

Fish Screens and UCD Project Examples

**Thriving with Streams and other Water Resources
Workshop
February 22, 2020**

**Carly Lemon, UCD Technician/EIT
Tova Tillinghast, UCD Manager**

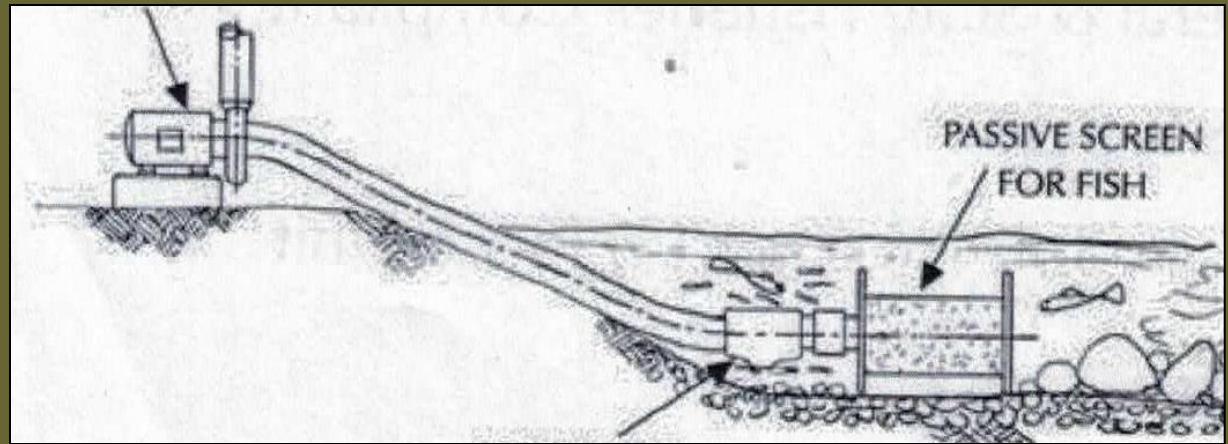


Fish Screen Regulations

- All surface water diversions require a fish screen.
- Washington State RCW 77.57.010 and 77.57.070.
- WDFW provides regulatory authority on fish screen compliance in Washington State.
- Voluntary compliance preferred... UCD can help.

Two Types of Fish Screens: Active and Passive

- Active screens have moving parts to keep screened area clean (example is a rotary drum screen, more on this style of screen when we discuss WSID project).



- Passive screens are self-cleaning, only allowed on diversions less than 3 cfs. Sweep velocity must be higher than intake velocity.

UCD can help upgrade landowners to compliant fish screens

Before:



After:



