Lander Region Angler News

2014 Edition

Irrigation Diversions—the other fish trap

Zzzzzzz, your drag moans as the flyline leaves your reel faster than you can retrieve. You struggle to hold on as the end of your line madly dashes up, down, and across the sparkling stream. Anticipation of landing the 'big one' grows stronger with every foot you reel; finally, after fifteen agonizing minutes you're staring into your net at the biggest fish you've ever seen, you're speechless.

A fish must overcome many obstacles to reach that prized trophy size anglers pursue in Wyoming's rivers. Predators, anglers, drought, floods, and finding food are just a few of the hardships a fish must navigate to survive. Another obstacle many fish must avoid each year are the hundreds of irrigation diversions spread up and down all sizes of streams across Wyoming. For example, in six short miles between Lander and 'Sinks Canyon' there are at least seven diversions that can potentially remove fish from the river. Some large diversions can suck down as many as 50,000 fish per irrigation season. Loss of fish to irrigation diversion reduces recreational opportunities, breeding populations, total biomass, and potential food sources for other fish and wildlife.

(Continued on page 2)

A 17+ inch brown trout returned back to the river from an irrigation canal. Photo by WGFD.

Nets are placed in irrigation canals and funnel fish to a holding area at the end of the net where they cannot escape until personnel open the net. Photo by WGFD.

Inside this issue:

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Irrigation Diversion, continued

Dead mountain whitefish collected from twelve hours of netting near Dubois. Just as many live fish were captured and returned to the river. Photo by WGFD.

(Continued from page 1)

With the cooperation of landowners and water users, Game and Fish employees have been monitoring several irrigation canals in the Lander Region over the past several years. We have collected information on diversions off the upper Wind River, Horse Creek, and East Fork of the Wind River drainage all near Dubois. We have also looked at a couple diversions on the Middle and North forks of the Popo Agie river. To document fish movement into canals (loss) we set-up trap nets within the irrigation canal close to the diversion structure that allows water to pass, but will capture fish in the net. The findings have been quite interesting across all the irrigation canals monitored. We found that smaller fish (less than 6 inches) were the most common size captured, though several large adults up to 16 inches were captured periodically. Flows and water temperatures did not appear to impact fish entering irrigation canals in any way. However, a few of the irrigation canals experienced a seasonal period of fish loss depending on the species of fish and diversion location. On a canal near Dubois, two years in a row we saw a large number of mountain whitefish appearing in our nets around mid-July and lasting for about four to six weeks before tapering off to just a few through the rest of the irrigation season. Of course, each stream system is different in terms of fish species present, irrigation demand, flows, etc., so each diversion may tell a different story.

These monitoring efforts have led to several projects within the region to reduce fish loss, improve fish passage, and update irrigation infrastructure all at the same time. A few diversions near Dubois have had fish screens installed that will deliver water to the users but prevent fish from being trapped in the irrigation canal. Other projects have involved installation of rock structures in a stream to allow year round fish passage, yet still provide sufficient water to the diversion to meet landowner needs. Historically, these sites had push-up dams constructed after each spring run-off effectively blocking any upstream fish movement and directing any downstream fish movement directly into the irrigation canals. The benefits of these projects have been a reduction in annual maintenance for water users, reconnected habitat for fish, and elimination or reduction in fish loss.

Collectively, these efforts reduce the impact irrigation diversions can have on fish survival providing one less obstacle for fish to reach that 'speechless' size!

If you know of places with diversions that could be improved in your area fisheries, please contact Aquatic Habitat Biologist Nick Scribner at 307-332-2688 to get an evaluation.

At left, before: Push up dam was a fish barrier. At right, after project: Fish now have year round passage Photo by WGFD.

Silas Creek Drainage

Every year the Game and Fish samples different groups of lakes in the Wind River Mountains with gill nets to evaluate fish populations. Because there are so many lakes to survey, most lakes are only sampled once every decade. Lakes within the Silas Creek drainage were sampled by the Lander Fisheries Management Crew in 2013. Silas Creek is located within the Popo Agie Wilderness of the Shoshone National Forest, and is a tributary to Atlantic Creek in the Little Popo Agie River drainage. Lakes within the Silas drainage can be accessed through the Christina Lake Trailhead at Fiddler's Lake.

