# Panhandle Region
# Annual Fisheries Report
## 2014 Activities and Accomplishments

Issue 7 January 2015

*We hope you enjoy this summary of our research and management activities in 2014. This newsletter, with those from past years, is posted on the IDFG website http://fishandgame.idaho.gov/public/about/offices. If you have questions or want to share your thoughts, please give us a call. If you'd like to be included on an e-mail distribution list for periodic summaries and information, send a request to jim.fredericks@idfg.idaho.gov and we'll add you to the list.*

## Inside this issue:



# Angler Creel Surveys Help Understand Fisheries

If you spend much time fishing Pend Oreille or Priest lakes, you've probably been approached by a fisheries technician and asked about your day on the water. Even if you weren't approached, there's a good chance your boat was counted by a plane flying overhead sometime over the past year. IDFG, with funding from Avista, has began creel surveys on both lakes in March, 2014.

Creel surveys are an important tool for fishery managers. They provide valuable information on the total number of anglers and fishing hours on a water body, as well as the catch, harvest, and catch *rates* (how many hours per fish) of different species over the course of an entire year. Depending on the particular survey, we often get extensive information about the type of anglers using the water body as well, such as percent Idaho residents, bank versus boat anglers, and type of angling occurring (flyfishing, bait fishing, trolling, etc.). This information is all the more valuable when we have creel surveys from past years to compare with. On both of these lakes, we've completed surveys roughly every 8-10 years, so we have excellent data to compare with.

The basic design of a creel survey involves two components — angler counts and angler interviews. Both are assigned randomly to different times of the day to insure the survey is statistically valid. Typically, for a year-long survey, counts and interviews are conducted 2-3 days/week. Depending on the size and accessibility of the water body, counts might be conducted from a vehicle or boat, but with large lakes like Priest and Pend Oreille, aerial counts are far more efficient and accurate. Interviews are either conducted at boat access points, such as Marinas or boat ramps (our approach on Pend Oreille) or out on the water with a boat (our approach on Priest Lake).

The surveys are a year in duration, so they'll be wrapping up shortly and will yield a wealth of useful information that we look forward to sharing.—Jim Fredericks


**Regional Fisheries Management Staff**

**Jim Fredericks**
Regional Fishery Manager
(jim.fredericks@idfg.idaho.gov)

**Rob Ryan**
Regional Fishery Biologist,
(rob.ryan@idfg.idaho.gov)

**Ken Bouwens**
Regional Fishery Biologist
(ken.bouwens@idfg.idaho.gov)

**Carson Watkins**
Regional Fishery Biologist
(carson.watkins@idfg.idaho.gov)

**Pend Oreille Research Staff**

**Andy Dux**
Principal Research Biologist
(andy.dux@idfg.idaho.gov)

**Nick Wahl**
Sr. Fishery Research Biologist
(nicholas.wahl@idfg.idaho.gov)

**Bill Harryman**
Sr. Fishery Technician
(bill.harryman@idfg.idaho.gov)

**Bill Ament**
Sr. Fishery Technician,
(bill.ament@idfg.idaho.gov)

**Kootenai River Research Staff**

**Ryan Hardy**
Principal Research Biologist
(ryan.hardy@idfg.idaho.gov)

**Pete Rust**
Sr. Fishery Research Biologist
(pete.rust@idfg.idaho.gov)

**TJ Ross**
Sr. Fishery Research Biologist
(tj.ross@idfg.idaho.gov)

**Hatchery Staff**

**John Rankin**
Fish Hatchery Manager
(john.rankin@idfg.idaho.gov)

**Gregg Anderson**
Asst. Fish Hatchery Manager
(greg.anderson@idfg.idaho.gov)

**Will Demien**
Fish Culturist
(will.demien@idfg.idaho.gov)

**Fishing and Boating Access Program**

**Dave Ross**
Recreational Site Foreman
(david.ross@idfg.idaho.gov)

**Contact us at:**
**(208) 769-1414**

# Kokanee Lured by New Spawning Beds

When IDFG implemented a project this summer to enhance Kokanee spawning habitat in Lake Pend Oreille by placing gravel on the shoreline, we didn't know for sure whether it would be successful. The spawning beds looked good to the biologists, but the real test was whether or not the Kokanee would find them suitable. After the first spawning season, the jury of Kokanee is in, and it looks like the new beds meet their approval.

A barge, belly-dump trailer and tug boat were used to spread gravel and enhance Kokanee spawning habitat.

The project was the result of over 20 years of research to understand the spawning requirements of Kokanee in Lake Pend Oreille. Every fall, Kokanee bury their eggs in the gravels around the shoreline of the lake. The eggs stay buried throughout the winter, until the fry (young Kokanee) hatch out the following spring. Since the mid 1990s, the elevation of the lake was held higher in the winter in an effort to keep some of the best spawning gravel underwater. Though recent research hasn't demonstrated a significant benefit from the higher winter lake levels, it has shown that areas in the southern end of the lake tend to offer the best conditions for Kokanee egg incubation. However, some of those areas are unusable for spawning because the lake bottom is mostly made up of larger rocks and lacks small gravels.

*The spawning beds looked good to biologists, but the real test was whether or not the Kokanee would find them suitable.*

In a project funded by the Bonneville Power Administration, IDFG contracted with West Co. of Airway Heights, Washington to place nearly 1,300 cubic yards of gravel along 300 yards of shoreline located near the Farragut State Park boat ramp. The idea was to locate the beds in water ranging from 20-60 feet deep so they would be unaffected by winter lake level fluctuations. A big challenge was to cover the target area evenly with four to six inches of gravel, as opposed to having a few big mounds here and there. The contractors developed an innovative technique using a belly dump trailer mounted on an open-centered barge. They then used a tug boat to push the barge, adjusting the speed to apply the right amount of gravel. Diving on the site confirmed the method was effectively spreading the gravel.

The big question was whether Kokanee would find the new gravel right away and use it for spawning this fall. Though it looked great to us, the true question was whether the fish would find it appealing. Using an underwater video camera, we were delighted to see Kokanee spawning by the thousands. Not only were there a lot of Kokanee, but they were spread throughout the entire spawning bed. What was really telling was in nearby areas where gravel wasn't added, the number of fish quickly diminished.

