

# 2008 Sheridan Region Angler Newsletter

*“From the Bighorns to the Blackhills”*



Wyoming Game and Fish Department  
*“Conserving Wildlife-Serving People”*

### Special points of interest:

- New Regulations for 2008!
- Know your native species; the shovelnose sturgeon
- Updates on several Cloud Peak Wilderness lakes
- Aquatic Nuisance Species
- Masters Degree project on the Powder River

### Greetings

Welcome to the 2008 Sheridan Region Angler Newsletter. We hope you find it informative and useful and we'd love to hear from you if you have any comments or questions for us.

The Sheridan region is one of the largest regions in the state with coverage of over 18,000 square miles, eight counties, 3,000 miles of streams, and 19,000 acres of lakes.

The diversity of fish and fishing opportunities within the Sheridan region is tremendous. From trout in the Cloud Peak Wilderness in the Bighorn Mountains to the elusive brown trout in Sand Creek and of course, the highly popular walleye in Keyhole Reservoir.

We try to highlight some of the more popular waters within our region, some of the projects we're working on, and some of Wyoming's lesser known but important species.

To reach us by phone, call **307-672-7418** and ask for one of the fish biologists. To send us a letter or email, please see the back page of this newsletter. Happy fishing!!



Paul Mavrakis



Andrew Nikirk



Travis Cundy



Bill Bradshaw

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### New Regulations for 2008-2009!

There are a few changes to be aware of in the fishing regulations for 2008. The most significant statewide change is the brook trout limit has been given its own category so it is no longer part of the overall trout limit. Anglers can now keep 16 brook trout, no more than 6, longer than 8 inches, in addition to their limit of 6 trout. Other changes include more liberal seining and underwater spear gun rules, reduced limits on sauger and a more specific definition of possession limits.

Locally, anglers will want to take note of changes at Healy Reservoir, Lake DeSmet, Middle Fork Powder River, and Kleenburn Ponds.

**Healy Reservoir**—return to statewide regulations and boats will be allowed, with up to 15 horsepower motors.

**Lake DeSmet**—anglers can now use up to 6 lines through the ice under the Special Ice Fishing Regulations.

**Middle Fork Powder River**—the trout limit is now 3, only 1 over 16 inches, from Bachus Creek downstream to the Bar C Road with no tackle restrictions.

**Kleenburn Ponds**—internal combustion motors are no longer allowed.

The new regulation booklets are available at license selling agents statewide. Please take a minute to review the regulations when you buy your 2008 fishing license. Feel free to give us a call at the Sheridan office (**672-7418**) if you have any questions.

## Keyhole Reservoir Update

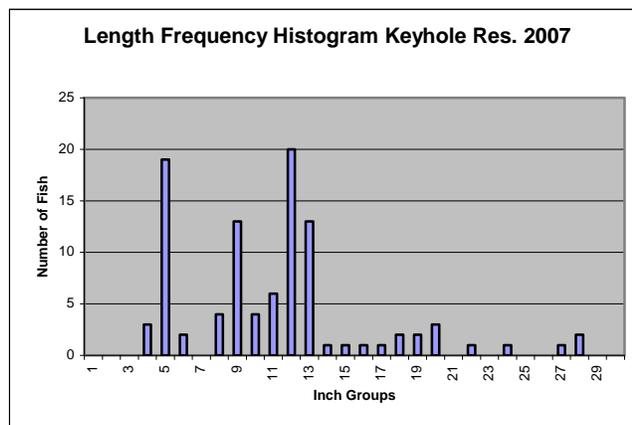


Large walleye caught through the ice at Keyhole Reservoir.

Fish populations continue to do well despite the ongoing drought and low water levels at Keyhole Reservoir near Moorcroft, Wyoming. Annual fish sampling is conducted in late August to monitor fish population abundance, size structure, and overall condition or health of the fish. We also used nighttime electrofishing equipment this spring to sample fish species such as smallmouth bass and northern pike that are difficult to sample with our traditional sampling equipment of gill nets and trap nets.

Despite the drought, sampling results have varied little over the past several years. This year 75 walleye were captured in seven gill nets. The walleye sampled averaged 13.5 inches in length (range of 8.6 to 28.9 inches) and 1.1 pounds (range of 0.16 to 8.88 pounds). Twenty seven young of the year walleye were also sampled this year suggesting that survival of young walleye this year was strong.

