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**Invasive Species Threaten Wyoming Waters** - Beth Bear and Janet Milek

Aquatic invasive species are organisms that are introduced into new ecosystems where they cause harm and threaten human uses of water resources. Often called "nuisance" species, they can attach to equipment, boats, and clothing used in the water and can then be transferred from one body of water to another. Once established, these species cause significant problems for aquatic ecosystems and the people who use them. Of particular concern are two species posing a significant and immediate threat to Wyoming - zebra and quagga mussels.

**What are they?**

Zebra and quagga mussels are freshwater, bivalve mollusks, typically with a dark and white pattern on their shells. They are native to Eurasia and were first discovered in the Great Lakes in 1988, most likely transported in the ballast water of ocean-going ships. They are up to an inch long and are often found in clusters attached to hard surfaces such as boats, piers, pipes, and other equipment. Invasive mussels reproduce rapidly. There are

no known populations of these mussels in Wyoming to date, but they have rapidly invaded waters across the country and are now present in Colorado, Nebraska and Utah.

**Impacts to You**

The negative impacts of invasive zebra and quagga mussels cannot be overstated. They impede water delivery and increase maintenance costs by clogging pipes, pumps, turbines and filtration systems. Invasive mussels can clog water intakes on motors, overheating and ruining boat engines. Invasive mussels remove plankton from the water. Plankton is the primary food source for forage fish - which in turn are the food of sport fish. The result is often a catastrophic decline in sport fisheries.

**How You Can Help**

Overland transport on trailered watercraft poses the greatest risk for spreading aquatic invasive species. To prevent the spread of these mussels to Wyoming and protect our resources, we're asking all boaters and anglers to **Drain, Clean, and Dry**. Drain all water from your equip-

ment and boat, including the livewell, bilge, and ballast. Clean all mud, plants, and debris from your equipment and boat. Dry your equipment and boat thoroughly before launching in another body of water for at least 5 days in summer, 18 days in spring and fall, and 3 days in winter.

The 2010 Legislature passed a new aquatic invasive species bill that allows the establishment of check stations to inspect watercraft for aquatic invasive species and if necessary decontaminate the watercraft. In addition to encountering check stations at boat ramps throughout Wyoming, boaters will need to purchase a Wyoming Aquatic Invasive Species decal before launching in any waters in Wyoming in 2010. For more information, call 307-777-4600 or visit <http://gf.state.wy.us/fish/AIS/index.asp>.

To report an aquatic invasive species sighting, or to request assistance with watercraft decontamination call 1-877-WGFD-AIS.



Zebra and quagga mussels can cling to boats and fishing equipment for days or weeks after leaving an infected water.

**“Overland transport on trailered watercraft poses the greatest risk for spreading aquatic invasive species.”**



“This section of the Shoshone River still retains its blue class with biomass estimates exceeding 600 lb/mi.”

Shoshone River Below Willwood Recovers from Mud Flow—Jason Burckhardt

Malfunctions of the Willwood Dam’s sluice gates in 2007 caused a large amount of mud to flow into the Shoshone River, virtually eradicating the fishery for at least two miles below the dam. This segment of the Shoshone is annually stocked with rainbow and Bear River cutthroat trout due to a scarcity of spawning habitat. There is enough spawning habitat however to support a small brown trout population. While trout estimates are down from 1,681/mi (726 lb/mi) in 2003 to 1,457 (612 lb/mi) in 2009, this segment of the Shoshone River still retains its blue class with biomass estimates (pounds of trout) exceeding 600

lb/mi. The bulk of trout biomass in this segment of the Shoshone River is from trout stocked in 2009. Carry-over stocked trout were poorly represented in our sampling. We will attempt to improve the carry-

over of stocked trout by reducing the numbers of trout stocked. With fewer trout going into winter perhaps more will survive during periods of reduced stream flow and less available trout habitat.

Results of 2009 Population Estimates on the Shoshone River below Willwood Dam.

