Grayling Creek Restoration; a collaborative effort to restore native salmonids in Yellowstone National Park.

Since their early introductions decades ago, Rainbow and Brown trout have spread throughout much of the Grayling Creek watershed within Yellowstone National Park. These resident non-native populations, together with annual seasonal migrations of sizeable Rainbow and Brown Trout from downstream Hebgen Reservoir on the legendary Madison River, have replaced the native Westslope Cutthroat Trout and Arctic Grayling that once made these pristine aquatic habitats their home. Whether it's predation, competition, and/or, cutthroat and rainbow, hybridization, the existence of these non-natives limit opportunities to restore viable native populations. The solution decided upon was to chemically remove all the non-natives and reintroduce Westslope Cutthrout Trout and Arctic Grayling.

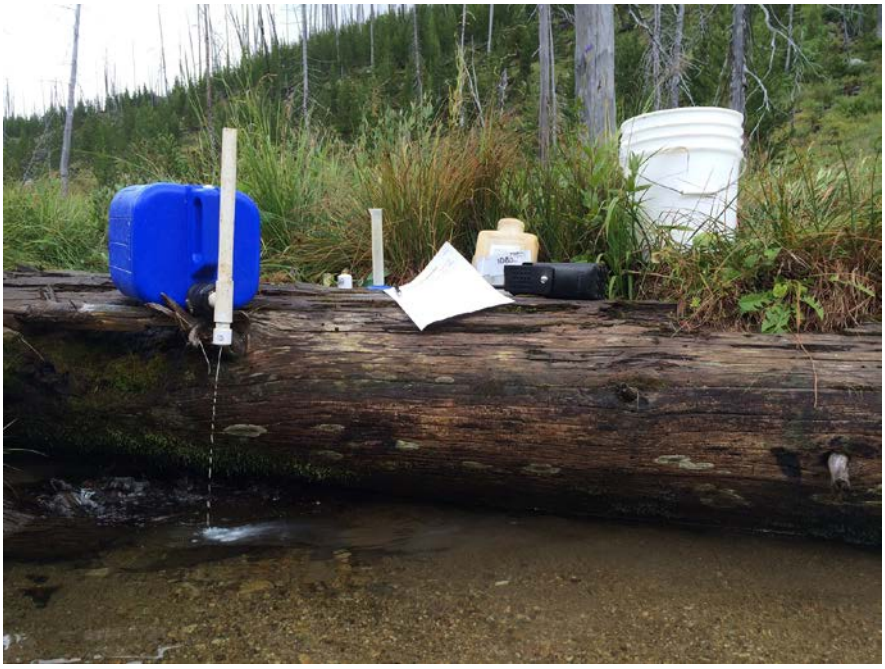
Montana FWCO staff, armed with rotenone and their blue-bucket drip-stations, head into the uppermost reaches of Grayling Creek during a multi-agency native fish restoration effort deep in the backcountry of Yellowstone National Park. The standing dead lodge pole and their fallen comrades blanket the area and provide lasting evidence of the historic 1988 battle they endured during the devastating fires that ripped through the area 26 years ago. But the carpet of grass, sedges and wildflowers and the scatterings of young conifers show that in time, and if given the chance, these wilderness habitats can recover. It's that kind of optimism that drives this valiant conservation effort aimed at restoring two struggling native fishes, the Westslope Cutthroat trout and the beloved Arctic Grayling, to these important aboriginal habitats. *Photo: USFWS/Jim Mogen*

In late August, Montana FWCO employees Jim Mogen, Robbin Wagner, Michael (Josh) Melton, Andrew Gilham, and Jason Marsh assisted the National Park Service with a major, basin-wide, native fish restoration/conservation project in Yellowstone National Park.

This was the second year Montana FWCO staff participated in this three-year, multi-agency cooperative effort.

The goal of this second year of the Grayling Creek restoration project includes removing all fish from nearly 40 stream-miles in the upper drainage through the use of rotenone, a commonly used piscicide (fish poison) dripped from the blue application buckets into the headwaters and all of the numerous tributaries of upper Grayling Creek. Following the two-year treatment, reintroduction of the native fish species will be accomplished through direct stocking of juvenile fish and utilization of RSI's (Remote Sight Incubators) – a proven technology with native salmonid introductions.

To ensure that downstream populations of non-native trout cannot recolonize the treated area, an existing natural waterfall at the lower end of the drainage has been fortified to act as a "fish barrier." Replacing the plunge pool, which allows fish to jump, with a concrete splash-pad coupled with increasing the waterfall crest height and extending it to the walls of the narrow rock canyon will prohibit any upstream fish movement, preventing invasion from non-native fishes into this newly restored habitat.



