

# Clackamas Basin Council

## Fast Facts

- Oregon's Clackamas River flows from its headwaters on Ollalie Butte near Mt. Hood, west to the Willamette River. It drains an area of nearly 1,000 square miles, ranging from Cascade forests and mountain meadows, to farmland and suburban neighborhoods.
- The Clackamas supplies high-quality drinking water to over 200,000 people, generates hydroelectric power, is home to a wide variety of plant and animal life and offers a wealth of recreational opportunities.
- The mainstem Clackamas and its tributaries are home to wild winter steelhead, Coho, Spring Chinook and Fall Chinook Salmon.



Volunteers plant trees at Foster Creek. Logs in the background were placed to improve fish habitat.

## Highlights

### Projects

- North Fork Eagle Creek Large Wood Placement—55 logs placed in two miles of stream
- Invasive species removal program
- Drinking water assessment
- Basin action plan

### Clear and Foster Creek Focus

- Assessment and Draft Action Plan completed.
- Riparian Program planted 9,000 trees with 19 landowners.
- Fish Carcass Project fertilized 15 stream miles with salmon carcasses.
- Fish Passage Assessment identified 34 barriers on anadromous fish bearing streams on private land.

### Partners

ODFW, US Forest Service, Longview Fibre, OWEB, Cities of Lake Oswego, Estacada, Milwaukie, BLM, PGE, Oregon Trout, Oak Lodge Water District, South Fork Water Board, Sunrise Water Authority, Inner City Youth Institute, PNW Research Station, 3 high schools, NRCS, Skamania Flyfishers and Clackamas River Water.

### Who we are

We are a voluntary 501 (c)3 body, chartered by Clackamas County in 1997. We have representatives elected from 21 diverse stakeholder groups in the basin. We meet monthly to address issues affecting the health of the watershed.

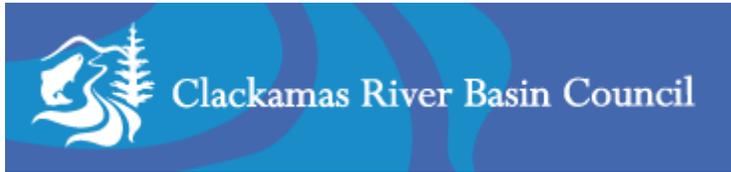
Committees are organized to study specific issues, develop projects, present workshops and carry out other council tasks.

### Where we work

Clackamas River  
Clear Creek  
Deep Creek  
Eagle Creek  
Foster Creek  
Goose Creek  
Richardson Creek  
Rock Creek  
Susan Creek

### What we do

Monitoring  
Assessments and Research  
Outreach and Education  
Stream Improvement  
Council Development



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**Who We Are**

[Member Groups](#)

**About the Watershed**

We are a local voluntary Watershed Council, founded in 1997. We have representatives elected from 21 diverse member groups in the basin. We meet monthly as a consensus based forum to foster partnerships for clean water, to improve fish and wildlife habitat and improve the quality of life for those who live, work and recreate in the Clackamas River basin.

Oregon's Clackamas River flows 83 miles from its headwaters on Ollalie Butte, just south of Mt. Hood, west into the Willamette River near Oregon City. It drains a total area (watershed) of nearly 1000 square miles. We consider the entire river drainage and focus our efforts along the main stem and the tributary streams that enter the Clackamas River below Estacada.

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**Our council's five  
main action areas:**

- Council Development
- Stream Improvement
- Monitoring
- Assessments & Research
- Outreach & Education

Clackamas River Basin Council  
([www.clackamasriver.org/index.htm](http://www.clackamasriver.org/index.htm))



About the Watershed

Fisheries

#### Clackamas River Watershed Fisheries

The watershed is home to one of the last two significant runs of wild late winter coho in the Columbia Basin. The wild late run Coho generally spawn on the mainstem of the Clackamas above the North Fork Reservoir. Clear Creek, which drains into the mainstem at Carver is important to Coho.

The watershed has one of only two remaining runs of spring chinook in the Willamette Basin. The watershed also supports a significant population of winter steelhead, cutthroat trout and native lamprey.

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**About the Watershed**

The watershed provides high quality drinking water to approximately 200,000 people. There are four municipal surface water intakes on the river that provide water for households in the towns of Estacada, Gladstone, Lake Oswego, Milwaukie, Oregon City and West Linn.

