



Volume I, Issue I

"From the Bighorns to the Black Hills"

Sheridan Fish Management Crew

Volume I, Issue I

May 2004

Wyoming Game and Fish Department
"Conserving Wildlife - Serving People"

Greetings From Your Fish Management Team

Welcome to the first angler newsletter for Northeast Wyoming! We hope you find it informative and interesting and we look forward to hearing from you.

Our region covers all of the northeast corner of Wyoming; over 18,000 square miles in Sheridan, Johnson, Campbell, Crook, Weston, Niobrara, Natrona and Washakie Counties. Major drainages are the Little Bighorn, Tongue, Powder, Little Powder, Little Missouri, Belle Fourche, and Cheyenne.

One reason we are so excited about working here is the tremendous diversity of fish and fishing opportunities. There are some 3,000 stream miles and 19,000 surface acres supporting everything from cold water fish in the high mountain lakes, to warm water species in the prairie lakes and streams.

These waters support 7 native game fish species and 19 native non-game fish species. In addition to the natives, there are 27 different introduced fish species, most of which are game fish, such as rainbow, brown, brook, splake, lake and golden trout, smallmouth

and largemouth bass, sunfish, northern pike, walleye and tiger muskie.

Through this and future newsletters we'll be highlighting many of the more popular fishing spots you're familiar with, as well as the work we do with Wyoming's lesser known but important native fish.

It's all part of our mission and we want to tell you about it. So again, welcome, and by all means please let us know what you think about our newsletter.

To reach us by phone, Call 307-672-7418 and ask for one of the fisheries biologists. To send us a letter or email, please see the back page of this newsletter.

Happy fishing!

Wyoming/Montana 4-H Fishing Camp!

For kids 12-17 years old. July 19-22 at the Johnson County Youth Camp. Call 307-766-5679 or 406-994-3501 for details.

Walleye In Lake DeSmet: Why Not?

Since 1991, the year we discovered walleye had been illegally transplanted into Lake DeSmet, we've been asked this question. And the answer comes down to biology and habitat.

Young walleye forage on zooplankton and insects until they are about 4-5 inches, but switch to larger forage, such as small minnows, as they grow.

Like all predators, they require more and larger forage as they mature. A 21 inch walleye can eat another fish 1/3 it's body length (7 inch stocked trout goes down nicely). A trout is the ice crème cone of a walleye diet compared to eating a deep bodied, spiny-rayed perch.

If they survive, they become apex predators, meaning that as adults they eat just

about every fish around, and aside from a few lucky birds, mammals, and people, not much else preys on them.

Because of their feeding habits, a key to supporting a good walleye fishery is an abundant fish forage base.

Spawning is another critical element. Walleye spawn

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Special points of interest:

- 4-H Kids fishing camp
- Meet the crew
- Free Fishing Day
- Dates to remember
- Powder River and its fish
- Contact us!

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over clean, well-washed cobble-sized substrate. A large female walleye is a prolific spawner, capable of producing up to 300,000 eggs.

While Lake DeSmet has an abundance of what appears to be good walleye spawning habitat, we have not seen a lot of small walleye. Annual netting surveys help us monitor these populations.

However, we remain concerned that only moderately successful reproduction at Lake DeSmet could result in a burgeoning walleye population that could in turn consume a major portion of the 150,000 5-7 inch trout that are stocked annually.

Lack of a sustainable fish forage base could lead to slow growth, smaller size and, eventually, a population dominated by stunted walleye.

Lake DeSmet is low on the scale of biological productivity with its average depth of 62 feet of cold water, steep drop-offs, scoria substrate, paucity of sediment and vegetation, and few shallow bays.

For trout however, Lake DeSmet is considered relatively productive – to a point.

The open clear water allows good light penetration, essential for producing the microscopic phytoplankton that zooplankton feed on.

In turn, zooplankton supports this trout fishery. But, a zooplankton diet limits a trout's ability to grow much larger than 18 inches.

While DeSmet appears on the surface to be a potential walleye gold mine --- under the surface the biological story says otherwise.