Dan Brauch with golden trout caught on Thumb Lake. Photo by Paul Gerrity, WGFD.

Thumb Lake, which used to be one of the most popular golden trout fisheries in the Lander area, was the lake that fisheries biologists were very interested in sampling in 2013. The fishery at Thumb Lake must be maintained through stocking because of limited habitat for natural reproduction. Periodic stocking from 1971 - 1992 maintained a thriving golden trout fishery in Thumb Lake. However, stocking ceased after 1992 because a large wildfire decimated Wyoming's golden trout brood source. The golden trout fishery in Thumb Lake (and many other Wyoming lakes) soon disappeared in the absence of stocked fish. The Game and Fish eventually re-established a golden trout brood source, and stocking occurred again in Thumb Lake in 2006, 2010, and 2012. Sampling in 2013 showed that the Thumb Lake golden trout fishery is again thriving. A gill net set in the lake had high catch rates of golden trout. Additionally, fish were sampled across a broad size range (7 to 15 inches), indicating that stocked fish are surviving and growing.

Golden trout from Thumb Lake. Photo by Paul Gerrity, WGFD.

Fawn Lake is another stocked lake that was sampled in 2013. Fawn Lake is managed through the helicopter stocking of Snake River cutthroat trout every four years. A gill net set in the lake produced good catch rates of the stocked Snake River cutthroat trout, as well as some Yellowstone cutthroat trout. Large fish of both species occurred, with Snake River cutthroat trout over 15 inches and Yellowstone cutthroat trout over 16 inches captured in the gill net. The source of the Yellowstone cutthroat trout was likely from Island Lake (see below), which is connected to Fawn Lake by Fawn Creek.

Island Lake was the final lake sampled in the Silas drainage in 2013. It has supported a naturally-reproducing cutthroat trout population since it was stocked in 1958 and 1959. A gill net set in the lake had good catch rates of both Snake River cutthroat trout and Yellowstone cutthroat trout, and fish greater than 14 inches were observed for both species. Additionally, one Snake River cutthroat trout/golden trout hybrid was also captured. The hybrid was likely the result of golden trout drifting downstream from Thumb Lake and hybridizing with fish in Island Lake.

Lander Region AIS Update

Aerial view of Boysen Reservoir.

Spring is a great time to clean up the yard and get ready for the busy summer season. It is also a great time to renew your boat registration and buy your 2014 Aquatic Invasive Species (AIS) decal. Just a reminder, a three-year AIS decal for Wyoming registered watercraft is now available. Decals can be purchased at any Game and Fish office, online, and at most license selling vendors across the state.

In 2013, the Department's AIS Program inspected over 41,000 watercraft throughout the state. Of those, 1515 were considered high risk inspections, meaning the watercraft was last used on a water infested with zebra/quagga mussels or had water on board that needed drained. A total of 578 watercraft required decontamination to remove suspect AIS or water that may have contained AIS. During the season, 14 watercraft were found to have zebra or quagga mussels on them. One of those boats was bound for Boysen Reservoir when it was stopped at the Evanston AIS check station. Live quagga mussels were found and the boat was fully decontaminated and quarantined for several weeks. Inspections at individual waters were not as prevalent in 2013 due to the emphasis on inspecting watercraft entering the state. That makes it particularly important for resident boaters to always remember to Drain, Clean and Dry their watercraft prior to boating each and every time, even when an inspection station is not present at the water.

