



Check out the new name for our newsletter! The Watershed Wrap is now the **q'e'yminn he 'ulhnsikwe'n**. The translation in the Coeur d'Alene language is, "about the Watershed". The term for watershed meaning literally everything belonging to the watershed: the water, people, plants, fish, wildlife, cultural uses and air, as well as the impact of our activities!

# WATERSHED WRAP

Semi-annual newsletter from the Coeur d'Alene Tribe's Fish & Wildlife programs describing watershed management efforts. Offering readers food for conversation and paper for wrapping!

Spring / Summer 2015

(Vol. 17 No. 1)

## Tribe moves ahead with pike management in Windy Bay

By Angelo Vitale, Fisheries Manager and Jon Firehammer, Fisheries Research Biologist

Beginning earlier this spring, the Coeur d'Alene Tribe Fisheries Program began a long planned for expansion of its recovery program for westslope cutthroat trout by focusing attention on management of northern pike in Windy Bay, where Lake Creek enters Coeur d'Alene Lake. Lake Creek is just one of several tributaries that have been the target of a decades long effort by the Tribe to reestablish sustainable cutthroat populations and provide harvest opportunities for this iconic native species. Until recently, the cornerstone of the program has been improvement of water quality and habitat in the tributaries that are most important for spawning and rearing during the early years of these fish's life.

The need for this latest effort, which was endorsed through a resolution signed by Tribal Council, has been building and was probably inevitable, given the results of intensive monitoring and research that has

shed some light on the interactions between trout and these non-native predators in recent years. Northern pike were illegally introduced to the chain lakes along the Coeur d'Alene River in the 1970's, but have since come to occupy much of the slow water habitats throughout the lake and lower rivers. A multi-year dataset collected by the Fisheries Program has indicated that only a small percentage (~2 %) of



*Fisheries Technician, Bryan Harper, holds a northern pike removed from Windy Bay earlier this spring.*

juvenile cutthroat trout that leave the reservation streams to go to the lake are returning to their natal streams to spawn as adults. Further research suggested that an estimated 300 northern pike in Windy Bay may be consuming as much as half of the cutthroat trout that could be potentially returning to spawn annually in Lake Creek. A strategy was clearly needed to help cutthroat pass through this predator gauntlet.

The Tribe is now deploying gill nets as the preferred method for removing pike from Windy Bay. Approximately 1,500 feet of nets are set early in the morning and then retrieved after soaking for 4-5 hours. Fish moving through the bay are selectively caught as they become entangled in the nets. The nylon mesh that comprises the nets has been sized to minimize

capture of cutthroat trout while capturing a high percentage of the large pike (ages 2 and older) which are the size classes predominantly feeding upon cutthroat trout and make up the spawning population. It is important to remove these fish prior to when they spawn. Thus, the effort will continue over the course of approximately six weeks in March and April for the next three years and could involve capture of up to 300 or more northern pike. If the program is effective at bolstering the migratory cutthroat population from Lake Creek, then the Tribe would continue to monitor the populations and use results from the program to inform the level of effort required to keep pike predation on this population in check.

The State of Idaho expressed some concerns with the Tribe's proposal early on, citing the popularity of the emerging pike fishery with some anglers. However, during each of several public meetings held over the last year, several themes began to emerge. First, there was wide spread interest and support for recovering the cutthroat trout fishery, as well as, recognition of the investments made by the Tribe in this regard. Secondly, while the impact of pike on cutthroat in Windy Bay is now well documented, the bay is not among the most sought after fishing spots by anglers, owing in part to its remoteness and the relatively few pike present. All of these factors have compelled the Idaho Department of Fish and Game to lend their support to the Tribe's work. Jim Fredericks, Regional Fishery Manager for IDFG has stated, "the Department is supportive of testing whether pike removal is effective in improving cutthroat trout survival, but is also interested in incorporating procedures to minimize the impacts to the popular northern pike fishery". This endeavor in co-management is an important development, given that recovery of the Lake Creek fishery is just one step in meeting the overall recovery goals set by the Tribe, and the Tribe's interests extend throughout its ceded territories where developing partnerships becomes increasingly important and necessary.

