

Study: Mussels improve lake property values

Invasive species improves water clarity



The value of lakefront properties in central and northern Wisconsin with invasive zebra mussels actually increased, compared with properties where mussels are not found. / File/Gannett Wisconsin Media



ZOOM

Low water levels on the bay of Green Bay expose rocks and zebra mussel shells along the shoreline at Point Comfort in the town of Scott in April 2013. / File/Gannett Wisconsin Media

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Nobody wants to see lakes infested with zebra mussels. The little clam-like creatures have a reputation for prolific growth and upending the waters they invade.

But from a strictly economic perspective, could their presence and their ability to improve water clarity actually boost the [value](#) of shoreline property?

A University of Wisconsin-Oshkosh economics student spent two years researching the relationship between zebra mussels and property values and came to a counterintuitive conclusion: The value of lakefront properties in central and northern Wisconsin with the invasive mollusks actually increased, compared to properties where mussels are not found.

Martin Meder, 27, is a senior who will graduate this spring. His analysis of real estate on lakes in 17 counties showed that [prices](#) rose 10 percent on lakes that have zebra mussels. By contrast, sale prices fell by 4.5 percent where another invasive species, Eurasian water-milfoil, was present.

Meder, who plans to study economics in [graduate](#) school, was in Madison recently where 150 undergraduate students in the UW System shared findings of their individual research projects in the Capitol rotunda. The event was the 11th annual "Posters in the Rotunda," which highlights original undergraduate research.

"Zebra mussels are bad," Meder said in a phone interview. "It's just that in some cases they do things that people like and people are willing to pay more money for it."

Zebra mussels, native to the Black and Caspian seas, first turned up in the Great Lakes in the ballast of ocean ships in 1988. A single mussel, the size of thumbnail, can filter a liter of water in a day. The ability to siphon and strip water of phytoplankton and other suspended material can rob a lake, river or stream of critical nutrients.

Zebra mussel populations can multiply quickly and blanket areas they invade. The annual cost of keeping water intake systems free of the mussels is about \$250 million in the Great Lakes region, according to the [University](#) of Wisconsin Sea Grant Institute.

Zebra mussels also have been tied to outbreaks of toxin-producing blue-green algae. Swimmers are known to cut their feet on the shells. And along Lake Michigan, zebra mussels play a role in making many beaches smelly and unwelcoming because they spur the growth of a type of algae known as *Cladophora*, which washes ashore with the mussels and other organic material and rots.

But zebra mussels' filtering ability also produces an undeniable result: It improves water clarity. Also, some fish species, such as smallmouth bass, have benefited when the mussel is present, since clearer water spurs the growth of weedy plants favored by some fish.

It's these attributes — clearer water and bass-friendly — that Meder thinks has had a positive effect on some lakeside properties.

By contrast, Eurasian water-milfoil doesn't have such qualities. The plant can grow 30 feet and forms dense mats on the surface of the water.

"We know if we look at milfoil, everyone knows it ugly and a problem," said Marianne Johnson, an economist and business professor at UW-Oshkosh who oversaw Meder's project.

When it comes to zebra mussels, "the really bad things you can't see," Meder said.

He began the project after reading about concerns that zebra mussels harmed property values, but discovering there was little [research](#) on the topic. He did find, however, that previous studies showed property values were negatively affected by Eurasian water-milfoil.

To measure the value of lakefront properties, Meder used a statistical [tool](#) known as regression analysis that breaks down sundry factors including price, location, lot size, the presence of zebra mussels and other variables. Each factor can then be calculated separately.

For his research, he examined state records of 1,072 property transactions on 413 lakes between July 2009 and December 2011. Starting on July 1, 2009, all real estate transactions were filed electronically with the state Department of Revenue through its Integrated Property Assessment System.

When he discussed his research at the Capitol recently, Meder said some people were confused by the outcome; others thought Meder was hawking a pro-zebra mussel agenda.

Michael Engleson, interim executive director of the Wisconsin Lakes, a state lake association, said he was not surprised by such a reaction, because the DNR and local lake chapters have waged a public education campaign for years to stop the spread of invasive species.

“In some respects, it seems counterintuitive, but I’m not terribly surprised by the study,” Engleson said. “Zebra mussels really do clear out the water.” Though he wondered about the longer-term effects on property values.

Zebra mussels began infiltrating Wisconsin’s inland lakes by 1994, according to the state Department of Natural Resources. Today, they’re found in 161 lakes and rivers in Wisconsin.

Engleson said Meder’s paper shares some parallels with other studies that show that improved water quality can be a boost to the value of lakefront property. He cited a 2003 paper by Bemidji State University researchers for the Mississippi Headwaters Board in Minnesota. The paper, using the same kind of statistical analysis, looked at 37 lakes in the headwaters of the Mississippi and found that buyers paid more for properties with higher water clarity.

Jake Vander Zanden, a lake scientist at UW-Madison, said Meder's use of regression analysis is also a common tool of scientists who study inland waters.

He noted, however, that zebra mussels are not as widespread in some portions of northern Wisconsin as in the central part of the state.

Also, he said that smaller inland lakes might not experience the same level of problems with Cladophora as Lake Michigan. And in smaller lakes, the relationship between zebra mussels and smallmouth bass populations hasn't been well researched.