



CONSERVATION EFFECTIVENESS PARTNERSHIP
Oregon Department of Agriculture
Oregon Department of Environmental Quality
USDA Natural Resources Conservation Service
Oregon Watershed Enhancement Board



FIFTEENMILE CREEK A “Whole Watershed” Restoration Approach

People in the Fifteenmile Creek watershed have been working together since the early 1990’s to reduce soil erosion, build healthier soils, improve water quality and restore fish habitat. This “whole watershed” restoration approach was made possible through integrated coordination and partnerships among local, state and federal agencies, partner groups and private landowners. Today, landowners are seeing positive changes on the landscape, such as improved healthy streamside vegetation and noticeably less soil erosion.

GEOGRAPHY

Fifteenmile Creek is a 373-square-mile (238,720 acre) watershed located mostly in northern Wasco County with some headwaters in Hood River County. Its major tributaries—Eightmile, Fivemile, and Ramsey Creeks—originate in the Mt. Hood National Forest and generally flow northeast.

Fifteenmile Creek flows into the Columbia River just downstream of The Dalles Dam. The watershed is in the rain shadow of the Cascade Range, with rainfall averages of 27 inches in the west and 12 inches in the east. It is home to a variety of fish species, including wild steelhead, Pacific lamprey, resident redband trout, and coastal cutthroat trout. It’s also occasionally used by spring Chinook and coho salmon. About 72 percent of the watershed is used for agriculture, primarily dryland wheat.

Conservation Effectiveness Partnership

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CONCERNS

To understand the water quality problem in the Fifteenmile Creek Watershed, it's important to look back at previous decades of land use in the area following World War II. During the post-World War II economic boom, farmers needed to quickly break new ground to develop cropland, often using new technology to rise to the challenge. At that same time, typical land uses on national forests in the area included timber harvesting and livestock grazing. Road construction and public road use was on the rise, as the demand for timber increased along with the need for housing and escalating national interest in outdoor recreation. Decades of intensive land use disturbed soils, which contributed sediment to streams. Too much sediment in waterways degrades salmon spawning areas and interferes with juvenile fish development and feeding.

Over the years, agricultural and forest practices impaired vegetation growing alongside streams, reducing the number of trees and shrubs. Trees and shrubs help stabilize stream banks, filter runoff and provide shade that cools water temperatures. The combination of all these factors slowly degraded water quality over the years.

In 1998, the Oregon Department of Environmental Quality (DEQ) included the streams in this

watershed on the Clean Water Act Section 303(d) list of impaired waterways for both sediment and temperature. That decision motivated government and private landowners to come together to restore and protect this vital water system. Listing the watershed including the watershed on the 303 (d) list raised public awareness and provided strong rationale for restoration funding. Additionally, back-to-back 100-year flood events in 1995 and 1996 got landowners' attention and set the stage for change.

RESTORATION ACTIONS

Agencies at the local, state, and federal level worked with private landowners and nonprofit organizations on several restoration actions to improve water quality and stream habitat:



Establishing and Protecting Streamside Vegetative Buffers



Converting to Direct Seeding/ No-Till Practices



Improvements to Forest Management Practices



Temperature Stabilization

FIFTEENMILE CREEK





Streamside Buffers: Since the late 1980's, landowners established vegetative buffers along 90 percent of the perennial stream miles on privately-owned land within the watershed. This work was funded by multiple agencies, including the Bonneville Power Administration, the Oregon Department of Fish and Wildlife (ODFW), the Oregon Watershed Enhancement Board (OWEB) and others. These streamside vegetative areas have rebounded to provide shade, water quality functions, and other benefits to protect the water and keep it healthy.

Additionally, a majority of the perennial streams in the Fifteenmile Creek Watershed have streamside vegetative buffers enrolled in the Farm Service Agency's Conservation Reserve Enhancement Program (CREP). This voluntary program restores and protects land along streams and other water bodies by targeting high-priority conservation areas identified by local, state, or tribal governments or non-governmental organizations. In exchange for removing environmentally sensitive land from production and introducing conservation practices, farmers and ranchers are paid an annual rental rate.



Direct Seeding Practices: By working directly with farmers, the Natural Resources Conservation Service (NRCS) and other partners are helping growers transition from traditional plowing to direct seeding practices. This reduces soil disturbance, creating habitat that allows soil microbes and insects to thrive. Direct seeding practices increase water infiltration, boost soil organic matter, reduce erosion, and improve nutrient cycling for plants.

