

# Walleye tagging project shows impact of anglers, Mother Nature

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Doctoral student Eli Felts holds a walleye from Lake Oahe that will be tagged.

When it comes to reducing the number of walleye in Lake Oahe, anglers take a back seat to Mother Nature.

That's the take-home message from a South Dakota State University research project to assess movement, mortality and the impact of anglers on walleye populations, according to Mark Fincel, senior biologist at the South Dakota Game, Fish and Parks Department.

The five-year walleye tagging project, which is in its final year, focuses on the Missouri River from the Oahe Dam near Pierre north to the Garrison Dam near Riverdale, North Dakota, according to associate professor Brian Graeb.

Researchers have tagged 26,132 fish in the last three years, according to doctoral student Eli Felts. This will be the final year of tagging, but data will be collected through 2017.

"The basic science of angler harvest is poorly understood," Graeb said, even for a popular game fish like the walleye. But these insights on harvest dynamics will be widely embraced by wildlife managers from the Midwest to the Great Lakes and Canada.

Rainbow smelt are the No. 1 food source for walleyes, particularly those from Whitlock Bay, west of Gettysburg, downstream to the Oahe Dam, Fincel explained.



Each walleye is fitted with a metal jaw tag stamped with an identification number.

"It's very classic," Graeb said. "When rainbow smelt are doing well, Lake Oahe is one of the best walleye fisheries in the country."

## **Impact of flooding**

However, when the Missouri River floods, the high discharge rates necessary to reduce upstream water levels also pull smelt through the dam. "We have a big population of walleye above the dam and nothing to feed them," Fincel pointed out. That's happened twice—once in 1997 and again in 2011.

A couple of years after flooding in 1997, the walleye population crashed, Graeb recalled. By sheer coincidence, SDSU researchers were gathering data for another project in the early 2000s and did a retrospective analysis to figure out what had happened biologically to the walleye population.

When the river flooded in 2011, Graeb and Fincel worked together to develop the walleye tagging project, which began in 2012 through support from the South Dakota and North Dakota Game, Fish and Parks Departments. "We knew which approach to take and Eli hit the ground running," Graeb said. The researchers began tagging walleye in 2013.

Each fish is fitted with a metal jaw tag stamped with an identification number and a phone number to report when and where the fish was caught and whether it was harvested or released. Each angler then gets a certificate.

"There's been a lot of really good public input," said Felts, with information reported on nearly 6,000 walleyes. By March this year, Felts had already begun getting calls from the Bismarck area, but most reports come in from May through August. By early June, he can get as many as 70 calls a day.

"That first year, prey numbers were really low and the walleye were dying from natural causes at a high rate," Felts said. "By 2014 and 2015, those prey populations were rebounding." That's all part of the rebalancing, Graeb added.

However, the researchers found that the scenario was not the same across the entire reservoir. Walleye on the upper part of the reservoir fared better because they had a broader prey base, feeding on small yellow perch, crappies and shiners, Felts explained.

Fincel agreed. From Mobridge to Pollock and into North Dakota, "they're not hit as hard with these big swings in rainbow smelt."

## **Increasing food sources**

A cost-effective means of minimizing the impact of a flood on the walleye population has not yet been developed, according to Fincel. Solutions, such as moving the dam's intake pipes from the cool waters where smelt live at bottom of the lake to the warmer water near the surface, are too expensive.

However, Fincel pointed to increasing the number of prey species in the lower part of the reservoir as a possibility. "We are looking at alternative prey such as lake herring and gizzard shad."

Graeb said, "What we are thinking of is habitat enhancements on the lower part of the reservoir that would favor smelt or other alternative prey fish." Stocking gizzard shad may be a viable option, but he pointed out, "Eli's study should inform us about when and how to do that."

In addition, another SDSU doctoral student will be studying the ecology of rainbow smelt, including where they spawn and how increasing water levels in the spring affect those populations. "We need to learn basic information about smelt to see what suite of management tools might be available," Graeb said.

Fincel said, "This is extremely valuable research. We don't have the time or expertise to do it in-house." In addition, he pointed out, "We have a wealth of expertise at SDSU to help us generate new management ideas."

Fincel hopes the research yields information about how and why the year-to-year fluctuations in lake elevation impact prey fish. "Instead of preventing fish from moving downstream, let's see if there are ways to

increase production so the impact of evacuation events are less severe."

Provided by South Dakota State University

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