



# Upper Snake Region Annual Fisheries Report



## 2007 Activities and Accomplishments

Issue 3

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### Personnel Change

The Upper Snake fisheries program regrettably lost Bill Schrader to a promotion in September. Bill worked on the South Fork and Teton rivers for over 15 years and has an understanding of the biology and management history of these rivers that few others ever will.

We are fortunate, however, to have acquired one of the finest young biologists in the state as his replacement. Brett High grew up in eastern Idaho and is excited to return to his homeland to work on the fisheries he grew up with.



**Greetings.....**and thanks for your interest in the third annual Regional Fisheries Newsletter. For the past two years we've produced a brief summary of our activities to help folks better understand the region's fishery resources and know what IDFG is doing to manage them. We hope you'll agree that 2007 was a productive and interesting year for the Upper Snake regional fisheries program. With the introduction of new species, new state fish records, numerous fish population surveys, and the seemingly endless challenges of drought, there weren't a lot of dull moments. This newsletter, along with those from past years, will be posted on the IDFG website on the "Fishing" page, under "Fishing Reports/Info" (Upper Snake). If you find it interesting, please tell your friends and fishing partners and pass it along. We can most effectively serve anglers when they stay informed and involved, so if you have questions or want to share your thoughts, please give us a call.

### White Sturgeon Introduced to Idaho Falls

A new fish species arrived to the Snake River near Idaho Falls. In an effort to provide diversity and a large-tackle fishery in the area, 74 white sturgeon were released in the river near John's Hole and below the main Idaho Falls dam. The fish ranged from three to seven years of age and were from 18" to three feet in length. Although most are too small to attract a lot of angler attention just yet, if all goes well they should be large enough to create an exciting fishery within the next three to four years,

White sturgeon are native to portions of the Snake River in Idaho, but not above Twin Falls, where Shoshone Falls serves as a barrier to upstream migration. The stretch of river near the falls in downtown Idaho Falls was chosen because of its relatively slow flows, abundant food supply, and bottom depths that exceed 60 feet. Because the area is blocked by impassible dams upstream, the population will be confined below Idaho Falls. The fish are not expected to reproduce. If the program proves successful, the population will be supplemented every three to four years to maintain the fishery.

**All sturgeon fishing in Idaho is strictly on a catch-and-release basis, with barbless hooks required**

As is the case any time we introduce a new species outside their native range IDFG completed a rigorous evaluation to insure that introducing the fish would not negatively impact existing fish populations, habitat conditions, or the ecosystem in general. Much of the evaluation was based on similar

white sturgeon introduction efforts below American Falls Dam, that began in 1990. That program has successfully created a popular large-tackle fishery without jeopardizing existing resources.

Because white sturgeon are a very slow-growing, long-lived fish, they are easily over-harvested. For that reason, all sturgeon fishing in Idaho is strictly on a catch-and-release basis, with barbless hooks required.



The sturgeon were raised at the College of Southern Idaho (CSI) and are the result of the Snake River Sturgeon Cooperative (SRSC) that includes CSI, IDFG, and the Idaho Aquaculture Association. All of the fish released were implanted with PIT (Passive Integrated Transponder) tags, similar to those now used for pets. These tags can be scanned without harming the fish so that biologists can track the progress of the introduction. Vital information specifically linked to these tags will provide positive individual identification and allow us to monitor movements and growth of each fish.

# Big Lost River Drainage

## Mountain Whitefish Population Shows Improvement

During fishery surveys in the Big Lost River drainage in 2002 and 2003 biologists with the IDFG and the U.S. Forest Service saw a troubling decline in the mountain whitefish population. We immediately began working together on a plan to identify possible causes and implement actions to improve the population. With the help of Trout Unlimited, the US Forest Service, the Big Lost Irrigation District, the U.S. Fish and Wildlife Service, and private landowners and water users, we completed a plan in 2007 that is well on its way to implementation.