Early results from the pike removal effort in Windy Bay have been encouraging. Because of the unusually warm weather and the fact that increasing water temperatures during late winter cue reproduction in pike, the Tribe started setting gill nets earlier than expected to ensure that most of the pike were removed before they spawned. Netting began March 12 and over the first two weeks of effort the Tribe removed 160 pike. This is approximately half of the number of age 2 and older pike that were estimated to reside in Windy Bay. Initially, many of the pike were captured at depths of 15 to 30 feet, but toward late March when

water temperatures were starting to rise, pike were more often caught in nets set in shallow areas of the bay. Given that shallow, vegetated habitats are preferred spawning areas for pike, it is likely that pike are starting to concentrate in these areas for reproduction. Fortunately, shallow, vegetated areas are not that extensive in Windy Bay. Thus, removal efforts through early April were more focused, saturating these limited areas with gill nets to capture as many mature pike as possible.

It was also encouraging to find that other species of fish were infrequently caught in gill nets. Two-thirds of all fish captured during removal efforts in March were northern pike, with native suckers and pikeminnow the next most common species found in the nets. More importantly, only five cutthroat trout have been captured by the Tribe's gillnetting efforts. Because of the short amount of time the nets have been allowed to soak before their retrieval, all captured fish were alive upon release back into the lake. Thus, the gillnetting efforts predominantly captured the targeted species, northern pike, with minimal impact to other species of fish. Stay tuned for future editions of the Watershed Wrap for a full summary of the first year of northern pike suppression in Windy Bay.

We are looking forward to writing the next chapter in this recovery effort and are hopeful that cutthroat will soon respond to this work by returning to Lake Creek in increasing numbers.

The most desired outcome is to find ourselves in the position to open the Lake Creek cutthroat fishery after a nearly 25 year moratorium on harvest. ♦



## Responsible use is key to wildlife habitat protection

*By Gerald I. Green, Wildlife Biologist*

Protecting property from damage is one of the fundamental responsibilities of land management. Ruts and trails left by vehicle and ATV traffic on properties that the Tribe has purchased in the Hangman Creek watershed represent more than just damage to the land surface. Several of these properties were purchased to protect their value as fish and wildlife habitat and unrestrained vehicle traffic results not only in damage to soils and vegetation but serious disturbance to the fish and wildlife resources that these properties are intended to promote. In a number of cases, we are finding evidence of vehicle traffic that could compromise the purpose of these properties. We have witnessed vehicles moving across

fields at odd hours to odd destinations. We've even seen multiple vehicles stuck in wet, open fields far from the county road. This kind of use leaves deep ruts and poses a real challenge to managing these properties for their intended purpose.



*Photo of a pair of gates installed to provide controlled access at the boundary of one of the Tribe's fish and wildlife properties.*

Recently the Tribal Wildlife Program began installing gates at preferred access points to minimize the damage to properties managed for fish and wildlife habitat. The intent is not to exclude use, but rather to encourage more responsible use and ask people to respect the intended purposes of these lands. Two gates were installed along Old Sanders Road, three along Sanders Road and one on Toland Road. Much work is yet to be completed to improve the fish and wildlife habitat on these properties. In order to accommodate the heavy equipment needed for some planned habitat improvements, four of the gates are double wide, with two gates installed that meet in the middle.