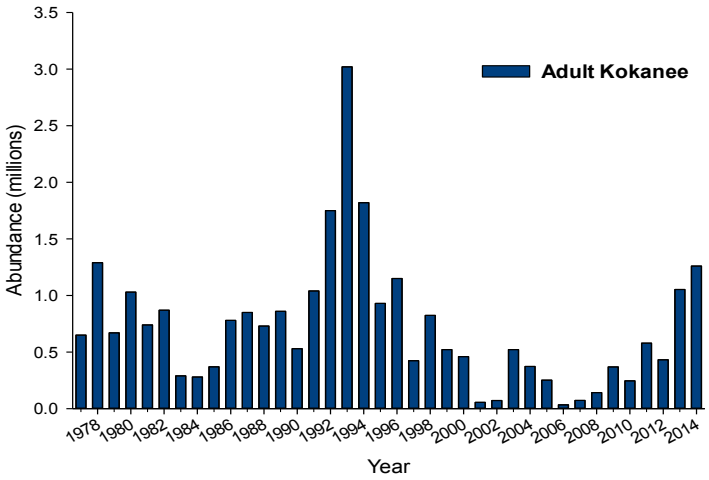
Kokanee, which die after spawning, washed ashore by the thousands near the newly created spawning beds.

The spawning bed enhancement project is scheduled to continue for two more years. When completed, about 4,000 cubic yards of gravel will have been placed along a half mile of shoreline. IDFG will continue to evaluate the success of the project, but for now, biologists and fish alike are pretty happy with the new habitat—Andy Dux.

# Pend Oreille Fishery Recovery Effort Update

***Kokanee—*** One of the greatest highlights of 2014 was watching thousands of anglers enjoy great Kokanee fishing on Lake Pend Oreille. The Kokanee population has continued to build —so much so that the Kokanee bag limit was increased from 6 fish to 15 fish. Anglers took notice and came out in droves. We estimated that there were 1.4 million adult Kokanee, which is one of the highest estimates since the 1970s. As a result, the spawner return was one of the best we've ever seen. At the Sullivan Springs trap, where Kokanee eggs are collected to fill Cabinet Gorge Fish Hatchery, it only took the crew nine days to collect the 9.25 million eggs needed to meet this year's egg take goal. The egg take operation has never been completed so quickly. Many more fish returned than were needed for hatchery purposes and were allowed to spawn naturally. Wild Kokanee spawned successfully all around the lakeshore and in many of the streams entering the lake. The sight (and smell) of spawned out Kokanee on the shorelines became quite familiar in November and December.

Trawl estimate of adult (age-3 and age-4) kokanee in Lake Pend Oreille from 1977 through 2014.




Our annual surveys indicate Kokanee are poised to do well over the next few years. Younger Kokanee were abundant, with fry and age-1 fish looking particularly strong. Age-2 Kokanee were less abundant than the previous two years, but still appear to be a reasonably strong age group when compared to historical estimates. These results provide an early sign that Kokanee fishing should remain good.

We are continually trying to understand the many factors that influence the Kokanee population. One factor that we are particularly interested in right now is the interaction between Kokanee and mysid shrimp. These small freshwater shrimp have been present since the late-1960s and compete with Kokanee for food (both eat zooplankton). In 2012, the mysid shrimp population nearly collapsed for reasons we do not understand. We are now seeing a slow increase in the shrimp population, but it still is at a fairly low density. Low shrimp density is likely benefitting Kokanee, but we are trying to understand what impacts will occur if shrimp return to their former abundance. New research is being started in 2015 to further investigate this.

***Lake Trout—*** Lake Trout predation has been the primary factor limiting Kokanee recovery for well over a decade. Fortunately, aggressive efforts to remove Lake Trout that have occurred annually since 2006 continue to reduce this threat. In 2014, we continued to use both the Angler Incentive Program ($15 reward to anglers) and commercial netting equipment to remove Lake Trout. Together these actions have dramatically reduced the size of the Lake Trout population and allowed a rapid expansion of the Kokanee population.

Now that we have achieved our goal of driving the Lake Trout population to a low level, we do not need as much netting effort to keep abundance low. Thus, we will reduce netting effort by about 15-20% in 2015. By reducing netting effort, we will reduce the costs associated with this program. Reducing netting effort will occur gradually over time, and the response by Lake Trout will be carefully monitored. If we see any indication that Lake Trout abundance is increasing, we can return to a higher level of netting effort. We expect to continue the Angler Incentive Program for the foreseeable future, so the changes will be focused on netting activities.

Bert Dennett with his 24.2 lb. Fall Derby-winning Rainbow Trout.

***Rainbow Trout—*** The trophy Rainbow fishery showed continued signs of improvement in 2014 and provided enjoyment for many anglers. As Kokanee density has increased in recent years, so have Rainbow Trout growth rates. Anglers caught trophy Rainbow Trout more readily in 2014 than they have in a long time, including many fish that exceeded 20 pounds. With the help of anglers, we collected samples from Rainbow Trout for a growth rate study. We are currently processing these samples, which will allow us to compare current growth rates to previous years. Stay tuned for results from this study early in 2015.—Andy D., Nick W., Bill H., and Bill A.

# Alpine Lake Brook Trout Evaluations

Idaho contains thousands of alpine lakes formed by the recession of glacial ice during the late Pleistocene Epoch. The glacier-carved landscape left cirques (depressions) at high elevations where alpine lakes formed. Despite having good habitat, the steep topography prevented the colonization of fish into most high elevation streams and lake outlets. In western North America, nearly 95% of alpine lakes were historically fishless. Over the past century, however, many lakes have been stocked to create recreational fisheries. Around 60% of alpine lakes throughout the western United States have been stocked with sport fish to provide a diversity of recreational angling opportunities.

Brook Trout, a native of eastern North America, have been extensively stocked into alpine lakes throughout Idaho. Because of their early maturation, ability to spawn with limited habitat, and lack of predators, Brook Trout often reach very high abundances in alpine lakes—sometimes too abundant. Alpine lakes are typically low in productivity and cannot support high fish densities, and Brook Trout populations often "stunt," meaning growth rates decline dramatically to a point where few or no fish reach desirable size to anglers. Maintaining good fishing with a stunted Brook Trout can be difficult. Sometimes the best alternative is to completely remove Brook Trout and start over with another species. Other times, introducing a predator can be effective. Regardless, understanding the characteristics of each population helps develop strategies for fishery improvement.