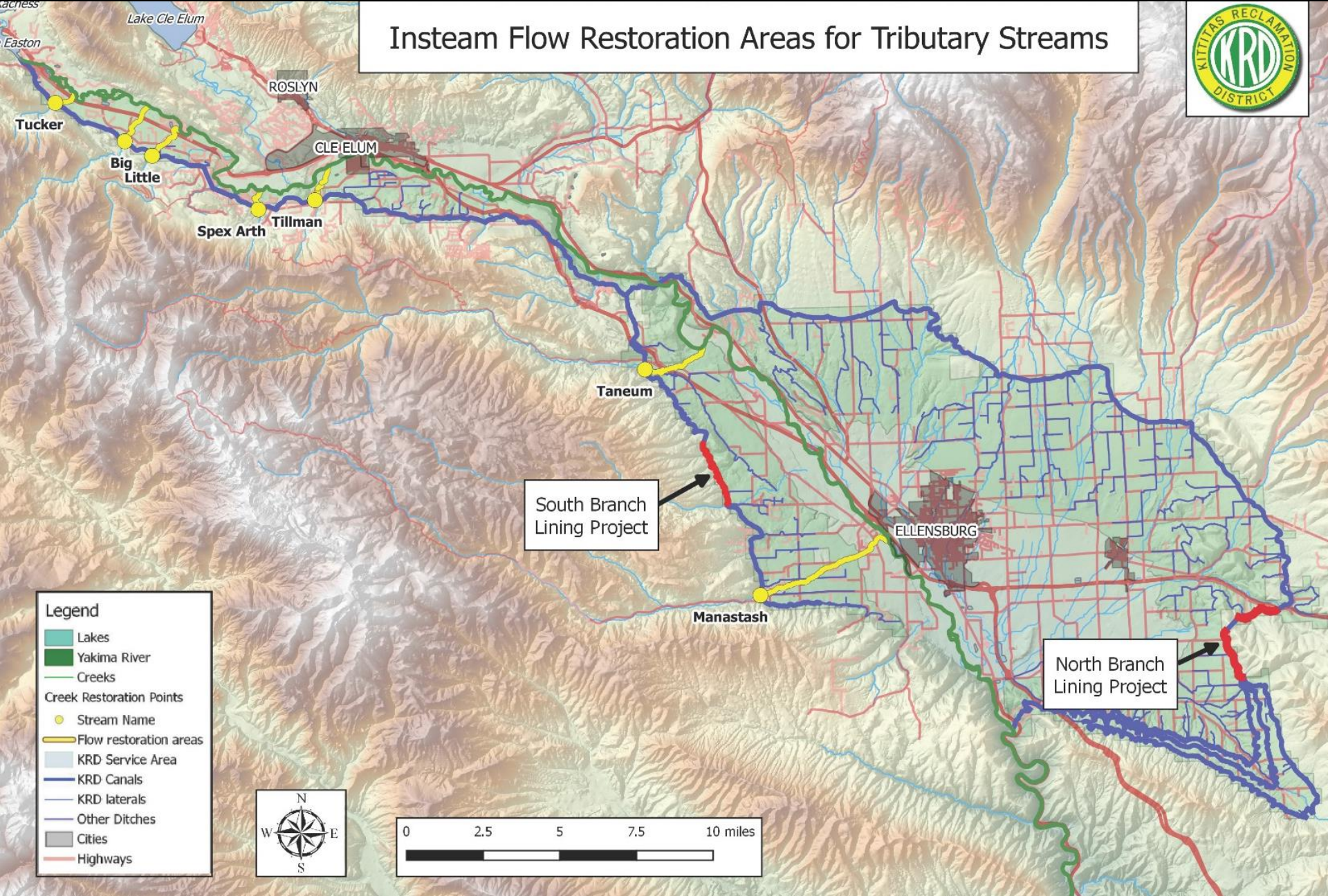
TROUT UNLIMITED & WASHINGTON'S TWRP

- Focus on multi-benefit projects for streamflows, communities, and farms
 - Expertise with water rights and WA's Trust Water Rights Program
 - Work closely with funders and local agencies, like WA Dept. of Ecology to find practical, meaningful solutions
- 
- A wide-angle photograph of a rural landscape. In the foreground, there is a hillside with dry, brownish vegetation. The middle ground shows a large, green agricultural field with several irrigation sprinklers active, spraying water. In the background, there are rolling hills, some trees, and a few buildings under a cloudy sky.
- Projects: habitat restoration, irrigation efficiency, acquisitions, source switches
 - Approach each project with an open mind and willingness to listen

WATER CONSERVATION + KRD + STREAMS



Instream Flow Restoration Areas for Tributary Streams



Legend

- Lakes
- Yakima River
- Creeks
- Creek Restoration Points
 - Stream Name
 - Flow restoration areas
- KRD Service Area
- KRD Canals
- KRD laterals
- Other Ditches
- Cities
- Highways



LOWER WENATCHEE INSTREAM FLOW ENHANCEMENT PHASE II

- Jones Shotwell Ditch Company – irrigation improvements
- Replace old steel pipe and 2.5 miles of open ditch with HPDE
- New VFD pump station with PLC system (demand-based system)
- Irrigator benefits: Energy efficiency, pressurized water delivery, improved O&M, modernized system
- Environmental benefits: Elimination of canal tailwater, significant water savings to the Wenatchee River during critical low flow period



CLEAR CREEK FISH PASSAGE & INSTREAM FLOW ENHANCEMENT

- TU partnership with Thousand Trails Leavenworth Campground Resort
- Replace surface diversion with groundwater well for resort drinking water supply
- Install new supply infrastructure and PLC to operate well system
- Remove diversion dam that impeded fish passage
- Resort benefits: Energy efficiency, decreased staff time input, significant O&M cost savings, improved regulatory compliance
- Environmental benefits: Year-round streamflow, dramatic fish habitat increase



