase kokanee spawning and rearing habitat according to specifications provided by ODFW (Yanke pers. comm. 2016) by creating favorable substrate, water depth, water velocities and additional habitat complexity. The following spawning habitat recommendations were provided by ODFW and NPT and were incorporated into the project design:

- Substrate: a study of artificial spawning channels found gravels between 2.1 and 64.0 mm are typically the most frequently used substrate, followed by gravel-rubble mixtures
- Depth: kokanee can spawn in a wide variety of water depth, but in general fisheries literature suggest water depths from 10-50 cm in streams are suitable for spawning.
- Velocities: kokanee were observed spawning in water velocities that ranged from 10-140 cm/s, but averaged between 60 to 70 cm/s.

Fluvial and resident bull trout are present in the East Fork Wallowa River. The fluvial bull trout migrate to Wallowa Lake through the UWRR project area. These bull trout are part of the Wallowa River-Minam River Recovery Plan Core Area (USFWS 2015). The Mid-Columbia Recovery Unit Implementation Plan (USFWS 2015) prescribes actions to aid in the species' recovery. Key steps recommended for the Wallowa/Minam Core Area include, "increasing instream habitat complexity, off-channel habitat, and high flow refugia by adding large wood; increasing sinuosity; managing riparian areas for a future supply of large wood, adequate shade [...]." All of these actions are included in the UWRR Project.

Objective #2: Improve channel and bank stability to reduce flood and erosion damage to private and public property and existing infrastructure.

The project includes numerous channel and bank stability elements as well as element to reduce flooding of private and park property. Log and boulder structures are included for habitat as well as to increase bank stability. The project includes adding a perennial side channel and seasonal high flow channel to direct water away from private property and public park infrastructure.

Objective #3: Increase channel complexity, aquatic habitat diversity and

floodplain connectivity.

The project includes numerous elements to increase channel complexity and aquatic habitat diversity. 67 log and boulder structures are included for habitat as well as to increase aquatic habitat diversity. The project removing park infrastructure in the floodplain, adding a perennial side channel and adding a seasonal high flow channel to increase channel complexity and the river's ability to access its floodplain.

Objective #4 Increase riparian function with site-appropriate native vegetation.

To increase riparian function, thousands of native riparian trees and shrubs will be planted within the project area. These will be fenced from local herbivores as well as watered to ensure establishment.

Objective #5: Increase public awareness of the value of restoration through a highly-visible and highly-visited project including an educational interpretive site.

OPRD will design and construct a new path system and interpretive signage for the project, including an educational interpretive site with Nature Play area. The interpretive elements will increase public awareness of the history of the site and the value of restoration. With over half a million visitors to Willowa Lake State Park each year, the project has the opportunity to reach many Oregonians as well as visitors from across the country.

Major Risks

We have not yet been able to review the Feasibility Matrix with the Implementation Team; however, we are working with the Implementation Team to get this done as quickly as possible.

Known risks include inadvertently flooding or destabilizing neighboring property or "capturing" the mainstem with the perennial or seasonal side-channel. There is also a risk that the perennial side-channel re-connection pulls too little water from the mainstem to function properly. These risks were discuss during project design so that the engineers were able to create a design that minimized these risks. The project includes stability structures designed to protect neighboring and park property. It also relocates the current levees to protect park infrastructure with the intent that the river may eventually choose any course it likes across the delta to reach the lake.

Permits and Consultation

ESA Section 7 USFWS:

ESA Section 7 NMFS:

COE or DSL Permit: Applicable

Cultural Resources Section 106: Applicable

DEQ 401 Water Quality Permit:

Project Schedule

Year: 2020

Monitoring: Effectiveness Monitoring will include:

- Annual perennial channel function monitoring and adjustment as necessary
- Annual native vegetation establishment watering and monitoring and replanting as necessary

ODFW periodically performs Kokanee redd monitoring.

Project Relations

Multi-phase Effort: Yes

Phase Description: The project design include four reaches of the Wallowa River. This project implements the first two reaches and is substantially on public land. The second two reaches are mostly on and adjacent to private land. If the private landowners request help implementing reaches three and four, Wallowa Resources will provide assistance in the acquisition of funding to match private landowner investment and the implementation if they wish to implement the project as one effort rather than landowner by landowner.

Could Phase 1 be a Stand Alone Project: True

Would the project lose value if future phases don't happen: This phase of the project contains the most ecological value. The future phases are more focused on stabilizing the streambank to protect private property, but using natural structures rather than rip rap. The later phase work is more of a prevention of further habitat loss rather than enhancement and restoration of habitat.

Preliminary Cost Estimate

Total: 828,800

BPA Funding: 103,000

OWEB Funding: 0

Design Funding

Design Funds Requested: No