Free Fishing Day 2004

The 2003 Wyoming Legislature approved an annual Wyoming Free Fishing Day, to be designated by the Wyoming Game and Fish Commission.

The Commission then declared June 5, 2004 as Free Fishing Day to coincide with the beginning of the National Fishing and Boating week for the next 2 years.

As a result, residents and nonresidents may fish in Wyoming without a fishing license or conservation stamp (except on the Wind River Indian Reservation and Yellowstone National Park).

But remember, all other fishing regulations and limits apply, so be sure and look at the regulations before you head out.

So, plan your family reunion for June 5 and add fishing to the festivities

“Lake DeSmet provides NE Wyoming anglers with an excellent trout fishery”

“A 21 inch walleye can eat another fish 1/3 it's body length”

“If walleye become well established in Lake DeSmet, we are concerned that anglers would experience a fishery with a few really nice (well fed) walleye, for a while --- until the stocked trout are gone”



Pulling a beach seine at the South end of Lake DeSmet

Changes At Story Fish Hatchery



Story Hatchery Superintendent Dave Ackerman with an Eagle Lake rainbow trout spawner at Story Hatchery

“(whirling disease) has not been found to exist in the drainage or at the hatchery”

“Story Hatchery has traditionally supplied most of the fish stocked in the Sheridan and Buffalo areas”

“numbers of fish stocked will remain consistent with what Story hatchery has done in the past”

Operations have changed at Story Fish Hatchery in the past few years in response to concerns about whirling disease. Since the hatchery water supply originates from South Piney Creek instead of a spring or a well, the possibility of this disease occurring in the drainage and subsequently at the hatchery has altered the way we operate. The disease has not been found to exist in the drainage or at the hatchery to date, but the Game and Fish Department has opted to err on the side of caution where this disease is concerned.

In line with this decision has been a shift from fish stocking emphasis at the hatchery to egg rearing activities. The hatchery has always supplied lake trout eggs for in-state needs and for trades to other states for wall-eye, catfish and bass. Hatchery personnel take around 1.3 million lake trout eggs each fall. Development of an Eagle Lake Rainbow trout brood stock began two years ago at Story. In the spring of 2004, hatchery personnel will take approximately 1.1 million rainbow trout eggs.

Story Hatchery has traditionally supplied most of the fish stocked in the Sheridan and Buffalo areas along with northeast Wyoming waters. The hatchery has raised 250,000 – 300,000 fish for stocking purposes each year.

With the relatively close proximity of the hatchery to area waters, personnel were able to stock fish at frequent intervals when water temperatures permitted. Spring stocking of

75,000 Eagle Lake rainbow trout will be the only stocking done by Story Hatchery personnel in 2004. All other area stocking will be done by other hatcheries around the state. Because of the longer travel distances for the other hatcheries, fish will not be stocked as frequently, but the total numbers of fish stocked will remain consistent with what Story hatchery has done in the past.

What does this mean for the fisherman? Studies have shown that catch rates of stocked fish peaks within a few weeks of stocking and then gradually decreases. This is especially true for small impoundments or ponds. The reasoning behind frequent stocking is to provide more consistent fish catching opportunity for anglers throughout the fishing season. Less frequent stocking will result in more angler effort needed to catch fish. Every effort will be made to stock fish as frequently as is possible from distant hatcheries.

Story Hatchery remains a very popular tourist destination, with around 20,000 visitors each year. In 2003 - spring, summer, and fall staffing for the hatchery visitor center was eliminated due to budgetary constraints. The same applies for 2004. Hatchery personnel will make every effort to provide information and give tours when workloads allow, but the regular visitor center staff will not be available for scheduled tours or to answer questions.

Making Big Fish At Muddy Guard #1 (we hope!)

While big fish and lots of ‘em isn’t possible everywhere, we think we can do better at Muddy Guard Reservoir #1.

This reservoir has been managed for trophy fish and special regulations since 1990 but has never many large trout.

Though trout are plentiful in Muddy Guard we’ve only sampled one rainbow and a few brown trout over 20 inches since 1998. At the same time, white

suckers have become dominant and may be limiting trout growth.