During July–September 2014 the fisheries management staff sampled alpine lakes in the South Fork Coeur d'Alene River and Kootenai River drainages to estimate size and relative abundance of Brook Trout. The lakes surveyed had simple fish communities composed entirely of Brook Trout, or Brook Trout and hatchery Rainbow Trout. Relative abundance (catch-per-unit-effort) is a common metric used by fisheries biologists to index actual abundance and compare Brook Trout abundance among the lakes.

Average length was around 5–6 inches for most lakes with the exception of the Roman Nose Lakes which produced a few whoppers in the 13–16 inches range! In the coming months, we will dive further into the data and decide if and where rehabilitation treatments (e.g., predator introduction, rotenone) might improve fishing.

Alpine lakes provide a unique experience for anglers wanting to "get away" and see beautiful country. Part of IDFG's role is to maintain a diversity of angling opportunities. Brook Trout provide anglers with an opportunity to catch and harvest wild trout in an age when such opportunities are increasingly rare. Native species such as Westslope Cutthroat Trout support few opportunities for harvest and such fisheries are increasingly being managed to provide for non-consumptive (i.e., catch-and-release) fishing opportunities.

*Acreage, sample size (n), mean catch rate (CPUE = fish/net/night), and length of Brook Trout sampled from alpine lakes during July–September 2014*

| | | | | Total length (inches) | | |
|---|---|---|---|---|---|---|
| Water body | Acres | *n* | CPUE | Mean | Min | Max |
| Elsie Lake | 15.2 | 74 | 4.8 | 5.5 | 3.5 | 8.5 |
| Lower Glidden Lake | 13.8 | 287 | 34.4 | 6.1 | 3.3 | 9.4 |
| Lower Stevens Lake | 27.7 | 84 | 16.8 | 7.5 | 3.7 | 9.7 |
| Revett Lake | 20.3 | 130 | 26.0 | 6.4 | 3.2 | 10.0 |
| Roman Nose Lake 1 | 16.7 | 140 | 70.0 | 6.2 | 3.0 | 13.2 |
| Roman Nose Lake 2 | 8.6 | 64 | 32.0 | 5.6 | 3.0 | 16.4 |
| Upper Glidden Lake | 18.8 | 60 | 15.0 | 7.0 | 3.7 | 11.7 |
| Upper Stevens Lake | 12.0 | 245 | 49.0 | 7.2 | 4.4 | 7.9 |

Anglers interested in harvesting trout can fish in alpine lakes in the Coeur d'Alene River basin and keep six cutthroat or rainbow trout and 25 Brook Trout per day! As harvest opportunities for wild trout diminish, maintaining a consumptive component is important, and alpine lakes fill part of that niche. In the Panhandle Region, 16 alpine lakes have known Brook Trout populations and many others have cutthroat or rainbow trout. All of these lakes allow harvest for folks hoping to catch a few fish to eat. In addition, alpine lakes provide solitude and little competition from fellow anglers, another trait uncommon of more popular wild trout fishing waters.—Carson Watkins

## Cutthroat Thriving in Porcupine Lake

In 2010 non-native Brook Trout were removed from Porcupine Lake in the Lightning Creek drainage using a chemical treatment. The lake was then stocked with Westslope Cutthroat fry in 2011 and 2012. A follow-up survey of the lake was first completed in 2013. Though no fish were captured in gillnets the crew observed several small fish rising. It was unclear whether the planted fish were still too small to be captured in the gillnets, or if survival of the stocked fish was poor.

To answer these questions, another follow-up survey was completed in 2014. The objective was to document survival and growth of Cutthroat Trout, and to look for any evidence of Brook Trout survival. Gillnets were set overnight in August. Five Cutthroat and no Brook Trout were captured. The Cutthroat Trout averaged approximately 12 inches in length and were notably healthy. In addition, numerous catchable-sized Cutthroat were observed rising in the lake. The survey confirmed that stocked fish are surviving and growing well, and Porcupine Lake now appears to support a very good Cutthroat fishery.

Though the gillnets didn't catch any Brook Trout, there's an old adage that says "absence of presence doesn't confirm presence of absence", meaning the fact that we didn't find Brook Trout doesn't prove they aren't there. To better answer that question, we turned to a new high-tech biological assessment method known as environmental DNA (eDNA). The technique is based on an extremely sensitive method of detecting genetic material passed from a species in question (in this case, Brook Trout) directly into the water. Rather than look for Brook Trout in a stream, we simply collect water, and look for Brook Trout DNA in the water!

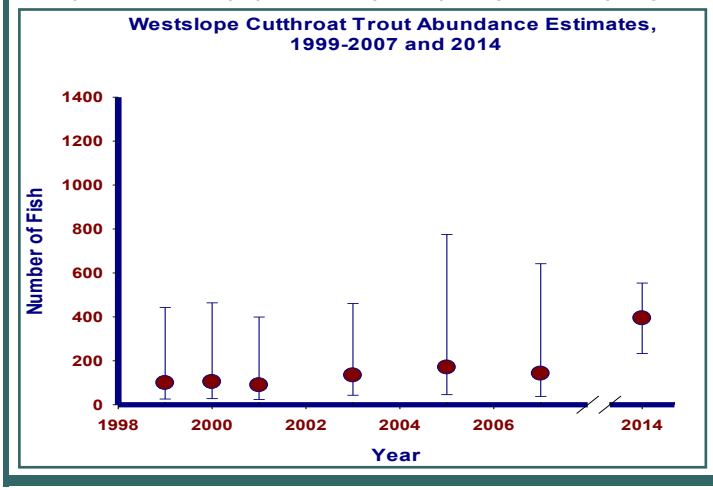
A water sample taken from the Porcupine Lake outlet stream was assayed for Brook Trout DNA and none was detected, supporting our conclusion that the 2010 Brook Trout eradication effort was successful. —Ken Bouwens.