Carefully calibrated rotenone drip station applying treatment to a small tributary to Grayling Creek. *Photo: USFWS/Jim Mogen*

Bull Trout

In late-July through mid-August, Jim Mogen, Robbin Wagner, Michael (Josh) Melton, Andrew Gilham, and Jason Marsh conducted Bull Trout and Westslope Cutthroat Trout monitoring activities in tributaries of the St. Mary River Drainage. Work included annual stream electrofishing surveys, thermograph recovery and downloads, and habitat analysis.

Robbin Wagner, Montana FWCO (left) and Victor Madplume, Blackfeet Fish and Wildlife Department (right) releasing a threatened Bull Trout collected from Boulder Creek during annual population monitoring efforts in the St. Mary River Drainage, Montana. *Photo Credit: USFWS / Jim Mogen*

In late August, Jim attended a meeting and site visit at the USBR Technical Services Center in Denver where they spent two days testing the recently completed model of the proposed St. Mary Diversion Dam and associated fish passage and screening facilities at various flow regimes. As the St. Mary Bull Trout Biological Review Team Leader, Jim assisted with the testing of the model at various flow regimes and will help to develop design modifications as the project moves towards the 90% design phase.

Proposed St. Mary diversion structure that incorporates fish passage and screens to protect threatened Bull Trout. This physical model was built by Reclamation at a 1:12 scale at their Technical Service Center . The picture is taken from the right bank looking across at the dam, sluice gates, and irrigation intake. The flow rate is simulating 1600 cfs in the river with a 600 cfs diversion. *Photo Credit: US Bureau of Reclamation / Bryan Heiner*

Sikes Act Work at Malmstrom Air Force Base

Planning and coordination are an integral part of the game when working with partners. In addition to updating and revising the Malmstrom Air Force Base Integrated Natural Resource Management Plan (INRMP), August brought a flurry of out-year planning activity. Much of fiscal year 15 and 16 proposed activities are now programmed for potential funding.

Proposed efforts include:

FY15:

- Provide day-to-day assistance to the Air Force related to natural resource issues.
- Continue management of habitat and recreational fishery on Pow Wow Pond.
- Implement invasive plant species control plan in coordination with the USFWS Refuge division.
- Initiate a two-year Greater Sage Grouse assessment at up to 75 missile sites within the 25,000 square mile missile field.
- Finalize INRMP revision/update.

FY 16:

- Provide day-to-day assistance to the Air Force related to natural resource issues.
- Continue management of habitat and recreational fishery on Pow Wow Pond.
- Implement invasive plant species control plan in coordination with the USFWS Refuge division.
- Plant approximately 2-3 acres of trees to create habitat and address erosion issues.
- Initiate a native vegetation restoration effort to improve habitat for native grassland species and to facilitate noxious weed control efforts.
- Complete the second year of the Greater Sage Grouse assessments within the missile field.
- Initiate large mammal surveys within the Malmstrom AFB and missile field to determine presence/absence, include habitat assessments, and provide management recommendations for those species. Survey results will establish the baseline for wildlife management actions at Malmstrom AFB and associated missile field.

Through collaboration among base personnel, Montana FWCO staff, and Montana Fish Wildlife and Parks, this young Swainson's Hawk, found injured on base, was transported to a nearby raptor rehabilitation facility. *Photo Credit: USFWS / Elin Pierce*

Keeping fish in the Nowood River, Wyoming.

Nearly five years after a cooperative agreement was established with the Wyoming Game and Fish Department (WGFD), fish in the Nowood River are protected from being entrained at the Harmony Ditch Diversion.

Wyoming Game and Fish Department records document 17 native fish species, in the Nowood River near the Harmony Ditch Diversion. A 2007 WGFD entrainment study documented entrainment of 13 of these 17 native fish species into the Harmony Ditch. The estimated entrainment rate was nearly 4.2 fish per hour for an estimated loss of 55,415 total fish during the 2007 irrigation season. Of the species entrained, the Wyoming State Wildlife Action Plan recognizes three as species of greatest conservation need (sauger, burbot, and flathead chub).

Initial plans were to reconfigure the Harmony Ditch Diversion control gates with fish screens and provide upstream passage at the diversion weir. However, complications, associated with designs and funding constraints resulted in the project being broken into two phases. During August 2014, the fish screening phase was completed.

New concrete water control structure with two 8 foot diameter cone fish screens and associated control gates, center bypass channel and control gate, and 4x4 inch stop logs installed during winter for ice protection. *Photo: Wyoming Game and Fish Department*

Cone Screens with hydraulic lines that control the rotating cleaning brushes ready for final connections. *Photo: Wyoming Game and Fish Department*

Cone screens installed, hydraulic lines placed in conduit running up the headwall, and stop logs installed for final testing.
Photo: Wyoming Game and Fish Department