To improve trout production we are planning to treat the reservoir this summer to eliminate white suckers.

Of course we will re-stock the reservoir as soon as possible after treatment, and we think that after a few years, trout production, and ultimately fishing will be better.

To discuss this proposal and help finalize plans, we will be hosting two open house meetings in Sheridan and Buffalo. Both meetings will be from 5-7 pm.

The Sheridan meeting will be June 16th at the Game and Fish office on East 5th Street, and the Buffalo meeting will be June 17th at the Johnson County Library at 171 North Adams.



Small tiger muskie from LAK Reservoir shortly after they were introduced

“While green sunfish numbers have gone down, our catch of smallmouth bass has increased”

“we think the fishing has gotten better. We hope you agree”



A nice 1 1/2 pound smallmouth from LAK Reservoir

Cool Water Fishing At LAK Reservoir

For the regulars fishing LAK Reservoir near Newcastle, it's no secret that fishing is not the same as it was a few years ago, and for those who haven't been there in a while, it'll be different than you remember. If you've never been there, you might be surprised.

Over the last few years we've changed management emphasis from trout to cool water species like tiger muskie, walleye, and smallmouth bass, and the results are looking pretty good.

We changed because our netting data showed that trout grew and survived poorly, and because LAK was over populated with green sunfish that we thought were out competing trout for food.

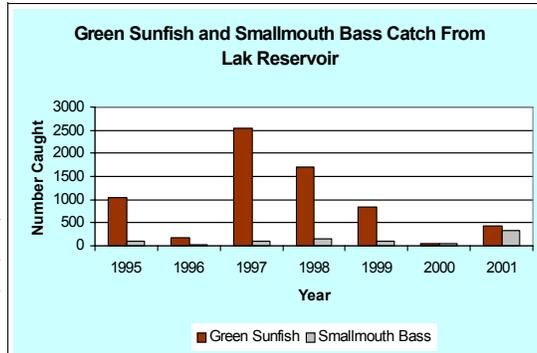
After talking to lots of people and discussing it quite a bit we decided to introduce tiger muskie and walleye to prey on the green sunfish and reduce their numbers.

We're still looking at the data, but it really looks like green sunfish numbers are down. This is good news because green sunfish

used to be so common you literally couldn't keep 'em off your hook.

While green sunfish numbers have gone down, our catch of smallmouth bass has increased, and some of the smallmouth are up to a couple of pounds.

Of course you might expect trout would be swimming a bit scared after we introduced the toothy tiger muskie and walleye, and you'd be right.



Netting has shown pretty large decreases in brown trout and rainbow trout catch and this was confirmed by an angler survey conducted in 2002. But the tradeoff, in addition to good smallmouth bass fishing, is that some walleye up to 1.5 pounds are now taken from LAK, and there is always the chance of landing a legal-size tiger muskie (over 30 inches).

We'll keep watching fish trends at LAK but for now, we think the fishing has gotten better. We hope you agree.

The Long And Short Of It

Measuring fish is a simple task; just lay the fish on a ruler and you have the length, right? Basically yes, but just how you lay a fish on a ruler makes a big difference.

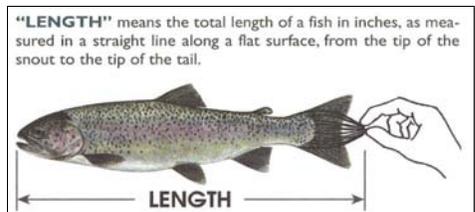
Wyoming Fishing Regulations define length as the total length in inches, measured in a straight line along a flat surface, from the tip of the snout to the tip of the tail. In this case, "total length", means measuring a fish from the tip of the snout to the tip of the tail with the lobes of the tail squeezed together.

Measuring fish with the tail spread out isn't very accurate, gives a shorter length, and won't work where length limits apply.

If you are fishing on a water that has size limits and you catch a fish that you know is close to the limit, wouldn't you want to measure it so you knew you would not be in violation of the regulation and subject to a fine?