**Recreation**

The Clackamas River Basin Council works in partnership with water providers to identify actions and areas that are important for maintaining high water quality. Keeping the water quality good reduces costs of drinking water treatment - thus reducing water bills, and helps to protect public health.

**Water Resources**

Three waterbodies in the Clackamas River Basin are on the DEQ's 303(d) list of water-quality limited streams: the Clackamas River from its mouth to River Mill dam, Eagle Creek from its mouth to the wilderness boundary and Fish Creek.

The water-quality standards violated are summer temperature and habitat modification. Water that is consistently over 64 degrees can foster algal blooms that decrease water quality and impart an unpleasant taste to drinking water. Salmon and steelhead require water that is colder than 55 degrees for spawning, egg incubation and fry emergence.

The Clackamas River Basin Council works on partnership projects to monitor water temperatures and works with volunteer landowners to plant trees along river and creekside areas to protect water quality. Clackamas County provides valuable support to the CRBC's tree planting program through its Title 3 Grant Program.

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**Eagle Creek Watershed**

The headwaters of Eagle Creek flow out of the Salmon-Huckleberry wilderness, an area of Douglas fir, true firs, western red cedar, and western hemlock. Ten miles of trails cut through this wild area, part of a larger 70 mile trail system. The creek then flows through commercial forest, agricultural land and the city of Estacada before joining the Clackamas.

Eagle Fern County Park near Estacada provides an excellent opportunity to access the creek, picnic under beautiful cedar trees, view fall salmon spawning, and explore a native streamside forest of old growth. For more information on the park visit

A natural heritage of Coho, spring and fall Chinook and steelhead spawn and rear in Eagle Creek. Spring Chinook salmon spawn in the lower reaches while coho and steelhead spawn and rear in streams and low gradient tributaries.

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Who We Are

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**Large Woody Debris Project**

In the fall of 2002, a heavy lift Chinook helicopter flew 35 whole trees and 25 logs across the sky upstream from Eagle Fern County Park in Clackamas County and pepped them into the North Fork Eagle Creek. The trees will help improve salmon and steelhead habitat in a rugged and remote section of the stream. The large trees, in scientific jargon termed "large woody debris", will slow stream velocity, create resting areas and provide cover for fish, help deep pools to form and collect stream gravel for spawning beds. Historically, large old-growth trees would have fallen into the creek to provide this important habitat element. This project replaced trees that would normally have fallen into the creek in a habitat less affected by human activities such as tree removal. This stream habitat improvement benefits Coho salmon, wild winter steelhead and cutthroat trout. The Oregon Department of Fish and Wildlife will monitor the project for the next two to three years. They will assess channel morphology and vegetation, evaluate log placements and conduct juvenile and adult fish sampling.

The Clackamas River Basin Council and its members and supporters collaborated to coordinate this project. It is an example of how a Watershed Council, working under the Oregon Plan for Salmon and Watershed, can bring industry, federal and state agencies and citizens together to improve conditions for salmon and steelhead recovery in a watershed. Project partners and members of the Clackamas River Basin include the Oregon Department of Fish and Wildlife, Longview Fibre, the US Forest Service and BLM, Friends of Eagle Creek as well as local landowners. The project was funded in part by the Oregon Watershed Enhancement Board.

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Other large wood projects have since been completed in other parts of the watershed, including lower Richardson Creek and Upper and Middle Clear Creek.





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#### About The Deep, Goose and Eagle Creeks Fish Passage Study 2003

The Clackamas River Basin Council made it a priority to gather baseline information about the Clackamas River and its tributary streams to assess watershed conditions. It is important to use the best scientific and local knowledge to strategically plan our conservation and restoration efforts. The council works cooperatively with private and public landowners to add historical, water quality, streamside forest and fish and wildlife habitat information to what is already known about the Clackamas River basin. This information will help the council to identify possible future projects and partnerships. During Summer 2002, the CRBC conducted a fish passage assessment project in the Clear and Foster Creek basins. It was highly successful, primarily due to the outstanding cooperation from private landowners. Over 100 landowners participated in this project. Jenny Walsh, of Upstream Connection, and Jo Anne Dolan were able to survey over 150 stream-road crossings. 81 problem crossings were then prioritized to determine which should be repaired first. CRBC has started work on some of the highest priorities with landowners in Clear Creek.