Now, almost 100 percent of the agricultural lands in Fifteenmile Watershed are farmed using direct seeding practices. A variety of funding sources helped growers make the transition from older methods. Those included grant programs from Oregon DEQ, OWEB, and the NRCS.



Forest Improvements: Solutions also came to fruition on federally-owned United States Forest Service lands within the watershed. With increased funding for conservation over the past several decades, the Mt. Hood National Forest conducted several restoration projects in the Fifteenmile Creek Watershed, such as:

- Decommissioning heavily-eroded roads near streams;
- Improving fish passage;
- Mitigating fish entrainment into water conveyance systems;
- Re-vegetation and reforestation of degraded areas;

- Protecting and improving riparian vegetation; and
- Treating densely forested timber stands to reduce the risk of severe wildfire.

The changing culture of natural resource management demands landscape-scale restorations—working with other agencies and partners—to minimize impacts to aquatic habitats, soil and water quality. This whole watershed approach, spanning public and private lands, continues today— not just in the Fifteenmile Creek Watershed, but in many streams throughout Oregon, the Pacific Northwest, and the nation.



Fifteenmile Action to Stabilize Temperature (FAST):

The Freshwater Trust, working with the Fifteenmile Watershed Council, ODFW, Wasco SWCD, and OWEB, developed a model using weather and streamflow information in the watershed to predict when water temperatures may reach lethal conditions for steelhead. This model helps irrigators voluntarily adjust their usage during times of extremely high temperatures to keep temperatures cool enough to prevent fish kills. This innovative program balances irrigator needs with ecological demands. Since it began in 2013, the program has maintained 30.7 cfs of water instream over 41 days.

SCIENTIFIC MONITORING

In 2019, the Oregon DEQ produced a report evaluating changes in sediment and biological conditions in Fifteenmile Creek by comparing data collected in recent years (2015 and 2016) with data collected earlier (1994 and 2000). Six out of seven stations with data available for comparison showed improved sediment quality, as measured by a decrease in the percent fine sediment in the stream.

Three of these stations were adjacent to agricultural land. Eleven out of 14 samples collected in recent years met the ODFW recommended benchmark for sediment, and six of these were adjacent to agricultural land. It is important to continue evaluating sediment condition using consistent methods so that results can be compared over time to evaluate how the watershed responds to agricultural implementation practices. Biological studies, such as looking at the freshwater macroinvertebrate community, can provide a relevant and cost-effective way to evaluate habitat condition.



Farmers and practitioners with a long history of working in Fifteenmile continue to see less erosion from fields that are using direct seed/no-till practices. Communication among landowners and with land managers has improved, and partners are sharing lessons learned to plan future restoration and irrigation efficiency projects. Using these observations, as well as the results of recent reports, local, state and federal partners can design future studies to look at water quality, macroinvertebrate community and fish habitat response to land management and natural events such as floods and fires. Throughout the Fifteenmile watershed, landowners and partners are committed to tackling tough new problems as they are identified.

PARTNERSHIPS AND COLLABORATION

Taking a whole watershed approach requires collaboration, partnerships and leveraged funding among local, state and federal agencies and conservation groups. Each partner contributed technical and financial assistance to efficiently use conservation dollars while concentrating efforts in priority areas in the watershed. Partners for this project include:

- Private landowners
- Fifteenmile Watershed Council

- Wasco County Soil & Water Conservation District
- Bonneville Power Administration
- The Freshwater Trust
- Oregon Department of Agriculture
- Oregon Department of Environmental Quality
- Oregon Department of Fish and Wildlife
- Oregon Water Resources Department
- Oregon Watershed Enhancement Board
- USDA Natural Resources Conservation Service
- USDA Farm Service Agency
- USDA Mt. Hood National Forest

ABOUT CEP: MEASURING CONSERVATION IMPACT

The Conservation Effectiveness Partnership (CEP) is a collaboration of natural resource agencies including Oregon Watershed Enhancement Board, USDA Natural Resources Conservation Service, Oregon Department of Environmental Quality and the Oregon Department of Agriculture. In addition, the Oregon Department of Fish and Wildlife provides guidance about fish habitat. CEP works together to understand, optimize and communicate the benefit of conservation investments throughout Oregon.