So, remember to squeeze the tail lobes together, you get the "total length", and you'll be ok with the

regulations. Plus, you'll be doing it the way most fisheries biologists in the United States do it.



Correct method for measuring fish

Keyhole Reservoir

Our 2003 fish sampling at Keyhole showed a great game fish size structure.

Walleye ranging from 12 to 28 inches and averaging 19.6 inches were found. The weight of the average walleye was nearly 3 lbs.

Small walleye are usually not caught with our standard gill nets, so small mesh gill nets are set to sample walleye less than 10-12 inches. Several walleye from 4.8 to 7.1 inches were captured in the small mesh nets, indicating good to fair survival of our walleye stocking in 2001 and 2002.

Northern pike averaged 30 inches and ranged from 22 to 37 inches. The largest northern weighed almost 13.5 lbs.

Smallmouth bass ranging in length from 8 to 17 inches

were sampled. while crappie from 7 to 10.5 inches were also caught in the nets.

The 7-8 inch crappies are very abundant in Keyhole and until a significant portion of that size class succumbs to natural mortality, it is doubtful the size structure desired by anglers will improve.

Walleye and northern pike spawning and natural reproduction are unreliable in maintaining the populations of these two species at Keyhole so fingerlings (small fish about 1-2 inches long) are routinely stocked.

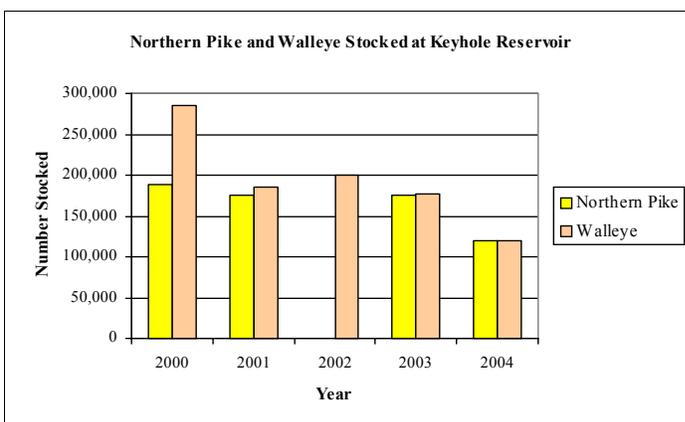
Walleye and northern pike are stocked at the rate of 20 fingerlings per surface acre; with Keyhole at about 6,000 surface acres in early May 2004 our request will be for 120,000 fingerlings of each species.

Wyoming gets walleye and northern pike fingerlings by trading fish with the State of North Dakota.

The table below shows how many walleye and northern pike were stocked from 2000 through 2003, and what is planned for 2004.

“Walleye and northern pike are stocked at the rate of 20 fingerlings per surface acre”

“in early May 2004 our request will be for 120,000 fingerlings of each species”



Why Size Limits On Fish?

Why do some waters have size limit regulations on certain species of fish?

The answer is that size limits allow fisheries biologists to target a certain size or size range of fish that need protection or need additional harvest.

For instance, predators that are the right size are more efficient at reducing prey of certain size. And by reducing an over abundant prey species, fishing can be improved for both predator and prey. Sometimes a certain size of fish are the best spawners so they are protected. Or, if a lot of smaller fish are harvested, it will allow the rest of the fish of that species to grow to a larger size sooner.

There are usually three types of length limits used to achieve management goals. A minimum size limit requires release of all fish smaller than a specified length, a maximum size limit requires that all fish larger than a certain size be released, and a slot limit requires the release of fish within a specified length range.

In all cases though, the intent is to improve fish population structures to provide better quality angling opportunities. That's what all anglers want and that's what the fisheries biologists at the Game and Fish Department want for Wyoming anglers!

“wouldn't you want to measure so you knew you would not be in violation of the regulation and subject to a fine?”

“to provide better quality angling opportunities. That's what all anglers want and that's what the fisheries biologists at the Game and Fish Department want for Wyoming anglers!”