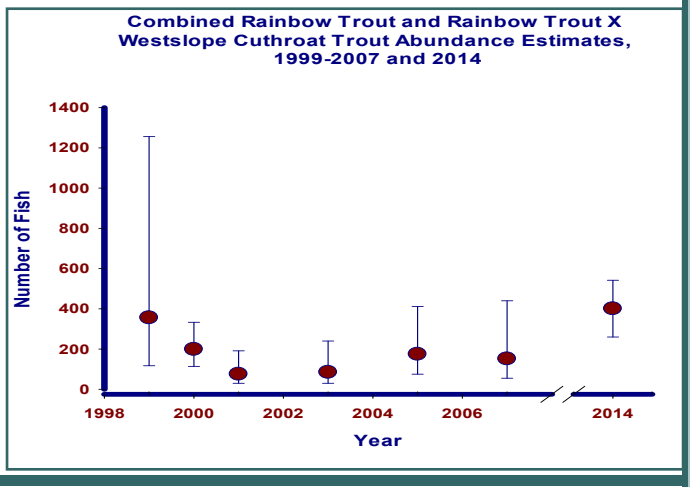
## *Clark Fork River Surveys*

In cooperation with Avista's Clark Fork Settlement Agreement, IDFG periodically monitors trout populations in the Clark Fork River below Cabinet Gorge Dam. We used electrofishing equipment in October to estimate abundance by marking and recapturing several salmonid species. To insure we don't miss fish because of migration, we use Fall surveys to estimate the abundance of resident spring spawning species (Cutthroat, Rainbow trout, and Cutthroat x Rainbow hybrids) and spring surveys to estimate the abundance of fall spawning fish (Brown Trout and Mountain Whitefish).

In 2014 we completed a fall survey, and estimated abundance of Westslope Cutthroat and Rainbow trout (we included Rainbow x Cutthroat hybrids with Rainbow Trout to achieve sufficient sample sizes for data analysis). We were encouraged to see the abundance of both species had more than doubled over the 2007 estimates, though statistically, the increase may not have been that dramatic. Factors behind the increase are not clear, though it may be related to a decrease in harvest or favorable flow conditions.

In 2015 we will perform a spring survey, primarily to measure Brown Trout and Mountain Whitefish abundance. However, in April we will again estimate the abundance of spring spawners to attempt to estimate the magnitude of the migratory component of the populations by comparing fall and spring estimates—Ken Bouwens



# Understanding a Largemouth Bass Fishery

Largemouth Bass are one of the most popular sport fish species in North America. Native to the Mississippi River Drainage and the southeastern U.S., widespread introductions beginning in the late 1800s greatly expanded the range of Largemouth Bass. In fact, Largemouth Bass can now be found in every state in the U.S. except Alaska.

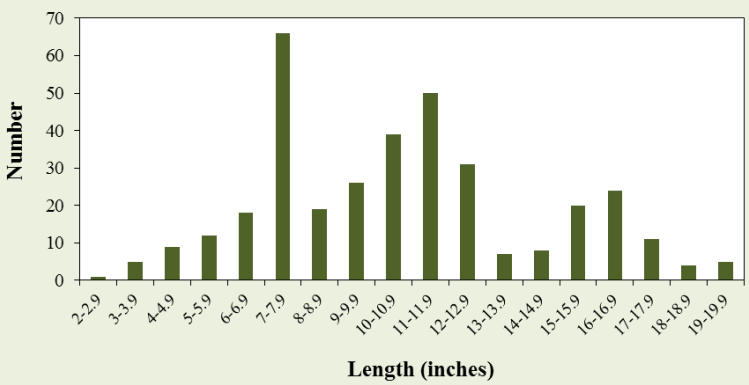
IDFG manages many Largemouth Bass populations, such as Hayden Lake, for quality fishing opportunities, which means special regulations designed to produce higher catch rates and larger fish (over 16 inches), but less emphasis on harvest.

Historically, Hayden Lake has produced some of the finest bass fishing in Idaho. However, anglers have noted recent declines in the number and size of Largemouth Bass in the lake. Following up on these reports, in May and June we collected information to evaluate population characteristics and harvest rates of Largemouth Bass in Hayden Lake. Fish were measured and tagged, and a dorsal spine was removed to determine age (see photo).

*Thin cross section of a Largemouth Bass spine showing annual growth rings.*

Overall, our efforts confirmed much of what we had been hearing from anglers—Largemouth Bass exceeding the 16-inch minimum length limit are not abundant in the fishery. We found lots of fish in the 8-12 inch range, but we didn't find many trophy-size individuals that were previously more common in the fishery.

*Length of Largemouth Bass collected from Hayden Lake.*

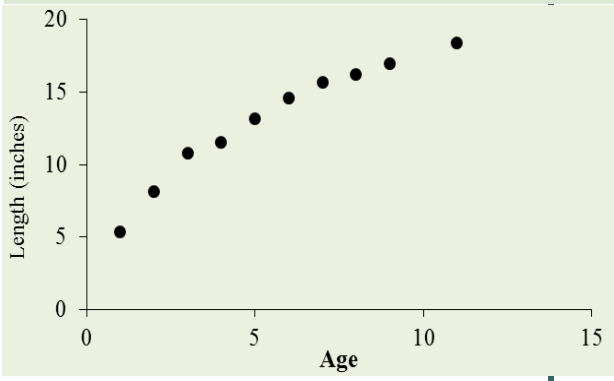



*Idaho Largemouth Bass tend to live much longer than their southern counterparts—meaning they can eventually achieve trophy sizes, but it takes a long time for them to get there. It takes about eight years for a Largemouth Bass in Hayden Lake to reach 16 inches*

Largemouth Bass grow slowly at northern latitudes and Hayden Lake is no exception. Analysis of fin rays show it takes about eight years for a Largemouth Bass in Hayden Lake to reach 16 inches. This is typical of populations in the Pacific Northwest, but much slower than those from the southern U.S., where a fish can reach 16 inches in 2-3 years. On the bright side, northern Idaho Largemouth Bass tend to live much longer than their southern counterparts—meaning they can eventually achieve trophy sizes, but it takes a long time for them to get there.

To evaluate whether harvest was causing the lack of larger fish, Largemouth Bass were tagged with orange T-bar tags which possessed the telephone number for IDFG's "Tag! You're It!" reporting hotline. The tagging effort provided us with an estimate of angler exploitation, or annual harvest rates. By the end of the year, anglers reported catching only four tagged fish, and only two were harvested. We calculated an annual harvest rate of 4%, which is similar to other northern Idaho lakes. These exploitation rates are low and do not suggest harvest is limiting the number of trophy fish in the population. This wasn't a big surprise, considering that catch-and-release is increasingly practiced by bass anglers.

