

## Wood River Ditch Fish Screen

**State(s):** Oregon

**Managing Agency/Organization:** Trout Unlimited

**Type of Organization:** Nonprofit

**Project Status:** Underway

**Project type:** WNTI Project

**Project action(s):** : Fish passage, Riparian or Instream Habitat Restoration

**Trout species benefitted:** Interior Redband Trout

**Population:** Wood River, upper Klamath Basin

**Project summary:** The Wood River Ditch (WRD), Klamath County, Oregon, provides 30 cubic feet per second (CFS) of water delivery to irrigate approximately 2,175 acres in the Wood River valley. Three conventional, fixed-speed irrigation pumps provide water from the Wood River to the WRD. A rotary drum fish screen was installed at the point of diversion on the right bank of the Wood River by the Oregon Department of Fish and Wildlife (ODFW) in 1997; however, the fish screen is in disrepair and no longer prevents native fish, including Redband Trout from becoming entrained in the ditch. In 2016 and 2017, ODFW personnel collected over 400 age-0 and age-1 Redband Trout in the ditch. Furthermore, the point of diversion is located immediately downstream of most Redband Trout spawning habitat in the Wood River. Trout Unlimited (TU) is working with the water users, the landowner, ODFW, the U.S. Fish and Wildlife Service, and the U.S. Forest Service to address these issues. The goal of this project is to eliminate entrainment of native fishes while ensuring water delivery by installing a functioning fish screen and energy efficient irrigation pumps. This project represents an important step in protecting Redband Trout populations in the upper Klamath basin (UKB), reducing energy demand and water withdrawals, establishing collaborative and conservation- focused partnerships with private landowners and water users, and builds upon recent restoration efforts in the Wood River watershed.

**Problem the Project Addresses:** Like many native fish species in western North America, Redband Trout populations have declined over the last century. In the UKB, land-use practices have damaged riparian corridors, reduced stream flows, impacted water quality, reduced connectivity between rearing and spawning habitats, and decreased instream habitat complexity. These factors have led to reductions in Redband Trout abundance in the basin. Ranching and agricultural operations continue to be a main driver of the local economy, and collaboratively addressing solutions to land-use issues that benefit both the ranching and agriculture community and native species in the UKB remains critical. This project installs a functioning fish screen and new irrigation pumps on a 30 CFS diversion on the Wood River to eliminate entrainment of juvenile Redband Trout and other native fish species and increase energy and water savings.

The Wood River originates from springs north of Fort Klamath, Klamath County and is a primary tributary of Agency Lake in the UKB. The watershed is used extensively for cattle grazing from April through October, and numerous diversions were excavated on streams to divert water to an extensive network of irrigation ditches and canals. Many of these diversions do not have fish screens or have fish screens that do not function; therefore, entrainment of juvenile native fish in the irrigation infrastructure is a management and demographic concern. Native fish species present in the Wood River include Redband Trout, Bull Trout, sculpin, and lamprey. The Wood River is listed as Critical Habitat for Endangered Species Act-listed Bull Trout. The WRD was constructed in the early 20th century and delivers 30 CFS of water from the Wood River to approximately 2,175 acres. The point of diversion is located at river kilometer 25 and immediately downstream of important Redband Trout spawning habitat. Three conventional, fixed-speed irrigation pumps deliver water to the WRD. These pumps operate for maximum water flow, which can waste energy and water. New pumps with variable frequency drives will be installed to reduce energy requirements and water withdrawals. ODFW installed a rotary drum fish screen in 1997 at the point of diversion, but it no longer prevents native fish from becoming entrained in the ditch. Salvage efforts in 2016 and 2017 collected over 400 age-0 and age-1 Redband Trout from the WRD. Trout Unlimited and partners have been building momentum over the last two years to address screening needs on the Wood River, and after the successful installation of a fish screen on a diversion 0.75 kilometers downstream from the WRD point of diversion in 2017, the water users and landowner are now interested in investigating options to repair the screen on the WRD and update the irrigation infrastructure.

**Objectives:** The project includes two components: 1) installation of a functioning fish screen and 2) installation of new irrigation pumps. As describe above, the existing fish screen will either be repaired or replaced with a new fish screen, and the existing three irrigation pumps will be replaced with one or two variable frequency drive pumps. A closed conduit will connect the fish screen to the pump station. Because a

preferred alternative has not been selected, further details regarding specific design features are currently unavailable. Funds requested through WNTI will be used exclusively for the fish screen component of this project. There are 9 parcels of private property, owned by five different landowners, which have water rights from the WRD. Trout Unlimited has established relationships with all five water users and will serve as the lead on this project. All water users will be involved in each stage of the project. A letter of support from the water users was included in this application.

**Partners:**

- Trout Unlimited
- Wood River District Improvement Company
- U.S. Fish and Wildlife Service
- U.S. Forest Service
- Oregon Department of Fish and Wildlife
- Private landowner(s)

**Project Monitoring:** The WRD will be electroshocked in the fall of 2018 after installation and in 2019 after one full irrigation season to evaluate whether the repairs to the existing screen or the new screen are successful in eliminating entrainment of native fishes. Monitoring after the first irrigation season will occur on an as needed basis, determined by project partners. ODFW will lead this effort with assistance from TU staff. Under Oregon state statute (ORS 498.306) ODFW is responsible for major maintenance and repair of screen devices operating at sites diverting 30 CFS or less. Therefore, ODFW is responsible for the long-term maintenance of the fish screen. Additionally, TU staff will work with the water users to develop a plan for routine inspections to ensure that the appropriate lifespan of the screen is achieved.

**Funding Source(s):** National Fish Habitat Action Plan

**Project cost:** \$35,000

**Start Date:** 09/01/2018 **Completion Date:** 12/31/2019

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