One of the actions identified in the plan is to conduct fishery surveys periodically to monitor the status of the mountain whitefish population. In 2007 we again joined with Forest Service and Trout Unlimited biologists to use electrofishing and snorkel surveys to estimate the population. We were excited to see an overall increase in whitefish numbers, both above and below Mackay Reservoir. Particularly encouraging was the large number of 2-year-old whitefish, indicating good reproduction and juvenile survival in 2005. Total estimated abundance in the drainage above the reservoir was 11,663 compared with 2,116 in 2003. Below the reservoir, we estimated total abundance at 1,832 compared with 627 in 2002. Though this shouldn't be regarded as evidence that the population is out of the woods, it does show the population is resilient and can rebound given habitat improvements and favorable precipitation conditions.

Not only did we see an increase in abundance, but we saw an expansion in distribution as well. Streams such as Fall Creek and Wildhorse Creek, where we found no mountain whitefish in 2003 had, in some cases, numerous whitefish in 2007. This is in part due to translocation efforts conducted from 2004-2006. During those years, over 3,000 juvenile mountain whitefish salvaged from dewatered reaches of the mainstem Big Lost River were transported and released in portions of the drainage where mountain whitefish were historically abundant but were not found in 2003. It is particularly encouraging to see the translocated fish still residing in the upper reaches of the drainage one to two years after their release, indicating the habitat is suitable to mountain whitefish.

## Lower Big Lost River Trout Population Stable

Not surprisingly, the conditions that led to an increase in the mountain whitefish population also seem to have benefited the trout populations as well. Densities of age-1 and older rainbow trout in the river below Mackay Reservoir were over 3,500 fish per mile, which is the highest estimated density we've seen since 1987 (Figure 1). Trout densities in the section below Mackay Dam are comparable to trout densities in the South Fork and Henrys Fork, which is truly impressive considering the relative sizes of the three rivers. As with whitefish, the size structure of the population was indicative of good recruitment in 2005, with an abundance of 2-3 year old fish. Eighty-three percent of the captured fish were over 12 inches, and 10% were over 16 inches. For comparison, in 1987 53% of the population was over 12 inches, and 13% was over 16 inches.

## Restoration Projects Continue to Benefit Whitefish and Trout

Many of the actions identified in the *Conservation and Management Plan for Mountain Whitefish in the Big Lost River Drainage* are based on the willingness of stakeholders to voluntarily cooperate and implement restoration activities. For the

past two years, Trout Unlimited has led a cooperative effort with landowners, water users, and agencies to provide fish passage over migration barriers. In 2007, a rock-ramp fish ladder was constructed over the Darlington Diversion. Prior to the ladder, fish were prevented



from moving upstream over the diversion during much of the year. The newly created channel will allow easy upstream movement for both juvenile and adult whitefish. The benefits of these facilities, however, are not limited to mountain whitefish. Rainbow trout, brook trout and the native non-game species in the Big Lost River will now be able to move freely over the diversion.

The project was primarily funded by the Natural

Resources Conservation Service and was installed with labor and equipment donated by the Big Lost River Irrigation District. This effort, combined with those planned for 2008 and 2009 will insure that mountain whitefish and all other fish in the Big Lost River will once again be



able to move freely up and down the mainstem from below the Blaine Diversion to Mackay Dam.

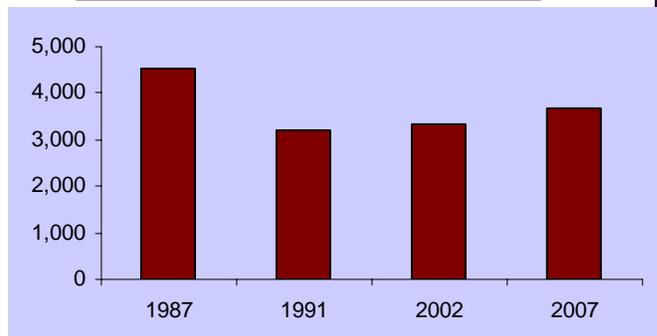


Figure 1. Trout densities (fish/mile) in the Big Lost River below Mackay Reservoir (campground reach) over the past decade.