*Length at age of Largemouth Bass from Hayden Lake.*



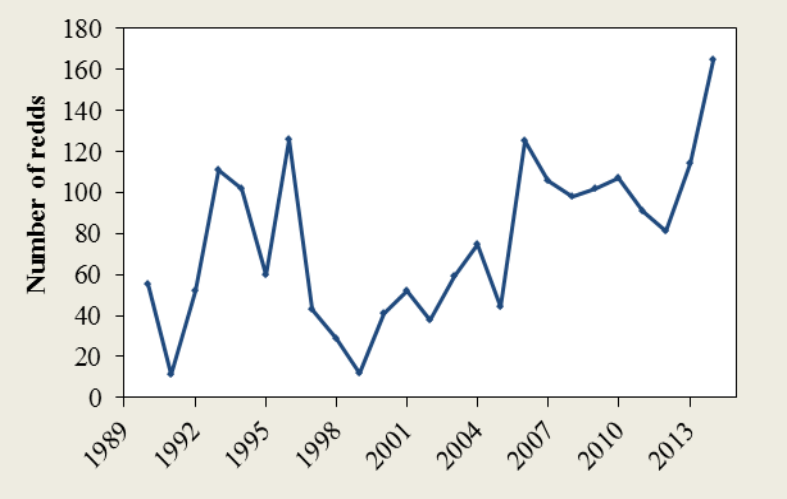

If harvest isn't driving the population, what is? There are a host of other factors causing mortality that are more challenging to evaluate. The next step in evaluating this population will be to use the age and growth information to look at patterns of recruitment and growth, and determine when growth and year-class strength have been good or bad, and what factors contributed to that. We will follow-up this study with additional sampling in 2015, including other water bodies with quality regulations. This will allow us to compare populations and evaluate where the regulation is working, and why it's working. From there, we can look at waters without quality Largemouth Bass fishing and determine where we can improve size structure and angler opportunity.—Carson Watkins

# Anglers Help Evaluate Lake Coeur d'Alene Chinook Salmon Fishery

IDFG introduced Chinook Salmon into Lake Coeur d'Alene in 1982 to improve size of Kokanee by reducing abundance. In addition to regulating Kokanee abundance, an added benefit was the creation of trophy fishery in the lake. Although not expected to naturally reproduce, they did, and by 1986 wild Chinook were abundant in the fishery. These days, trophy Chinook generate a lot of excitement amongst anglers and IDFG manages the fishery to provide a quality angling opportunity. IDFG stocks hatchery Chinook annually to supplement the population and provide additional harvest opportunity. Given the popularity of this fishery and the importance of Chinook as a primary predator of Kokanee, we keep close tabs on the population through annual monitoring. Keeping a handle on the population is critical to maintaining a balance between predator and prey.

Despite the popularity of the Chinook fishery, relatively little information is available about factors affecting number and size of fish available to anglers. This lack of information arises from the inherent difficulties associated with sampling landlocked Chinook. Unlike many other species, they can't be easily netted or electrofished. To better understand this population, we instituted an angler reporting program in May 2014. As part of this program, we sought help from local anglers. Anglers contributed by recording length and weight of fish they caught and removing heads from harvested fish. Calcified parts (i.e., otoliths [ear bones; obtained from harvested fish] and pectoral fin rays [obtained from released fish]) were removed from sampled Chinook to provide information on age and growth rates. The program serves a two-fold purpose. First, it provides us with much needed baseline information on how the population functions. Secondly, building the program will allow IDFG to monitor population characteristics and demographics through time by utilizing anglers to maintain a long-term dataset. Continual evaluation will help IDFG to adaptively manage the program. Incorporating anglers into the management process has been critical to learning about the Chinook population and will be good for the future of the fishery.

One method of monitoring the Chinook population has been to count spawning nests, or "redds". Redd counts are conducted annually in the St. Joe and Coeur d'Alene River. Comparing redd abundance from the primary spawning reaches with previous years, we observed the highest number of Chinook redds since the surveys began in 1990. The highest redd abundance was observed in the North Fork of the Coeur d'Alene River between the confluence of the Little North Fork and Cataldo where we estimated 152 redds.




*Number of Chinook Salmon redds counted in index reaches of the St. Joe River and Coeur d'Alene River, Idaho from 1990–2014.*

Redd counts give IDFG biologists a rough estimate of the number of juvenile Chinook entering the lake each year which has implications for hatchery supplementation. Traditionally, overabundance of Chinook Salmon has been thought to depress the Kokanee population, negatively affecting both species in the long run. As such, Chinook redds were excavated beginning in 1994, and in subsequent years when the redd count exceeded a target of 100 redds. The benefits of these efforts were questionable, and IDFG has not disrupted redds since 2007.

The Chinook and Kokanee populations in Lake Coeur d'Alene are doing well by all accounts. Sampling in 2014 revealed that Kokanee abundances are close to what we've seen during the past 5 years. We estimated 1.1 million age-1 and 1.7 million age-2 Kokanee in the lake during our 2014 sampling, suggesting a higher abundance of age-4 and age-5 Chinook did not adversely influence abundance of prey-size Kokanee. Future steps will include evaluation of age and growth information collected for Chinook and continued monitoring of Kokanne abundance and Chinook spawner abundance. With continued angler-involvement, IDFG will be able to evaluate the effectiveness of current regulations for both Kokanee and Chinook. In addition, information gleaned from the angler reporting program will help IDFG to evaluate the performance of hatchery-raised Chinook and compare stocking strategies.—Carson Watkins

# All Crappie Fisheries aren't Created Equal

Black Crappie are a popular sport fish in the Panhandle. Found in many of the area lakes, crappie offer great fishing and table fare. Some of the region's most popular Crappie fisheries are centered around Coeur d'Alene. Hayden, Fernan, and Twin Lakes all provide good opportunities. In 2013 and 2014 we investigated Crappie populations in these lakes to better understand Crappie and to evaluate the potential for special regulations to improve Crappie fisheries.

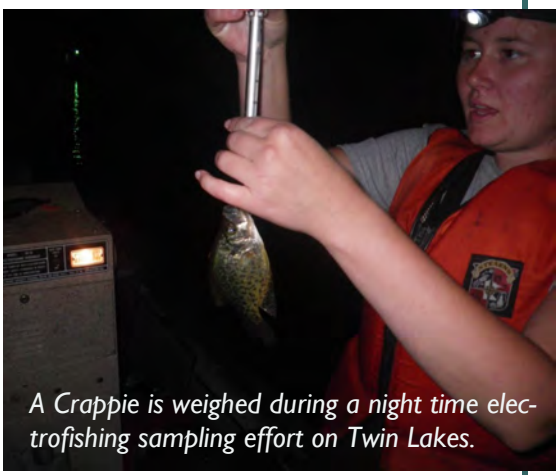
In all three lakes we found evidence Crappie spawning occurs every year, but not all years are as successful as the next. Crappie are well-known for their sporadic spawning success. It's common for Crappie to produce large groups of young every couple years. Though no one knows exactly why, it's likely related to weather, water temperatures, water levels and luck. In many cases the good years produce such large age-classes that anglers won't notice any difference in their catch rates from year to year. In other cases the period between good spawning years may mean noticeably fewer fish to catch, resulting in "boom-bust" fisheries. Luckily, when the conditions are right, it only takes a small number of Crappie to make fishing great again. A ten inch female Crappie may have over 100,000 eggs!

