

Boundary Creek Fish Passage Enhancement

State(s): Oregon

Managing Agency/Organization: North Fork John Day Watershed Council

Type of Organization: Nonprofit

Project Status: Underway

Project type: WNTI Project

Project action(s): Barrier Removal or Construction, Riparian or Instream Habitat Restoration, Water Connectivity, Monitoring, Education/Outreach

Trout species benefitted: Columbia River Bull Trout, interior Redband Trout, Middle Columbia River steelhead, Chinook salmon.

Population: Bull Run Creek Watershed, Sub watershed of Granite Creek, John Day River Basin

Project summary: This project will improve fish passage and riverine connectivity in the Granite Creek Watershed which is a high priority watershed located in Eastern Oregon. The project targets specific sites on Boundary and Corral Creeks, which are located east of the rural town of Granite in the Wallowa-Whitman National Forest. Three old culverts, located on two perennially flowing creeks, are undersized and poorly aligned relative to the road. The erosion, sedimentation, and passage barriers produced by the road and culvert placements cause habitat quality reduction and species fragmentation. The outcome is deterioration of the aquatic ecosystem in the Bull Run sub-watershed. By replacing these ineffective culverts, this project will improve fish passage, open approximately ten miles of viable habitat, enhance watershed health, and increase awareness of the precious and rare species: Columbia River Basin Bull Trout, inland Redband Trout Middle Columbia River steelhead, and Chinook salmon.

The culverts are passage barriers which fragment fish populations in the streams or eliminate fish from some reaches altogether. Installation of wider, open-bottom style culverts will promote a continuous streambed with appropriate water flow. The new culverts will accommodate 100 year flow volumes while concurrently preventing constriction of the 2-year flow in the selected sites. In addition, approximately 3 miles of road will be re-routed to reduce direct sediment outwash into the streams. The project may also re-construct two water influent enhancement culverts on small, intermittent tributaries of Boundary Creek. The North Fork John Day Watershed Council will utilize longstanding and effective partnerships with the Wallowa Whitman National Forest and the Oregon Watershed Enhancement Board to improve a critical aquatic ecosystem and create public awareness surrounding land stewardship of native fish and habitat.

Problem the Project Addresses: The John Day River, as one of the longest, undammed rivers in the United States, provides essential habitat for a variety of anadromous fish and native federally listed endangered or threatened species of trout. These tributaries of Granite Creek ultimately exist within the Mid-Columbia Recovery Unit for the federally listed Columbia River Basin Bull Trout.

Historic land use of the Granite Creek watershed and Bull Run sub-watershed wrought many long-lasting environmental problems. Initially, excessive beaver trapping altered the shade producing vegetation of the riparian zones. With the discovery of gold in 1861 in Granite Creek, came the relentless search for the precious commodity and the imminent, structural decline of the river channel. The forest was heavily logged for timber. As roads were hastily constructed in the area, the culverts were placed irrespective of the environmental impacts, resulting in partial barriers to migrating fish and utilization voids in places that once supported spawning. Today, the system is constrained by two definitive manmade characteristics: 1) Passage barriers caused by culverts which are incompatible with fish migration and spawning and, 2) Sediment inputs originating at roads that are closely aligned with the stream flow. In one instance the road arcs around the culvert, submitting sediment from both sides. This project will remedy these two problems for watershed conditions and native fish.

The Granite Creek Watershed Action Plan, created in 2008 by the Wallowa-Whitman National Forest and approved by the Wallowa-Whitman National Forest and the Umatilla National Forest, identified limiting factors to the watershed and aquatic ecosystem health. The report found that barriers in the waterways significantly contributed to the distressed ecosystem. The plan cited that the Granite Creek watershed needs active restoration focused on the causal elements. The plan lists actions, such as fixing culverts, to improve the aquatic/fish habitat (AH), to make it passable during all life stages. Predicted climate change will likely raise the average temperatures in this region by 2.7° Fahrenheit within 15 years and by 5.4° Fahrenheit no later than the year 2050 (Clark, et. al. 2004). As climate change brings increasing ambient air and water temperatures to Oregon, the high-elevation habitats, such as these two creeks, are projected to become the most critical environment for anadromous fish. Just downstream of Boundary Creek, Bull Run Creek has

been 303(d) listed by the Oregon Department of Environmental Quality due to high levels of sediment and elevated summer stream temperatures, further emphasizing the critical need to open the access to the higher elevation, cold water habitats. This project's goal is to replace these crucial road crossings; it will address the systemic sources of sedimentation and fragmented habitat in the watershed.

Objectives: This project addresses one of the four primary National Conservation Strategies published by the National Fish Habitat Board in 2013: *Reconnect Fragmented Fish Habitats*.

Boundary and Corral Creeks are tributaries to Bull Run Creek and ultimately the North Fork John Day River. These two high elevation waterways provide critical lower temperature habitat for bull trout. The revised recovery plan emphasizes that connectivity between spawning and rearing habitat and foraging/migratory/overwintering habitat is necessary for a full expression of the migratory life patterns of trout.

Specific project objectives:

1. The project will restore fish accessibility to cold headwaters throughout 9.2 miles in an area which provides multiple lifecycle habitats including spawning and rearing for endangered trout species.
2. The source of sedimentation will be minimized by realigning roads that were originally located without adequate consideration for stream impacts.

Partners:

- North Fork John Day Watershed Council
- U.S. Forest Service - Wallowa-Whitman National Forest
- Oregon Watershed Enhancement Board

Project Monitoring: For three years following construction of the culverts and road re-alignment, the success and impact of the project will be monitored by a Project Coordinator from the North Fork John Day Watershed Council. The three sites will be monitored for flow two times per year during the monitoring time period. Redd count monitoring will take place annually and presence/absence will be established by electro-fishing. In addition, the Wallowa Whitman National Forest will conduct annual structure inspections to determine design effectiveness. Photo-points will be established prior to work and will be repeated annually for three years. The first year of monitoring will include short courses taught to Ukiah and Prairie City high school students on stream health and restoration as well as the impacts of environmental degradation of sensitive species of fish (i.e. Bull Trout, interior Redband trout, Chinook salmon, and steelhead). The students will then assist the Project Coordinator in monitoring water temperature, sediment levels, and stream discharge.

Funding Source(s): National Fish Habitat Action Plan

Project cost: \$14,079.38

Start Date: 09/01/2017 **Completion Date:** 9/30/2019

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