How Bio-Manipulation Saved the Walleye of Wisconsin's Lake Metonga

Creating a Void for WALLEYE

Something was going very wrong in Lake Metonga. The 2,000-acre lake in Wisconsin's northwoods had been a successful walleye lake for decades, but by the late 1990s, natural reproduction and walleye recruitment had slowed to a trickle. To make matters worse, by 2004, the adult walleye population had sharply declined.

Spawning habitat was excellent, but young fish, either stocked or natural, were not surviving to adulthood.

Mike Preul, fisheries biologist for the Mole Lake Sokaogon Chippewa Community, has been involved with fisheries work on Lake Metonga for twenty years. He took a closer look at the lake to see what changes might explain why walleyes were suddenly having such a rough time.

School of bullhead

Restoring balance

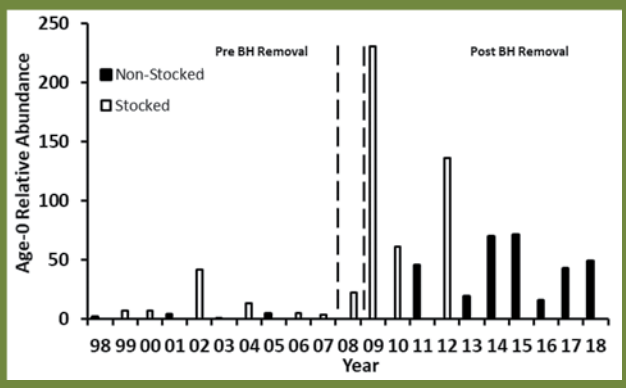
The fish community in Lake Metonga had always included black bullheads, but now fishermen were telling Mike how often they were catching the small catfish. "We were doing some routine electro shocking one day, and when the stunned fish floated to the surface, all you could see were yellow bellies. That's when I knew there was a problem". The abundance of bullheads had become enormous. "We did some simple math and calculated what a bullhead eats in a year. They were taking up a lot of space in the system and stressing the available forage for walleye."

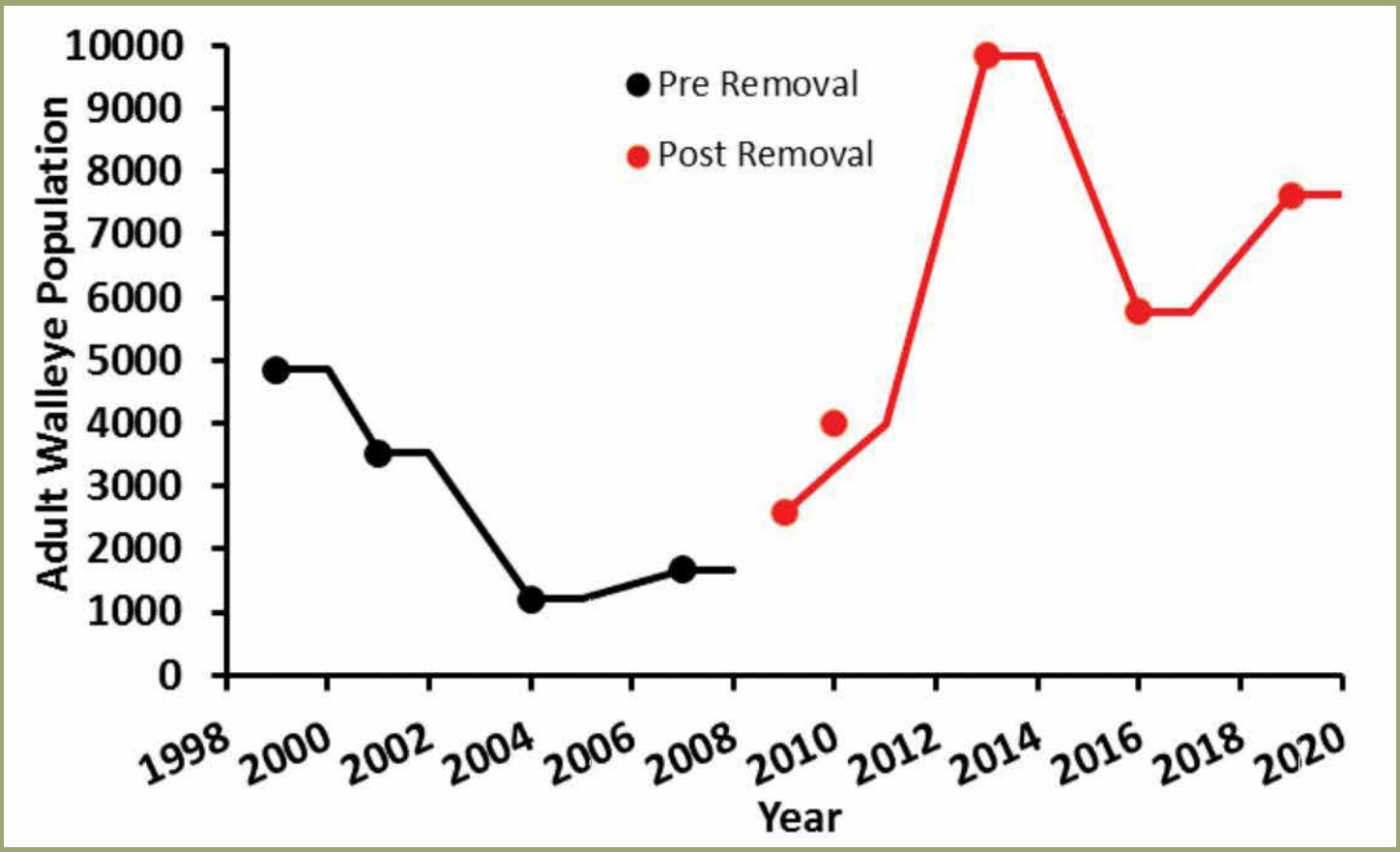
The theory was they were outcompeting walleyes for important forage at critical times when walleyes need an abundance of specific-sized food. "We knew stocking wasn't working, so the idea was that if we could create a kind of void, the walleyes might rush in to fill it."

