

Quagga Mussels in Lake Superior

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Intro: This is Superior Science News. Today's program explores the invasion of quagga mussels in Lake Superior.

These natives of Eastern Europe made their way into the Great Lakes like many other invasives — through the ballast water of ocean-going ships. Scientists say similarities between quagga mussels and zebra mussels masked their presence in Lake Superior. Jack Kelly, a researcher at Duluth's EPA lab, says pinning down their identification didn't come easy.

“The first detected quagga mussel was in 2005, and so our first year of finding that was sort of a puditive finding. One taxonomist thought for sure it was a quagga mussel, and we used DNA analysis to confirm, in fact, that it was. We looked back through our collections of that year, and there appeared to be another couple of individuals — this is like 3 individual mussels in tens of thousands of mussels that are mostly zebra mussels. This is a hard thing to do to find things that are very rare still because they've just invaded. So, they're not numerous. They're not abundant. It's kind of like looking for the needle in the haystack.”

Quagga mussels are similar in size and color to zebra mussels. EPA sampling in 2006 found more quagga mussels at a number of locations in the Duluth-Superior Harbor. And the quaggas have the ability to thrive in the deeper, colder waters of the lake, according to Kelly.

“Basic differences that you'll hear about are that the quagga mussel is maybe slower growing, takes a little bit longer to develop its populations, but because of that may be around a longer time also — in terms of its tolerances, it'll tolerate cold water a little better. That's a habitat that's maybe not so much competing with the zebra mussels.”

Philip Moy is a fisheries and invasive species specialist with Wisconsin Sea Grant. He says this invasive could pose negative impacts on the lake's food web and shift the food web.

“They're taking algae and planktonic organisms out of the water column and forcing it down to the bottom. So, I guess if you're a bottom-dwelling organism, it might put some more food in front of your face, but it's taking it away from larval fishes and the organisms that they depend upon for

their forage. So, it is affecting the growth and survival of the fish that our sportsmen like to have out there, as well as the growth of the larger predator fish.”

Evidence of this has already been seen in Lake Michigan — where some fish species are forced to find new food. Moy says quagga mussels are gobbling up the nutrients many fish once relied on.

“The most immediate impact we seem to be seeing right now is a reduction in the growth rate of the salmon and trout in the lakes. They’re just not getting as big as they used to be at a given age, say, back in the early ‘80s or ‘90s.”

Moy says there’s not much scientists can do once the mussels have been found in the lake.

“Right now we have no way to get them out of the Great Lakes or a large body of water. So, they are a permanent ecosystem change, and, based on what we’ve been seeing in the Great Lakes, it alters the ecosystem in undesirable ways. Those fish don’t grow as well, and our desirable uses are adversely modified once zebra mussels and quagga mussels get into a system.”

But, Moy says efforts at controlling their spread are the aim of programs like the Stop Aquatic Hitchhikers campaign.

“We’d like to see our continued success in preventing their spread to inland lakes in Wisconsin. And, in a way, the presence of the quagga mussel is maybe providing us a good way to assess the effectiveness of our outreach methods on preventing aquatic invasive species spread. Here’s an organism that’s now quite abundant in the Great Lakes. It certainly has the means to move inland just in the same way the zebra mussels did, so we really have to monitor those lakes. It’ll give us a chance to assess, ‘Are people taking those preventive—those precautions from moving these organisms inland or have we just been lucky so far?’ ”

The Stop Aquatic Hitchhikers campaign encourages boaters to:

- Remove vegetation, mud, and animals from their boats and equipment when they leave one lake for another.
- Drain water from live wells, bait wells, bilge, and motor.
- And rinse their boat and trailer with hot water or let them dry for five days.

Kelly says the EPA will continue to gauge their success by pinpointing where the problem areas lie.

“Our goal is to be able to provide an efficient means for the detection, so that we can know what’s there and provide some opportunity to limit its spread now as things transpire in the Great Lakes and we’re trying to check and see if any of our mitigation programs might be effective. Then continuation of the monitoring program will be a helpful asset.”

For Superior Science News, I’m Marie Zhuikov.

Outcue: This has been a production of Minnesota Sea Grant and KUWS radio.