Yakima Tributary Access & Habitat Program
Summary of Accomplishments

Diversion 14 Fish Passage and Screening, 2003 – Ahtanum Creek

This early action project involved removing a fish passage barrier, screening of an irrigation diversion, setback of a flood control berm, and establishment of riparian habitat. Nine vortex rock weir structures were constructed to provide irrigation diversion control as well as create passage for fish at all flow levels. A 10 cfs rotary drum fish screen was constructed and installed on the diversion to allow for continued irrigation withdrawal. The project also included set back of an 8 foot push up berm away from the stream edge back 75 ft. to allow. This allowed for improved connectivity between Ahtanum Creek and its floodplain and to facilitate establishment of riparian habitat that had not existed previously. Native plant species were implemented throughout the entire riparian area, upstream and downstream of the project site.

Pre-project head gate
Newly installed headgate
Completed rock weirs
Installed rotary drum fish screen
Pellicer Fish Passage, 2004 – N.F. Cowiche Creek

This project involved removal of a 2.5 ft. barrier, instream and riparian habitat improvements, and increased channel/flood flow carrying capacity. NYCD removed an old bridge with an associated abandoned irrigation diversion structure and replaced it with 5 vortex rock weirs to provide fish passage. The stream banks were pulled back and sloped to allow for implementation of erosion control matting and riparian planting. The bridge was replaced with a larger bridge to facilitate the increase in channel size and meet County flood specifications.

Thornton Instream and Riparian Habitat Improvement, 2005 – N.F. Cowiche Creek

This project included instream and riparian habitat enhancement coupled with riparian fencing and the relocation of a confined animal feeding operation out of the riparian corridor. Working directly with the Washington Department of Fish and Wildlife, NYCD designed and implemented instream placement of large woody debris in a neighboring spring connected with Cowiche Creek to improve instream habitat. Approximately 7 acres of riparian buffer was restored with native riparian plant species and protected with riparian fencing. The landowners feeding operation was moved upland out of the newly established buffer to help improve water quality.
Snow Mountain Ranch Barrier Removal and Habitat Improvement, 2005 – N.F. Cowiche Creek

The project included the decommissioning of a gravity fed irrigation diversion and moving the point of diversion downstream to a new pumping station which was outfitted with compliant fish screen. Changes in landuse patterns allowed for part of the existing water right not being used to be placed in trust and remain instream benefiting creek flow. Development and enhancement of side channel habitat and riparian restoration. The decommissioned gravity diversion, which created a 2 ft. fish passage barrier, was the able to be removed. In addition, several push-up berms related to the old diversion were removed or breached, allowing the creek to connect with old side channels during spring high flows. To further enhance instream habitat within the newly activated side channels, 15 rootwads were strategically implemented and 60 cubic yards of spawning gravel was placed within the stream to increase salmonid spawning success. The entire project was planted extensively with native riparian plants.
Garretson Fish Screen and Barrier Removal, 2005–Cowiche Creek

The project addressed a fish passage barrier and irrigation diversion by reconfiguring the existing diversion dam, adding instream structures, and installing a compliant fish screen. NYCD designed and implemented a constructed riffle and rock weir to provide passage over the existing concrete diversion and replaced the irrigation inlet with flat plate fish screen. The irrigation delivery structure was slip lined with PVC pipe to improve conveyance and equipped with a water-measuring device. The entire construction area was restored with native vegetation to improve riparian function.

Lesh Ditch Fish Screen and Barrier Removal, 2006 – Ahtanum Creek

The project corrected a fish passage barrier in addition to installing a fish screen on a gravity fed irrigation diversion. The partial fish passage barrier was modified by installing rock weirs to provide passage for juvenile fish and late season upstream migrating salmonids, increasing fish passage upstream to both the north fork and south fork Ahtanum. The fish screen will screen 2.13 cfs of diverted water and a water-measuring device was installed to monitor the diversionary flow. The project area was planted with native vegetation to improve riparian function and bank stabilization.
Shaw Knox Fish Screening and Off Channel Habitat Improvement, 2006 – N.F. Ahtanum Creek

The project removed an unscreened gravity diversion and installed a compliant fish screen, water metering device, riparian area restoration, and implemented off-channel habitat improvements for salmonid rearing. The unscreened gravity diversion was one of only a few remaining unscreened diversions in the Ahtanum watershed. The project screened the diversion with a rotary drum fish screen, installed a headgate structure, fish bypass and metering device as well as an inlet structure to a current and constructed side channel and pond for off-channel habitat improvement for salmonids. The project was funded by the Salmon Recovery Funding Board, US Fish and Wildlife Service, and YTAHP.