Species	Mean Length	Length Range	Mean Weight	Weight Range	No./Mi	Lb/Mi
Brown	9.7	6.0-21.0	0.54	0.06-3.34	311	157
BR Cutthroat	9.9	6.6-10.0	0.35	0.08-1.86	325	110
Rainbow	9.6	6.2-19.2	0.43	0.12-2.86	778	317
SR cutthroat	12.1	7.7-17.0	0.65	0.26-1.70	45	28.2
All Trout	10.1	6.0-21.0	0.46	0.06-3.34	1,457	612



Aerial view of the Sunshine Reservoirs.

Sunshine Reservoirs Shining Bright—Jason Burckhardt

The last couple of good water years have been a boon for many of our fisheries. This is indeed the case for Upper and Lower Sunshine Reservoir. These two waters can be reached by heading west on highway 290 from Meeteetse. Drought had wreaked havoc on these fisheries since 2001 with Upper Sunshine Reservoir being drained in 2001, 2002 and 2005.

The sucker population and removed the need to stock splake in this water as biological control of the suckers. The fishing has remained good on this water even with the increased fishing pressure. A number of anglers have asked how Upper Sunshine could maintain excellent fishing with such a high level of harvest. It is true Upper Sunshine has become a popular angling destination. We have been ramping up the Yellowstone cutthroat stocking (now 60,000 annually) to 80,000 in 2012 in an attempt to balance harvest with the production of quality fish.

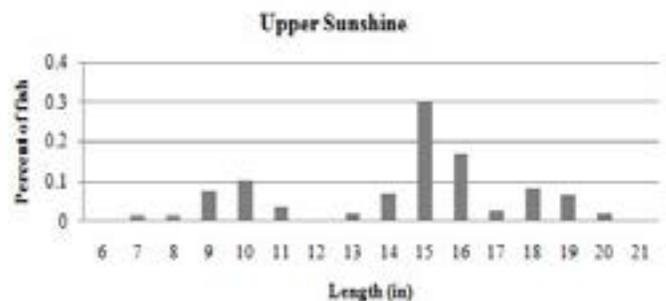
high number of suckers. We will continue to stock splake in Lower Sunshine as a biological control for those suckers. The splake also provide an opportunity to catch larger fish. One splake caught in our 2009 nets was just over 25 inches and weighed 5.5 pounds.

“The Sunshine Reservoirs provide a great opportunity to catch quality Yellowstone cutthroat.”

Upper Sunshine filled for the first time in a number of years in 2008 and remained near full in 2009. The filling of this reservoir, after remaining so low for so long created a “new reservoir” effect. The land that had been exposed grew vegetation and when that vegetation was inundated the decomposition of that vegetation released nutrients. Those nutrients worked their way up the food chain and resulted in rapid trout growth. In fact fish stocked in April 2009 at under six inches averaged over ten inches by the time we sampled in early July. Fish stocked in 2008 averaged 15-16 inches and those stocked in 2007 were 18-19 inches with a few over 20 inches. In addition, the draining of Upper Sunshine has removed

Our sampling found lower densities of trout in Lower Sunshine than in Upper Sunshine and a

These reservoirs should continue to provide quality fish in the near term with higher water levels. The current snow forecast for the Greybull River drainage is not all that stellar. Hopefully rainfall this spring and into the summer will reduce irrigation demand on these reservoirs and water levels will remain high enough to maintain these quality fisheries.



Length frequency of Yellowstone cutthroat trout sampled in Upper Sunshine Reservoir in 2009.

## A great Opportunity to Catch Sauger—Mark Smith

Sauger are a close relative of walleye and are often misidentified as such. The two species share a similar body shape, eating habits and in some cases occupy the same waters. However, the two fish are easily distinguished by knowledgeable anglers, spawn at different times and places and prefer different types of habitat. The two fish can hybridize but rarely does this occur naturally.

Sauger are native to the Bighorn, Wind and Nowood Rivers in our region. Walleye are a nonnative fish introduced to occupy and provide recreation in the artificial habitats created by reservoirs.

