

Walla Walla County Conservation District

Titus Creek Screen Project



CONTACT INFORMATION:

**Walla Walla County Conservation
District**

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Website: www.wwccd.net

Mission of the Walla Walla County Conservation District

WWCCD is dedicated to the conservation and restoration of the natural resources of Walla Walla County, facilitated by working on a voluntary basis with landowners to identify opportunities and create solutions, while consistently providing education, information, and assistance whenever possible.

WWCCD Vision:

WWCCD believes that many complex environmental problems can be solved through voluntary cooperation rather than by regulatory mandates. We will do this by creating and then implementing proactive programs that respect both the needs of the landowners and the natural resources of the County.

Titus Fish Passage and Screening

Funded by

***Recreation and Conservation Office
Snake River Salmon Recovery***

WDFW Yakima Screen Shop

Walla Walla County Conservation District

2015

The Resource concern:

WWCCD proposed to protect steelhead and bull trout in Titus Creek by screening fish from the upstream section of the creek that is used for irrigation. This section of the creek had many unscreened irrigation intakes and often went dry in winter. The goal was to protect fish in Titus and restore fish passage in a 2 mile long Mill Creek side channel.

Titus Creek is a distributary of Mill Creek originating from a Mill Creek side channel at RM13 in Walla Walla. Historically, the ditch in question has been called Titus Creek, but it is not clear what the historic condition of the “creek” was or what the source was. Today the source is a side channel of Mill Creek, diverted into Titus Creek for irrigation purposes. There are two main sections of Titus Creek; Upper Titus Creek is the irrigation ditch, while Lower Titus Creek starts from an active spring (pond) and runs through the Walla Walla Community College campus, then back into Mill Creek. In the winter, Upper Titus Creek dries up, and had a potential for stranding and fish mortality.

The Mill Creek side channel, on the other hand, provides excellent spawning and rearing habitat for steelhead. Below is a pre-project photo.



Project Overview

Before the project began, water was being diverted into Upper Titus Creek for irrigation by boulders and ecology blocks placed in the Mill Creek side channel. This structure blocked fish up-migration through the side channel and effectively guided out-migrating juvenile fish from the side channel into Upper Titus Creek. There juveniles were at risk from unscreened diversions and the seasonal dewatering of the creek, a potential cause of stranding and fish mortality.



Titus Creek

Mill Creek Side Channel



Landowner, WDFW biologists, district engineer and staff meet with landowner on site.

Implementation

In consultation with concerned landowners and WDFW, WWCCD proposed to design and construct a diversion dam with a step-pool fishway on the Mill Creek side channel. A head gate at the dam would divert flows into Titus Creek for irrigation and would include an ESA compliant fish screen with a fish bypass back into the Mill Creek side channel. The project would include enhanced riparian cover and large woody debris installed in the side channel to improve fish habitat. Lower Titus Creek originates from a spring-fed pond, maintains year-round flow, and would remain accessible to fish. A partial passage barrier in Lower Titus Creek would also be improved to prevent fish from entering the irrigation reach from downstream.

The plan of the proposed project was twofold: First, immediately eliminate fish mortality by installing a modular rotary drum fish screen on the unscreened irrigation diversion on the Mill Creek side channel. This would eliminate the risk to ESA listed Steelhead, Bull Trout juveniles and reintroduced Spring Chinook of stranding in Upper Titus Creek irrigation ditch and provide protection from a “take” situation for these species from some unscreened irrigation pumps operating along the ditch. Secondly, eliminate a fish passage barrier on the diversion which obstructed access between the lower .18 mi and upper Mill Creek side channel which otherwise would provide passage and rearing opportunities for juvenile salmonids.

After the project was approved for funding by the Snake River Salmon Funding Board and the Recreation Conservation Office, the work began. With permitting complete, landowners agreed to the installation of a NMFS approved 5 cfs rotating drum screen at the entrance to the 2.6 mile Upper Titus Creek.



WDFW refurbished the screen at the WDFW Yakima Screen Shop.

The state-of-the-art screen was repurposed and donated by the WDFW Yakima Screen Shop, which also assisted in the delivery and installation of the screen. The screen system would return fish back to Mill Creek through the Mill Creek side channel.



WDFW delivered and helped install the rotating drum screen.



A manmade barrier (consisting of concrete blocks, slabs, and large riprap, used to divert water into the Upper Titus Creek) was removed and replaced by a step-pool type diversion structure. This provided fish passage between the upper and lower portions of the Mill Creek side channel. This area has dense and varied riparian canopy, cold, clear moderately moving water running over a cobbled streambed that are holding some deposited woody debris. Ten Large Woody Debris (LWD) structures were installed along the 1000' length of the Mill Creek channel. These structures mimic naturally occurring LWD structures and should begin natural wood recruitment in the channel. The project area was then planted by volunteers from Walla Walla University with native trees and shrubs.



Landowner and district staff checking installation.



Large woody debris greatly improve habitat for salmonid species.

The final project screens the Upper Titus Creek completely, so salmonids are no longer at risk from irrigation diversions and stranding. The water flow routes fish into the Mill Creek side channel, which was improved with the addition of LWD structures. The project area was replanted with native trees and shrubs. The landowners have expressed their gratitude for a well-planned project that protects fish, improved habitat, and allowed them to continue irrigating without fear of harming endangered fish species.



Large woody debris , left

- Final Costs:
- 128,700.00 Recreation Conservation Office
 - 24,000 .00 Yakima Screen Shop
 - 6,0000.00 WA. Conservation Commission



Large woody debris to improve fish habitat in the completed project.