## Creel Surveys Help Evaluate Regional Fisheries

### Island Park Reservoir Angler Survey Shows Fishery Improving

Island Park Reservoir is one of the most challenging fisheries in the region to manage for consistency. History shows the reservoir can produce monster rainbow trout, world record mountain whitefish, and maintain great catch rates under favorable conditions. However, during drought conditions, it's a different story. When the reservoir is drawn down to less than half its capacity, the fishery the following year suffers. When the reservoir has lots of water going into the winter, fishing the following year is generally good. Not surprisingly, reports from anglers in recent years suggest Island Park Reservoir fishing has been tough. Not only have the catch rates been down, but access has been unreliable as well.

IDFG completed a management plan for the Reservoir in 2006. The plan calls for increased rainbow trout fingerling stocking from just under 300,000 to 750,000. Unfortunately, severe reservoir drawdowns will still hinder the fishery, but we expect the increase in fingerlings will result in much better fishing during those years when more water is kept in the reservoir through the winter.

To evaluate the current fishery, including catch rates, harvest, and total effort, we conducted a year-long creel survey in 2007. We were pleased to see the fishing has improved significantly since the last survey in 1994, and was much better than what anglers have reported in recent years. This is not entirely unexpected given the reservoir was over half full going into the winter of 2006-07.

The 2007 creel survey showed overall catch rates were 0.5 fish per hour (one fish per 2 rod-hours of effort). This is just shy of the goal for the reservoir (0.6 fish/hour), but is still considered good fishing on most stillwaters and is, in fact, the highest we've seen since 1980. Additionally, 16% of the rainbows exceeding 20 inches indicating an excellent fishery for large fish. Rainbows up to 10 pounds were caught in 2007, and 5-6 pound fish were not uncommon. Approximately 15,000 fish were harvested on Island Park in 2007 and another 7,000 fish were caught and released. Fishing effort was estimated at approximately 45,000 hours. Trollers and bait anglers did well most of the year and fly angling was good from early summer on. The west end of the reservoir had most of the angling effort throughout the year.

The one downside noted in 2007 was with the kokanee. Although the average size was 17 inches, total harvest was estimated at less than 250. This is the unfortunate result of severe draw-down and low fry plants (due to availability) from 2003 to 2005. Fry plants those three years averaged 160,000. The good news is that the kokanee plants in 2006 and 2007 average over a half million per year. With favorable water conditions, kokanee catch rates should rebound in 2008 and 2009.

The inconsistency of Island Park Reservoir has caused it to be overlooked by many anglers. The recent season shows that it still has the potential to grow big trout and a lot of them. With the increase in stocking rates and better winter carryover, anglers would do well to keep an eye on this productive fishery.



*Anglers averaged one fish every two rod-hours on Island Park Reservoir in 2007, which is the best we've seen since 1980*

### IDFG Partners with Trout Unlimited on Big Lost Creel Survey

Concerns that the trout fishery in the Big Lost River, particularly above Mackay Reservoir, is being limited by excessive angler harvest prompted a survey of angler use and harvest during the 2007 season. The project, funded by Trout Unlimited and IDFG, provided a valuable update on the quality of the fishery in the drainage as well as a better understanding of the potential impacts anglers are having on the trout population.

Anglers from 25 states and two countries were interviewed during the survey, which ran from Memorial weekend through October. For the upper drainage (the Big Lost River and its tributaries above Mackay Reservoir) angling effort and harvest (all trout) were down from 1987. Catch rates, however, had increased to over 1.5 fish/hour, which is generally considered very good. Rainbow trout harvest declined from 12,440 in 1987 to 8,068 in 2007. Given that over 6,000 "catchable" rainbow trout are stocked in the upper drainage annually, many of the harvested rainbow trout were planted fish. The effort, catch rates, and harvest all suggest exploitation of the wild rainbow trout population is not excessive, and that angling pressure and harvest are not compromising the quality of the fishery.