The Wildlife Program has made significant investments in planting native vegetation in areas that were previously used to produce hay and grain crops. Also the Fisheries Program has initiated some extensive stream restoration efforts. All of these activities could easily be compromised if access to the properties is not controlled and even a few people overlook the need for responsible use. Gates were installed this spring during the period between wet season planting and more intensive restoration efforts, which are scheduled for the driest part of the year. Additional fencing between the gates may be installed to prevent vehicles and ATVs from simply going around the gates, but that will have to wait until the scheduled habitat restoration efforts are completed. Perhaps by winter of next year staff will have another

opportunity to install fencing to serve as additional habitat protection. Your cooperation in preserving the values of these properties is greatly appreciated! ♦

## Winter ticks

*By Cam Heusser, Wildlife Manager*

Every winter the Wildlife Program receives reports of moose that appear to be unhealthy. The usual cause of this is the winter tick. This is a different species of tick from what is commonly found in the spring in this region, and specifically targets deer, elk and moose. This species of tick does not target people, and for some reason, they appear to be harder on moose than on the other big game species.

Moose will typically become infested with tick larvae in late summer and fall. These young ticks will molt into nymphs in November, and spend the winter feeding on the moose's blood. In mid-February, the ticks will molt one more time into adults, and numbers usually peak in late March. Moose can be infested by up to tens of thousands of these adults at one time. By late March and early April, adult ticks will start dropping off of the moose, and the females will lay eggs that hatch in the summer and start the process again.

These parasites can have a number of negative consequences for the moose. One of the most obvious signs of tick infestation is the loss of hair. Hair loss is usually a response to the irritation



caused from the ticks' feeding on the animal. Moose will groom themselves by licking, scratching and rubbing in an attempt to provide relief from the itching. Patches of broken hair and complete hair loss is common around the neck, shoulders and rump, and these areas will sometimes appear white in color due to the lighter coloration of the hair shaft. This hair loss occurs at a time when moose are already experiencing stress and increased energy demands due to the colder temperatures. With less hair to insulate themselves from the cold, it can make it more difficult to survive. They can experience weight loss, develop anemia and experience low protein in their blood serum if enough ticks are present. Winter ticks can lead either directly or indirectly to the death of the animal.



*A close-up photo shows feeding adult ticks on a moose.*

There are no known risks to humans from the winter tick. This species of tick does not carry any diseases that can be transmitted to humans. In addition, if a hunter happens to harvest a moose that is infested, the meat is still safe to eat. If anyone happens to come across a moose that is experiencing these symptoms, it is best to keep your distance and not stress the animal any more than it already is. Hopefully the ticks will drop off soon and the animal can begin to regain its strength as spring progresses. ♦

## **'ulchiqi'ts'u'Imkhw—The land is regenerating**

*By Barb Scaroni, Forester*

**T**he Coeur d'Alene Tribe Forestry Program was recently awarded monies through the Bureau of Indian Affairs Tribal Youth in Forestry Program to implement a two-year project with local students. The old Powwow grounds in Tribal Allotment 633 between Plummer and Worley will be mapped, inventoried, and a resource management plan will be developed by students with guidance and direction provided by Tribal Natural Resource professionals. Instruction will include identification and management of riparian zones, managing to maintain sustainable forests under predicted climate change conditions, and providing and improving existing wildlife and fish habitat.

During the first season, students will implement forest management through timber harvest including silviculture prescription development, timber marking and cruising, safety lessons, tree falling, bucking into log lengths needed for future projects, skidding, and decking logs under the direction of trained professionals. Students will be involved as much as possible in these activities, emphasizing safe working conditions and age-appropriate use of tools and equipment. Logs will be run through an on-site

portable sawmill to create boards. The lumber produced will be stacked and dried.

During the second season, carpentry skills will be taught, with the students learning to construct two tiny, but livable houses with boards milled the previous season. Also, local on-site materials will be used to build historic structures such as were used by the Tribe as dwelling places many years ago. These will be used to compare current building processes with traditional ones and their impacts on the environment.