Keyhole has a lot of walleye in the 4 to 13 inch range. The larger walleye that we've all grown accustomed to at Keyhole are slowly phasing out of the population through harvest and natural mortality. The largest of the walleye (25 inch class) are 12 to 15 years old and are a result of the 1993 to 1995 stockings. The large number of 9 to 13 inch walleye will replace these larger walleye in the population and fishing for walleye should be excellent the next couple of years.



The crappie at Keyhole continue to be absolutely spectacular! In two nights of netting and one night of electrofishing, 326 crappie were sampled. Most of the crappie were between 7 and 10 inches and averaged 0.38 pounds. A handful of larger crappie were also sampled and they were 12 to 14.5 inches and 1.23 pounds! If you love panfishing look no further than Keyhole Reservoir!

*The walleye, crappie, smallmouth, and northern pike continue to do well despite several years of ongoing drought.*

Northern pike are highly sought after by anglers at Keyhole. This year 13 northern pike were sampled in the nets and with electrofishing gear. The pike ranged from 21 to 37 inches and 2 to 11 pounds. Northern pike are very difficult to catch in our sampling gear. These wary fish are ambush predators that lie and wait for food to come to them. The low numbers of northern pike sampled are certainly not an indication of the pike fishery doing poorly; they're simply hard for us to catch. Anglers continue to report that the pike fishing is doing quite well, especially in the spring.

Perhaps lesser known but certainly willing to bite a hook is the smallmouth bass and Keyhole is full of them! Thirty-five smallmouth were captured ranging in size from 5.5 to 16.5 inches in length and 0.1 to 2.2 pounds. The rocky areas near the dam, Cottonwood Bay, Coulter Bay, and Pat's Point seem to have the highest concentration of smallmouth.



8 pound walleye sampled at Keyhole in 2007.



## Know Your Native Species: The Shovelnose Sturgeon

The shovelnose sturgeon (*Scaphirhynchus platyrhynchus*) is native to some of Wyoming's waters, including the Powder River drainage in the Sheridan Region. Shovelnose sturgeon are a species of special concern in Wyoming. Since the turn of the 20th century, loss of habitat and dam construction has reduced their numbers. Historically, shovelnose sturgeon inhabited the North Platte River and the Bighorn River, but these populations are now gone in the North Platte River. Starting in 1996 the Wyoming Game and Fish Department re-introduced shovelnose to the Bighorn River above Bighorn Lake to hopefully establish a reproducing population.

In the Sheridan Region shovelnose have been found in the Powder River, the lower reaches of Clear Creek, and at the confluence of Crazy Woman Creek. The shovelnose that are found in Wyoming are likely seasonal migrants. During high flows in the springtime, shovelnose migrate upstream from the Yellowstone River in Montana to Wyoming presumably to spawn (shovelnose spawning in Wyoming has never been documented but is assumed).

Shovelnose prefer bottom habitats of large rivers with sandy substrates. They feed on aquatic insects, mussels, and crustaceans. Shovelnose are a long lived species, not reaching sexual maturity until 5 to 7 years of age. These fish can be described as prehistoric with 5 rows of bony shields (scutes) instead of scales. Shovelnose are the smallest of the sturgeon species and have rarely been found larger than 36 inches. Anglers are reminded that the creel and possession limit for shovelnose is 2 fish.



Shovelnose sturgeon from the Powder River.



A large Powder River shovelnose sturgeon..



G&F employees taking length measurements on a shovelnose.

## Cloud Peak Wilderness Sampling

Every year the Sheridan Crew heads to the mountains in July and August to sample high mountain lakes. In 2007, Game and Fish, along with US Forest Service personnel, surveyed sixteen lakes to monitor fish populations, fish health, and stocking success. The more popular lakes are listed below.

**Brown Bear:** Beautiful fish in Brown Bear. Snake River cutthroat, brook, and rainbow trout ranged in size from 6 to 13 inches.

**Firehole #1:** Excellent brook and lake trout fishery with fish ranging from 8 to 18 inches.

**Firehole #2:** This lake offers one of the few opportunities to catch golden trout and large lake trout. Golden trout ranged from 8 to 14 inches and the one lake trout that was caught was 29 inches!

**Lame Deer:** Gorgeous setting with lots of big-ger fish. Brown and rainbow trout ranged from 11 to 17 inches.

**Magdalene:** This lake offers great opportunities for Snake River cutthroat, rainbow, and brook trout ranging in size from 6 to 14 inches.

**Old Crow:** This lake offers excellent lake fishing as well as some high country stream fishing on the South Fork of Clear Creek. Brook and rainbow trout ranged in size from 6 to 13 inches.

