

Lake Michigan fish populations threatened by decline of tiny creature

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The quick decline of a tiny shrimp-like species, known scientifically as *Diporeia*, is related to the aggressive population growth of non-native quagga mussels in the Great Lakes, say NOAA scientists. As invasive mussel numbers increase, food sources for *Diporeia* and many aquatic species have steadily and unilaterally declined.

A recent research study from NOAA's Great Lakes Environmental Laboratory published this week in *Freshwater Biology* documents the recent decline of *Diporeia* and the explosive growth of quagga mussels in Lake Michigan. Over the past five years quagga mussels have displaced native *Diporeia* as the dominant bottom dwelling organism, leading to a major disruption in the lake's food web.

"Quagga mussels have displaced other more energy-rich food sources and leave fish and other aquatic species with fewer food options," said Tom Nalepa, NOAA research biologist. "The invasive mussels are low in calories and their shell has no nutritional value. Fish feeding on quagga mussels expend considerable energy crushing and passing the indigestible shell."

Scientists at the NOAA Great Lakes lab project that impacts on fish populations will continue and become more pronounced as quagga mussels further spread to all depths

occupied by the dwindling *Diporeia*. It is estimated that the mass of quagga mussels in the lake is now about four times the mass of all prey fish.

In Lake Michigan, declines in *Diporeia* masses were first observed in the early 1990s

soon after the discovery of invasive mussels in the Great Lakes. By 2005, lake populations of the tiny shrimp decreased 96 percent in the 10-year period of the study, with further observations indicating recovery of *Diporeia* improbable once it has disappeared.

Source: Wiley

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