Planning is underway to get this project started. It is expected that 3 to 5 youth, 1 to 2 college students, and a project manager will be hired within the next few months. Interested parties should contact the Forestry Program for more information on how to participate. ♦

## **A groundwater revival for Hangman Creek?**

*By Gerald I. Green, Wildlife Biologist*

**I**n August 26, 1872, Captain George B. Sanford of the U.S. Army described Hangman Creek near what is currently Sanders, Idaho as, *“running swiftly & the water seems to be good. There is no doubt as to the constancy of the supply, as this is the dryest (sic) year within the memory of settlers & the supply is abundant”*. Since flows in the third and fourth weeks of August are among the lowest flows expected in Hangman Creek, this description by Captain Sanford leads us to believe that at one time, flows in Hangman were abundant and consistent throughout the year.

This is not at all what we see today in Hangman during August. Currently, August flows in Hangman are a trickle, if there is any flow at all between the frequent, deep and often stagnant pools of water. Reed canary grass grows tall in the full sun on either side of the unshaded channel. These conditions are not conducive to the production of native fish. In fact, the Tribal Fisheries Program has documented seasonal avoidance of the mainstem of Hangman Creek by trout, where late winter/early spring floods carry a surprising amount of sediment and summer water temperatures are high and oxygen levels are low.

What is particularly unusual about Hangman Creek as it flows from the area of Sanders, Idaho, down past the communities of DeSmet and Tensed is the separation of the stream from any aquifer source. In other words, there is no vast underground source of water to keep Hangman flowing through a dry spell. The deep loess soils of the Hangman watershed do have the potential to hold water like a sponge. However, as the dry season progresses more of the

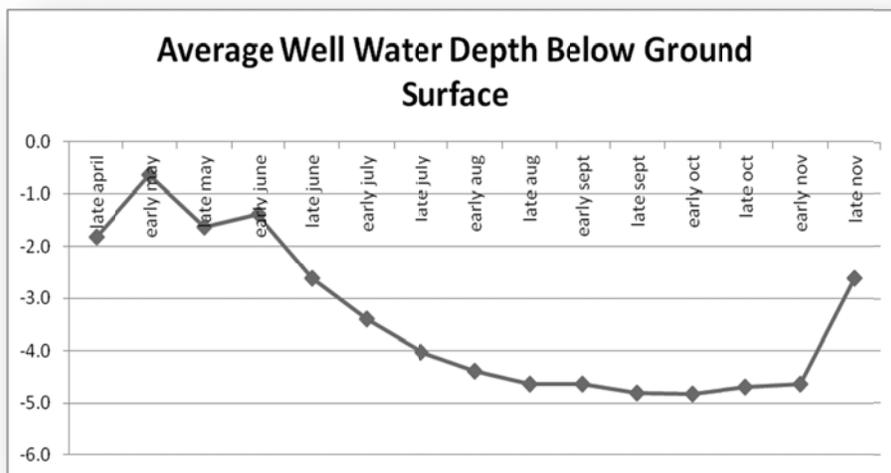
water stored in the landscape is released into the streams until the soils are depleted of all moisture. First, soil moisture is depleted and then the streams begin to dry up, and if that process continues long enough, stream flow ceases all together.

One of the main processes that we monitor to assess whether we are achieving our management objectives is the loss of shallow groundwater from the soils of the Hangman floodplain. The figure at right is a representation of the average elevation of shallow groundwater below the soil surface from late April to late November in a typical year. Note the rapid decline in shallow groundwater that begins in early June when the water is a foot and a half below the ground surface. The graph indicates that by late August shallow groundwater has declined to almost 5 feet below the ground surface. There is a bias in this data in that these particular wells only extend to a depth of 5 feet below the surface. So while the elevations of the shallow groundwater may decline further, we can only measure that decline to the bottom of these wells.

As we monitor these shallow groundwater wells year after year, what we will look for is a change in the rate of shallow groundwater loss. As select floodplains are repaired, and wetlands restored, the rate of loss should decrease leaving more groundwater available later in the year. At this time we cannot predict the elevation of the shallow groundwater as a response to restoration efforts that are taking place in the watershed. But if, for example, we could hold enough shallow groundwater in the system for the elevation to only decline to 3 feet below the ground surface by August, that would make a tremendous difference in the amount of water in the stream during the hottest, driest time of year.