**Trigger:** One of the more popular wilderness lakes in the Sheridan Region because of its proximity and good fishing. Snake River cutthroat, brook, and rainbow trout ranged in size from 6 to 14 inches.

Anglers and Wilderness users are reminded to be prepared for adverse conditions and to follow the regulations of the Bighorn National Forest.

For information on the lakes and streams within the Cloud Peak Wilderness contact the Sheridan Regional Office at **307-672-7418**. For information on rules, regulations, and useage within the Cloud Peak Wilderness contact the Bighorn Nation Forest at **307-674-2600**.



Large brook trout from Firehole Lake #1



Old Crow Lake, Cloud Peak Wilderness

## Middle Fork of the Powder River Update



Outlaw Cave pre-fire.

A well known, yet an often overlooked fishery in the Sheridan Region is the Middle Fork of the Powder River west of Kaycee. Due to remoteness, rough two-track access, and steep trails, the Middle Fork is often passed over by the average angler. In 2007 the Sheridan Crew sampled three established electrofishing stations to monitor population abundances in response to the flash floods of 2001 and 2007 and the major fire of 2006.

Fish populations have rebounded quite nicely at the **Gordon Creek** site (upper most site) after a flash flood reduced the rainbow trout population by 86% in 2001. Population estimates in 2007 of 308 brook trout/mile and 5,104 rainbow trout/mile closely resemble pre-flood estimates.

The **Bachaus Creek** station (the middle station) was found to have changed very little in total fish abundance with 2,468 brown trout/mile and 3,865 rainbow trout/mile. Although the total abundance of fish has not really changed, the make up of the fish population has. Since 1998 rainbow trout have decreased while brown trout have increased. Although the Bachaus Creek site was unaffected by the fire of 2006 it has been subject to several floods. The positive side of

things is that fish populations, for the most part, haven't been drastically affected.

The **Outlaw Cave** site (the lowest site) was found to be negatively impacted by the fire of 2006 and most likely, partially affected by the flash flood of 2007. Brown trout decreased 41% and rainbow trout have decreased 82% since 2002. Don't be alarmed! The Outlaw Cave site still boasts a good population of fish with 1,076 rainbow trout/mile and 2,710 brown trout/mile.

Fires generally cause an increase in fine sediments to the river resulting in a loss of spawning habitat, smothered eggs, and irritation to the gills of fish. Floods often have a drastic affect on young fish as they are less likely to withstand extreme flows. Floods and fires are part of nature and are unpreventable. And we, as anglers and fish managers have to let "Mother Nature" take its course. Rivers and the fish within them are resilient and given time, will bounce back, often better than before.

So if your vehicle can get you up the mountain and your knees can withstand the steep slopes of the canyon, take a visit this summer to the Middle Fork of the Powder.



These two pictures show Outlaw Cave after the fire went through in 2006.



Steep hillside showing the movement of soil after the 2006 fire. This soil ends up in the river thus affecting the fish populations.



Large brown trout from Sand Creek.

## Sand Creek

Sand Creek, a spring creek in the extreme northeastern corner of Wyoming, near Beulah, continues to exhibit amazing trout numbers. In 2007, two established electrofishing stations were surveyed to monitor the condition of the fishery. The Hospital Gulch station was found to have 5,402 brown trout/mile and 177 rainbow trout/mile. The Ranch A station was found to have and estimated 5,846 brown trout/mile and 1,395 rainbow trout/mile. Both stations had most fish ranging in size from 5 to 15 inches in length. The esti-

mates obtained from the 2007 electrofishing surveys are slightly down from past estimates of 10,000 total trout/mile in 1995. As with all fisheries, Sand Creek is cyclical and will most likely creep back up to the extraordinary levels of 1995.

Anglers are reminded to be aware of the special regulation in place on Ranch A which is fishing with flies and lures only and all trout other than brown trout must be returned to the water immediately.



## Story Hatchery Update

After delays and revisions to the original plans for remodeling the Story Fish Hatchery, Chief Construction of Billings Montana was awarded the bid for the reconstruction project. Chief Construction plans to begin breaking ground on the renovation project in March 2008, with completion scheduled for the fall 2009. The money for this project was appropriated by the Wyoming Legislature in 2006 and includes funds to build a new spawning building as well as alter the water delivery systems to help protect the facility from disease.

The new facility will replace several of the old dirt ponds at the hatchery and will provide workers with a roomier, safer, and more sheltered place for spawning operations. A new egg incubation room and additional fish rearing units will also be incorporated into the structure. The Story Hatchery currently maintains three important brood stocks for the

State of Wyoming; including the Eagle Lake rainbow trout, brook trout, and lake trout.

