

# Big Lake's fish population plummeting

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The quantity of fish food in Lake Michigan hit a record low for the second straight year in 2007, a trend that could be disastrous for the salmon fishery if it continues. The volume of all prey fish in the lake -- alewife, bloaters and other small fish eaten by salmon, lake trout and whitefish -- dropped by half, from 61 kilotons in 2006 to 30 kilotons in 2007, according to data compiled by the U.S. Geological Survey's Great Lakes Science Center.

That's the lowest volume recorded since the government began tracking prey fish densities in 1973. Prey fish abundance last year was 92 percent below the record volume of 400 kilotons recorded in 1989, said Chuck Madenjian, a USGS research fishery biologist. At the same time prey fish numbers are plummeting, the volume of foreign dreissenid mussels in Lake Michigan -- quagga and zebra mussels -- increased 13 percent in 2007, according to USGS data. There were 245 kilotons of quagga and zebra mussels in the lakes, eight times the volume of all prey fish; quaggas account for 98 percent of the mussels in the lake, according to government data.

"Most of the stuff we bring up in our bottom trawl now is quagga mussels," Madenjian said. "Their population has just exploded in the lake in the last five years." The divergent trends of more mussels and fewer prey fish doesn't bode well for the Lake Michigan ecosystem or the sport and commercial fisheries. Quagga mussels hog the plankton that comprises the base of a food chain that supports most fish species. The dime-sized mussels, which snuck into the Great Lakes in ocean freighters' ballast water, have been linked to the collapse of Lake Huron's salmon fishery.

They are shrinking salmon and whitefish in lakes Michigan and Ontario and causing algae blooms that foul beaches and botulism outbreaks that have killed 75,000 fish-eating birds around the Great Lakes over the past decade. A state biologist said anglers should expect to catch fewer salmon, and smaller salmon, in Lake Michigan in the coming years. There aren't enough prey fish in the lake to support the near-record salmon catches anglers have enjoyed in recent years, said Randy Claramunt, research biologist for the Michigan Department of Natural Resources. "I think we're going to see reduced salmon catches in the near future," Claramunt said. "This is not a crash of the salmon fishery, it's more like a soft landing."

The lake's alewife population held steady in 2007, Madenjian said. But the quantity of those fish has dropped by more than half in recent years. Lake Michigan salmon have been shrinking in size because the food supply is dwindling. Anglers have caught numerous salmon in the past three years, but 20-pound fish have become scarce. In the 1980s, salmon weighing 30 pounds or more were common, according to state data. The reason is that Lake Michigan, for fish, is like a grocery store whose shelves are being picked clean by a foreign invader, the quagga mussel. As a result, sport and commercial fish populations are vying for meals from shrinking stocks of plankton and prey fish.

Claramunt said he doubts the Lake Michigan salmon fishery will go the way of Lake Huron. Alewife disappeared from Lake Huron in 2003 and the salmon fishery collapsed the following year, according to state data. The four states surrounding Lake Michigan reduced salmon stocking by 25 percent in 2006 due to concerns there were more fish than the lake could support. Those concerns were fueled in large part by the decline of alewife, the primary food source for salmon. Great Lakes fish expert David Jude said the precipitous decline of prey fish in Lake Michigan is startling.

"I think we're starting to see what quagga and zebra mussels have wrought," said Jude, a University of Michigan research scientist. "When they first arrived we wondered what kind of impact they might

have and now we're starting to see it in lakes Michigan and Huron; I didn't think it would happen this quickly."

Madenjian said he is not yet convinced that zebra and quagga mussels are the lone culprit behind a steep drop in prey fish abundance in lakes Michigan and Huron, which geographically are one lake. "The natural urge is to blame the mussels but I've resisted that," Madenjian said. He said other factors, such as natural fluctuations in the bloater population and the possible presence of too many salmon in Lake Michigan could be depleting prey fish populations. Madenjian said the next three to five years will be very telling for the Lake Michigan fishery. He said a rebound in the bloater population could pump new life into the salmon, whitefish and lake trout fisheries.

The volume of bloaters in the lake dropped from 13 kilotons in 2006 to 5 kilotons last year, Madenjian said. The current bloater abundance is about 1 percent of the record volume recorded in 1989, he said. "The big cause for concern in my mind is whether the bloaters are going to come back or not," Madenjian said.

The lone bright spot in data generated by the USGS' annual sampling of the lake bottom was the abundance of perch. Madenjian said he believes there will be terrific perch fishing this summer. "Perch might be on their way to a recovery in Lake Michigan," he said

**-- Source: U.S. Geological Survey's Great Lakes Science Center**