The soils of Hangman Creek are not only great for growing crops. They are also great for storing water. The idea of creating reservoirs in the Hangman Watershed so water can be released into the stream during the dry months has been suggested and studies have even been completed stating where the best locations for such reservoirs would be. These discussions and studies preceded the understanding that the landscape itself can be used as a reservoir where water can be held until it is needed during the dry season. We still have much to learn about this hydrologic cycle of moisture absorption and release by the soils. How much water can be stored in these loess soils? How do the different vegetation patterns over the soils alter the absorption rates? How much of the

landscape do we need to restore before there is enough stored moisture in the soils to keep Hangman flowing through the dry season? And there is one question in particular that we are eager to answer; how effective can beaver be at slowing the loss of soil moisture and increasing base flows?



*Typical depth of shallow groundwater in 18 monitoring wells as measured between April and November.*

If we develop our understanding of the movement of water through the landscape of Hangman Creek, we can manage those processes to express specific stream flow and landscape characteristic. We can essentially choose what kind of place the Hangman watershed will be, and what kind of benefits can be gained from it.

On September 19, 1872, Captain George B. Sanford presented a summary description of the land that he had traveled through during the previous summer. In describing Hangman for this overview he wrote that it “*widen(s) out into lakes at frequent intervals. These lakes are generally twenty yards or so in width & of different length. They are quite deep & are connected throughout their course by the brook, which is generally shallow & flows swiftly during the short distance that separates one lake from another.*”

Captain Sanford’s writings do not reflect a naturalist’s understanding of the landscape and he presents no explanation as to what would cause this sequence of pools and riffles. But this record seems to be a concise description of a sequence of beaver dams; and beaver dam complexes are well known as incredibly productive trout habitat. This description of Hangman Creek from almost a century and a half ago does not just represent a historic curiosity. The processes that resulted in this stream configuration of deep pools connected by a swift flowing stream can still be revived and this could be a description of Hangman Creek in a not so distant future, if that future is chosen. ♦



*Former Bozard Creek stream crossing that was identified as a partial fish barrier (note that the pipe is less than 1/2 the width of the natural channel).*

## **New Bozard Creek culverts put fish first**

*By Stephanie Hallock, Habitat Biologist*

The Coeur d'Alene Tribe Fisheries Program and Inland Empire Paper Company recently completed a collaborative project to replace two fish barriers in the upper Lake Creek Watershed. Bozard Creek and the East Fork of Bozard Creek are important spawning and rearing areas for westslope cutthroat trout. These streams provide a home for fish that are permanent residents as well as for the larger adult trout that migrate from Coeur d'Alene Lake and back during the spring spawning run. The Fisheries Program identified these stream crossings as partial barriers to fish trying to move upstream during an inventory conducted in 2008.

The project was completed in September and October 2014 and involved replacing the existing culverts at each stream crossing with new larger pipes. The undersized culverts, which were slightly perched above the streambed at their outlet, were primarily a problem for migrating fish due to the high water velocities through the pipe that would coincide with spring runoff at the times when fish are most likely to move. The former pipes were replaced with larger arch pipes that measure 77" by 52" and provide up to 74% additional capacity. Importantly, grade control structures comprised of large boulders were constructed in the channel to form a series of step-pools below the culverts to re-establish a flatter gradient (slope) within the vicinity of the new culverts and provide resting areas for fish attempting to ascend the stream. Seeding and planting occurred in all disturbed areas, including access roads, once

construction was completed. The two new stream crossings allow for passage of all sizes of westslope cutthroat trout with fish gaining access to more than a mile of high quality rearing and spawning habitats upstream.