During the spring, activities at Story are centered on the Eagle Lake rainbow spawning and the 2.5 million eggs that are taken. During the fall, lake trout and brook trout spawning takes place, producing 1.2 million lake trout and splake (cross between a brook and lake trout) eggs, and 500,000 brook trout eggs.

**The Story Fish Hatchery is currently closed to the public due to safety concerns and will remain closed until construction is completed.**



The Story Hatchery produces 2.5 million Eagle Lake rainbow trout eggs..



Spawning lake trout at the Story Fish Hatchery..

## Lake DeSmet Update

Lake DeSmet is one of the most popular fisheries in the Sheridan Region. It offers excellent fishing opportunities for the boater and the bank fisherman alike. DeSmet has several game fish species including rainbow, brown, cutthroat, perch, rock bass, and the illegally introduced walleye.

Every year we sample DeSmet in the spring and fall in order to keep tabs on this popular fishery. The goal of the spring sampling is to target the trout species in the lake, while the fall sampling is primarily geared to sampling walleye. The presence of walleye in DeSmet was confirmed in 1991 and we believe that the walleye were illegally introduced in the late 1980s.

This year's sampling found big brown trout ranging from 17 to 27 inches and 2 to 8 pounds. Probably the most prevalent and easiest to catch is the rainbow. We sampled 175 rainbow ranging in size from 6 to 21 inches and up to 3 pounds.

Now to the walleye. During the spring and fall sampling we caught 93 walleye ranging from 7 to 28 inches and 0.1 to 9 pounds. The smaller fish in the walleye population indicate that reproduction is occurring. However, this young year class appears to be weak, as only 2 of the 93 walleye captured were smaller than 10 inches.

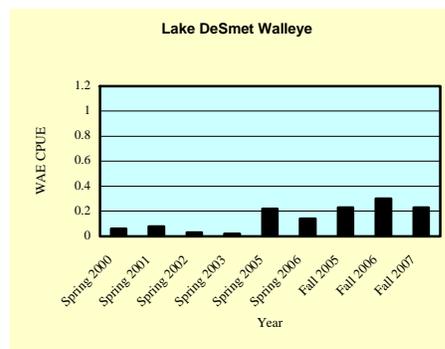
Although we've seen an increase in our catch per unit effort (CPUE= number of fish caught divided by number of hours net set in the lake) it still remains significantly lower than waters specifically managed for walleye such as Keyhole (4 year CPUE average = 0.41).

### Future Management

It's difficult to tell at this early stage of the game if walleye will have an affect on the trout population or if the walleye population will rage out of control. It is likely that we will have to increase the number of trout stocked and more than likely, increase the size of the trout that are stocked to avoid walleye predation. This means that we will have to bear the expense of producing a larger fish to stock. The fact is that walleye are here and we'll have to adjust our management accordingly. So if you like good trout fishing, Lake DeSmet is the place for you.



Large brown trout from Lake DeSmet.



A large female walleye from Lake DeSmet.



Clear Creek through Buffalo.

## Summaries from other Sheridan Waters

### Clear Creek through the town of Buffalo

Lots of habitat work has been done on Clear Creek in Buffalo the last few years. Prior to 2005, Clear Creek had very little fish habitat through that section of river. With the precise placement of boulders, Clear Creek now has several deep pools that trout love. Population estimates from the 2007 field season indicate that there are approximately 1,500 trout/mile >6 inches through this stretch.



Little Bighorn at Dayton Meadows.

### Little Bighorn River

The Little Bighorn River at Dayton Meadows offers anglers an excellent high mountain stream fishing opportunity. Located in the Bighorn Mountains, north of Highway 14A off of USFS Road 125, the Little Bighorn has Yellowstone cutthroat, brook, and a few rainbow trout. Population estimates from the 2007 sampling were approximately 3,450 brook trout and 1,600 Yellowstone cutthroat trout/mile.

### Healy Reservoir



Ice fishing Healy Reservoir.

Although there are still trout in this reservoir, yellow perch are now the most dominant fish in Healy Reservoir. Brown trout ranged in size from 18 to 23 inches and the 500 yellow perch that were caught ranged in size from 5 to 11 inches. Yellow perch have taken over, resulting in a stunted over-abundant perch population and a poor trout fishery. In 2008, we are going to stock splake, a cross between brook trout and lake trout, in an attempt to control the perch. With any luck, these splake will eat the perch, resulting in bigger perch (more food available for the remaining perch that don't get eaten), and an opportunity for anglers to catch large splake. Stay tuned on this one!