Unlike walleye, sauger are a river fish that require river environments to spawn. Sauger are also more tolerant of turbid or dirty water. Scientists believe the sauger eye is adapted to the extreme low light conditions in turbid water where the walleye eye is developed for dark conditions in clear water.

Walleye are by far the more abundant of the two species in the U.S. and in Wyoming. They

are also arguably easier to catch because they spend more time in lake environments with high water clarity

The Bighorn River from Worland to Big Horn Lake holds the largest remaining sauger population in Wyoming. In recent years favorable conditions in Big Horn Lake have resulted in a huge increase in sauger numbers. The opportunity to catch a sauger has never been better. Sauger can be caught using the same gear and techniques used to catch walleye. The best sauger fishing in Big Horn Lake occurs in late fall.

Because sauger are a native fish which occupy limited area in Wyoming, the creel and possession limit is two (2) fish. Harvested fish should remain intact (you may remove the guts) until you are home.

For trip planning information check out these web sites.

[www.bighornlake.com](http://www.bighornlake.com)

[www.nps.gov/bica](http://www.nps.gov/bica)



Sauger are a remarkably efficient predator in turbid water. Notice the teeth designed for holding prey.



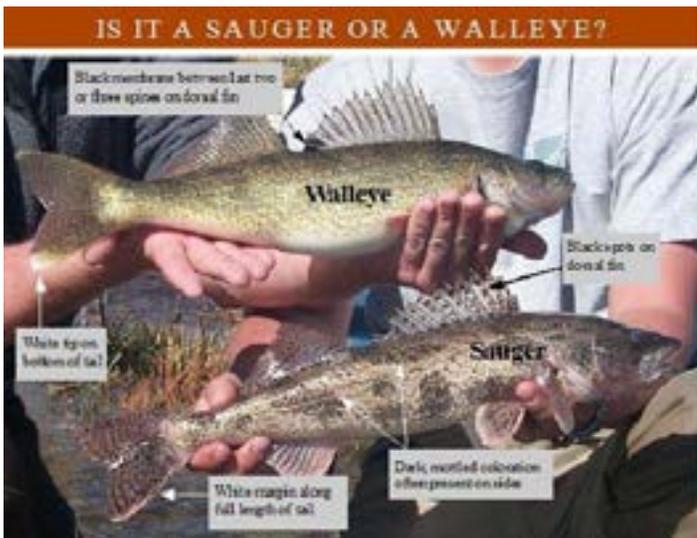
Emerald shiners shown here are the primary food consumed by sauger in Big Horn Lake.



A recent surge in sauger numbers is the result of more water in Big Horn Lake.



Anglers fishing for sauger in Big Horn Lake are likely to also catch smallmouth bass.



The differences between walleye and sauger are numerous. The easiest and best distinguishing characteristic is the presence or absence of black spotting on the dorsal fin.

## Summary of Recent Big Horn Mountain Fish Surveys—Mark Smith

**West Tensleep Creek** (Island Park)- Brook trout averaged 6 inches and ranged 2-8 inches. Rainbow trout averaged 8 inches and ranged 6-11 inches. Brown trout averaged 7 inches and ranged 2-14 inches.

**Middle Tensleep Creek** (at falls)- Brook trout averaged 6 inches and ranged 3-8 inches. Rainbow trout averaged 8 inches and ranged 6-10 inches.

**Middle Paintrock Creek** (Battle Park)- Brook trout averaged 6 inches and ranged 3-9 inches.

**Willow Creek** (Willow Park Camp-ground) - Brook trout averaged 6 inches and ranged 3-8 inches. Rainbow trout averaged 7 inches and ranged 7-8 inches.

**Meadowlark Lake**- Rainbow trout averaged 11 inches and ranged 6-15 inches. Brook trout averaged 9 inches and ranged 6-12 inches. Brown trout averaged 16 inches.



Survey site on Middle Tensleep Creek above Tensleep Falls.



Numerous Big Horn Mountain Streams offer fast fishing for brook trout.