*Regardless of whether you like to catch a big mess of crappie for a fish fry or prefer to catch a couple trophy fish, the Panhandle has something for you*

In northern Idaho, Crappie growth varies dramatically from lake to lake. Crappie anglers prefer at least 8-10 inch fish. Catches of Crappie greater than ten inches are truly memorable, and fish in the 13-15 inch range should be considered trophies. In some locations Crappie may reach 10 inches in 5 years and continue to grow for another 3-5 years, reaching lengths up to 15 inches. In other waters it may take 6-8 years to reach a 10 inches. These slower growing fish may live 2-3 additional years, but never add much additional length. The cause of these differences is variable, but largely dependent on food resources. In general, northern Idaho Crappie grow more slowly than in other regions, but our investigation confirmed waters like Hayden Lake have the potential to grow fish much faster.

The general rules for Crappie fishing in the Panhandle are simple—no limit, no season, and no size restriction. The fact is Crappie growth in most Panhandle waters is slow, resulting in a maximum size of around 10 inches, life spans are short, and reproduction is high when Crappie spawn successfully. In these situations special rules to limit harvest would do little or nothing to improve Crappie numbers or size. Most fish would die of natural causes before anglers had a chance to harvest any.

That said, not all waters are created equal. Hayden Lake is the only special Crappie regulation in the entire state. A special rule is in place on Hayden Lake Crappie limiting daily harvest to six fish and requiring all harvested fish be at least ten inches. Hayden Lake Crappie grow fast relative to other populations and often reach 13-14 inches. Although anglers can't harvest a Crappie until it's at least 10 inches, these fish have the capability of growing to that size before they die from natural causes. Removing length limits on Hayden Lake Crappie wouldn't change how those fish grow, but unlimited angler harvest would likely limit the number of fish reaching a trophy size. By limiting harvest, Hayden Lake provides a unique opportunity for large Crappie.



*A Crappie is weighed during a night time electrofishing sampling effort on Twin Lakes.*

Crappie fishing is an enjoyable activity for young and old that doesn't require a high-tech approach. Regardless of whether you like to catch a big mess of crappie for a fish fry or prefer to catch a couple trophy fish, the Panhandle has something for you. Go enjoy the fishing!—Rob Ryan

# WHERE'S WALDO?

## *Walleye Population Survey Shows Predators not Abundant, but Widely Dispersed in Pend Oreille System*

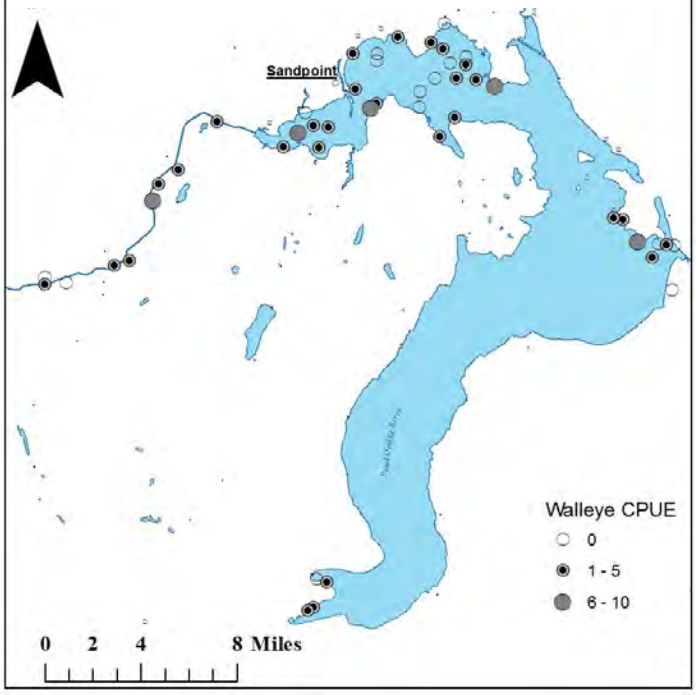
Walleye were illegally introduced in Montana's Clark Fork River and have slowly found their way downstream into Idaho's Pend Oreille System. Like it or not, they're probably here to stay, so a good understanding of the population is essential for fisheries managers to understand how this new predator will fit into the system and what impacts they may have other fish species.

*Biologists remove Walleye from a gill net in Lake Pend Oreille*

Walleye monitoring was completed in the Pend Oreille System in 2014. The purpose was to evaluate how Walleye densities, distribution, and growth rates have changed since our last investigation in 2011. The survey was completed in the northern basin of the lake, the Pend Oreille River, and Scenic Bay. We used standardized methods for surveying Walleye developed in Canada and used throughout North America.

Walleye catch rates increased from 1.4 fish per net in in 2011 to 2.2 fish per net in 2014. Although catch rates increased, they still reflect a low density population. For comparison, similar surveys of Walleye in southern Idaho waters like Salmon Falls Creek Reservoir, show catch rates of 20 to 30 Walleye per net, reflecting much higher densities.

*Number of Walleye captured in nets around Lake Pend Oreille and the Pend Oreille River.*




Generally, Walleye were widely distributed through all sampled areas. Although we found walleye widely dispersed in 2011, catch rates were much higher in the Pend Oreille River. Not so in 2014. Catch rates in the lake were similar to those in the river. Because of their distribution anglers can expect to find Walleye just about anywhere in the shallower portions of the Pend Oreille system, but shouldn't expect high catch rates due to the low densities.

Captured Walleye represented primarily young fish from one to five years old. These young fish provide evidence Walleye are spawning and creating new fish on an annual basis. Our first survey in 2011 was dominated by only two year old fish. Although fish are young they are growing fast with five year old fish reaching 5 to 6 pounds. Walleye up to 12 pounds were collected in the survey.

Although a popular sport fish throughout the country, Walleye are an uninvited guest to the Pend Oreille system. The primary concern is that Walleye are one more predator with the potential to negatively impact existing fish populations. In the coming years they may create management challenges.