### Calvin Lake

Lots of good Yellowstone cutthroat trout fishing at Calvin Lake. To get to Calvin, take USFS road 26 (Red Grade) to USFS road 226, then a right on USFS road 268. This road peters out and anglers have to walk 1/4 mile up the hill to reach the lake, but it's worth it. The Yellowstone cutthroat that were caught ranged in size from 5 to 18 inches and up to 2 1/2 pounds.



Calvin Lake

### Duncan Lake

Lots of good Yellowstone cutthroat at this lake as well. To get to Duncan, take highway 14 to USFS road 668. This road is in poor condition and can be accessed easier with ATV. The Yellowstone cutthroat that were caught averaged 10 inches. These fish should be bigger in 2008, provided the lake does not winterkill.



Duncan Lake

### Tie Hack Reservoir

Lots of good fishing at Tie Hack Reservoir! Tie Hack is stocked with Yellowstone cutthroat and rainbow trout and Tie Hack also has wild populations of brown and brook trout. Most fish range in size from 7 to 13 inches with the possibility of catching a large brown trout up to 5 pounds!

### West Weston

West Weston is a newly formed lake in Campbell County west of Weston on Highway 59. West Weston was found to be loaded with 9 to 12 inch rainbow. Assuming water levels remain consistent, West Weston should provide an excellent fishing opportunity.



West Weston

### Weston Bass Pond

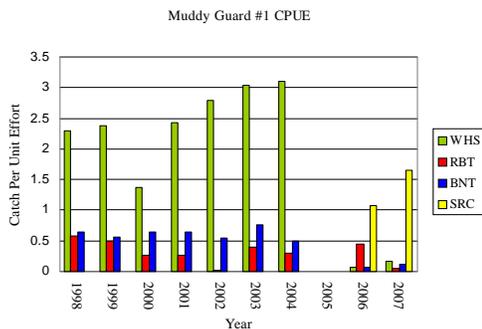
This is a nice little bass fishery north of Gillette. Just past the town of Weston on Highway 59, take a right on USFS Road 908 to get to Weston Bass Pond. This pond contains both large and smallmouth bass and a few, larger yellow perch.



Weston Bass Pond

## Muddy Guard #1 Update

The news just continues to get better about Muddy Guard Reservoir #1. From 1998 to 2004 white suckers dominated our gill net catch. The few trout that were captured in this period were in poor condition. When these suckers became overabundant they “tied up” the biomass that would have otherwise fed the trout. In 2004 Muddy Guard was drained and chemically treated with rotenone to kill undesirable species such as white suckers.



Catch/Unit Effort for species captured before and after rotenone treatment. Notice how the suckers have all but disappeared.

Once the reservoir was treated and refilled, Snake River cutthroat and rainbow trout were restocked. And within two years fishing was excellent.

## 2007 Fish Stocking in the Sheridan Region

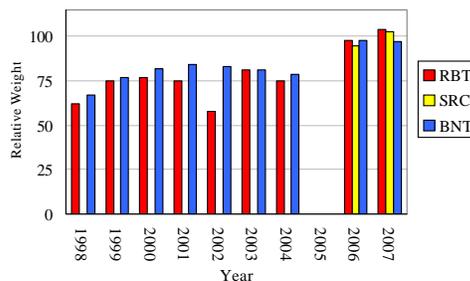
The fish culture section of the Wyoming Game and Fish Department is always busy stocking fish across the state and the Sheridan Region. And 2007 was no exception with over 562,000 fish stocked into Sheridan Region waters. The fish stocked in 2007 included Yellowstone cutthroat, Snake River cutthroat, three strains of rainbow, brook, brown, splake, northern pike, and walleye. All told, there were 49 reservoirs, lakes, and ponds and 12 creeks that were stocked. If you get the chance, make sure to thank the guys who work so hard to raise and stock all of these fish. Without them, many of our waters wouldn't have fish!

### Wilderness Lakes

Stocking of Cloud Peak Wilderness lakes via helicopter will resume in 2008. Lakes are

Our 2007 netting found Snake River cutthroat, brown, and rainbow trout ranging in size from 6 to 19 inches and a whopping 2 pound average weight. Keep in mind, these fish are only three years old and with very little competition from suckers, these trout could be 4 to 5 pounds in a year or two!