“the last 15 years have included the five driest on record and two of the three wettest”

## Climate Change and Your Fisheries Resources—Mark Smith

Regardless of whether you want to attribute it to human induced climate change, natural fluctuations or just luck, the last decade in the Big Horn Basin has seen some extreme fluctuations in water availability.

At Big Horn Lake (Yellowtail Reservoir) where all flowing water that leaves the basin must pass, the last 15 years have included the five driest on record (least inflow) and two of the three wettest. Unfortunately at the time of this writing, the basin is on track to add another record dry year to the books.

It's no secret fish need water. The biggest impact to our fisheries during drought doesn't

come by fish drying up but rather by the loss of critical habitat.

The impacts of water scarcity and abundance on fisheries of our region can be observed from the high mountain streams to the reservoirs on the basin floor. The immediate impacts to fish populations due to poor water availability is often most evident in reservoirs and tailwaters (streams that flow out of regulated dams).

At Big Horn Lake the drought years of 2001 to 2004 devastated the sauger and walleye fishery. The deep narrow canyon of the lower reservoir provides very little juvenile habitat for these fish and when there wasn't

enough water to pool on the shallow upper end, the small sauger and walleye simply didn't survive to adulthood.

Similarly the Bighorn River below Boysen Dam was reduced to less than 400 cfs during the winters of 2003 and 2004 resulting in very low survival of smaller trout.

Fortunately most of our sportfish are relatively short lived critters and when water abundance improves it doesn't take too many years for populations to rebound. Both Big Horn Lake and Bighorn River fisheries have improved to date but both could just as easily crash with one or two years of drought.



Small fish are often the first to disappear when water becomes scarce in drought years.



Horseshoe Bend is great sauger habitat when annual water fluctuation isn't extreme. The entire portion of the reservoir remained dry in 2004.



Reservoirs and the tailwaters fisheries below dams are very sensitive to periods of water scarcity and abundance.

## Bighorn River Trout Numbers Improve—*Mark Smith*

The 2009 water year was good for fish and tough on anglers. The releases from Boysen Reservoir kept the Bighorn River high from May to July. Reports from the river suggest fishing was good in the latter half of 2009 but frustrating in early summer.

The trout fishery from Wedding of the Waters to Black Mountain Bridge expands and recedes in large part based on the water volume and release patterns from Boysen.

In 2008 we saw the trout population dip due to low winter flows. Fortunately water availability improved in 2009 and the trout numbers followed suit.

Our 2009 surveys resulted in an estimate of 2,850 trout per mile in the river up from 1,000 per mile in 2008. As you might expect, a sudden increase like this isn't due to more large fish but rather a bumper crop of 2009 trout. Of the 2,850 trout per mile we estimated 1,700 of these

were rainbow trout produced in 2009.

Winter survival is a critical limiting factor for small trout. Winter survival in the Bighorn River is dependent on how much water is available. Fortunately, the winter flows this winter were excellent (900 cfs).

With excellent winter flows and a bumper crop of trout entering the fishery, the river appears poised for a very good 2010. The 2009 trout should be 13-16 inches this summer. If water conditions are good for fishing this may be the best year in recent memory to fish the Bighorn River.

Rainbow trout make up the bulk of the fishery in this portion of the river but brown and Snake River cutthroat trout are also present and their numbers increased in 2009 also.

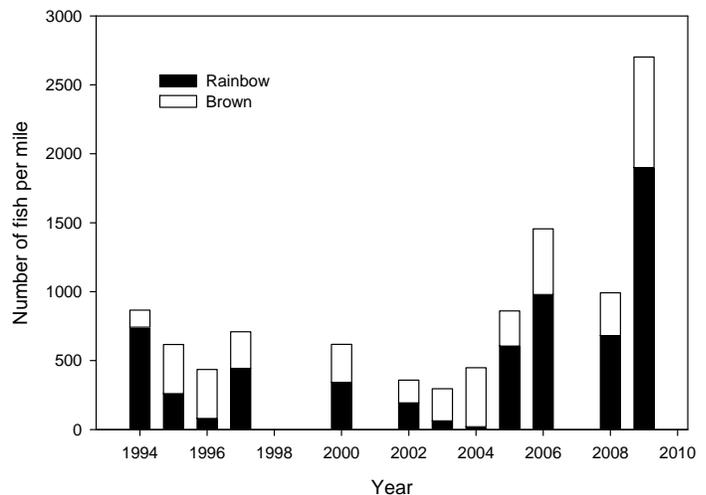
Access to this fishery is excellent. Visit the Game and Fish website to view Public Fishing Area maps.



