

Featuring:

**Bull Trout
& the 4-C's**

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www.bonnierswcd.org

BULL TROUT: The Canary in the Coal Mine and the 4-C's

For years, coal miners kept a canary underground because of the bird's sensitivity to poisonous gasses. A dead canary warned the miners to immediately seek clean air.

In some regards, Bull Trout play a similar role in Lake Pend Oreille tributaries including the Pack River. Of all native salmonids (trout and char), Bull Trout require the cleanest, coldest water conditions to survive. In turn, a strong Bull Trout population represents beneficial habitat conditions for Westslope Cutthroat Trout, another native species.

vegetative shade over streams maintains **cold** water temperatures.

Bull Trout have a migratory life cycle in which spawning and juvenile rearing occurs in streams with adults growing and maturing in Lake Pend Oreille. The lower reaches of Pack River, for example, provide a necessary migration corridor that must remain **connected**. Human created obstacles such as culverts and "recreational dams" can disrupt this important passageway.



Bull Trout
~ Washington
Dept. of Fish
& Wildlife

Fish biologists coined a term called the **4-C's**: **Clean, Cold, Connected and Complex** to describe the habitat requirements for Bull Trout.

Spawning gravels must be free of excessive sediment. Our forestry, agriculture and land development practices reduce soil erosion by implementing Best Management Practices and ensuring **clean** water. Maintaining

The fourth "C" represents **complex** habitat formed by deep pools, undercut banks and large wood for shelter and protection for fish.

As you travel along the Pack River, look for the **4-C's** that create ideal habitat for Bull Trout, Westslope Cutthroat Trout and other aquatic species.

~ Bill Love, President of the Panhandle
Chapter of Trout Unlimited

Restoration Opportunities for the Pack River

Idaho Department of Fish and Game in partnership with Avista and the Pack River Watershed Council, recommended that a habitat assessment be conducted in the upper Pack River watershed to identify specific conservation and restoration opportunities to benefit Bull Trout, a threatened species, and other native fish. The habitat assessment was completed last fall.

The assessment found that while the upper Pack River and McCormick Creek currently support populations of Bull Trout and West-slope Cutthroat Trout, aquatic habitat conditions are degraded and in need of improvement. A process-based restoration strategy was developed to **protect, conserve, reconnect and restore** the upper Pack River and its tributaries.

Protection is the most efficient and cost-effective restoration strategy over the long term, especially in combination with restoration actions that address degraded conditions in the short term. Through partnership with land managers and willing landowners, the Pack River and its tributaries should be protected against further habitat degradation.

Primary **conservation** actions identified for the Pack River and McCormick Creek watersheds include working with land managers and willing landowners to reduce sediment delivery to stream channels; increase the availability of large wood recruitment to the stream channels; and improve water quality. There are also many types of conservation programs available that help willing landown-

ers with sustainable land use practices.

Several opportunities were identified to improve habitat **connectivity** for both migratory and resident fish. Opportunities include replacing culverts which impede fish passage, reconnecting tributaries to the main channel, and reducing the presence of recreational dams.

The assessment analyzed reach functionality and identified habitat limiting factors for fish. This analysis was the basis for developing **restoration** opportunities for each reach. Most reaches are lacking habitat complexity and would benefit from the addition of large woody debris. Other restoration opportunities include side channel enhancement, bank protection, and riparian revegetation.



Fish passage barrier

“Last year I went fishing with Salvador Dali. He was using a dotted line. He caught every other fish.”

~ Steven Wright

Resources Available for Landowners

What is the Environmental Quality Incentives Program?

The Environmental Quality Incentives Program (EQIP) is a voluntary US Department of Agriculture conservation program administered by the



Streambank stabilization project on the Pack River incorporating large woody debris to enhance fish habitat.

Natural Resources Conservation Service (NRCS) that provides federal match funding to eligible projects that support forestry, wildlife, agriculture and water quality enhancements or protection.

EQIP is offered to private landowners and managers, and can provide 50 percent in cost-share funds for completed projects. NRCS offers many programs, but they are also available as a cost-free resource for consultation and technical assistance.

Contact Greg Becker, NRCS District Conservationist at 208-263-5310 ext. 104 to discuss which programs you may qualify for.

Preventing Aquatic Invasive Species in our Waterways

It has been a very busy boating season this summer with some of the highest boating traffic we have ever experienced in the history of the Aquatic Invasive Species (AIS) boat inspection program. This year, Bonner Soil and Water Conservation District managed three boat inspection stations in Bonner County.

As of September 21st the station at Albeni Falls conducted 11,494 boat inspections, with 3 boats intercepted from mussel infested waters. The Samuels station inspected 9,158 boats and intercepted 15 boats from mussel infested waters. The Clark Fork station inspected 8,071 boats and intercepted 10 boats from infested waters.

So far in the state of Idaho this year, a total of 2,230 boats from mussel infested waters have been intercepted. 31 boats were contaminated with mussels. Fortunately, all mussels observed have been non-viable dead mussel shells.

The inspection stations in Bonner County are scheduled to close on Sept. 30th.



Invasive zebra and quagga mussels (Colorado Parks & Wildlife)



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“The mission of the Pack River Watershed Council is to improve water quality and riparian habitat in the Pack River watershed for people, fish, and wildlife through education, collaboration, and cooperative projects.”

Thanks to Avista Watershed Council Funding, we are able to print and distribute this newsletter.