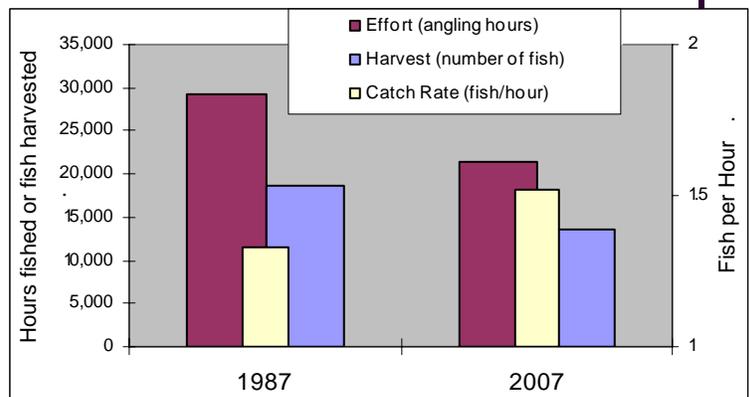


Figure 2. Angling effort, harvest, and catch rates in the upper Big Lost River drainage in 1987 and 2007 based on angler creel surveys.

## South Fork of the Snake River

### Trout Populations Highest since 1999

Most anglers reported 2007 was one of the best years of fishing on the South Fork they've seen in many years. Anglers raved about the insect hatches, catch rates, and the size of the fish. Our population surveys showed similarly positive results, with cutthroat trout densities in the Conant reach being at their highest recorded number since 1999. Brown trout numbers were also up, and unfortunately, so were rainbows.

The population surveys demonstrate the management efforts on the South Fork can restore healthy cutthroat populations, but they also show the rainbow population is very resilient. The three components of the management program (angler harvest, flow management, and tributary management) are all important. Just like a three-legged stool, if any one of these efforts are abandoned, the program is much less likely to work. Anglers who understand what's at stake need to continue to do their part and, more importantly, encourage other anglers to join in the effort and help harvest rainbow trout.

### Spring Flows Shaping Populations

The cooperative efforts between IDFG, the Bureau of Reclamation, Idaho State University, and water users to shape spring runoff flows are showing results. The intent is to help the cutthroat population by providing spring flows that negatively affect rainbow trout spawning and fry survival. Not all flows have been successful, but after four years of tests, we've gained a much better understanding of the magnitude and timing of peak flows that we believe are necessary to favor cutthroat over rainbow reproduction.

The yearling cutthroat to rainbow trout ratio (YCT:RBT) in the 2005 population surveys was 1.7, which was the highest we've seen since 1997. This indicates the 2004 flows were successful in favoring cutthroat trout. The yearling YCT:RBT ratio in 2006 and 2007 was 0.8 and 1.2, indicating the timing and magnitude of the 2005 and 2006 spring flow weren't sufficient to hinder rainbow trout production. Fortunately, the spring flows in 2007 were very similar in both timing and magnitude to the 2004 flows (see figure below), and we are very hopeful that 2008 population surveys will reflect better cutthroat than rainbow recruitment.

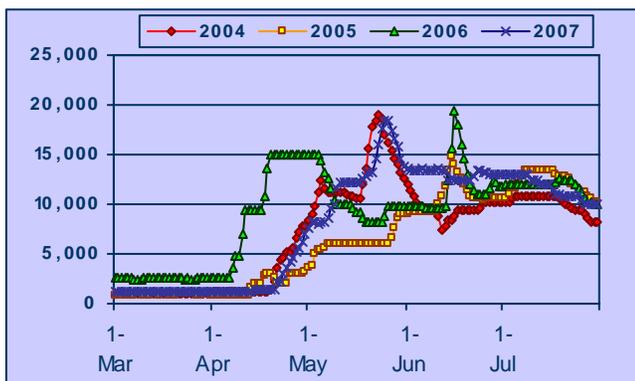


Figure 3. Spring flows (cfs) in the South Fork of the Snake River below Palisades Dam from 2004-2007.