Growth of rainbow trout in the Bighorn is exceptional as seen in this 3 year old fish.



Snake River cutthroat account for 5-10% of the trout population in most years.



The increase in trout in the Bighorn River from 2008 to 2009 is largely due to an increase in small rainbow trout produced in 2009.

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**“You never know when or where that next cast may hook you the fish of a lifetime.”**

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## Where the Lunkers Lurk—*Jason Burckhardt*

Are you looking for the fish of your dreams.....one that gives little children nightmares. One never knows where those fish might show up. We all know that better than average trout can be found at the usual places (East Newton, the Bighorn River, etc.) but every once in a while these behemoths show up in the least expected spots.

Markham Reservoir, a 14-acre reservoir in the City of Cody's Beck Lake Park is stocked with rainbow and cutthroat trout. A

few brown trout were also stocked, the last in 1997.

In June 2009, a brown trout of enormous proportions was sampled in this water. This fish measured over 30 inches and tipped the scales at over twelve pounds. This fish was captured alive and released in good condition. It's unknown how long this fish persisted in this water but it undoubtedly consumed a number of stocked trout. Keep this in mind the next time you are fishing in your favorite water. You never know when or where that next cast may hook



30.1 inch, 12.3 pound brown trout was caught in Markham Reservoir a 14-acre lake in the City of Cody, June 2009.

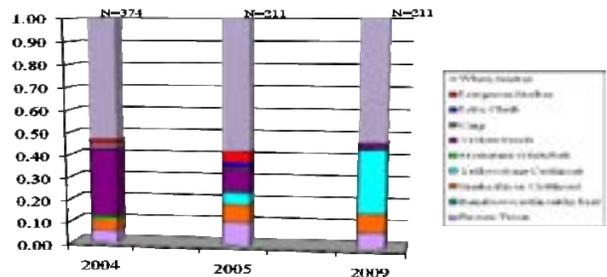
“While suckers still are still the predominant fish, trout are now more prevalent and the ones present are bigger than average.”

### Things Looking Up at South Fork Dike Pond *-Jason Burckhardt*

South Fork Dike Pond is a relatively shallow 158-acre reservoir that was constructed for dust abatement with the enlargement of Buffalo Bill Reservoir. South Fork Dike Pond has two tributaries, Carter and Marquette Creeks and also receives water from Cody Canal. When South Fork Dike Pond was sampled in 2004 trout comprised less than 10 percent of the catch due in large part to the robust sucker and yellow perch populations. Sampling was repeated in 2005 to determine if chemical treatment to remove these unwanted species

was necessary. The 2005 sampling indicated that while white suckers still dominate the catch, the trout catch was improving. Sampling conducted in 2009 found suckers still the predominant fish in South Fork Dike Pond, but trout are now over 40 percent of the catch. The fish that

were sampled were larger than average. Trout averaged 15.5 inches and 1.6 pounds. We caught fish up to 19 inches and 2.6 pounds, but anglers that fish this water can attest GF didn't always catch the biggest ones out there.



Species composition of South Fork Dike Pond

### The Pendulum Swings at Harrington Reservoir- *Mark Smith*

Harrington Reservoir located near Otto has undergone a dramatic swing over the past six years. In 2003, the reservoir was overloaded with small yellow perch. The perch were too numerous to be much fun and too small to be worth harvesting.

