

# Passage Barrier Removal: Habitat Restoration in the Potlatch River Watershed



## Project Planner

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## Project Supporters

Landowner (Idaho Department of Lands) and adjacent private landowners

Idaho Department of Fish and Game

USDA Natural Resources Conservation Service / Wildlife Habitat Incentive Program, Salmon Initiative

Idaho Office of Species Conservation / Pacific Coast Salmon Recovery Fund

Idaho Department of Environmental Quality / EPA Clean Water Act Funding

Idaho Soil and Water Conservation Commission

Bonneville Power Administration / NOAA Fisheries Funding

Installed in 1913, a 200-foot long concrete box culvert was placed within a 67-foot high embankment to support a main rail line used to transport logs and lumber. The smooth surface and length of the run through the culvert created a velocity barrier and blocked passage for migrating fish. As a consequence, the upper 75 percent of the watershed, approximately 15 miles of 4<sup>th</sup> order stream habitat was not accessible to Steelhead for spawning and rearing. In 2007 the culvert and fill were removed and revegetation efforts began. In August 2008, the first year following removal of the passage barrier, juvenile Steelhead were detected during fish surveys in Smith Meadows, several miles upstream of the former barrier.

**Construction:** Timber on top of the embankment was removed. 49,000 cubic yards of fill around and above the culvert was removed and deposited elsewhere along the abandoned railroad right of way. The culvert was broken into pieces, removed and disposed of. A new channel was created and embankments from the old railroad elevation to the creek sloped and terraced.



**Latah Soil & Water Conservation District**

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**Revegetation:** Immediately following construction the floodplain, fill disposal areas, and terraces were seeded and mulched with 370 pounds native seed. Erosion control material (90,000 square feet) was applied to the terraced slopes. Between 2007 and 2013 approximately 27,000 containerized plants and cuttings were put in along the channel and on the floodplain, slopes and disposal areas.



## Passage Barrier Removal

Project Type:	Fisheries/Steelhead Habitat Restoration, Threatened Ecosystems/Wetlands Restoration [see the Latah Soil and Water Conservation District Five-Year Plan]
Location:	Corral Creek, a tributary of the Potlatch River, in Latah County, Northern Rockies Ecosystem [see the Latah Soil and Water Conservation District Potlatch River Watershed Management Plan, under Plans & Reports, at <a href="http://www.latahswcd.org">www.latahswcd.org</a> ]
Ownership:	Public land, surrounded by private land
Supporters	Landowner (Idaho Department of Lands) and adjacent private landowners Idaho Department of Fish and Game USDA Natural Resources Conservation Service / Wildlife Habitat Incentive Program, Salmon Initiative [link] Idaho Office of Species Conservation / Pacific Coast Salmon Recovery Fund [link] Idaho Department of Environmental Quality / EPA Clean Water Act Funding Idaho Soil and Water Conservation Commission Bonneville Power Administration / NOAA Fisheries Funding [link]
Project Description:	<p><u>Problem:</u> Steelhead (ESA-listed threatened) have been blocked from access to approximately 15 miles of spawning and rearing habitat since the early 1900's. Improvement and expansion of habitat for steelhead is a high priority in the Potlatch River watershed [link to Clearwater Subbasin Plan, Potlatch River Watershed Management Plan, annual Idaho Department of Fish and Game fish inventories]. The barrier, a 200-foot long concrete box culvert within a 67-foot high embankment, was installed to support a main rail line used to transport logs and lumber. Because of the smooth surface and the length of the run through the culvert, it blocked passage for spawning steelhead since it was installed in 1913. As a consequence, the upper 75 percent of the watershed, and about 15 miles of 4<sup>th</sup> order stream habitat was not accessible to steelhead for spawning and rearing.</p> <p><u>Solution:</u> Construction began in September 2007, following removal of the timber on the embankment and construction of a road segment through the adjacent private land for access to the west side of the site. Construction included removal of the fill and the culvert, and construction of a new channel. Willow whips (1,000) were inserted into soil burritos that lined about 25 percent of the newly-excavated channel banks. The floodplain, fill disposal areas, and terraces were seeded and mulched (370 pounds native seed). Erosion control material (90,000 square feet) was applied to the terraced slopes. Construction was completed by early November 2007. In 2008 and 2009 4,300 containerized plants and cuttings were planted to revegetate the floodplain, all cut slopes, and the fill disposal areas. Game fencing was installed to protect the plants on the floodplain and lower terraces from wildlife depredation. Livestock fencing was installed to exclude cattle from the construction area and the adjacent meadow and riparian areas to enhance restoration of the native plant community. Photopoints were established to document vegetative changes. In August 2008, the first year following removal of the passage barrier, juvenile steelhead were detected during fish surveys in Smith Meadows, several stream miles upstream past the former barrier [link to 2008 IDFG fish survey report].</p>
Status:	<u>Active.</u> Removal of the passage barrier and initial revegetation/stabilization was completed in November 2007. Revegetation continued in 2008 and 2009. Followup repair work to control erosion and to supplement the initial revegetation will be done in 2012 and 2013.

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Above: Culvert was a [velocity] barrier to fish passage. Note the person in the orange vest standing at the top of the fill in the top left photo (height of embankment was 67 feet). Fill and culvert were removed in fall 2007.

Below: Removal of fill and culvert involved 2 belly-scrappers, 2 bulldozers, 3 excavators, 6 articulating dump trucks, and a wrecking ball. Excavator at right below is cutting terraces and new channel.





Revegetation included seeding, mulching, application of erosion control material, planting, installing plant protection, and control of invasive weeds.



Summary prepared by Trish Heekin, Resource Conservation Planner, Latah Soil and Water Conservation District, September 2012