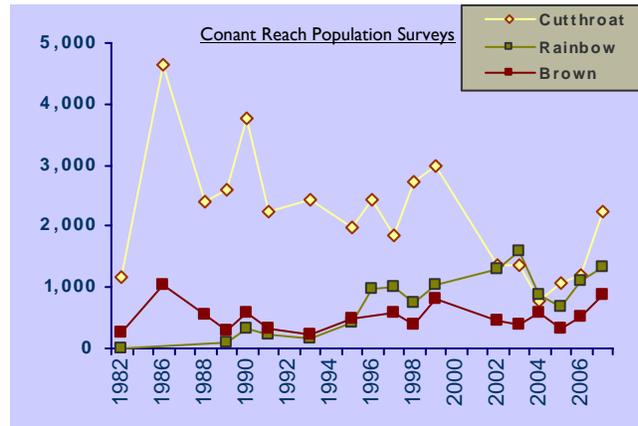


Figure 4. Densities (fish/mile) of Age-I and older Yellowstone cutthroat, rainbow, and brown trout in the Conant electrofishing reach of the South Fork Snake River from 1982-2007.

### High Tech Solution Showing Promise to High Water Problem

Maintaining the genetic purity of the cutthroat trout that spawn in the main tributaries to the South Fork is vital to the long-term health of the population. A population modeling effort with Dr. Rob Van Kirk of Idaho State University demonstrates the majority of mainstem spawning is now comprised of rainbow and hybrid trout. The research stresses the importance of the tributaries in the overall health of the cutthroat population and underscores the need to exclude rainbow trout from these important nursery streams.

Unfortunately, that's not easy. High water, woody debris, and shifting gravels during spring run-off have prompted a search for an efficient way to block upstream migrating rainbow trout from the major spawning tributaries to the South Fork. In 2007 we were encouraged by an experimental effort that relied on an electrical field to prevent fish from passing upstream. As in past years, the fish were diverted into a trap where they could be sorted and identified, but instead of a physical obstruction the fish were guided by electricity.

We were strongly encouraged by the results. We estimated we caught nearly 98% of the upstream migrating spawners. In the next two years we will be installing a more permanent electrical barrier in Palisades Creek.

We are also planning a similarly low-maintenance barrier in Burns Creek using a high-velocity flume to force fish into a ladder and collection facility.



## Henry's Fork Trout Populations Looking Good

### Winter Flows Benefit Box Canyon Reach

For the first time since 2002, we've exceeded our long-term average fish density of 3,000 trout per mile in the Box Canyon. Our most recent population estimates show over 3,700 trout per mile, which is more than double the estimates from 2003. Although some of this increase can be attributed to better winter snowpack, much has to do with winter flow releases from Island Park Dam. Winter flows are widely recognized as the driving force behind trout populations in the Box Canyon. IDFG, the Henry's Fork Foundation, Fremont-Madison Irrigation District, and the Bureau of Reclamation have worked cooperatively to optimize winter flow releases to benefit trout. We're now seeing the results of this collaborative effort in the Box Canyon, and expect improved densities in downstream reaches as well. Rainbow trout size structure was encouraging, with a healthy balance of juvenile fish and older age-classes.

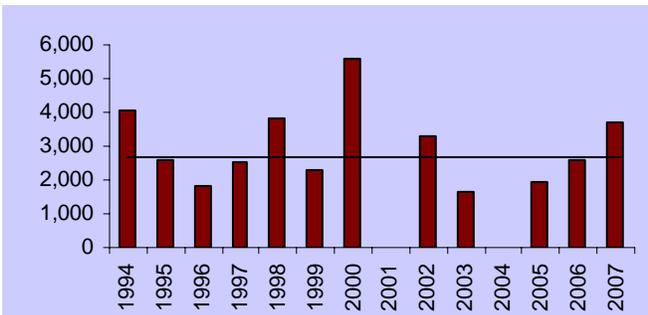


Figure 5. Estimated abundance (fish/mile) of age-I and older rainbow trout in the Box Canyon reach of the Henry's Fork from 1994 to 2007 with horizontal line indicating long-term average.