To address the overabundance and small average size of perch, we began stocking walleye to provide some much needed predation. In the past six years we have stocked approximately 175,000 walleye in the reservoir.

In the first three years following walleye introduction, it didn't look like we could ever stock enough. But beginning in 2007, we began to see signs of a shift. Yellow perch numbers in our spring surveys declined dramatically between 2007 and 2009. Where once there

were more perch than we could possibly net, in 2009 our spring electrofishing yielded only one.

In 2009 for the first time, walleye were the most abundant fish averaging 14 inches and ranging from 7 to 22 inches.

Unfortunately the pendulum may have swung too far at Harrington Reservoir. While the introduction of walleye achieved our goals of reducing perch numbers and improving average size, we now find the fishery forage limited meaning that there might not be enough perch to adequately feed the walleye.

Those who are familiar with walleye and perch fisheries probably recognize these fluctuations as common in many other waters— especially small reservoirs like Harrington.

Right now the future composition of the fishery is a bit un-

certain. We plan to scale back the number of walleye we stock in the reservoir beginning in 2010 and hope to see a moderate resurgence of perch over the next few years. Anglers should consider harvesting a few walleye and maybe releasing a few of the large perch (the largest perch are typically females).

The regulations at Harrington Reservoir were changed in 2010. The creel limits remained unchanged but anglers may now use live minnows and up to six lines during the ice covered period.



Harrington Reservoir is a 184 acre coolwater fishery south of Otto, Wyoming.



Walleye have significantly decreased perch numbers at Harrington Reservoir.

## Soldier Creek to Receive Yellowstone Cutthroat—*Mark Smith*



Soldier Creek will be treated to remove brook trout in 2010 and 2011.

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### “Yellowstone cutthroat trout define Northwest Wyoming”

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From a fisheries perspective Yellowstone cutthroat trout define Northwest Wyoming. Our region is the epicenter for Yellowstone cutthroat and they are an important part of the natural heritage of our region.

Unfortunately, these fish have been displaced by brook trout in almost all of the streams they once occupied in the Big Horn Mountains. Fortunately, we have the ability to improve Yellowstone cutthroat trout distribution.

In 2008 and 2009, we chemically removed brook trout from Buckskin Ed Creek a small stream in the South Paintrock Creek drainage on the Big Horn

National Forest. Beginning in 2010 we will be restocking Buckskin Ed Creek with Yellowstone cutthroat from lower Soldier and upper South Paintrock Creeks. The reason we are moving these fish is to both establish Yellowstone cutthroat in Buckskin Ed Creek and to provide refuge for the fish while we remove brook trout from Soldier Creek.

Brook trout will be removed from Soldier Creek beginning in early August of 2010. While all Game and Fish regulations remain in place, anglers are encouraged to harvest fish in the stream prior to August.

Following treatment in 2010 the stream will be retreated in 2011

to ensure all brook trout are removed. Beginning in 2012, Yellowstone cutthroat will be restocked throughout the stream.

We understand that change isn't always popular and for some Soldier Creek may be a special place. Fortunately, Soldier Creek will return to a productive fishery over a few short years. There are many good brook trout streams in the Big Horn Mountains with similar attributes to Soldier Creek so having a similar experience is literally only a few miles away.

## Dead Indian Creek Yellowstone Cutthroat Trout Restoration—*Jason Burckhardt*



Dead Indian Creek, a tributary to the Clarks Fork Yellowstone River, was chemically treated to remove rainbow and rainbow-cutthroat hybrid trout in August 2009. This treatment will be repeated in 2010 to ensure the complete removal of the fishery and be restocked with Yellowstone cutthroat of various sizes before the 2011 fishing season.

Dead Indian Creek will remain fishless during the 2010 fishing season.

The goal of this project is to establish a self-sustaining population of Yellowstone cutthroat trout in this segment of Dead Indian Creek to ensure the persistence of this native species in the Clarks Fork River drainage. We will continue to monitor this

population to determine when our goal has been obtained.