In 2004, the CRBC conducted the second phase of a fish passage assessment in Deep, Goose, and Eagle Creeks. Both the Clear and Foster Creek project conducted earlier, and the Deep, Goose, and Eagle Creek finished in 2005 are critical to understanding where fish swim, spawn, and live in the Lower Clackamas River basin.

#### What is Fish Passage?

In the Pacific Northwest, salmon species and resident trout use stream channels for spawning, rearing, and foraging until the slope of the stream gets too steep or a natural barrier, such as a waterfall, blocks their movement upstream. Roads cross streams over bridges or culverts. Up until 10 years ago, culverts, in particular, were installed to move water downstream, rather than allow fish to swim upstream. As a result, many of the culverts are too high, too long, too steep, or too narrow for fish, no matter how strong, to swim through. These crossings, like waterfalls, are barriers to fish passage. If a barrier occurs low in the basin, fish are unable to reach miles of potential stream to live or spawn in upstream.

#### The Project Process

We identified over 150 potential stream-road crossings using GIS mapping tools. Then we contacted private landowners by mail and phone to introduce the project and request access. After getting permission from cooperative landowners to enter their property, we took a set of quantitative measurements at each road-stream crossing (bridge, culvert, pipe arch, ford, or dam). The measurements include a GPS reading, photos, culvert descriptors such as length, diameter, and slope, and surrounding road and channel descriptors such as fill height, channel width, and channel slope.

After data was collected, it was analyzed to identify crossings that do not allow fish to swim through. These crossings were prioritized based on factors such as distance to the mainstem of the Clackamas River and the length of fish habitat upstream of the crossing. The top 30 or so crossings were revisited to take more precise profile measurements using a laser level. A final report was completed in April 2004. This information will help the CRBC to compete for grant money to repair the most critical road-stream crossings.

#### Project Goals

- Work with willing landowners to better understand fish passage on these creeks.
- Identify natural and man-made barriers that prevent fish passage.
- Estimate project costs for future grant opportunities to fix critical barriers in cooperation with interested landowners.
- To direct funding to high priority projects to save time and money.

Including private as well as public road-stream crossings in the assessment ensures that land managers know there are no fish passage blockages downstream of repair efforts. By surveying all identified crossings in the basins, the CRBC is working to ensure that repair money is invested in the most critical fish passage issues that will offer the greatest return.

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**Lower Clackamas River Watershed**

The Lower Clackamas River mainstem is mostly urban, flowing from upriver in Estacada in the south to Happy Valley and Oregon City in the north where it joins the Willamette river.

This part of the river is used as a migration corridor and rearing habitat by salmon and steelhead. The loss of side-channel habitat and the narrowing of the channel with dikes and channelization has impacted key habitats for the fish. A recently completed side-channel project just downstream of Barton Park has excavated and re-watered an historic channel. This promises to provide important rearing habitat and refuge for salmon.

Runoff from the urban tributaries of Rick, Richardson and Deep Creeks presents both challenges and opportunities in the lower Clackamas. Although urbanizing, these creeks still have salmon and steelhead, and relatively good water quality. Over 200,000 citizens currently get their drinking water from municipal intakes on this section of the Clackamas River, so what goes into these tributaries can make its way to our drinking water. These lower tributaries are smack dab in the hub of Portland's urban growth expansion and subject to imminent development. As this area urbanizes if proper streamside buffers are kept, and new best practices for reducing impermeable surfaces are implemented, the area could become a model for sustainable development that protects our drinking water and reduces costs and effects of stormwater runoff.

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The mainstem of the river hosts a popular fishing and rafting recreation industry. This section of river is also very popular for recreation. McIver State Park and Barton County Parks provide boat launching facilities used by thousands of recreational boaters and anglers.



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**Clear Creek Watershed**

Clear Creek is a main tributary entering the south side of the lower Clackamas River near the town of Carver. Elevations in the Clear Creek watershed range from 4,226 feet on Goat Mountain to 79 feet where Clear Creek joins the Clackamas River near Carver Park. The large range in elevation results in several different ecoregions that range from Prairie Terraces and Valley Foothills in the lower elevations to Western Cascade Lowlands and Valleys in the higher elevations.

Cities surrounding the sub-watershed include Estacada and Sandy to the East, and Oregon City and Gladstone to the West. The landscape is diverse ranging from Christmas tree farms to small acreage farms. In the upper watershed on a clear day the vista contains a stunning view of Mt Hood, Mt Adams, Mt St. Helens, and Mt Rainier.