Completed diversion inlet with new headgate

Newly implemented rock weirs

New pond inlet channel and installed outlet with control structure
**Diversion 31 Fish Screening, 2006 – N.F. Ahtanum Creek**

The project removed an unscreened gravity diversion and installed a compliant rotary wiper flat plate fish screen, fish bypass pipeline, metering device and native plant restoration. The screen is at the irrigation diversion point for five water right holders with a maximum water right of 1.3 cfs. Engineering was completed by NYCD engineers with funding provided by the Salmon Recovery Funding Board and YTAHP.

![Completed project with new screen and headgate](image)

**Upper Lust Fish Passage, 2006 – S.F. Cowiche Creek**

This project removed a concrete dam and apron associated with an irrigation diversion to provide passage for adult anadromous salmonids, resident species, and both upstream and downstream passage for juvenile fish. The concrete and ecology block structure was removed and a j-hook weir, in conjunction with 3 rock weirs was installed to provide passage. The associated irrigation diversion was abandoned as part of a larger project completed in 2014 that substituted the irrigators Cowiche Creek water right for a new Tieton River water right. The Cowiche Creek water right was then able to be placed in trust to benefit creek flows. The entire project area was restored with native riparian vegetation.

![Before project](image)  ![After project](image)
The project was a unique opportunity involving three consecutive private landowners on Cowiche Creek. There were similar resource concerns and objectives among these properties which encompassed nearly 2,000 feet of stream. Rootwads, log vanes, toe logs, and a sweeper log were installed to address severely sloughing streambanks, reduce sedimentation, stabilize streambanks, form pools, and increase habitat diversity. Native riparian vegetation was planted along both streambanks to improve riparian structure, minimize solar heating, increase root matrices, and provide a future source of large woody debris for recruitment. Two hardened cattle access/crossings were constructed, several off channel watering troughs, and 4 large work areas were sloped back and erosion control fabric in conjunction with the log structures were installed.
Brown Diversion Removal and Irrigation Improvement, 2008 – Rattlesnake Creek

This project involved the decommissioning and removal of a gravity diversion on Rattlesnake Creek and the transfer of several irrigators’ water rights to the Naches River. The gravity diversion had previously been screened but had fallen out of compliance with newer screening criteria and the fish bypass had gradually filled with rock and debris. To allow the irrigator’s access the new Naches River water right, a ring well and shallow drilled well was implemented on the Naches floodplain, allowing access to water in hydraulic continuity to the river. To compliment these actions, NRCS Environmental Quality Incentives Program funding allowed for irrigation efficiency upgrades to their current system. The existing 1.5 cfs Rattlesnake Creek water right was placed into trust to benefit instream flows and the non-compliant fish screen and diversion structure was then removed, followed by restoration planting of the disturbed area.
Cowychee Ditch Fish Screening, 2010 - S.F. Cowiche Creek

Cowychee Ditch was one of the last remaining unscreened gravity diversion left on Cowiche Creek. As the project was integrated into the Yakima Tributary Access and Habitat Program, local stakeholders and the association that owns and operates the ditch worked together to design and implement a modular rotary wiper flat plate fish screen to prevent the stranding of local trout and salmon species. Implementation included the integration of the modular fish screen into an existing pipeline that was buried over 20 years ago, effectively screening water during the irrigation season. It also refurbished the aging head gate built in the 1930’s and revegetated disturbed areas with native riparian and upland vegetation.
This project brought together the landowner and local stakeholders to correct a full spanning fish passage barrier on the North Fork of Ahtanum Creek. The barrier consisted of a large concrete weir that was built in the 1930’s to measure water in the creek. Besides creating a fish passage barrier in a high priority stream utilized by bull trout, steelhead, and salmon, the weir had degraded, making it structurally unsound and inaccurate in measuring flow in the creek.