IDFG policy states the Department will not promote or enhance fisheries for illegally introduced species. The policy is intended to discourage anglers from establishing new fisheries through illegal introductions. Although illegal introductions may provide a new fishing opportunity for some anglers, it always comes at the expense of someone or something else. We will continue to monitor Walleye in the Pend Oreille system to see just how that picture unfolds—Rob Ryan.

# Kootenai River Fisheries Research

## White Sturgeon Survival Evaluation

The reliance on stocking to maintain the Kootenai River White Sturgeon population prompted a need for an estimate on the population size, annual survival of hatchery fish released since the early 1990s, and effectiveness of different release strategies. IDFG completed this analysis in 2014, which provides the first age-specific annual survival estimates of hatchery sturgeon in the Kootenai River. Results showed survival of age-1 hatchery fish has declined from 90% in 1992 to less than 20% since 2013. Although the causes for the decline are unclear, larger fish ( ≥ 10 inches) had higher survival during their first year than smaller fish. Another factor that influenced survival was the time of year when fish were released. Survival of spring released sturgeon was 40% greater than those released in summer.

Using annual survival rates from this analysis, we estimated the current juvenile sturgeon population at around 12,000 fish. Going forward, continual assessment of survival and abundance will be a key component of Kootenai River White Sturgeon recovery—Ryan Hardy and Pete Rust

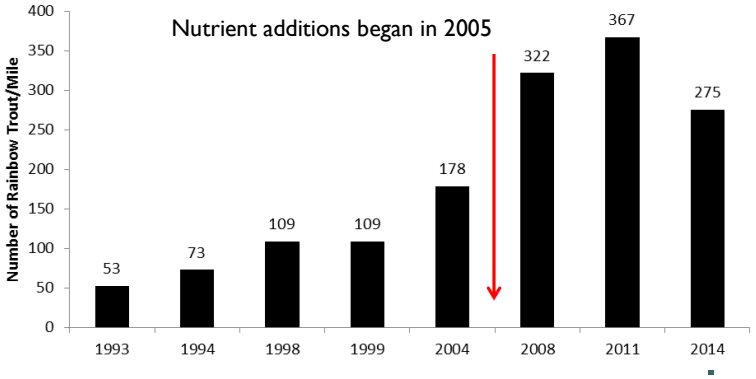
## Burbot Making a Comeback

Although Burbot were historically prevalent in the Kootenai River, the construction of Libby Dam in the early 1970s increased winter discharge and temperature during the spawning period, disrupting their natural spawning process. The cultural and recreational importance of Burbot in the Kootenai River prompted fishery managers from several cooperating entities to introduce a donor stock to aid in restoration efforts. Shortly after locating the broodstock source in Moyie Lake, British Columbia, intensive rearing techniques were successfully developed at the University of Idaho. As a result, the Kootenai Tribe of Idaho (KTOI), IDFG, and British Columbia Ministry of Forests, Lands and Natural Resource Operations have stocked larval, juvenile and adult Burbot into the Kootenai River and its tributaries since 2009.

The results of the stocking are encouraging and demonstrate aquaculture will be a useful tool to restore this once popular and unique fishery. In 2014, IDFG fishery biologists captured 447 Burbot in hoop nets in the Kootenai River. This represents a thirty-three fold increase in catch rates over the average catch rates from 2006 to 2011. At the beginning of this evaluation, managers were concerned Burbot progeny from a lake origin broodstock would all migrate downstream to reside strictly in Kootenay Lake. The present research indicates this isn't the case, with many fish residing in the Kootenai River. As Burbot numbers increase in the Kootenai River, researchers are getting closer to understanding factors affecting the natural reproduction of the population. Although not a complete substitution for wild production, supplemental hatchery stocking is possibly a means to sustain the population and eventually rebuild a recreational fishery.

## Nutrient Restoration Program

Since 2005, the IDFG and the KTOI have been collaboratively implementing and managing a nutrient restoration project on the Kootenai River. The main objective of this project is to restore nutrient levels in the Kootenai River to what they were prior to construction of Libby Dam. More specifically, a key goal is to improve sport fishing (primarily for Rainbow Trout) in the river. Rainbow Trout populations have shown positive responses to nutrient additions. Densities of Rainbow Trout have increased from about 104 fish per mile to 321 fish per mile since nutrient additions began, and electrofishing surveys throughout the river have shown an increase in catch rates from 0.21 to 0.38 Rainbow Trout per minute of electrofishing. Lastly, the most recent creel survey (conducted in 2011) showed, on average anglers catch a Trout every 1.5 hours. This is a significant improvement over 2001, prior to nutrient addition, when anglers caught a Trout for 5 hours of fishing. The KTOI and IDFG plan to continue adding nutrients in the years to come, and it is expected that Rainbow in the Kootenai River will continue to improve with the program—TJ Ross




*Density of Rainbow Trout in the Kootenai River before and after implementation of the nutrient restoration program.*

# PRIEST LAKE INVESTIGATIONS

## *Cutthroat Trout Surveys Help Track Trends*

Idaho's state fish, Cutthroat Trout, are a staple in many of the state's major drainages. The Westslope Cutthroat subspecies were once widely abundant in North Idaho's large lake systems, where they spawned in tributary streams, and grew large in the lake environments. Although Cutthroat Trout once dominated angler catch in the Panhandle's large lakes, they are no longer the primary species. Harvest of Westslope Cutthroat Trout in waters such as Priest Lake was upwards of 4,000 fish per year in the 1950's, but declined to hundreds of fish by the 1980's. Declining catch rates were the result of declining fishing effort and populations, changing fish communities, and impaired tributary spawning habitats. Fishery managers concerned about the populations responded by restricting harvest opportunities to rebuild populations. Today, Westslope Cutthroat Trout represent one of the most abundant species in many spawning tributaries around Priest Lake, but little is understood about abundance in the lake. Though Cutthroat anglers aren't as numerous as they used to be, those that target them for catch and release say fishing isn't too bad.

In an effort to better understand current and future abundance of Priest Lake Westslope Cutthroat Trout, we developed a monitoring strategy first implemented in 2014. We sampled Cutthroat Trout throughout Priest Lake in late spring using short gill nets designed to catch multiple sizes of fish. We targeted trout and reduced the catch of non-target species by using floating nets. The gill nets weren't intended to provide an estimate of the total number of Cutthroat in the lake, but rather an index of their abundance. The index of abundance, in this case measured as fish per net can then be used to compare the population from year to year as well as from lake to lake.