A big thanks goes out to the Shoshone National Forest, Montana Fish Wildlife and Parks, Trout Unlimited volunteers and other WGFD personnel for assistance in carrying out this complicated project.

Dead Indian Creek and tributaries in the South Paintrock Creek drainage were selected to conduct Yellowstone cutthroat trout restoration due to their proximity to existing conservation populations and barriers that are present to prevent the reinvasion of non-native trout.



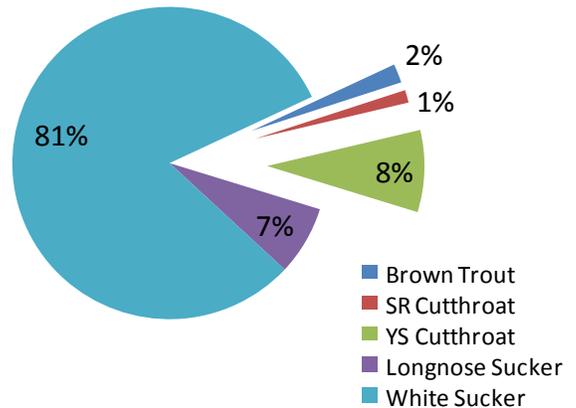
## Diamond Creek Dike Pond -Jason Burckhardt

Diamond Creek Dike Pond is a 34-acre impoundment that was created when an exclusionary dike was constructed as part of the enlargement of Buffalo Bill Reservoir to prevent the inundation of Irma Flats (southeast of the reservoir). A pumping station operated by the US Bureau of Reclamation maintains water levels in Diamond Creek Dike Pond.

Diamond Creek feeds Diamond Creek Dike Pond with much of the water in Diamond Creek resulting from irrigation return

flows. A number of wetlands were constructed upstream from the dike pond to capture sediment and prolong the life of the pond (one of which is being repaired this spring).

Sampling in 2009 found the Diamond Creek Dike Pond fishery to be overwhelmed with suckers, with trout only comprising 11 percent of the catch. We plan to use the chemical rotenone in the Fall of 2011 to remove the existing fishery and restock Diamond Creek Dike Pond in the spring 2012.



Sampling in 2009 found Diamond Creek Dike Pond to be overwhelmed with suckers. Chemical rehabilitation in 2011 will restore this fishery.

## Wetlands are Important to Fisheries -Steve Yekel



A new dike structure was completed in spring 2010 on Diamond Creek. It creates a five-acre wetland for sediment entrapment to prolong the life of Diamond Creek Dike Pond, a downstream Yellowstone Cutthroat trout fishery.



Drop structure on Diamond Creek. Note accumulated sediment in lower right portion of photo that has begun growing vegetation. Sediment is periodically removed to enhance the life of these types of wetlands.

I am a big advocate for wetlands. You might ask why a long time fish biologist would be so interested in wetlands. The answer is simple! Wetlands are important to fisheries for the filtering benefits to the water. Cleaner waters mean more fish. Mother nature provides us with cleaner water through natural wetlands. Water that may contain heavy sediment loads as well as chemicals are dropped in wetlands as the water makes its way through the short grasses, sedges and rushes that are commonly found in wetlands.

We are promoting manmade wetlands as a way to help mother nature clean our waters. Our Department works closely with the Natural Resource Conservation Service, or NRCS to partner with private landowners as well as other federal agencies for development of more wetlands throughout the Bighorn Basin. So, if you are interested in developing a wetland contact our Extension Biologist, Amy Anderson at 1-307-347-2456 ext 108. She can provide you with information on the Wetland Reserve Program; and think **WETLANDS= CLEANER WATER= MORE FISH.**

### What is new on the Access Front? - Steve Yekel



North Fork Shoshone Boat ramp near Jim Creek.

Public access and development is a topic I hear questions about on a very regular basis. “When are we going to have more places to fish? Are you thinking of developing a parking area in the future? Why can’t you use some of our license money to buy more access? So my response is soon, yes and there are never enough dollars to do all we want to. However, we are making progress. In 2009 we completed two boat ramps in the region, one on the North Fork

Shoshone River near Jim Creek, and the other on the Clarks Fork River near Edelweiss. Details of these sites have appeared in prior newsletters.