This work is part of the on-going effort by the Tribe to recover native westslope cutthroat trout in the watershed. Although fishing is currently closed in Lake Creek the hope is that these types of projects will allow fish populations to recover to the point where harvest can once more occur. Improving fish passage is likely one of the least costly restoration alternatives available with a high likelihood of success that promises a rapid response from trout. ♦



*A new culvert on Bozard Creek provides fish passage at all flows as well as resting pools below the pipe.*

## **sikwkwe'shitsut: Everything on earth depends on water**

*By Gina Baughn, Natural Resources Education Specialist*

Water covers somewhere between 70-75% of the earth's surface and water makes up to as much as 80% of the weight in plants, animals, insects, and of course human beings; making it the key to all life on earth! On earth, 96.5% of the planet's water is found in seas and oceans, 1.7% in groundwater, and 1.7% in glaciers and the ice caps of Antarctica and Greenland, a small fraction in other large water bodies, and 0.001% in the air as vapor, clouds and precipitation. Only 2.5% of water is considered freshwater. However, of all the water on the earth, humans can use only about three tenths of a percent of this water. The useable water is found in ground water aquifers, rivers and streams and in freshwater lakes. This makes fresh water a very precious and valuable resource.

The earth is a closed system, similar to a terrarium, meaning that it rarely loses or gains extra matter. Interestingly, the same water that existed on the earth millions of years ago is still present today (a total amount of about 326 million cubic miles of water). While the amount of water has remained constant, various forms of pollution has greatly reduced the amount of useable water, and the present demand for water is growing faster than the population. For example, since the 1950's demand has tripled all over the world.

The Coeur d'Alene Tribe is especially interested in fostering an understanding of the importance of water in our lives and focusing on the role of water in maintaining the integrity of the natural systems that we can see and interact with and which are essential to our survival and well-being.

It is with all of this in mind that the Tribe's Natural Resources Department spends a week every year publicly celebrating our water. This year over 450 students from surrounding schools came out to Lake Creek to run through nine different learning stations with opportunities to see how we trap and tag fish, age and measure trees, monitor the health of water using aquatic insects and how to identify and address erosion issues that affect water. The students also learn about tribal history and about important cultural resources. Some were fortunate enough to hear Tribal elders speaking the Coeur d'Alene language and get a chance to learn some common words in the native language of "those who were found here". Back by popular demand this year was a demonstration on how to make buckskin by tanning animal hides. Importantly, every day is a chance for kids to learn by participating in hands-on activities.

It is our hope that the students that attend Water Awareness Week will become wiser consumers of water and will be mindful about preserving this precious commodity for the benefit of all living things. Check out our Facebook page for more information and pictures of the event. ♦

*"The Coeur d'Alene Tribe is truly a partner with education. Each year they host Water Awareness Week for students in our area. They have specialists on hand to present timely and interesting lessons supporting water quality. In addition, students are exposed to historical elements of our area and native customs which demonstrate a love for the land. This high-quality experience takes place along the banks of Lake Creek and provides authentic learning which is so valuable to our students."*