To provide passage, the weir was removed and a constructed channel was implemented to create a smooth transition in stream gradient. Over 700 cubic yards of varying sized rock was brought in to reconstruct the streambed and over 30 ponderosa pine rootwads where used to construct log cribs to provide protection from erosion. The successful removal of the weir and implementation of the new channel now provides year round passage for all species and ages of fish. New monitoring equipment will be installed and will allow for real time access to flows in the North Fork Ahtanum Creek.

Existing passage barrier and finished roughen channel

Construction of roughen channel and log crib
Matson Farms Fish Screening, 2012 – Nile Creek

This project removed the only significant diversion on Nile Creek, removed a partial fish passage barrier, and eliminated the possibility of fish entering the existing irrigation system. The point of diversion on Nile Creek was moved to a newly constructed pumping station outfitted with a rotary, self-cleaning fish screen and water meter on the neighboring Naches River, where the water is then pumped through a newly installed irrigation pipeline to the landowner’s cherry orchard. The existing unscreened point of diversion on Nile Creek was then removed and restored with native vegetation. The result of these actions allow for 3.75 cfs of Nile Creek water to remain instream down to the confluence with the Naches River. This will significantly improve fish passage and rearing conditions in Nile Creek, a productive steelhead stream with a large forested watershed.

Diversion Removal and implemented pump station with fish screen

Pipeline installation and bridge crossing
This project consolidated two unscreened gravity diversions into one and installed a compliant fish screen and water meter. The consolidated diversion was screened with a modular rotary drum screen, provided by the WDFW Yakima Construction Shop. A designed roughened channel was constructed to provide passage for all species and life stages of aquatic organisms and to provide water to the irrigation diversion. Screening of these gravity diversions has brought the landowner into compliance with State law, allowed for continued irrigation, and decreased fish entrainment in this high priority stream for restoration of ESA listed Middle Columbia steelhead and bulltrout. The project implemented a 100 foot long roughen channel with incorporated boulder ribs to add stability during high flows; a 2 cfs rotary drum fish screen with fish bypass, controlled by a new headwall and headgate; rootwads to provide stability and roughness during high flows; and installed new habitat features to provide off-channel rearing habitat for juvenile salmon and steelhead.

Irrigation diversion before and after implementation

Testing the fish screen after installation and construction of roughen channel
The project worked with the Cowiche Creek Water Users Association (CCWUA), which is a collective of Cowiche Creek irrigators, to remove two shared points of diversion on Cowiche Creek. This was accomplished by working with the Department of Ecology to create new irrigation water rights from the Tieton River and then creating an agreement with the Yakima Tieton Irrigation District to convey the new water rights through their existing irrigation infrastructure to delivery points located near the CCWUA irrigated lands. From these delivery points, a new pressurized irrigation system was constructed to provide irrigation water to delivery points for the CCWUA. The existing CCWUA diversions on Cowiche Creek were then able to be abandoned and the associated water rights purchased by Trout Unlimited and placed into trust, allowing up to 7.9 cfs of water to remain instream to benefit flow.
Pump Screens – Basin Wide

YTAHP regularly works with irrigators that have a valid surface water right and pump diversion and do not have a WDFW and NOAA compliant fish screen. All pump screening projects are 100% funded through YTAHP and allow for the inclusion of a water meter into the project implementation.

Naches River
- 2 screens
- 0.135 cfs of water screened

Ahtanum Creek
- 3 screens
- 0.84 cfs of water screened

Cowiche Creek
- 22 screens
- 4.96 cfs of water screened

Wenas Creek
- 3 screens
- 1.39 cfs of water screened

Wide Hollow Creek
- 1 screen
- 0.75 cfs of water screened

Rattlesnake Creek
- 1 screen
- 0.4 cfs of water screened