



YELLOWSTONE

VOLUME 28, NUMBER 1 SPRING 2013

DISCOVERY

A QUARTERLY PUBLICATION OF THE YELLOWSTONE ASSOCIATION



THE DEADLIEST CATCH

Yellowstone National Park removed more than 300,000 non-native lake trout in 2012. Photo: NPS

By Stephen Camelio
Yellowstone Association

When a fisherman brought the first lake trout caught in Yellowstone Lake to National Park Service rangers in 1994, it was a monumental moment—albeit a potentially disastrous one—in the history of cutthroat trout.

First described to the public by Lewis and Clark when they found a cutthroat at Great Falls, Montana, on June 13, 1805, the 13 species of cutthroats are all native to waters west of the Mississippi River. While elsewhere they have long been in peril from westward

expansion, habitat loss, hybridization, and displacement, the Yellowstone cutthroat were protected within the park boundaries and had become a stalwart symbol of Yellowstone's bounty. That all changed with the appearance of lake trout in Yellowstone Lake. The non-native lake trout threatened to eradicate the Yellowstone cutthroat

and, in the process, dramatically and negatively impact the delicate balance of Yellowstone's natural ecosystem.

Though there are many theories, little is known about how lake trout came to inhabit Yellowstone Lake. Because the 136-square-mile body of water was a haven for the park's Yellowstone cutthroat population, which use it as a home and entryway to the tributaries where they spawn in the spring, and because a mature lake trout can eat up to 40 cutthroats a year, with the alarming discovery of the first lake trout caught in Yellowstone Lake, the National Park Service sent out their own boats to investigate. When the rangers turned up even more lake trout, the dire

What's Inside...

- SPRING INTO YELLOWSTONE
- GRIZZLY NUMBERS INCREASING IN THE GYE
- SUMMER 2013 INSTITUTE FIELD SEMINARS

Continued on page 2



Each year, an individual lake trout preys upon as many as 41 native cutthroat trout that might otherwise feed wildlife such as eagles, otters, and grizzly bears. Photo: NPS

TABLE OF CONTENTS:

Park Store.....	6-7
Resource Notes.....	8
News from the Association.....	9
Institute Field Seminars.....	10-11
Spring into Yellowstone.....	12-13
Membership.....	14-16



**YELLOWSTONE
ASSOCIATION**

THE MISSION OF THE YELLOWSTONE ASSOCIATION

The Yellowstone Association, in partnership with the National Park Service, connects people to Yellowstone National Park and our natural world through education.

P.O. Box 117 • Yellowstone National Park, WY 82190
www.YellowstoneAssociation.org • ya@yellowstoneassociation.org

406-848-2400

Monday - Sunday • 8 a.m. - 5:30 p.m. Mountain Time



Printed on Forest Stewardship Council certified paper with soy-based ink.



consequences of the problem became evident, and the National Park Service took immediate action.

Not knowing the extent of what they were dealing with, they first sought scientific guidance from experts in the Great Lakes region, native waters for lake trout. They also called on local scientists who had been dealing with problems with invasive lake trout populations in other western lakes. The scientists laid out what happens when a top-level predator like lake trout enters an ecosystem. One of their examples was Flathead Lake and its spawning streams near Glacier National Park. Non-native lake trout there have decimated the native cutthroat and bull trout populations and all but exterminated the kokanee salmon, which had been introduced in the 1920s.

Since lake trout live in deep water and don't spawn in streams, scientists noted that lake trout would not be an acceptable substitute for cutthroat trout in the Yellowstone ecosystem. Yellowstone cutthroat are a keystone

energy source for at least 42 species of mammals and birds, such as grizzly bears, bald eagles, and river otters. A decline in the cutthroat population could have a negative impact on the park's wildlife, potentially changing Yellowstone as it has come to be known to its 3 million visitors a year.