-Nancy Larsen, 6<sup>th</sup> grade teacher, Coeur d'Alene Charter Academy



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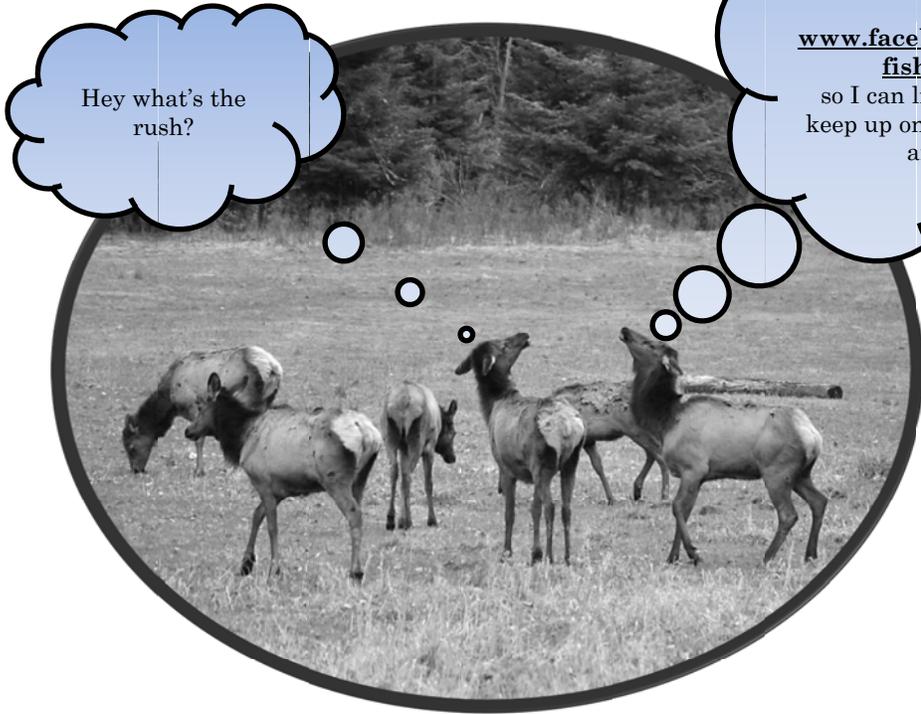
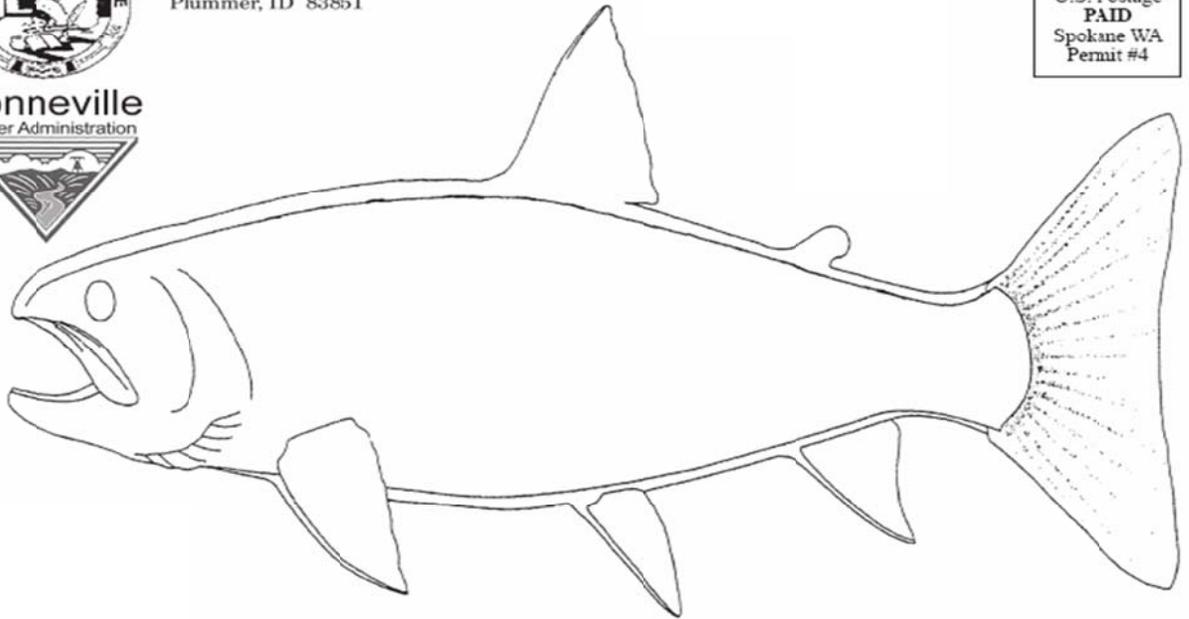




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and events!

The Coeur d'Alene Tribal Fish and Wildlife Programs work in a variety of cooperative, governmental and educational arenas in efforts to protect enhance and restore our fish and wildlife resources. This publication is intended to provide all people interested in Fish and Wildlife of the Coeur d'Alene Reservation information about our program, and to solicit your support as well as constructive criticism. Thank you for your interest.