Muddy Guard 1 Relative Weight



Relative weight is how we measure the condition or health of fish. Prior to the treatment, relative weight averaged below 80 (poor condition). After the treatment, relative weights are around 100 (excellent condition).

Anglers are reminded that Muddy Guard #1 is managed as a trophy trout fishery. The creel limit on trout is one (1) per day or in possession. All trout less than 20 inches must be released to the water immediately. Fishing is permitted by the use of artificial flies and lures only.



Brown trout from Muddy Guard #1.



Large rainbow from Muddy Guard #1.



Helicopters with a fish stocking tank are used to stock remote lakes.



## Nongame fish

So what are nongame fish and why are they important? The definition of a nongame fish in the fishing regulations is “all fish not defined as game fish”. Most anglers can name nearly all the gamefish: trout, bass, walleye, sauger, catfish, perch, burbot, sunfish, pike, crappie, salmon, char, whitefish, grayling, sturgeon, drum and bullheads. I bet most anglers can come up with chubs, minnows and suckers but few other nongame fish. There are around 80 species of fish in Wyoming and game fish make up less than half of this total.



Gizzard Shad

Nongame fish are important for a number of reasons. Many nongame fish are native to Wyoming and they are a natural part of the fishery. All fill a niche in the available habitat. Think of a niche as the place the fish lives and what it needs to survive. Most nongame fish are important in the food chain. They eat small organisms like plankton and algae. In turn, some are eaten by game fish like walleye and catfish. Without nongame fish, many of our game species would have little to eat.



Creek Chub

Although not native to Wyoming, the gizzard shad is a great example of a nongame fish that has been introduced to provide a food source for walleye, crappie, bass, catfish and pike in Keyhole Reservoir. Gizzard shad are prolific spawners producing up to 500,000 eggs a year. As a result of the gizzard shad stocking, the health and growth of walleye in Keyhole Reservoir has improved.

There are some nongame fish, like carp that can be bad for a fishery. Carp can become so large and numerous that they can hurt the fishery. Carp root around in the mud looking for food, thus increasing turbidity of the water and decreasing the water’s productivity of plankton. This result ultimately affects the game fish that you are fishing for.

So the next time your out fishing for that walleye or bass, take a moment and appreciate the fish that you are not fishing for!

## LAK Reservoir Update

LAK Reservoir, east of Newcastle, continues to provide excellent fishing opportunities. Prior to 1995 this fishery was in poor condition with little green sunfish and white suckers being the dominant fish species. Trout that were annually stocked didn’t do very well in LAK because these other fish were out-competing them. So in 1995 the Wyoming Game and Fish Department introduced tiger musky and walleye to hopefully eat the undesirable fish thus resulting in better trout growth.

mouth bass have done their job. Green sunfish and white suckers have all but disappeared from LAK. Rainbow and cutthroat however were still not doing that well. Poor condition and growth, and the presence of three large predators prompted us to discontinue trout stocking in LAK. The only trout that you may find in LAK are brown trout that are stocked in Stockade Beaver Creek above LAK.

Our 2007 sampling effort found a few large brown trout up to 24 inches, smallmouth bass from 6 to 17 inches, and walleye from 8 to 24 inches and up to 5 1/2 pounds! No tiger musky were captured but a few were seen cruising the shallows.

LAK is a good example of how manipulations in the fish population can provide excellent results not only for the fishery itself but also for the anglers who fish it.

Anglers are reminded that LAK is privately owned. A free access permit can be obtained at Hardware Hanks in Newcastle. Anglers are also reminded that the creel and possession limit for tiger musky is three fish. Musky less than 30 inches must be returned to the water immediately.



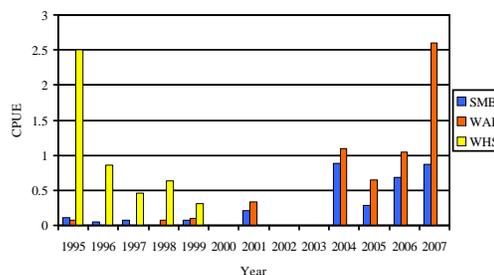
Nice walleye from LAK Reservoir.

Since 1995, tiger musky, walleye, and small-



Smallmouth bass from LAK.

LAK Reservoir Spring Gill Net Catch



Catch/unit effort graph depicting how white suckers have literally disappeared from LAK after the introductions of larger predators.