POPULATION SUPPRESSION

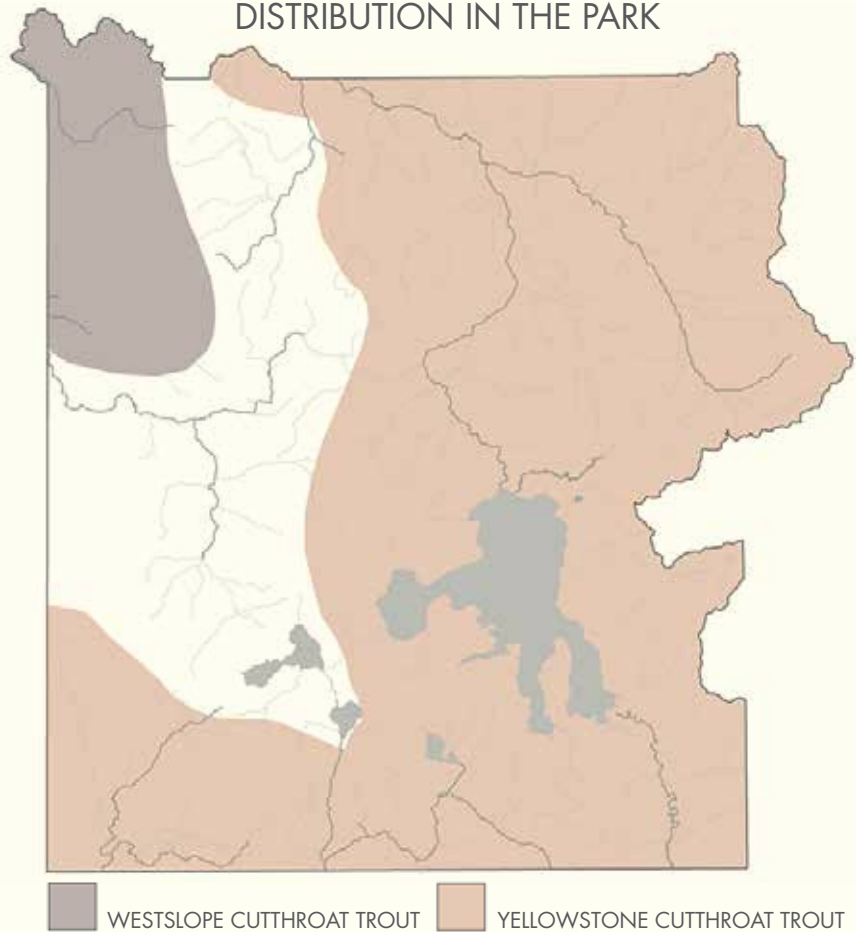
The advisory panel left the National Park Service with a piece of advice: Act quickly. "They said if you don't get these lake trout out as fast as you can, the cutthroat are going to go away for good," said Todd Koel, Yellowstone's supervisory fisheries biologist. To that end, the National Park Service created a program designed to eradicate the lake trout in Yellowstone Lake.

"The first thing the scientific panel advised doing was using gillnetting as a control tool. The park started right away and has increased the effort every year," said Koel. Still the primary tool used for suppressing Yellowstone's lake trout population, gillnets are large, monofilament mesh nets that are placed near the bottom of the lake. Because the nets are fished deep, they can ensnare high numbers of lake trout, which tend to live in the depths, while avoiding the surface-dwelling cutthroats.

In shallower water, the National Park Service uses trap nets, a series of large mesh screens that funnel fish into an enclosure so that they can be captured alive. Though more time-consuming and less effective, these nets allow trapped cutthroats to be released back into the lake unharmed.

The lake trout captured in trap nets can be used for accurate population counts, as well as research purposes like telemetry tracking. This pinpoints lake trout movements and spawning beds thanks to a project funded through partnerships with Yellowstone Park Foundation, Trout Unlimited, Greater Yellowstone Coalition, and the National Parks Conservation Association. Using these techniques, the number of lake trout caught has risen each year to a high of 300,000 in 2012.

WESTSLOPE & YELLOWSTONE CUTTHROAT TROUT DISTRIBUTION IN THE PARK



Hoping to put further pressure on the lake trout population, in 2013 the National Park Service will add another boat, through a contract with Hickey Brothers, the Wisconsin-based commercial netting company that has been fishing on the lake since 2009. There will then be three gillnetting boats and one gillnetting/trap-net boat on Lake Yellowstone this summer.

LESS IS MORE

Even with this added effort, Koel doesn't anticipate catching more lake trout this year. "The hope is that we catch fewer now," he says. That's because last year their initial monitoring effort, which includes an in-lake netting program, showed more juvenile cutthroat in the lake population.

Anglers are reporting the same thing. "Downstream in the Yellowstone River, in Hayden Valley, we got lots of reports of small trout being caught as well," Koel says. "The war is obviously not won, but those are good initial signals of the change we want."

If the netting is truly winning the fight against the mature lake trout, this means that the next battle will be against the lake trout's fry and eggs. The National Park Service is banking on technology and ingenuity to combat the growth of these small fish and embryos, which essentially have no predators in the lake and which are nearly impossible to catch with common fishing tactics.

"Using a sonic telemetry study, we are working hard to identify all the lake

Continued on page 4

DO YOUR PART

Recreational anglers caught and killed an estimated 28,000 lake trout in Lake Yellowstone in 2012. These fish can be hard to catch because they do not feed the same as cutthroats. Philip Doepke, who spends more than 150 days a year on the lake as part of the Yellowstone fisheries team, offers these tips on how to land your own lake trout:

1. When fishing starts on the lake on June 15, fish the shallows on the north side of West Thumb, Storm Point, and Rock Point. Use enough weight to get your heavy lure—like a spotted Kamlooper spoon—out to where the lake bottom begins to drop off into deeper water.

