

A group of five people, including U.S. Fish and Wildlife Service and Yakama Nation personnel, are wading in a shallow stream. They are using long-handled nets to catch fish. The stream is surrounded by lush green vegetation and trees. The background shows a forested hillside under a clear sky.

Restoration Makeover for the Upper Hancock Spring Channel

by Leonard T. DeShield, Jr.

U.S. Fish and Wildlife Service and Yakama Nation personnel conduct defishing activities prior to construction on the Upper Hancock Spring Channel.

Photo Credit: USFWS

The road to recovery for threatened and endangered species can be difficult, uncertain, and long. Sometimes however, a partnership opportunity comes along with such potential upside, that six years of professional investment suddenly seems like no big deal. In the case of a team of dedicated, biologists in north-central Washington, perseverance and tremendous personal dedication resulted in a restoration project that is hugely successful.

In 2005, John Jorgensen, a fish biologist with the Yakama Nation Tribe, embarked on a mission to carry out a habitat restoration project on private lands in the upper Methow River Basin in Okanogan County, Washington. Joined in 2008 by Robes Parrish and Peter Jenkins, restoration specialists

with the U.S. Fish and Wildlife Service's (Service) Mid-Columbia River Fishery Resource Office in Leavenworth, the trio developed a comprehensive plan to completely restore habitat in a degraded spring near North Cascades National Park. Hancock Spring is a small, but locally rare wetland approximately 19 acres (9 hectares) in size – equivalent to 18 football fields – that they believed had great potential habitat for fish and wildlife, including the endangered Chinook salmon (*Oncorhynchus tshawytscha*) and threatened steelhead trout (*Oncorhynchus mykiss*). A century of dairy and livestock overgrazing and trampling had severely damaged the streambanks and all of the formerly good spawning and rearing habitat was silted-in. The lack of natural sediment supplied from upstream prevented the

system from healing itself, allowing non-native fishes to thrive and compete with native fish.

Initial efforts to use heavy equipment to rebuild the stream were met with reluctance from environmental regulators who believed the construction impacts would negatively affect fish downstream. So instead, Jorgensen decided to use a series of low-impact actions to incrementally improve habitat. This included cattle and deer exclusion fencing, riparian plantings, and hand-placing large logs in the stream to try to narrow the over-widened channel. Replacement of a downstream culvert and the removal of a surface irrigation diversion also helped to return native fish to the stream. These efforts delivered exciting and immediate results – the

largest concentration of steelhead trout spawning in the Methow Basin observed the first year.

After teaming-up with the Service biologists, the group used this early success to show regulators that the long-term benefits to endangered fish justified the short-term impacts from mechanized construction. After obtaining the necessary permits, the group was ready to start the second phase of the project, which called for an off-road “slinger” to shoot fill up to 100 feet (30 meters) into the stream to create a new 6-foot (2-meter) wide channel inside the former 80-foot (24-metre) wide prism. Wetland plant seed were hand-collected from the site and grown for two years in Idaho so that it could immediately stabilize the new fill. A complicated dewatering system was developed and all of the machinery was required to operate on construction mats to protect wet soils and existing riparian vegetation. After a month of construction in August 2011, water was returned to the channel and adult

An all-terrain “slinger” helps place spawning gravel in constructed riffles. All construction equipment was required to enter wetland areas on construction mats to limit impact to soils and vegetation.

Photo Credit: USFWS



Chinook salmon were observed using the new habitat within two hours of completion.

The next phase currently underway is to collect highly detailed physical, chemical, and biological data for several years. Once this baseline monitoring is completed, the Yakama Nation and scientists from the University of Idaho will then conduct experiments to evaluate the effects of adding nutrients to both the restored and untreated reaches to understand how this may also be limiting fish production. The baseline information gathered will also quantify the effectiveness of restoration and inform the next phase of channel reconstruction downstream, currently slated for 2015. This study will provide some of the most detailed data available in the field of conservation biology on how specific restoration actions may directly increase salmon populations.

This partnership effort successfully overcame difficult obstacles to become the premier restoration showpiece in north-central Washington. “Our experience at Hancock Springs shows how a close partnership and in-house technical capabilities can produce a very high-quality restoration project that is extremely cost-effective,” says Robert Parrish, a fish biologist in the Service’s Mid-Columbia River Fishery Resource Office. “We utilized some innovative construction techniques and held a strong commitment to protect existing resources by maintaining control over every level of planning, design, and implementation. We completed the project at about one-third of the cost if we’d contracted most project elements – a great value for our investment.”

As a result, both steelhead and spring Chinook salmon have returned to spawn in great numbers this year, and a considerable number of threatened bull trout have been found in the restored reach for the first time ever. The growth rates on fish in the restored section are



Top: Decades of uncontrolled livestock-use trampled bank and created an over-widened channel with no sinuosity or channel complexity. At this point, there was no documented use of native salmonids within the spring creek.

Bottom: Restored pool-riffle habitat following construction. Note abundance of wood placed in deep pools below water surface. Chinook salmon were seen using this pool within 24 hours following construction. *Photo Credit: USFWS*

almost double those downstream and in the much larger nearby Methow River, suggesting that these efforts are paying off in ways that couldn’t have been predicted.

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