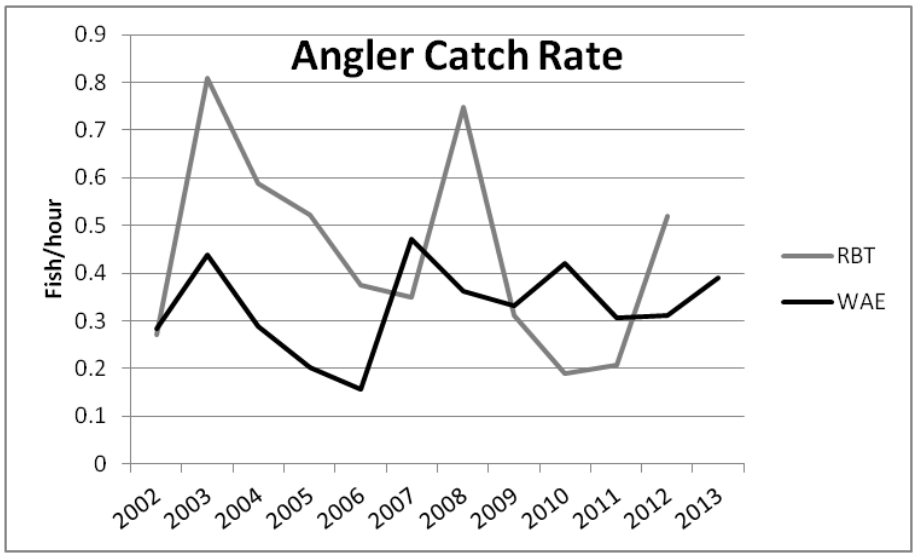
The mandatory inspection requirement is in effect from **March 1 through November 30** each year. This includes out of state boaters entering Wyoming and any Wyoming boaters who have left the state and are returning during any month of the year. At all other times, an inspection is required if a watercraft has been on an infested water. Boaters can find information on inspection locations including Game and Fish offices and private locations at: http://wgfd.wyo.gov/AIS. Those wishing to become an AIS inspector must complete a free six-hour training course. Private certified inspectors may conduct watercraft inspections on their own watercraft and equipment, as well as provide these services to others.

The Department will staff check stations at key entrances into the state as frequently as possible April 26 through September 15 and encourage all boaters to plan ahead to have their watercraft inspected at one of these locations. In the Lander Region, watercraft check stations will be operated at Boysen Reservoir on a rotating basis.

Plankton tow sampling for larval mussels (veligers) at Boysen Reservoir, Ocean Lake, and Pilot Butte Reservoir were conducted by Game and Fish in July and September of 2013. All samples from these waters were negative indicating no presence of mussels. Currently, there are populations of other invasive species in Wyoming (Asian clam, New Zealand mudsnail, and curly pondweed) and we do not want these species to spread even farther. Do your part in stopping the spread of these species by always remembering to Drain, Clean and Dry watercraft and all equipment. You can report an aquatic invasive species sighting at ReportAIS@wyo.gov.

If you require an inspection, please contact the Lander Regional WGFD Office at 307-332-2688 or Lander AIS Crew Lead, Greg Mayton, at 307-527-7125.

Boysen Reservoir



Angler catch rate (fish/hour) of rainbow trout (RBT) and walleye (WAE) in Boysen Reservoir from 2002-2013.

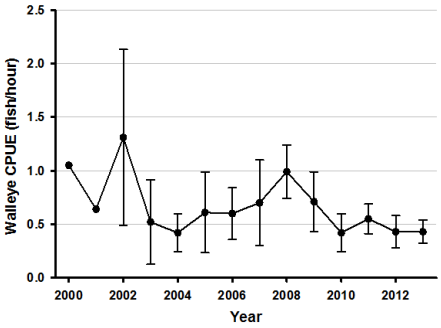
Game fish present in Boysen Reservior:
Burbot (Ling)
Black Bullhead
Black Crappie
Bluegill
Rainbow Trout
Brown Trout
Channel Catfish
Largemouth Bass
Sauger
Stonecat
Walleye
Yellow Perch

Boysen Reservoir is a popular fishery located in central Wyoming near the town of Shoshoni. Most anglers fish for walleye, but many are attracted to the diverse opportunity to catch any of the twelve game fish resident to Boysen Reservoir. State records are held from Boysen Reservoir for three (walleye, sauger, black crappie) of the twelve game fish.