2. In July and August, get out on a boat with a downrigger trailing a spotted trolling spoon on the north side of Frank Island, the south side of West Thumb, or through Breeze Channel.

3. Fish at or just below the thermocline, the point underwater where the warm surface water meets the cold depths. As the weather warms up, this layer can be 30- to 70-foot deep.

Yellowstone fishing and boating licenses are available at NPS visitor centers throughout the park. Boat rentals and guided fishing trips are available from Xanterra Parks and Resorts® at the Bridge Bay Marina. All lake trout caught from Yellowstone Lake *must* be killed.

trout spawning sites in the lake,” Koel says. “We know of one, Carrington Island, in the West Thumb.” This information has led the National Park Service to use electrofishing equipment to kill spawning lake trout before they can drop or fertilize their eggs. It also tells the researchers what they are



The primary tool used for suppressing Yellowstone’s lake trout population are gillnets, large monofilament mesh nets that are placed near the bottom of the lake. Photo: NPS

up against as they try to destroy the lake trout’s eggs once they have been scattered.

“The lake trout like to spawn by the island because there are cobble rock areas that are silt free,” Koel says. “The eggs fall down in the cracks and crevices between the rocks and are protected to incubate and hatch sometime in the winter or early spring.” Knowing that

the more eggs they kill, the fewer fish they would have to net in the future, the National Park Service is trying everything they can to disturb the lake trout’s spawning grounds.

Last fall, Koel and his fisheries staff borrowed suction and high-pressure pumps from Yellowstone’s fire cache. Though the pumps did not have enough suction to draw the eggs out



During the summer of 2013, there will be four boats on Lake Yellowstone dedicated to the lake trout suppression. Photo: NPS

of the rock, the high-pressure pumps had the power to blow the eggs out of the protective layer of the substrate. “We disrupted a lot of eggs,” Koel says. “We are working on refining the process and will definitely be doing that again this year.”

Electronic currents can also be used to kill embryos. However, with the eggs down in the substrate of the cobble rock, getting an electric current down in there has not been easy. The National Park Service is working with Smith-Root, a leader in electrofishing, to create a tool designed to use on the Carrington Island spawning area in the future.

It is these types of efforts that the National Park Service hopes will be the long-term future of the lake trout suppression program. “Right now we’re spending approximately \$2 million a year to suppress lake trout,” Koel says. “We need to develop more strategic techniques that are much more efficient and cost-effective, and that maintain the lake trout on low levels.”

WEST SIDE STORY

While Yellowstone Lake is ground zero for the fisheries program’s fight to save Yellowstone cutthroat, restoration projects are currently underway on the park’s west side to restore Westslope cutthroat to some of their native waters. Westslope cutthroats historically inhabited the Gallatin and Madison rivers and their tributaries, but because of the introduction of other species and subsequent hybridization, they have lost ground to non-native brook, rainbow, and brown trout.

In fact, true Westslopes, which are distinguished from Yellowstone cutthroats by their smaller spots and a greenish-silver coloring, were thought to be all but extinct in Yellowstone. However, two genetically pure populations have been found: one in an unnamed tiny tributary to Grayling Creek, which is the park’s last remaining aboriginal population, and the other in Geode Creek, which is the

remnant of a 1920s stocking effort. “We thought Geode was fishless, but fisheries biologist Mike Ruhl went down there one day and came back with all these fish,” explained Todd Koel, Yellowstone’s supervisory fisheries biologist. “We got them tested and now we estimate that there are 10,000 pure Westslopes in the system.”

The abundance of genetically pure Westslopes in Geode Creek has been a huge buoy for restoration efforts. Both fish and eggs from the creek have been used to reestablish the species in East Fork Specimen Creek, location of the park’s first Westslope cutthroat trout restoration project. Koel believes the eggs especially make the restocking effort more effective. “The hope is that hatching and emerging out into the stream will imprint that location on the fish so that they have the drive to come back to that area, or at least stay within that stream system for their whole

lives,” he says. The fish from Geode have also been used to restock High Lake at the headwaters of East Fork Specimen Creek. High Lake is now an outstanding location to fish for these rare natives.

In the future, the park’s sources of native Westslope cutthroat trout will be used to repopulate additional watersheds including Grayling Creek. “We’ve partnered with the Gallatin National Forest to modify an existing waterfall near Highway 191,” said Koel. “Then we’ll remove the non-natives and bring the natives back to Grayling Creek.” And by natives Koel not only means bringing back Westslopes, but he also hopes to restore grayling to their eponymous creek and the drainage as a whole. “After all, it was named Grayling Creek for a reason,” he says. “And that’s why we’re doing this: putting these fish back where they are suppose to be.”