North Tongue River and Bull Creek Update



Electrofishing in the Tongue River drainage

Although most anglers probably haven't noticed the difference, a change in the subspecies of cutthroat being stocked in these two waters has occurred over the last two years.

In 2002 and 2003 half of the cutthroat stocked were Snake River and half were Yellowstone cutthroat. Starting in 2004 all the fish stocked will be Yellowstone cutthroat.

"Yellowstone cutthroat are probably surviving and growing about as well as the Snake River cutthroat and populations in both streams remain healthy"

Sampling in 2003 indicated Yellowstone cutthroat are probably surviving and growing about as well as the Snake River cutthroat and populations in both streams remain healthy.

In the North Tongue, Snake River cutthroat from 5 to 16 inches were sampled, while Yellowstone cutthroat ranged from 6 to 9 inches. Snake River cutthroat sampled in Bull Creek

ranged from 1 to 12 inches. Yellowstone cutthroat in Bull Creek ranged from 6 to 8.5 inches.

Anglers are reminded that the North Tongue from the mouth of Bull Creek upstream, including Bull Creek and all tributaries, is managed with special regulations. All fish except *brook trout* must be returned to the water immediately after being caught.

In spite of the special regulations however, brook trout seem to be increasing in the North Tongue and Bull Creek. This concerns us because we manage these streams for cutthroat trout and we do not want brook trout competing with the cutthroat.

The special regulations allow anglers to keep brook trout and we encourage anglers to do so (up to their legal limit) in Bull Creek or the North Tongue.

Also, If anglers wish to keep some trout for the table other than brook trout, fish harvest is allowed on the North Tongue downstream of the mouth of Bull Creek.

Sampling in 2003 indicated a healthy population of rainbow and cutthroat trout in that reach of river. We estimated a trout population of just over 2,000 fish per mile with rainbow and cutthroat trout up to 13 inches and brook trout up to 11 inches.

Cloud Peak Wilderness Lakes Stocking

Planning is underway to stock 25 Cloud Peak Wilderness lakes with trout this summer.

Stocking is required because natural reproduction is insufficient to support a quality fishery.

Stocking is done every two years in the Bighorns with individual lakes stocked on 2 or 4 year rotations depending on the stocking needs and amount of angler use.



Stocking Fish by helicopter in the Cloud Peak Wilderness

Weather permitting, stocking will be done sometime in early August.

Although the lakes will be stocked this summer, it will be several years before these fish grow large enough to catch. That's because alpine lakes are cold and generally unproductive, and the 2-3 inch stocked fish will grow pretty slowly.

Eventually these fish will provide quality fishing amidst some of Wyoming's most spectacular scenery.

Angeline, Brown Bear, Florence, Golden, Long, Loomis, Lost, Wilder-

ness, Magdalene, Mead, Powell #1, Powell #2, Seven Brothers #6, Sherd, Trigger, and South Piney #2 will be stocked with Snake River cutthroat.

Lame Dear, Seven Brothers #1, Seven Brothers #2, Seven Brothers #3, Seven Brothers #4, Seven Brothers #5, and Seven Brothers #7 will be stocked with Eagle Lake rainbow.

Hope, Ringbone and South Piney #1 will be stocked with Yellowstone cutthroat.

"Stocking is done every two years in the Bighorns"

"because natural reproduction is insufficient to support a quality fishery"

Powder River Fish Study Begins

The Powder River is one of Wyoming's few free-flowing rivers and is



Powder River near Schoonover Road bridge

regarded as one of the Nation's last remaining, largely intact, prairie stream ecosystems.

Powder River Fish Facts

The Powder River is home to 5 native sucker species: white, longnose, mountain, shorthead redhorse and river carpsucker.

The shovelnose sturgeon is a primitive species and lacks scales, has a cartilaginous skeleton, and has rows of bony plates. The shovelnose spawns in Crazy Woman Creek after migrating to Wyoming from as far away as the Yellowstone River.

The channel catfish, a native fish popular with anglers, also uses the Powder for spawning and rearing of young. A close cousin, the stonecat, is relatively unknown to most anglers due to its small size, but is also common to parts of the drainage.

