

Measuring the role of invasive mussel larvae in lower trophic levels of Lake Huron's food web



CORE QUESTION:

How do invasive mussel larvae contribute to the flow of nutrients and energy in Lake Huron?

A MUSSEL-DRIVEN FAMINE

Carried to North America by ocean-going freighters, invasive zebra and quagga mussels have massively altered the flow of energy and nutrients through Great Lakes food webs. Adult mussels are highly effective at filtering nutrients out of the water, leaving little behind for other microscopic organisms and larval fish to eat.

In Lake Huron, this lack of nutrients has affected all levels of the food chain and caused significant harm to larger fish species. However, adult mussels are only part of the picture. Portions of the lake's waters teem with larval mussels, called veligers, during the May-October spawning season. Studies suggest that these tiny, round mussel larvae are not a major food source for Lake Huron's native fish. But their nutritional value for the lake's tiniest predators – zooplankton – hasn't been studied.

MEALS, SNACKS, OR SCRAPS?

Gordon Paterson, an assistant professor in the Michigan Technological University Department of Biological Sciences, will lead a project to investigate the role of zebra and quagga mussel veligers in the Lake Huron food web. Paterson, along with Michigan Tech assistant professors Jill Olin and Trista Vick-Majors, will analyze the

biochemistry of veliger samples taken from Lake Huron's Saginaw Bay to determine their nutritional value and how much energy they make available to predators.

The team will also use a technique that tracks how carbon molecules – a fundamental nutritional building block – move through a food web. This technique will help demonstrate whether veligers are a tempting food source for a tank of zooplankton predators or a colony of bacteria that consume dead tissue.

Their results will provide important insights for researchers and resource managers trying to understand the role of invasive species in shifting food webs around the Great Lakes.

CONTACT

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