The topography of the Clear Creek watershed is typical of areas within the Willamette Valley and adjacent foothills, with the downstream areas occurring within fluvial deposits from the Missoula Floods, while higher elevation areas are dominated by volcanic geology. The geologic history of the lower Clackamas region over the past 15 million years involves the interaction of volcanic and depositional processes along the border between the Cascade Mountain Range and the Portland Basin.

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The Clear Creek watershed contains many types of stream channels with mostly floodplain and moderate gradient channels in the lower watershed and moderate gradient to steep confined valleys predominating in the upper watershed.

Three vegetation types dominate the Clear Creek natural landscape: Western Douglas-fir-Mixed Conifer, Mountain Hemlock, and Ponderosa Pine-White Oak.

Several future projects in the watershed will focus on water quality monitoring, large woody material placement for fish habitat, streamside vegetation planting to improve water quality and cool the water for salmonids and culvert replacement for fish passage. These actions were identified 2002 watershed assessment conducted in Clear Creek, which has proven to be an effective prioritization tool for watershed restoration work.

For information on our projects in Clear Creek see below.

(PDF 228 KB)

(PDF 8 MB)



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**Clear and Foster Creek Watershed Assessment**

In 2002, Watershed Professionals Network (WPN) prepared this assessment under contract with the Clackamas River Basin Council. Funding for this assessment was provided by Water Providers- Clackamas River Water, Oak Lodge Water District, South Fork Water Board and Sunrise Water Authority, the BLM, the Cities of Estacada, Lake Oswego and Milwaukie, PGE and a grant from the Oregon Watershed Enhancement Board.

The Clackamas River Basin Council chose to conduct this watershed assessment for several reasons: 1) to better understand the dynamics of Clear and Foster Creeks 2) to develop partnerships with the community, 3) to be a catalyst for the enhancement and protection of fish and wildlife habitat in particular for Wild late-run Coho, Fall Chinook and Winter Steelhead 4) to identify actions to improve water quality for drinking water, recreation and fish and wildlife.

**[Review the entire Clear Creek Watershed Assessment \(6000K PDF\)](#)**

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#### Rock and Richardson Creek

Rock and Richardson Creek watersheds are located in southeast Multnomah and north Clackamas Counties. They are part of the ecosystem known as the East Buttes and Boring Lava Domes. These domes or hills, formed by lava flows during the same eruption cycle that formed Mt. Hood some 2 million years ago, rise 500 to 1000 feet above the valley floor. The low, mostly forested hills descend to gently sloping valley floors, which include Pleasant and Sunshine valleys.

Both basins have soils and gravels deposited by past flood events, including the Bretz floods. Basaltic lava flows lie under these soils to a depth of up to 100 feet in the valleys, deeper in the hills. Under these lava flows lie the Troutdale formation, the most important aquifer for east Multnomah and North Clackamas Counties. It is thought that these buttes and lava domes may provide important recharge for the water table.

Rock and Richardson Creek watersheds are located in a transition zone between the conifer forests of the Cascade Mountains and the oak/prairie grasslands of the Willamette Valley. Lower Rock Creek and the main channel of Richardson Creek provide important rearing areas for steelhead, coho salmon, chinook salmon and cutthroat trout. Research indicates that prior to Euro-American settlement Douglas fir forest and woodland dominated most of the area of both watersheds. The uplands of the lava domes were characterized by closed canopy old growth Douglas fir, grand fir, and bigleaf maple. Hazelnut, Pacific dogwood, vine maple, and Pacific yew composed the under story. The valley floors were similar, but also included western hemlock and western red cedar. Flood plains along or near the Clackamas River had closed hardwood forests, including Oregon ash, cottonwood, alder, maple, and white oak. There were small patches of conifer, including Douglas fir and western red cedar. Today, rural roads and highways follow the valley floors and wind between the hills. The land is a patchwork of forest, pasture, nurseries; berry fields and Christmas tree farms intermingled with suburban homes. Views range from intimate, pastoral valley scenes to stunning vistas of Mt Hood and the Cascade Range to the east, to new subdivisions and development reaching outwards from the Highway 205 corridor and the outskirts of Portland.

#### Rock and Richardson Creek Watershed Assessments



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Students put salmon carcasses in Clear Creek to add nutrients to the aquatic food chain



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July on the lower Clackamas