In our sampling effort we caught an average of two Westslope Cutthroat Trout per net with consistent catches throughout Priest Lake. While that information alone is of limited use, when collected over multiple years and or paired with results from similar surveys on other lakes will be quite valuable for understanding the abundance and health of this population. Westslope Cutthroat collected in this survey represented a range of sizes with fish from six to eighteen inches.—Rob Ryan.

## University Study Nearing Completion

A study that began two years ago to estimate population size, length and age distribution, growth rates, and food habits of Lake Trout in Priest Lake is nearing completion. The University of Idaho graduate research project entailed a large-scale effort to mark, release, and recapture Lake Trout throughout the lake in the spring of 2013. Follow up efforts involved collecting fish for age and growth analysis, sexual maturity, and stomach content sampling. A final component of the project added last Fall was to release Lake Trout pulled from deep water into a large, deepwater pen to evaluate post-release survival.

Though data are still being processed, the project has already yielded some interesting and surprising results. The total population of Lake Trout (over about 12") is estimated to be somewhere between 40 and 60 thousand fish. Though we don't have comparable population estimates from years past, the current estimate is thought to be significantly less than what it was 10-20 years ago.

Another interesting finding was that about 30% of the female Lake Trout were characterized as "non-spawning" meaning that although they were sexually mature, their gonads were poorly developed. This phenomenon is believed to be a function of a lack of nutrition and is not something we see in Lake Trout populations where food is abundant, such as Lake Pend Oreille.

The age and growth information was consistent with what we'd expected to see, considering the lack of forage fish. Lake Trout growth rates are very slow relative to other lakes. Though Lake Trout grow well initially in Priest Lake on a diet of Mysis shrimp, most fish hit a nutritional "wall" at about 18", and most will never exceed 25".

We plan to present a more complete synopsis of the project in a separate newsletter and a public meeting later this spring.—Jim Fredericks

***Acknowledgements:***

*We appreciate the partnerships and support from the many individuals, organizations and agencies that help us to achieve our mission, including:*

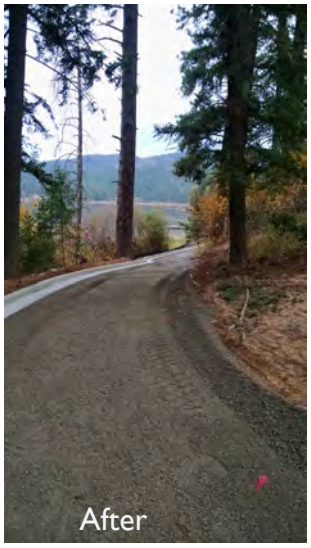
*IDFG Volunteers*
*Avista*
*Bonneville Power Administration*
*Bureau of Land Management*
*U.S. Fish and Wildlife Service*
*U.S. Forest Service*
*Coeur d'Alene Tribe*
*Kootenai Tribe of Idaho*
*Kalispel Tribe*
*Idaho Dept. of Parks and Rec.*
*Rathdrum Parks and Rec.*
*Lake Coeur d'Alene Anglers Assn.*
*Lake Pend Oreille Idaho Club*
*Panhandle Bass Anglers*
*Pend Oreille Bass Club*
*Shoshone Co. Sportsmen Assn.*
*Bonner Co. Sportsmen Assn.*
*Kootenai Valley Sportsmen Assn.*
*North Idaho Flycasters*
*Inland Empire Fly Fishing Club*
*Trout Unlimited*
*Priest Lake Sportsmen Assn.*
*Idaho Dept. of Lands*
*Idaho Dept. of Water Resources*
*Dept. of Environmental Quality*
*University of Idaho*
*Montana Fish, Wildlife and Parks*

# FISHING AND BOATING ACCESS

## *Rose Lake Access Upgrade*

Abundant bluegill, crappie, bass, and channel catfish make Rose Lake one of the Panhandle's most popular warm-water fishing lakes. Most of the use originates at IDFG's Rose Lake access area. Although the site has been functional, the steep approach and limited room for maneuvering made launching a boat less than convenient.

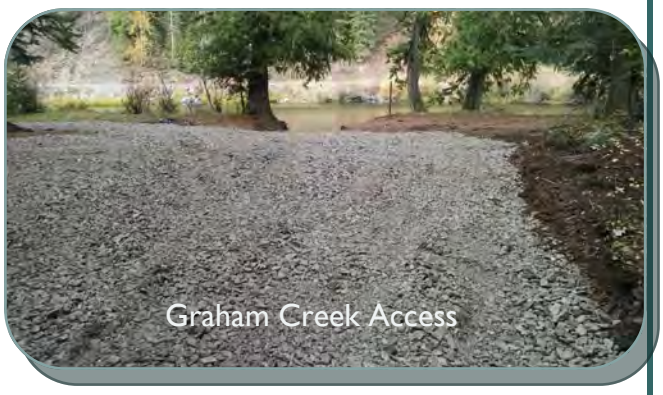

Before


After

Not any longer! This fall the site received a $150,000 renovation, involving expansion of the parking and launch areas, blacktop, handicap access, and most importantly, construction of an additional road to make a circular approach to the boat launch (see photos). This spring, boaters and anglers will find much easier access to great fishing. —Jim Fredericks and David Ross

## *Coeur d'Alene River Floating Access*

The Cutthroat Trout population in the Coeur d'Alene River has improved tremendously over the past 15 years, and with it, so has angling effort. The North Fork and Little North Fork have both become increasingly popular with anglers. Easy bank access and shallow riffles make for a wade-friendly river, but float-boat fishing is becoming increasingly popular when flows are adequate in the spring and early summer. Unfortunately, the lack of suitable put-in and take-out sites has been a frustration for many anglers. In a cooperative effort with the North Idaho Flycasters and the U.S. Forest Service, IDFG has been working toward creating a few boat access sites on the North Fork. The facilities are not intended to be elaborate boat launches. Rather, they are simple but useful sites where a vehicle can easily get a drift boat or a trailered raft to the water's edge. This is generally as simple as clearing vegetation, sloping the bank, and gravelling an approach.


Graham Creek Access


Shoshone Gauge Access

In 2014, we completed launch sites at Steamboat Pond, Graham Creek, and Shoshone Gage. The spacing of the sites now gives anglers excellent options for several 8-10 mile floats, which make for an excellent day of fishing. We hope to have 2-3 additional sites available in the next couple of years.—Jim Fredericks and David Ross