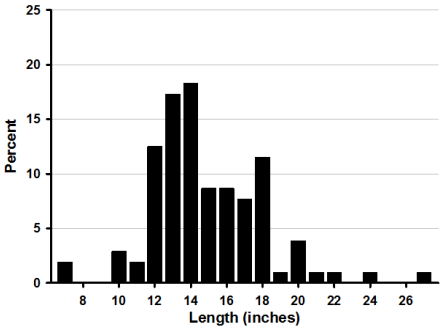
In 2013, the Game and Fish interviewed 194 anglers at Boysen Reservoir who fished a total of 1,060 hours and caught 471 game fish for an overall catch rate of 0.44 fish/hour. Catch rate for anglers targeting walleye increased from 0.31 walleye/hour in 2012 to 0.39 walleye/ hour in 2013. Catch rate for walleye has varied from 0.15 to 0.47 walleye/hour and averaged 0.33 fish/hour since 2002 when intensive spot creels began at Boysen Reservoir. The majority of anglers (96%) were targeting walleye.

Trend netting data for walleye were collected in September. Walleye gill net catch has decreased since 2008. Over 50 percent of the walleye were less than 14 inches in length. A strong year-class from 2011 (12 to 14 inches in 2013) should be large enough in 2014 to boost catch of harvestable sized fish. Catch rates of walleye by anglers hasn't changed much in comparison to the decrease in abundance measured with trend netting. As observed in the past, catchability of walleye increases when forage conditions are poor (i.e. walleye forage longer and more frequently when hungry). The decrease in yellow perch abundance since 2008 has helped maintain slightly higher than average catch rates of walleye in recent years.

To help boost the trout fishery in Boysen Reservoir, the Game and Fish chose to stock extra fish (i.e. trout that were raised for another water, but not stocked for some reason such as low water level) that became available within the hatchery system. The normal stocking amount is 50,000 rainbow trout annually. In 2013, 83,600 rainbow trout were stocked in Boysen Reservoir. The increase in trout stocking should improve the trout fishery at Boysen Reservoir in 2014.



Mean catch rates for walleye in gill nets (2000-2013), Boysen Reservoir..



Length frequency of walleye captured in gill nets, Boysen Reservoir, September 2013.

Fish Stocking



Fish stocking on Luckey pond with the help of the Forever Wild Families and WGFD assistant hatchery superintendent, Bill Yaracz. Photos by Rene Schell, WGFD.

Every year the regional fish management crew compiles and submits requests for fish to be stocked within the region. Because of the time it takes to plan for various egg-take operations and raising of the fish to the appropriate size, the requests are made two years in advance of stocking. There are many aspects that go into creating the fish stocking schedule. These considerations include species, number, size, time of stocking, frequency of stocking, and method of stocking. Some waters are stocked annually, while others may be stocked every other year or even every fourth year. In some instances, stocking may be a short term (3-5 years) tool to establish a self-sustaining population of fish. Most of the fish stocking programs for the various waters within the region have been developed over many years of evaluation and fine-tuning. Water quality, food availability, competing species, predation, fishing pressure, public desires, and native species concerns are all factors that play a part in determining the fish stocking for a particular water. We continually evaluate the stocking programs to insure that we make the best use of the fish produced by our fish hatchery system and offer quality fishing at the lowest possible budgetary outlay.

Once the stocking requests are completed and approved by staff, the fish culture section looks at those requests along with those submitted by all other regions, and attempts to devise a hatchery schedule that will meet all of the requests. From planning numbers of eggs to gather at spawning, to controlling water temperatures and feed rates to match size to time of stocking, to minimizing the distribution costs, the culture section often has a daunting and formidable task to meet the requests of fish managers. Fortunately for the anglers of Wyoming, they excel at what they do and the result is quality fish stocked at the appropriate time and size. For 2016, the Lander Region requested 14 species of fish for stocking in 67 different waters. This is a relatively small number, considering the nearly 1,500 waters within the region that are capable of supporting fish.

Sauger Spawning and Stocking

Saugers were stocked into Boysen Reservoir and the Wind and Little Wind Rivers for the first time in 2013. The stocked saugers were the result of a supplemental stocking operation in the Wind River drainage. The agencies cooperating in the stocking were the WGFD, the Shoshone and Arapaho tribes, and the U.S. Fish and Wildlife Service. The cooperators decided that a short-term stocking operation was necessary to help recover the sauger population that has declined drastically over the past decade. Sauger catch rates in Boysen Reservoir declined by 94%, and sauger numbers in the Little Wind and Popo Agie Rivers declined by 73% from 2002 to 2011. Gill net sampling and electrofishing between these dates show the size structure of sauger populations shifting from a healthy population with many young fish to a population made up of large, old fish. This trend suggests population decline was caused by very low natural reproduction or young fish survival, and not by overfishing and increased mortality of adult fish. The cause or causes for low natural reproduction are currently unknown; however, multiple research projects are in progress to determine the problem. The purpose of the supplemental stocking operation is to supplement the natural reproduction that is currently lacking in the population.