TEANAWAY RIVER – YAKIMA BASIN

Cumulative and Late Season

21 partnerships from Headwaters to Mouth ~ 11.8 CFS



TRANSACTION EXAMPLE: SOURCE SWITCH

Taneum Creek – Yakima Basin

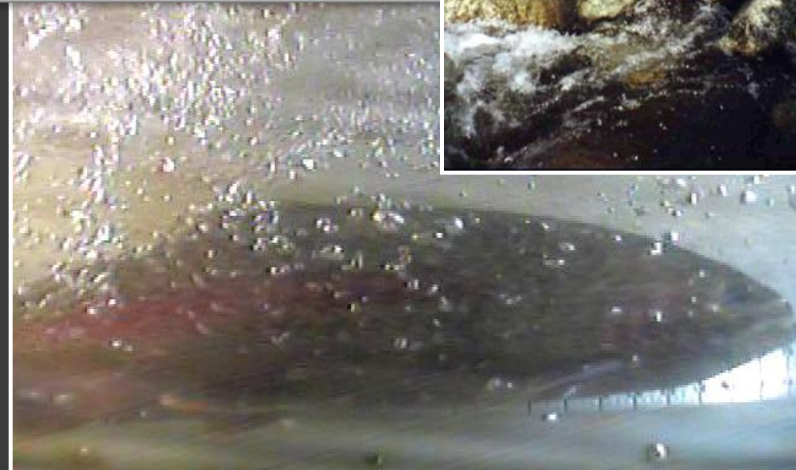
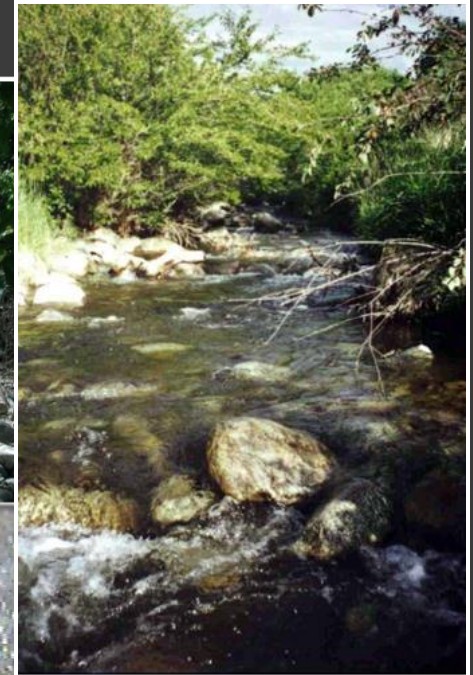
- 2005 Restored 28.8 cfs to Taneum Creek through source substitution
 - Restored access to 30 miles of fish habitat
 - Water users sourced to groundwater
 - Changed 130-yr practice
- 2009 Bruton Ditch source substitution with fish barrier removal
 - 1.9 cfs summer flow