### Population Stable/Increasing in Vernon and Chester Reaches

Further downstream, we also surveyed the population between the Vernon Bridge and the Chester Dam backwaters (Vernon Reach) in 2007. We found a rainbow trout population

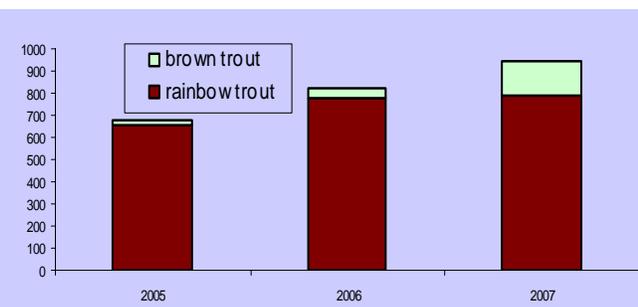


Figure 6. Estimated abundance (fish/mile) of age-I and older rainbow and brown trout in the Vernon reach of the Henry's Fork in 2007.

very comparable to what we saw in 2005 and 2006, at about 800 fish per mile. Although densities were comparable to past surveys, we saw a much greater percentage of juvenile fish in 2007, which reflects much-needed recruitment. There was a notable increase in the abundance of brown trout relative to earlier estimates. Brown trout comprised about 5% of the population in 2005 and 2006, but were 17% of the population in 2007. Interestingly, this is a pattern we're seeing in other parts of the region.

In the reach from Chester Dam downstream to the Fun Farm backwaters (Chester Reach), total trout abundance has increased from 503 trout per mile in 2003 to 893 trout per mile in 2007. As in the Vernon reach, brown trout have increased from about 9% of the electrofishing catch in 2003 to 24% currently.

### Cutthroat Stocking Program Increasing Trout Population in Mack's Inn Reach

IDFG periodically surveys trout populations in the uppermost reach of the Henry's Fork, from the confluence of Henry's Lake Outlet downstream to Mack's Inn. Degraded habitat and the lack of dissolved nutrients in the water keep this reach from being as productive as those below Island Park Dam, but it has im-

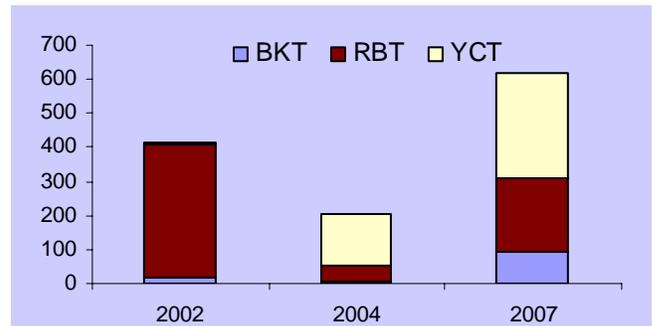


Figure 7. Estimated abundance (fish/mile) of age-I and older rainbow (RBT), brook (BKT) and cutthroat (YCT) trout in the "Mack's Inn" reach of the Henry's Fork in 2007.

proved in recent years. In 2002 IDFG began stocking Yellowstone cutthroat trout in the reach to improve the fishery. Historically, a large proportion of the rainbow trout found in this section during the spring were fish moving into the upper river from Island Park Reservoir to spawn in March and April. Because the spawning run was largely over by the opening of fishing season, these fish contributed little to the upper river fishery. Cutthroat trout, however, generally spawn in June and July and have the potential to establish a migration of spawning fish that will benefit the upper river fishery.

Density estimates from 2002-2004 average about 238 trout per mile. The estimated density in 2007 was 619 fish per mile. Yellowstone cutthroat trout comprised 50% of the electrofishing catch compared to less than 5% in 2002. The increase in trout abundance and the percentage of cutthroat trout in our sample indicate the program is working.

The Upper Snake Region is known for its passionate anglers, active conservation groups and non-governmental organizations. In addition, we are fortunate to have an outstanding group of scientists in our partner agencies and Universities that help IDFG accomplish its mission. We are proud of our efforts and accomplishments over the past year, but we know full well that we could accomplish very little without the cooperation and support from the many groups and individuals who help us. In addition to the countless anglers who've simply expressed support for what we do, we'd like to thank:

IDFG Volunteers  
 Henrys Fork Foundation  
 Trout Unlimited  
 Snake River Cutthroats  
 Henrys Lake Foundation  
 Friends of the Teton River  
 Upper Snake Flyfishers  
 Teton Regional Land Trust  
 Idaho Falls Elks Club  
 The Nature Conservancy  
 Greater Yellowstone Coalition  
 Fremont Madison Irr. District  
 Big Lost River Irr. District  
 Bureau of Reclamation  
 U.S. Forest Service  
 Bureau of Land Management  
 Fish and Wildlife Service  
 Rob Van Kirk (ISU)  
 Brett Roper (USU)