The supplemental stocking operation consists of capturing and spawning wild adult saugers from the Wind River drainage, hatching the eggs and raising the young saugers in a hatchery, and stocking them back into the wild. All sauger eggs are hatched at the WGFD's Dan Speas Hatchery and Rearing Station near Casper. After hatching, the sauger fry are transported to Garrison National Fish Hatchery in North Dakota to be raised to "fingerling" size in warm water ponds unavailable in Wyoming's hatcheries. Once the fish reach 2.5 to 4 inches, they are stocked back into waters of the Wind River drainage. A total of 115,000 fingerling saugers were stocked in 2013. Fisheries biologists from the cooperative agencies would like to stock as many as 250,000 from the 2014 spawning operation. The cooperative agencies plan on spawning and stocking saugers annually through 2017, at which point the need for the continuation of the spawning operation will be re-evaluated.

Clockwise from far left: sauger spawning, jars of sauger eggs, juvenile sauger, sauger stocking. Photos by WGFD.

Sauger Fishing

Although sauger numbers have declined drastically in Boysen Reservoir and rivers upstream from the reservoir over the past decade, a high number of age-3 saugers are currently available due to a strong 2011 year-class. Fisheries biologists are unsure how many of the saugers that are in Boysen will stay there after this year because of different life-history strategies saugers use within the Wind River drainage.

Some adult saugers live in the reservoir, whereas other adults live in the upstream river system. The adults that live in the reservoir spend their entire lives there, including hatching from eggs and developing from juveniles to adults. The river-resident adults use a more complicated strategy. This strategy includes adults spawning in a river, eggs hatching in the river, then larval fish drifting downstream to the reservoir or the Wind River just upstream from the reservoir, juveniles maturing to adults in or just upstream from Boysen for two to five years, and then adults returning to the river system to spend the rest of their lives once they are reproductively mature. All saugers, no matter where they reside as adults, use Boysen Reservoir and the lower Wind River as nursery areas.

The amount of time juvenile saugers spend in Boysen Reservoir depends on how long it takes them to become reproductively mature. Female saugers in the Wind River drainage mature at anywhere from age -4 to -6 and most spawn for the first time at age-5. Male saugers mature at age-2 or -3. It is currently unknown if the strong 2011 year-class was the result of successful natural reproduction in Boysen, the river system upstream from Boysen, or both because many age-3 fish are still juveniles residing in the reservoir. Sampling efforts in 2014 should provide more answers.

Brooks Lake

Brooks Lake is a 234 acre lake located west of Dubois near Togwotee Pass. The fishery consists of rainbow, brook, splake and lake trout. Rainbow trout are stocked annually to enhance fishing opportunities. The Game and Fish set nets in 2013 to evaluate the fishery. This was done by setting a combination of floating and sinking nets overnight to capture fish.

Rainbow trout catch rates in gill nets were 13.5 fish per net near shore in sinking nets and 12 fish per net in open water in the floating net. Rainbow trout catch in gill nets was 13.5 per net in 2013, an increase compared to the last sampling event in 2007 when only 7 rainbow trout per net were captured in sinking nets. No floating nets were set in 2007. The similar catch rates in shoreline sets compared to open water suggest rainbow trout were evenly distributed during sampling in June. Only one lake trout was captured. Fish length ranged up to 15.3 inches for rainbow trout and 34.5 inches for lake trout. Although no brook trout were sampled, they are very common near shore. Most brook trout are too

Fish captured by two sinking gill nets in Brooks Lake on June 25, 2013.

Species	Number Per Net	Average Length (inches)	Length Range (inches)	Average Weight (pounds)	Weight Range (pounds)
Lake trout	0.5	34.5			
Rainbow trout	13.5	12.8	11.6—15.3	0.68	0.50—1.09
Splake	2	13.9	12.8—15.0	0.82	0.63—1.04

Fish captured by one floating gill net in Brooks Lake on June 25, 2013.

