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# Upper Salmon Basin Watershed

NEWS ABOUT RESTORING FISH HABITAT IN CENTRAL IDAHO

Summer 2018

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*Trout Unlimited River of No Return volunteers helping to install Beaver Dam Analogues.*

## **PARTNERS WORK TO KEEP WATER HIGHER IN THE DRAINAGE**

COORDINATOR'S COMMENTS BY DANIEL BERTRAM

Friends and neighbors came together to do something unique – restore a tributary of the Lemhi River that was dewatered for nearly a century. Conservation work on Hawley Creek first began a decade ago when partners within the Upper Salmon Basin Watershed Program began working with landowners and managers in the drainage. This article, however, is not about all of the work that occurred involving irrigation infrastructure or bridges. It is about the North American Beaver (*Castor canadensis*) and how the benefits of beaver can improve habitat for fish and help maintain irrigation water for downstream users.

With all the restoration and irrigation work that has happened, it was still anticipated that Hawley Creek would run dry approximately two out of every ten years. Without any additional irrigation projects left to complete, we began thinking outside of the box. How could we keep Hawley Creek flowing year-round while providing the same quantity, or more, of water to irrigators and aquatic species? That's when a stick was discovered lying in the middle of a dry channel bed that had been chewed on by a beaver and a plan began to formulate.

Studies showed that Hawley Creek would remain connected during dry years until late August when irrigators would turn back on after haying. Our projects had converted the irrigation practices from open flood to closed pivot systems. The pivots are equipped with a freeze protection mechanism which automatically turns the system off when temperatures drop below 35°F, usually in late August. This happens to coincide with when flows are the lowest. When the pivots shut off due to the temperature decrease, water will no longer get diverted from the stream resulting in more instream flow.

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If we could keep the released water higher in the drainage and release it over time, we could achieve a lower but more consistent flow throughout the day much the way beaver dams would alter the hydrology. Realizing that trying to gather support for releasing beavers into the system would be challenging, and that the complete lack of riparian cover to support such activities was prohibitive, we began researching Beaver Dam Analogues. It turns out that through these structures, you can get the benefits of beaver without actually having beavers!

That brings us to April 2017 when partners from the Leadore School District, Trout Unlimited River of No Return, Envirothon kids from Mackay, Salmon Youth Employment and many others came together to put the plan into action. That day did not go according to plan as we were unable to get the structure posts into the ground. A few weeks later though, with much bigger equipment, the posts for five structures went in without problems and the results were amazing!

We had carefully surveyed the area of anticipated flooding that would occur upstream of the structures, but what we didn't account for was all of the flooding that would occur downstream due to floodplain activation, essentially doubling the flooded area.

In order to track if we were meeting our desired objectives, we installed two ground monitoring stations, temperature loggers and flow measurement stations. Fifteen additional structures are planned for installation in 2018. We will continue to update the public on how these structures are performing and how the water quantity and quality has responded.

Funding for the project has been through The Nature Conservancy and Pacific Coastal Salmon Recovery Fund.

Partners include the U.S. Bureau of Reclamation, Trout Unlimited, National Marine Fisheries Service, U.S. Fish and Wildlife Service, Bureau of Land Management, Natural Resources Conservation Service, and Lemhi Soil and Water Conservation District.



*The desirable method for installing the posts is a handheld hydraulic post pounder, however when that didn't work we improvised; spring 2017.*



*Looking downstream at one of the structures installed in winter 2017.*



## WIMPEY CREEK CHANNEL RESTORATION



*Wimpey Creek project site after instream work was completed, November 2017. Photo by Lost River Fish Ecology.*

The Upper Salmon Basin Watershed Program partnered with Trout Unlimited to improve stream function and aquatic resources in the lower reach of Wimpey Creek, tributary to the Lemhi River. The Wimpey Creek Restoration Project maximized ecological site potential through restoring native plant communities, providing preferred habitat for listed fish species, and establishing sustainable stream and floodplain morphology.

Wimpey Creek has one of the stronger populations of wild steelhead in the Lemhi Basin. This project will improve spawning and rearing habitat for steelhead and rearing habitat for juvenile Chinook salmon. The Chinook pull into Wimpey Creek as temperatures in the lower Lemhi get too warm in the summer.

Channel restoration resulted in 4,830 linear feet of improved aquatic habitat, and was accompanied by four acres of selective floodplain grading. The Wimpey Creek channel received a combination of existing channel enhancement (through channel shaping and streambank treatment), channel re-alignment, and new channel construction. Streambanks were treated with woody debris, brush and sod streambank structures and large wood structures.

Constructed floodplain surfaces were lowered to enable more frequent flooding during bankfull events and were enhanced with topographic diversity and woody debris placement. Former stream channels were plugged with excavated gravel and soil and converted to floodplain. New highwater side channels were developed throughout the project area, and newly constructed floodplains and streambanks were seeded with native riparian species.

Funding for this project was provided by Bonneville Power Administration, Pacific Coastal Salmon Recovery Fund, Natural Resources Conservation Service, and Department of Environmental Quality 319 funds. To learn more about the Wimpey Creek project, a video by Lost River Fish Ecology, INC. is available at <https://bit.ly/2GtjyL7>



## FISH SCREENING, KEEPING FISH OUT OF FIELDS

WINDY SCHOBY (IDFG)

Over the past 130 years a network of irrigation diversions and ditches were built in the Upper Salmon Basin. This network of diversions helped to develop and build the agricultural base that we have in Lemhi and Custer counties today. Irrigators, fishermen, and biologists noticed that fish were ending up in irrigation ditches and getting stranded in fields. In 1957 the Idaho Fish and Game (IDFG) Screen Shop began developing fish screens to help keep fish out of irrigation systems. The early focus of the program was on the Lemhi River and later moved onto the Main Salmon and into other local tributaries.