TRANSACTION EXAMPLE: STORAGE RELEASE

Salmon Creek – Okanogan Basin

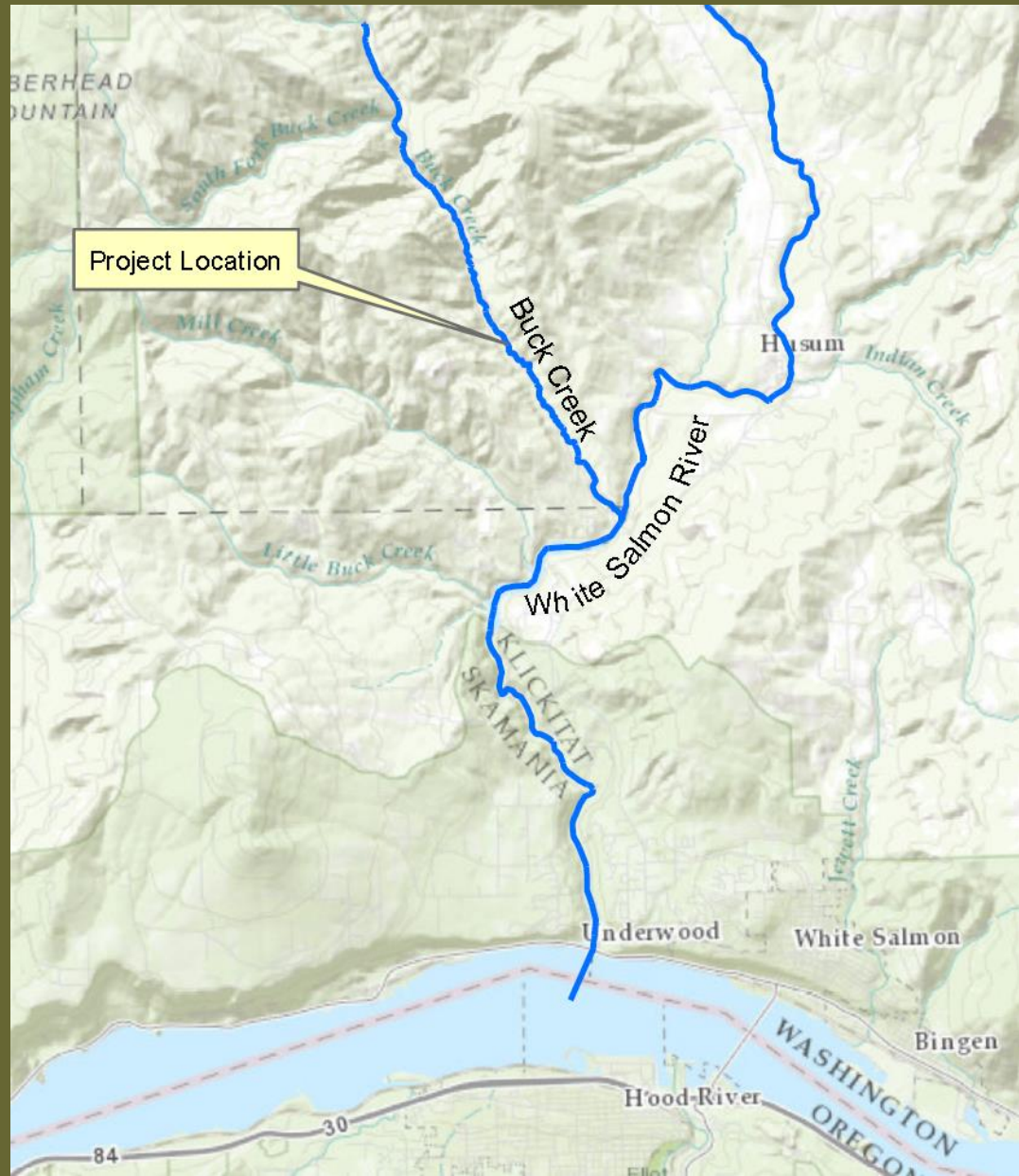
- **Challenge** – For nearly 100 years, Salmon Creek ran dry to serve a 5,000 acre irrigation district.
- **Strategy** – WWT worked with the Colville Tribes and the district to time reservoir releases to the critical flow periods needed for steelhead production.
- **Results** – 1,200 acre feet/year of agreed releases have restored access to the highest-quality steelhead spawning and holding habitat in the Okanogan basin.



White Salmon Irrigation District

- A UCD-coordinated “Irrigation Efficiency Grant Program” project, funded by the State Conservation Commission, WA Dept. of Ecology, and the Salmon Recovery Funding Board
- Introduce Jack Myrick to speak briefly about IEGP program.