In Fall 2009, our GF Commission approved two agreements with the U.S. Bureau of Reclamation and City of Cody to begin managing lands for those two partners that will open up hunting and fishing to about two miles of the Shoshone River. These lands are actually within the city limits of Cody. This next year we will complete a management plan for the area and begin gathering funding partners for development of a road, parking area and comfort station. We also have plans to improve the habitat of the area such as removal of the over abundance of non-native Russian olives. Let me just talk briefly about the fishing along this stretch of river. It is little less than fantastic. Considered a blue ribbon trout section, it

sports brown, rainbow and cutthroat; 2008 populations estimated at 2,657 fish per mile (1,957 pounds/mile). It may take a couple of years to complete improvements and developments but the area will still be available for anglers and hunters who don’t mind walking a short distance. Have fun—I know I will.

We will continue to work with other agencies and municipalities to improve and develop access. In addition, I encourage you to keep your ideas coming and if you know of landowner that might be willing to sell us an easement please let us know.

Don’t forget to use our Walk In fishing access sites. Your access donations maintain these agreements with private landowners on parcels along the Shoshone and Bighorn River, plus other areas. Please support the “Access Yes “ program with your donations.



North Cody Shoshone Access- to be developed by 2011 provides about two miles of access to the public along the north side of river.

### Buffalo Bill Lake Trout Fish Heads Needed - Jason Burckhardt

The Cody Fisheries Management Crew is conducting an age and growth study on lake trout from Buffalo Bill Reservoir and we need your help. Please contact our office (contact information on back page) if you harvest a lake trout, larger than 24 inches.



This section of an otolith shows how these bony structures can be used to age fish.

Otoliths, are bony structures that serve as a sensory organ, playing a role in hearing and balance in fish. Throughout a fish’s life fish add to these bony structures by laying down calcium and other minerals. The growth of the otolith is proportional to the growth of a fish. The rate of growth of fish varies with the season and so too does the otolith. Each

year, alternating opaque (summer) and translucent (winter) rings are deposited on the otolith. One year of growth is represented by both an opaque and translucent zone. Because the growth of the otolith is proportional to that of the fish we can use the otolith to determine the fish’s growth over it’s entire life.

While scales can also be used to age fish, it becomes increasingly difficult with older fish and fish that are growing very slowly. Scales can also be reabsorbed by a fish when conditions get tough.

We are conducting this age

and growth study on lake trout to determine how long it takes to produce trophy fish and why we do not have more larger lake trout. This study will also help us determine the predation impact of lake trout on the rainbow, cutthroat, hybrid fishery as well. Removing otoliths takes some skill and a little bit of practice and because a fish has to be sacrificed to remove the otolith we are asking anglers to assist by supplying us with the heads of fish they harvest. We will also need the total length of the fish in order to calculate its growth rate.



Wyoming Game and Fish Dept.

Mark Smith

2820 HWY 120

Cody, WY 82414

### Bits and Pieces

This years newsletter is late and we apologize for being tardy. Look for the newsletter next year in late April or early May.

### Newsletter Contributors

Contributors to this years newsletter include the Cody Fisheries Management Crew, Beth Bear and Janet Milek, and Dennie Hammer. Thanks to all.

This and past newsletters for the Big Horn Basin and across the state are available at: <http://gf.state.wy.us/fish/fishing/Newsletters/>

## Fisheries Management in the Cody Region

The Cody fisheries team includes regional fisheries supervisor Steve Yekel, fisheries biologists Jason Burckhardt and Mark Smith and aquatic habitat biologist Lew Stahl.

We manage your fisheries resources for you and we encourage you to call or stop by if you have questions or concerns.

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Aquatic Habitat Biologist Lew Stahl



Fisheries Biologist Jason Burckhardt.



Fisheries Biologist Mark Smith



Fisheries Supervisor Steve Yekel