



## Clackamas River Basin Council

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### **Delph Creek at Porter Road Fish Passage Improvement Project**

#### Final Completion Summary

This project addressed the problem of two, 4-foot metal culverts on Delph Creek at RM 4.7 (13.7 miles from Clackamas River) that were complete barriers to juvenile fish passage and a partial barrier to adult fish passage. Passage was impaired due to a shallow downstream pool, 3.8% slope of the culverts and a 2 foot drop at the culverts' outlet. These factors also increased stream sediment loading caused by flood waters crossing over Porter Road during high water events, creating additional safety hazards to the traveling public and neighboring private properties.

The culverts under Porter Road were removed, a full-spanning 38 foot long pre-cast modular concrete bridge was installed, and in-stream and riparian habitats were improved. The bridge is 1.5 times bank full stream width and was designed to pass a 100-year storm event. Completion of this project opened approximately 4.5 miles of high quality spawning and rearing habitat to winter steelhead, Coho salmon, and cutthroat trout. It alleviated road flooding and sediment loading. The project also included invasive species removal and revegetation around the new bridge.

#### Background

Delph Creek is a tributary to Eagle Creek. Eagle Creek watershed's geology and topography result in natural barriers to salmonids and resident fish migration. The Clackamas River Basin Council's Basin Action Plan prioritized 23 artificial barriers in order of severity toward limiting available salmonid habitat. This project resolved a fish passage barrier ranked as the fourth highest priority in the Eagle Creek sub-basin of the Clackamas River Basin (Clackamas Basin Action Plan, Appendix B, p.9) and was the highest priority fish passage barrier on public right-of-way in the Clackamas River Basin.

#### Work Completed

The culvert removal and bridge construction on Delph Creek at Porter Road included improvements to in-stream and riparian habitats. In-stream activities included: removal of two four-foot corrugated metal culverts, replacement of culverts with a pre-cast modular bridge spanning the entire creek, and restoration to the stream bed under the new bridge. This stream bed restoration included gradation, channel roughness, and boulder and cobble placement under and around the bridge to alleviate a head-cut drop at the culvert's previous outlet and restore natural streambed conditions. Riparian activities included: removal of invasive English ivy, vinca minor, and Japanese knotweed, and planting 180 native plants in areas disturbed by the invasive species or construction surrounding the project site. These riparian enhancements help to connect current wildlife corridors on both sides of Delph Creek and further support healthy stream and riparian habitats. Along with the value gained from restored fish passage to the upstream habitat, the culvert removals and the newly installed bridge will provide additional benefits by reducing the instances of access routes being flooded

during high water events and restore the natural sediment transport regime to this reach of Delph Creek.

Delph Creek is a salmon bearing tributary to Eagle Creek located in the eastern lower portion of the Clackamas River Basin. The Clackamas River Basin encompasses 941 square miles and drains the lower eastside of the Willamette Valley into the Willamette River at river mile 25.1. The watershed covers over 600,000 acres, with ten major tributaries and several smaller ones, and provides drinking water for over 400,000 people. The Clackamas watershed provides critical habitat for ESA listed wild winter steelhead, wild spring Chinook and one of the last remaining wild late-fall Coho runs in the Lower Columbia basin. This run was federally listed as threatened in 2005.

#### Public Awareness and Education

There have been several sources of community support for this project, including project partners, private landowners adjacent to project site and volunteers. Several members of the Mt. Hood Community College Project Youth Employability Social Services (YESS) Crew volunteered to support the project. Project YESS is a youth education and employment program.

There have been several outreach and education activities surrounding the project. Clackamas County was the key liaison with the neighbors surrounding the project site and secured the necessary temporary construction easements with 2 property owners on either side of Porter Rd. The Clackamas River Basin Council (CRBC) worked closely with project site neighbors to plan replanting activities. Outreach materials not only help residents understand the effects of the project to the area, but also inform them of project partners and give them resources for stewardship of their own property.

CRBC also worked to educate the general public about the project. A press release describing the project, its benefits and its partners was released on September 23, 2011 to local media partners, posted on our website and our social networking sites. The press release was picked up by the Oregonian and published in their online edition on November 4, 2011. The Oregonian has a readership of over 355,000 persons.

A project sign was installed at the site by Clackamas County, highlighting it as a fish passage enhancement project and the partners that made it possible. CRBC will continue to use this site as a demonstration of successful watershed restoration. CRBC plans to have this project highlighted at an upcoming event, the Tour de Clack, where participants will view the project and hear about the details and benefits on a stop during the bike ride on June 29, 2013.

## Before and After Photos



Photo Point: Before

Photo Description: Delph Creek looking upstream

Photo Date: 08/10/2011



Photo Point: After

Photo Description: Delph Creek looking upstream

Photo Date: 11/08/2011