## Upper Snake Produces Another State Record!!

Wes Case knew there were some big brown trout in Ashton Reservoir, but he wasn't thinking "state record" big when he went fishing on November 6<sup>th</sup>. Yet, when he landed the 37 inch behemoth, he knew it had to be one of the biggest brown trout ever caught in Idaho. In fact, it was. At 27.3 pounds, the fish edged the previous record, which was a 26.5 pound fish caught from the South Fork of the Snake River in 1981.

Case, an Ashton resident, has fished Ashton Reservoir for years, but prior to Wednesday, an 8 pound brown trout was the biggest he'd ever caught. Landing the fish was no easy feat, given that Case was only using 8 lb test line. "It took me about an hour to land it" he said, "it headed out to deep water and just laid there, so I just kept the pressure on it". But fighting the fish was only half the battle. Case, who was fishing from the shore, was by himself and didn't have a landing net. "I had to scramble down the rocks

and through the brush to land it. When I finally got it up on the bank, I just sat on the shore and stared at it for about 10 minutes" he said. "It was totally amazing".

Based on the otoliths, or inner ear-bones, which are used to estimate ages of fish, the fish was at least ten and maybe eleven years old. Perhaps not surprisingly, the monster's stomach contained two partially digested hatchery rainbow trout about ten to twelve inches, and scales from a very large sucker.



Wes Case with his 27.3 pound state record brown trout from Ashton Reservoir.

## 2008 Brings New Rules to Three Alpine Lakes

Short growing seasons and limited food supply often mean mountain lakes are known for an abundance of small to medium-sized fish with voracious appetites. However, it's no secret to people who fish the high country of the Big and Little Lost river drainages that some of the mountain lakes can grow some monster trout. The geology of the area creates productive water chemistry, which translates to an abundant food supply. All of this, of course, ultimately means big trout.

Most of the lakes known to produce truly big fish are fairly difficult to access. This isn't because more accessible lakes can't produce big fish, but is a reflection of the increased harvest that comes with greater angler use. Most alpine lakes are stocked with only a few hundred fry once every three years, so a few dozen harvest oriented anglers can definitely impact the population.

IDFG and Forest Service biologists were interested in learning whether anglers were willing to trade some harvest opportunity for bigger fish in a limited number of lakes. Throughout the 2007 season, we distributed surveys to hikers visiting mountain lakes in the Copper Basin area over the course of the summer and asked whether they would support a quality trout rule in a limited number of mountain lakes. Of those with an opinion on that question, 74% favored such a rule and 26% opposed it.

The next step was to identify appropriate lakes. We looked for lakes that had a history of producing big fish, but were accessible enough or had seen a recent increase in use to lead us to believe angler

pressure was keeping fish from reaching their maximum size. We also tried to find lakes where there was harvest opportunity nearby. Of the 46 mountain lakes managed for fisheries in the region, we settled on three candidates for quality trout rules. They were Swauger Lake in the Little Lost drainage, and Fishpole and Long lakes in the Big Lost drainage.

Once we'd identified lakes for proposed rule changes, anglers were again asked, in an on-line survey as part of the rule-making process, whether they supported the quality trout rules, specifically for the three lakes. Similar to the earlier survey, 86% of respondents supported the proposal. As a result, IDFG implemented the quality trout rules on Swauger, Fishpole, and Long lakes. The new rules took effect in January 2008, and allow anglers two trout, with a minimum size of 20 inches. Long and Fishpole lakes are very near other productive lakes giving anglers plenty of opportunity to harvest fish for dinner. Although the same can't be said for Swauger Lake, we expect anglers to see some truly impressive fish in the coming years, and be satisfied with the trade-off between harvest and size.



Callie Gamett with a very impressive fish she caught from a mountain lake in the Big Lost River drainage.

Photo by Bob Gamett