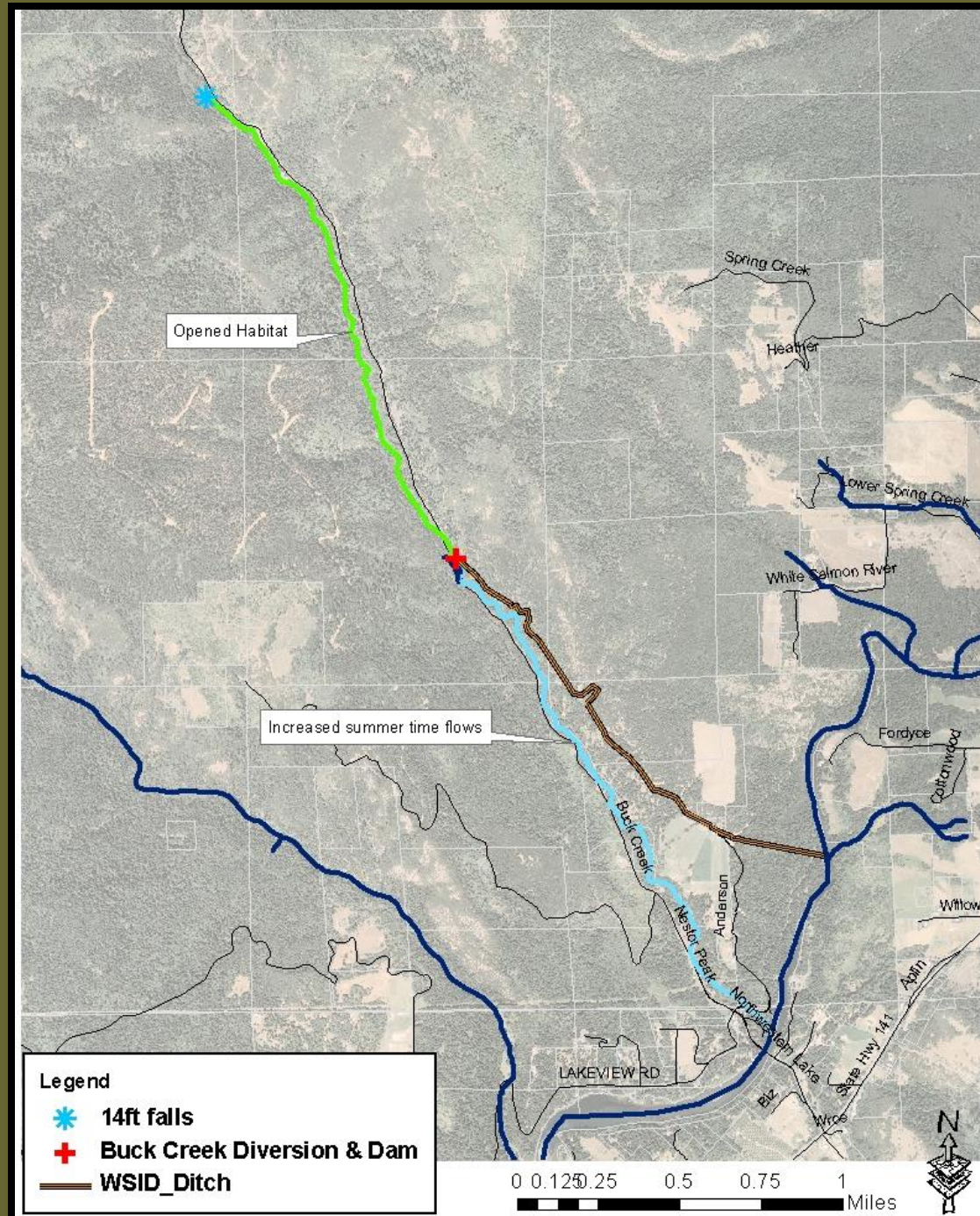
Project Vicinity



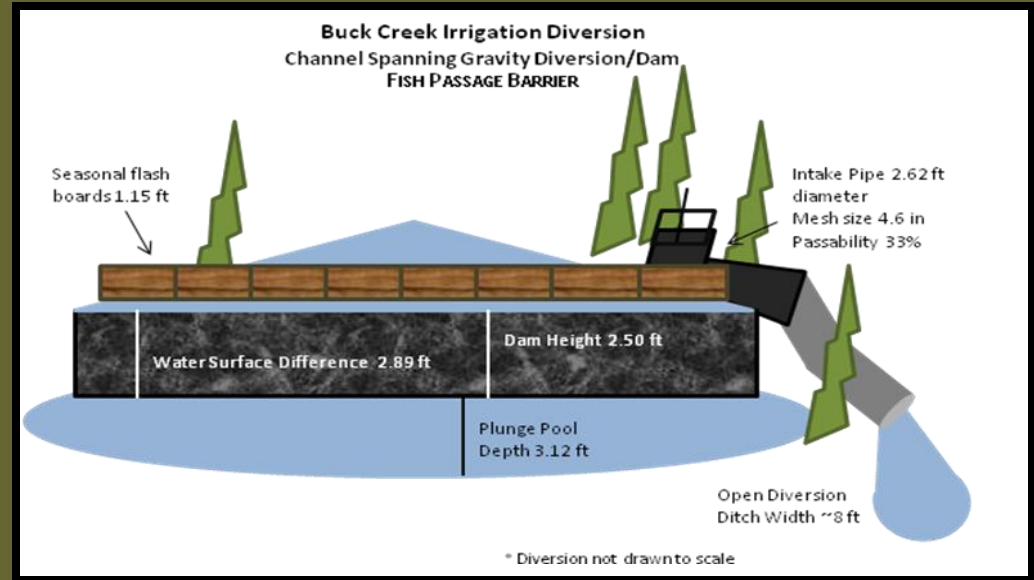
Key Issues

This project:

- Fish Screen - Irrigation diversion was unscreened, possibly allowing fish into the system.
 - Project installed a rotating modular drum screen.
- Fish Passage - Minimum of 1.3 miles of spawning & rearing habitat was inaccessible due to a fish barrier dam in Buck Creek.