The Powder River drainage is also habitat for the sauger, a Wyoming native and a close relative of the non-native walleye.

The Powder is home to species adapted for survival in a river that exhibits tremendous variation in seasonal flow, turbidity, and temperature.

The Powder supports a diverse fish fauna but specific life history information is lacking for most species, habitat characteristics associated with most species are poorly known, and only limited information about the distribution and relative abundance of species or as-

semblages is available.

Information gaps in our knowledge of the aquatic ecology are especially glaring in light of recent and rapid developments in the Coal Bed Natural Gas industry throughout this river basin.



Plains killifish are a native fish common to the Powder River. They belong to the topminnow family and have an upturned mouth adapted for surface feeding.



Sauger, a close relative of the walleye

Fisheries and Aquatic Habitat biologists in Sheridan, Casper and Laramie will begin a joint study of the Powder River this summer to refine information about fish distributions, their relative abundance, and the habitats that sustain them. The project will also include a survey of amphibians and reptiles.

While not designed specifically to address potential impacts of CBM development, results from this project will help biologists understand what makes this unique prairie stream tick.

Understanding the native aquatic community of this dynamic natural-prairie stream will help us predict how human influences might impact this system.



Shovelnose Sturgeon

"The Powder River is one of Wyoming's few free-flowing rivers"

"results from this project will help biologists understand what makes this unique prairie stream tick"



**Sheridan Fish Management
Crew**



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“Conserving Wildlife -
Serving People”

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Special thanks to the folks at Story Hatchery, Dave Ackerman, Brad Welch, and Jennifer Reasoner for their contributions.

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

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Bud.Stewart@wgf.state.wy.us
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Things to Remember

- ⇒ **June 5:** Statewide Free Fishing Day, no license required, see regulations booklet
- ⇒ **June 5-13:** National Fishing and Boating Week (search the web)
- ⇒ **June 16:** Muddy Guard #1 open house (Sheridan WGFD office, 5-7 pm)
- ⇒ **June 17:** Muddy Guard #1 open house (Buffalo Library, 5-7 pm)
- ⇒ **July 19-24:** 4-H Sportfishing Camp (call phone #'s on front page)
- ⇒ **September 10-12:** Wyoming Hunting and Fishing Heritage Expo, Casper Events Center



From left to right, Bill Bradshaw, Bob McDowell, and Bud Stewart

Bob McDowell has 34 years of fish management experience with the Wyoming Game and Fish Department, working in Jackson, Laramie, and Buffalo/Sheridan. His permanent career began in 1973 working as a Special Projects Biologist charged with crafting fish management plans for the Pole Mountain beaver pond complex, the upper North Platte River, and the Laramie Plains Lakes in SE Wyoming. Bob transferred to Buffalo in 1985, and from there was promoted to Regional Fisheries Supervisor for the Sheridan Region in 1987. When not thinking like a fish, Bob enjoys home remodeling, landscaping, photography, and the occasional opportunity to wet a fly. Bob has a MS degree in Zoology/Physiology from the University of Wyoming.

Bud Stewart has nearly 30 years experience as a fisheries biologist. The first ten years of his career he worked for the Nebraska Game and Parks Commission in northeast Nebraska managing warm and cool water fish. In 1985 he accepted a position with the Wyoming Game and Fish Department reviewing and commenting on environmental documents in

the Cheyenne office. Then in 1987 he returned to fish management and transferred to northeast Wyoming. Bud has a Bachelors of Science degree from the University of Nebraska and a Masters degree from the University of South Dakota.

Bill Bradshaw began his fisheries career after earning a Bachelors degree from The Evergreen State College in Olympia Washington in 1978. After working for the Washington Department of Fisheries, U.S. Fish and Wildlife Service, Washington Department of Game, and private consultants, he returned to school, where he earned his Masters degree in fisheries from the University of Louisiana in Baton Rouge in 1983. Bill came to work for the Wyoming Game and Fish Department in January of 1987 as a state-wide Instream Flow Biologist. He has been a Fisheries Biologist in Northeast Wyoming since transferring to Sheridan in 1993.