Species	Number Per Net	Average Length (inches)	Length Range (inches)	Average Weight (pounds)	Weight Range (pounds)
Rainbow trout	12	12.9	12.1-14.5	0.69	0.56—0.93

Pelham Lake

Pelham Lake is a 33-acre lake in the upper Wind River drainage west of Dubois. It is managed as a recreational Yellowstone cutthroat trout fishery with a regulation that limits harvest of two fish per day with use of artificial flies and lures only. All fish less than 16 inches must be released. The fishery is maintained by stocking 500 advanced fingerling Yellowstone cutthroat trout annually.

Two gill nets were set in June to evaluate stocking and gain trend information for the Pelham Lake fishery. The capture rate was fifteen Yellowstone cutthroat trout per net during a two hour period during the day. Average size was 13.9 inches with the largest fish measuring 20.8 inches. Netting abundance has remained high considering that stocking rate is lower than most lakes in this area.

Fish have been observed spawning in Pelham Lake but in 2012 sampling confirmed that spawning is unsuccessful. In 2013, the WGFD, Dubois School (4th and 5th grade classes) and U.S. Forest Service completed a small spawning gravel project that should provide fish a better opportunity to spawn by adding suitable gravel in the outlet stream. The outlet was shallow and dominated by large rock. Trout require clean gravel that allow eggs to settle into spaces between gravel to protect them but where flowing water will keep the eggs oxygenated. The outlet of Pelham Lake was excavated slightly to confine the channel and to allow for 8 to 12 inches of gravel. The gravel should provide suitable conditions for eggs to incubate. The WGFD will evaluate the project in the next few years.

Fish captured by gill nets in Pelham Lake on June 26, 2013.

Species	Number Per Net	Mean Length (inches)	Length Range (inches)	Mean Weight (pounds)	Weight Range (pounds)
Yellowstone Cutthroat	15	13.9	6.5—20.8	1.38	0.10—3.17

Game and Fish, Dubois 4th and 5th graders, and the U.S. Forest Service work on Pelham Lake, adding gravel to create spawning grounds for Yellowstone cutthroat trout. Photo by Kevin Johnson.

Wyoming Youth Fishing Challenge

The Wyoming Youth Fish Challenge Program aims to provide you with angling challenges that will expand your fishing skills and your fun. To prove your prowess, the Game and Fish will issue collectible certificates to all eligible youth who complete one of the following challenges. Applications online: http://ow.ly/wxhsB

CUTT SLAM – Catch Wyoming's four cutthroat trout subspecies in their native range in Wyoming

TROUT TRIO – Catch any three separate species or sub-species of trout found in Wyoming including: brook, brown, rainbow, cutthroats, kokanee, tiger, splake, lake, and golden

COOL CATCH – Catch any one of the following species: golden, grayling, tiger trout, northern pike, tiger musky, kokanee, or whitefish

WYOMING'S WILD ONE – Catch any one of these fish that are native to Wyoming: sauger, channel catfish, stonecat, black bullhead, whitefish, shovelnose sturgeon, burbot. Unlike the Cutt-Slam, they do not need to be from their native drainages

PAN PAIR – Catch any two species or sub-species found in Wyoming: bluegill, green sunfish, pumpkinseed, yellow perch, rock bass, black crappie, white crappie

HABITAT COUNTS – Catch a fish from three of the different habitats: lakes, beaver ponds, tail waters, small streams, and rivers

PERCID PRIZE – Catch two of the three fish in the percidae family: walleye, sauger, or yellow perch

BASS BATTLE – Catch any one of the following: smallmouth bass or largemouth bass

HATCHERY HOP – visit four separate Wyoming fish hatcheries or rearing stations, must send pictures with hatchery sign

MASTER ANGLER – Complete any five of the nine total challenges to receive special recognition from the Wyoming Game and Fish Department, Trout Unlimited, The North Platte Walleyes Unlimited, and the 4-H Sportfishing Program.

Wyoming Game & Fish Department
Conserving Wildlife—Serving People

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