 - Project constructed a Roughened Channel for fish passage over dam.
- Water Conservation - 2.39 cfs went into state water trust with the piping of open ditch, turning it into a pressurized, on-demand system.



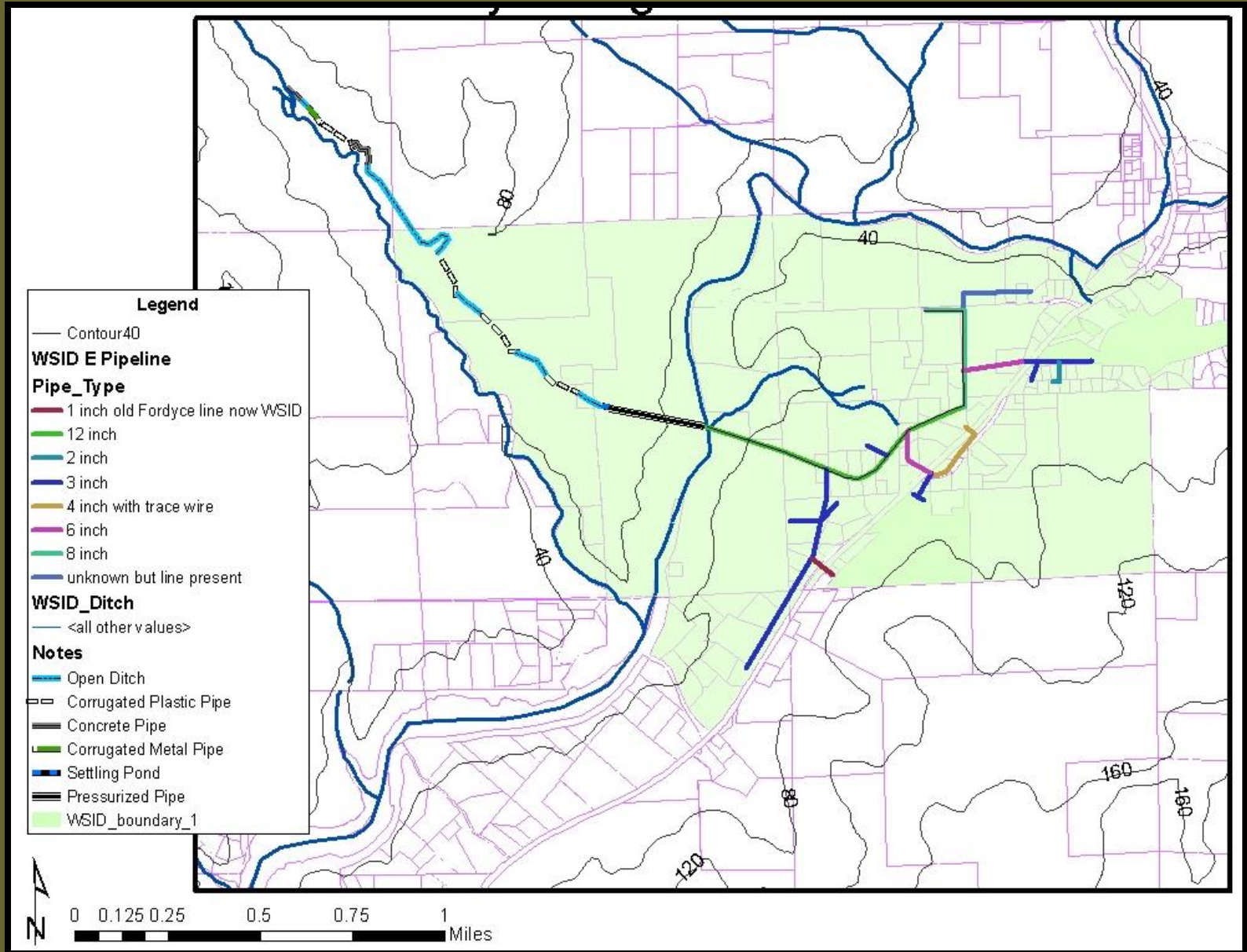
White Salmon Irrigation District (WSID) Diversion Before