Like many fisheries managers, Mike's resources were limited, and he privately wondered if this was really a battle he could win. His plan was to create conditions where walleyes could thrive, and that meant doing something about how much of the lake's biomass was tied up in bullheads. His plan reversed the fortunes of the lake's walleyes almost overnight. In the spring of 2008, Mike began the first of what would become an annual bullhead removal on Lake Metonga. The work was labor-intensive. "At first, we set fyke nets, but the fish weren't moving into them in sufficient numbers, so the decision was made to electroshock for bullheads." Mike's crew worked until their arms ached, shocking and netting the whiskered fish out of the lake. By summer's end, they had removed 13,337 pounds of bullheads. All the fish were donated to the public, to food banks and to nearby wildlife rehabilitation centers for the feeding of raptors. Into the newly created void, Mike stocked 5,000 large fingerling walleye.

The next spring, another 6,216 pounds of bullheads were removed, and over two million walleye fry were stocked. But this time, something different happened. Substantial numbers of young walleyes survived from the two years of stocking and began to show up and be counted in fall recruitment surveys.

At first, there seemed to be no end to the steady stream of stunned bullheads that rose to the surface every time Mike's crew flipped on the electrodes of his shocking boat. But





gradually, fewer and fewer bullheads appeared, and it took longer to fill up the tubs on the boat with fish. This process became a ritual every spring on Lake Metonga, and by 2012 the total catch rate had dropped by 87%. During the same time, the abundance of walleye fingerlings was steadily increasing.

During 2011 there was a large year class consisting of purely naturally reproduced fish. With the resurgence of naturally reproduced walleye, stocking was no longer needed after 2012. With bullhead numbers reduced and in better balance with other fish, walleye production in Lake Metonga boomed. Eventually, both natural recruitment and adult walleye density reached historic highs. For Mike Preul, this felt like the kind of victory that fisheries managers too rarely experience.

"I won't lie to you, it was a lot of hard work some days, but the results have been so amazing."

Keeping healthy lakes

Today Mike Preul spends only a few days each spring shocking for bullheads. It's become pure maintenance now, like mowing his lawn. "As long as they don't get out of control, I think we're good," smiles Mike. Walleye production has its up and down years but has remained reliable overall. What Mike learned on Lake Metonga could fill a book. His bio-manipulation method of removing bullheads to rebuild embattled walleye populations was successfully employed on Patten Lake in nearby Florence County and worked like pure magic. When that lake's over-abundant population of bullheads were severely reduced, the walleyes quickly came back in record-setting density.

Keeping walleye lakes healthy and productive is an ongoing issue, and all lakes face their own unique challenges. Overall, there likely aren't a great number of walleye lakes affected by bullhead populations, but where such lakes exist, Mike Preul's pioneering work is one silver bullet that fisheries managers can now add to their arsenal.

For further information, questions or comments about his work, Mike Preul can be contacted at mike.preul@scc-nsn.gov.