



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



WHYCHUS CREEK STREAM RESTORATION

Sisters, OR - For more than a century, Whychus Creek has undergone numerous flow diversions as well as channel and floodplain modifications to support agriculture, residential development, and flood control. Over time, these alterations have resulted in extensive degradation of stream habitat for native fish populations. Collaborative restoration efforts by local non-profits, state, tribal and federal agencies, irrigation districts, and landowners are improving stream habitat for Chinook salmon, steelhead, and redband trout.

COLLABORATION IS KEY

The Upper Deschutes Watershed Council, Deschutes River Conservancy, Deschutes Land Trust, and other restoration partners have worked together for almost two decades to restore stream and floodplain ecosystems. Restoration strategies include land acquisition and conservation easements to protect floodplain habitat; stream channel and floodplain restoration that reconnects floodplains and raises groundwater tables to support riparian habitat; restoring flow; and removing barriers to fish passage. These actions help sensitive and threatened fish in the Upper Deschutes sub-basin. Monitoring data indicate restoration efforts are leading to positive ecological outcomes in Whychus Creek.

Funders of Whychus Creek restoration include the Oregon Watershed Enhancement Board, Natural Resources Conservation Service, Pelton Round Butte Fund, Oregon Department of Environmental Quality and many others.

Conservation Effectiveness Partnership

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RESTORING INSTREAM FLOWS

Deschutes River Conservancy's sustained efforts with the Three Sisters Irrigation District and other water rights holders over many years have led to restoring essential summer flow. The water left instream has provided the year-round streamflow necessary to plan and implement stream habitat restoration.

Up until the late 1990s, Whychus Creek in the city of Sisters went dry one out of every three years during the summer. As of 2019, August flows in Whychus Creek at the City of Sisters averaged 15 cubic feet per second (cfs).

Stream flow restoration has reduced summer stream temperatures, with August temperatures since 2009 measuring 2.3°C lower on average than from 2000-2008.

Between 2009 and 2018, stream temperatures met the state standard for salmon and trout rearing for an average of 79 irrigation season days (57%), compared to an average of 45 days (32%) from 2000-2008.

Given projected impacts of climate change on water resources in Central Oregon, continued monitoring is essential to understand how stream flow restoration is improving stream temperatures for native fish.

LAND PROTECTION HELPS RESTORE STREAM CHANNELS AND FLOODPLAINS

As of 2019, the Deschutes Land Trust had protected 9.5 stream miles and 3,105 acres of historical high-quality spawning, rearing, and floodplain habitat through fee acquisition and conservation easements. They continue to work with willing landowners in priority reaches to develop opportunities for future protection and restoration.

Since 2008, Upper Deschutes Watershed Council, Deschutes Land Trust, and Deschutes National Forest have collaborated to restore 4 miles of stream channel and 350 acres of high quality habitat along Whychus Creek. These projects restored connectivity and enhanced floodplains, raising groundwater levels up to four times, to within 3 feet of the floodplain surface.

Stream channels are connected to the floodplain surface, creating new habitat, promoting channel evolution, and allowing floodwaters to spill across the floodplain so they deposit fine sediment and organic material that nourish riparian vegetation. Riparian vegetation has doubled, from approximately 50 acres to 105 acres over one to five years after project implementation.

IMPROVED FISH HABITAT

Freshwater macroinvertebrates provide essential food for sensitive fish species at various stages of their development. Species known to thrive in lower temperatures are now being found in Whychus, and a diversity of species not previously detected in Whychus are being found following restoration projects, particularly in side and off-channel habitats.

Recent fish monitoring results show that adult Chinook are returning to Whychus Creek, with 10 adults confirmed in Whychus in 2019, a new milestone since the 2009 reintroduction of Chinook to the Upper Deschutes sub-basin. Monitoring data also show that juvenile redband and steelhead habitat use is up to 4 times higher in project reaches than in adjacent, unrestored reaches. In one restored reach, juvenile Chinook habitat use was 37 times higher than in the adjacent, unrestored reach.

CONNECTING FISH HABITAT

Five of six diversion dams that blocked fish passage and fragmented fish habitat have been retrofitted or removed since 2010, connecting fragmented reaches ranging in length from less than a mile to 16 miles. As a result, fish have access to 27 miles of continuous habitat from the mouth of Whychus Creek.

With removal of the final passage barrier, scheduled for 2021, fish will be able to access the full 39 miles of their historic habitat up to Whychus Falls, the natural downstream barrier to fish passage.

ABOUT CEP

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 Oregon Department of Agriculture. In addition, Oregon Department of Fish and Wildlife provides guidance about fish habitat. CEP partners work together to understand, optimize, and communicate the benefit of conservation investments throughout Oregon.