White Salmon Irrigation District (WSID) Diversion After



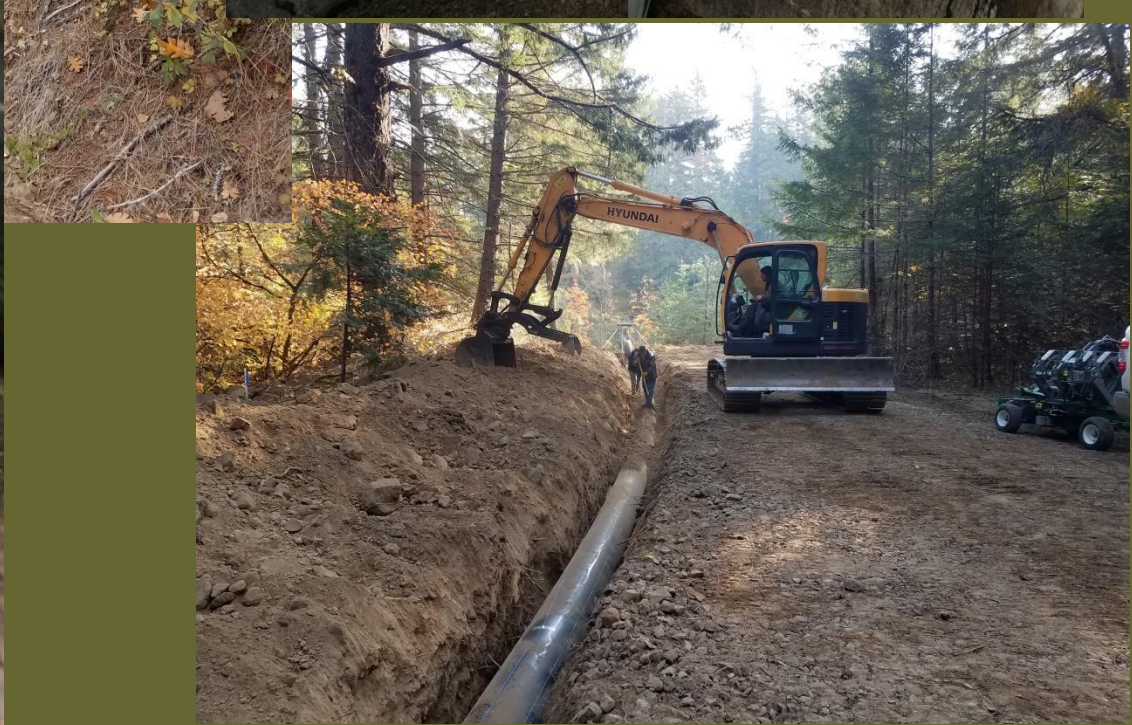
WSID System



WSID Conveyance System Before



WSID Conveyance System After



Ecological Benefits

- Provides fish passage so that salmon and steelhead can access 1.3 additional miles of high quality habitat in Buck Creek.
- Protects fish from being trapped in the irrigation system.
- Conserves clear, cold water for Buck Creek habitat during the irrigation season when stream flows can get low.

Community Benefits

- Provides new infrastructure and a reliable source of irrigation, stock and domestic water for WSID: supporting small-scale agricultural activities for over 90 users and over 400 acres in the Husum area.
- Eliminates WSID's risk of non-compliance with state and federal regulations.
- Demonstrates responsible irrigation water management to the larger community, showing how to balance human use of a natural resource with stream stewardship.



Thank you!