*The S-28 diversion fish screen on the Salmon River near Challis is one of the largest screens in the program.*



*This fish screen was installed on Hawley Creek -03 diversion as part of the cooperative project to reconnect Hawley Creek to the Lemhi River.*

Over the past 60 years the science of fish screening has improved and the program has grown. The IDFG Anadromous Fish Screen Program designs, fabricates, installs, operates and maintains fish screens in Idaho. Currently, the Program operates and maintains an inventory of 275 fish screens in the Upper Salmon River Basin. National Marine Fisheries Service's (NMFS) Mitchell Act and Bonneville Power Administration (BPA) fund the program. Landowners have been willing to work with us and commit to flow agreements and access easements on their property. It has taken years of building trust and relationships with irrigators on private property.

The Screen Program is currently working with partners in 20 tributary watersheds. The projects are focused on getting more water instream at the right time for fish and reconnecting habitat. Without fish screens on the diversions on the Lemhi River we could lose 25-80% of our fish populations as they move down the river systems. Irrigation in the Upper Salmon River Basin is a foundation for our local agriculture economy. The Screen Program is a principle foundation for the recovery of four ESA-listed anadromous salmonids including Chinook salmon, Steelhead, Sockeye salmon, and Bull trout. These fish and our local irrigators are protected

by maintaining the Programs' fish screen inventory. IDFG looks forward to working towards fish recovery and a bright future for our local economies for decades to come.

## HAWLEY AND CANYON CREEK ACCESS AND FLOW PROJECTS

The Upper Salmon Basin Watershed Program partnered with the Lemhi Soil and Water Conservation District to complete two projects essential to salmon and steelhead populations in the Lemhi River last spring. The Hawley and Canyon Creek Access and Flow projects improved streamflow and returned water to a portion of Hawley Creek that ran dry between July and October. The ten mile stretch of the Lemhi River near these headwater creeks is a primary spawning area for Chinook salmon which are listed as threatened under the Endangered Species Act.

Prior to this project, two unscreened diversions, one on Hawley creek and another on Canyon creek, could divert up to 11 cubic feet per second (cfs) of water into open ditches through lands managed by the Bureau of Land Management to the place of use on private land. The original intent was to complete the irrigation projects on Hawley Creek however, due to the nature of the water rights and use practices on private land this objective couldn't be met without also addressing the diversion on Canyon Creek.

With this new focus the goal of the projects was to increase instream flow through irrigation efficiency and replace the diversions with fish friendly structures and fish screens in both of the tributaries. To increase water efficiency, a new irrigation pipeline was installed in the existing ditch channel and the landowner received six new pivots. The combination of water delivery efficiency and water distribution efficiency left an estimated 5.1 cfs of water in Hawley Creek and 1.5 cfs in Canyon Creek.

Ten habitat improvement projects benefitting salmonids in the Lemhi River salmon have been completed since 2012. Those projects removed five culverts, installed four bridges, converted 10.25 miles of open ditch to pipeline, and replaced or removed four channel spanning headgates.

Funding and support for the Hawley and Canyon Creek Access and Flow projects was provided by the Pacific Coastal Salmon Recovery Fund, Bonneville Power Administration, National Resource Conservation Service, Lemhi Soil and Water Conservation District, Idaho Department of Fish and Game, and Idaho Governor's Office of Species Conservation.



*Unscreened diversion on Hawley Creek prior to removal, June 2015.*



*Hawley Creek channel after removal of LHA C-01 diversion, May 2017.*

### Upper Salmon Basin Watershed Program

**Homegrown, Common-sense Conservation**

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NEWS ABOUT  
RESTORING FISH  
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#### WATERSHED CALENDAR

- **Tech Team Summer Training, Stanley:** Aug 28-Aug 29
- **Tech Team Meeting:** Sept 5
- **Advisory Committee Meeting:** Sept 6

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## SANDY CREEK CULVERT REPLACEMENT PROJECT

The Sandy Creek Culvert Replacement Project removed three metal culverts and replaced them with a steel bridge. In October 2016, one of the existing culverts had become entirely plugged, one was mostly eroded, and they were all undersized. The dirt driveway at this location regularly flooded during high water, washing sediment laden debris into Sandy Creek. Since October 2016, the road material at the downstream end of the culvert trio had twice washed out into the creek due to a hole in one of the culverts. Numerous irrigation efficiency projects upstream in the Pratt Creek tributary to Sandy Creek will flush an increased volume of water downstream, exacerbating the flooding issue. The new bridge will pass the increased flows anticipated from Pratt Creek, eliminate a sediment input, and allow fish passage upstream for 0.72 mile.



*Completed bridge; the guard rails are removable so the landowner can move cattle across safely, or drive wide farm equipment across (July 2017).*

The project was permitted by the Upper Salmon Basin Watershed Program, funded by Bonneville Power Administration, and implemented by the Lemhi Soil and Water Conservation District.