## Red Gulch Creek Chemical Treatment

Yellowstone cutthroat trout are the only trout native to Northeast Wyoming and to the Bighorn Mountains. Historical records indicate that Yellowstone cutthroat were present in the Big Goose, Little Goose, Tongue, and Little Bighorn drainages. Due to stocking of non-native trout (brook, rainbow, and brown trout) and changes in habitat (irrigation diversions, timber harvest, roads, tie



flumes), populations of Yellowstone cutthroat only inhabit a tiny fraction of their former habitat.

From 1999 through 2001, our goal was to sample every single stream on the face of the Bighorns from Montana to Little Goose Creek to determine what Yellowstone cutthroat populations were left. We also wanted to explore the feasibility of expanding Yellowstone cutthroat range by eliminating non-native fish.

Several creeks were identified that would be suitable for such a task. Our first attempt was in 2007 with Red Gulch Creek. Red Gulch Creek, a

tributary to the Little Bighorn River, is located on private property on the northern end of the Bighorns near the Kerns Wildlife Habitat Area.

Red Gulch Creek contains a small population of Yellowstone cutthroat above a natural barrier and a mix of Yellowstone and brook trout below the barrier.

We electrofished the section of creek that contained both species and put the cutthroat above the barrier. From the barrier we set up a rotenone drip station to kill all the brook trout below the barrier. By ridding Red Gulch Creek of brook trout we hope to expand this Yellowstone population by approximately 1 mile. This doesn't sound like a lot, but it's a 77% expansion of Yellowstone habitat within Red Gulch Creek. We will sample Red Gulch Creek again in 2008 to ensure that there are no brook trout left and to see if the cutthroat have expanded downstream.

In 2008 and 2009 we will be doing preliminary work on the Little Tongue, South Little Tongue and Elkhorn Creek for other rotenone treatments and Yellowstone cutthroat restoration.



Red Gulch Creek.



Rotenone drip station on Red Gulch Creek.

## Aquatic Nuisance Species



Whether by design or accident, illegal fish introductions are a real problem in Wyoming. Unfortunately, one of the latest examples is now in our own backyard.

Brook stickleback first reared their ugly little heads in upper Turner Creek when they were netted in 2004. A pair turned up further down the drainage in 2005, and sampling in 2007 showed that they are thick in upper Turner Creek. They have also have spread to Turner Reservoir, which is a popular spot for largemouth bass and trout fishing. So what's the problem? Well there are several.

Brook stickleback are prolific, aggressive, and efficient little predators, and the five native fish species in the drainage will probably have a tough time competing with them. The stickleback are in Turner reservoir where they are certainly competing for the same food that small bass and trout are looking for, plus stickleback will eat fish eggs and larvae, which does not bode well for baby bass or native species. And finally, the aptly named stickleback are poky enough that other fish tend not to eat them, so that over time they can become the dominant species.

We have a few options but our first step this summer is to figure out exactly where and how much of Turner Creek stickleback occupy. Then we can decide if or how we should go about removing them. None of the scenarios are free. If we decide to remove them there are costs for chemicals, biologist time, and restocking Turner Reservoir. The costs of not removing them include reduced sport fish productivity in Turner Reservoir, local reduction or extinction of native species, and a source of fish to spread to other waters.

Sometimes new species show up in drainages where live bait is permitted simply because they get mixed in with other fish at the bait shop. This vehicle for introductions would end if anglers *never* dumped their live minnows into the water when they are done fishing. However, using live bait is illegal in the Cheyenne River drainage, and the stickleback in Turner Creek are there because of a conscious criminal act, or through the ignorance of an angler who didn't bother to read the regulations and used live bait illegally. Regardless, it's now our problem.

We'll keep folks posted, but in the meantime; *PLEASE* help us protect Wyoming's aquatic resources and don't move fish around – ever!!!



Aerial photo of a Powder River oxbow and cottonwood riparian zone.

## Powder River: a changing frontier

The Powder River has long been an iconic landmark to the people of North America. From thriving Oglala Lakota Sioux communities to European explorers, American homesteaders, ranchers and prospectors, the Powder River is steeped in the history of the west. Upon first encounter, European settlers described the river in their journals as being “a mile wide and an inch deep, too thin to plow and too thick to drink.” Indeed, this is a characterization that aptly describes undammed or “unregulated” prairie river systems: shallow, wide, meandering rivers with predominantly sandy substrates and turbid waters. In light of industry development from coalbed methane however, the potential exists to alter the intrinsic nature of the Powder River, the last unregulated prairie river in North America.

Currently, the largest threat to the Powder River Basin’s biotic integrity may be attributed to the development of coalbed methane (CBM). CBM is produced within shallow coal deposits by biogeophysical processes and held there under pressure exerted by the aquifer. In order to extract CBM, the ground water must first be pumped, allowing the gas to diffuse out of coal seams for collection. It is estimated that 30 billion cubic meters of water (8 trillion gallons) will have been extracted from Powder River basin aquifers by 2013.

One of the largest hurdles within the CBM industry is the disposal of this ground water prior to gas extraction. In some cases this water can be used for irrigation and stock watering purposes. But the easiest and least expensive disposal of water is to discharge directly into the river. Great concern exists over this management option however, due to the possibility of steady, high-quality water influxes that may alter the dynamic nature of this prairie ecosystem. The 25 native fish species (including sturgeon chub, shovelnose sturgeon, and channel catfish) have evolved over the course of millions of years to be highly adapted to the environment instability which is characteristic of unregulated prairie systems. Researchers are concerned that moderating water temperature and flow may alter the habitat and behavior of native fishes, possibly making the system more conducive to colonization by non-native fishes. There are also concerns with the fragmentation from surface disturbances associated with CBM development that may impact terrestrial animals as well, such as mule deer, pronghorn, and sage grouse.

In light of these concerns, a Master’s Degree student, through the Cooperative Fish and Wildlife Research Unit at the University of Wyoming, is being funded by the Wyoming Game and Fish Department to investigate the potential effects of increased summer flows on the availability of suitable habitat for native fish. The student will spend the upcoming field season mapping habitat units at various flows to construct a GIS (geographic information system) based model predicting the change in habitat with flows. The response of the fish community to altered habitat will be linked to the habitat model through data collected from sampling fish from discreet habitat types, such as shoals, backwaters, runs, pools, and riffles. In addition to these goals, it is hoped that this research will aid in the development of standardized techniques for monitoring changes in instream, warm-water fish habitat.



Graduate student Anna Senecal and two technicians taking habitat transects in the Powder.

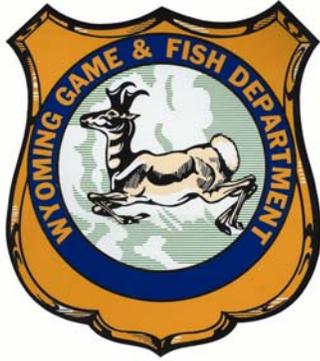
biologic legacy is likewise clear. Thus, it is the task of resource managers, landowners, and industry to find a compromise for the benefit of both people and wildlife.

As the current producer of roughly 25% of the nation’s coal, and as one of the leading producers of CBM, the economic importance of the Powder River Basin’s energy resources are evident. As the last remaining, intact example of an aquatic ecosystem that once dominated the Midwestern United States, the importance of the Powder River community as a



Aerial photo of the surface disturbance associated with CBM development.

Thanks to Anna Senecal for the great article and photos!



We welcome your comments or suggestions about this newsletter. Please feel free to contact us with the information to the left or send us an email at:

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## Dates to Remember

**September 11-13:** Wyoming Hunting and Fishing Heritage Expo, Casper Events Center. 1-888-EXPO-WYO

**June 7, 2008 and June 6, 2009**  
Wyoming's Free Fishing Day, check the Game and Fish website or your fishing regulations for further details.



<http://gf.state.wy.us/>

## Upcoming Work in 2008

Thanks for taking the time to view our newsletter! Please feel free to stop by our office, give us a phone call, or catch us out in the field. Although we'll be very busy this summer with field work we'll be happy to try to answer any questions you might have about fishing and fishing opportunities within the Sheridan Region. Here is a list of work that we have planned for the 2007 field season. Stay tuned for updates on these waters in our next newsletter. Happy fishing!

- Fish passage work on Clear Creek.
- Sauger and shovelnose sturgeon sampling on Clear Creek, Powder River, and Tongue River.
- Sample Lick Creek, Lake Creek, Clear Creek through Buffalo, North Tongue, South Tongue, Bull Creek, and Blue Creek.
- Sample Lake DeSmet, Healy Reservoir, Tie Hack Reservoir, Keyhole Reservoir, Muddy Guard Reservoir #1 and #2, Sibley Lake, Buffalo Wetlands Pond, Twin Lakes, Cloud Peak Reservoir, Sawmill Reservoir, and Kearney Reservoir.
- We will also sample several Wilderness Lakes including the Seven Brothers, Willow, Long, and Ringbone.
- Yellowstone cutthroat restoration work on Little Tongue, South Little Tongue, and Elkhorn Creek.

