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Scientists say they've found bacteria that will fight invasive mussels

But germ can't be used on wide scale, so its utility is limited, they warn

By James Janega

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Researchers seeking to slow the spread of invasive zebra and quagga mussels in American lakes and rivers have found a bacterium that appears to be fatal to the problematic species without affecting native mussels or freshwater fish.

The bacterium, *Pseudomonas fluorescens*, offers some hope for controlling the troublesome bivalves that are wreaking ecological and economic havoc in North American waters from the Colorado River to Vermont, and especially in the Great Lakes.

But more testing remains to be done, and the bacteria could be used effectively only on a limited scale, said Daniel Molloy, the New York State Museum researcher who discovered the possible new use for *P. fluorescens*.

It would be impossible to use the bacteria to wipe out all the invasive mussels in a Great Lake because they would be quickly replenished, he said. "It's too big," Molloy said of the mussel invasion.

More realistic is the hope of using the bacteria to free water intakes and power plant pipes of clogs caused by mussel infestations. Currently heavy doses of chlorine and other toxins are used to control the mussels—not ideal because of the

potential impact on human health.

Researchers have tested hundreds of strains of commonly found bacteria in hopes of finding something that can kill zebra and quagga mussels safely. *P. fluorescens*, a species crucial in preventing rot in the roots of certain plants, proved deadly to the mussels in laboratory tanks.

The bacteria act on the cells of the mussels' digestive gland, the equivalent of the human small intestine, where food is absorbed. Killing those cells causes massive hemorrhaging and system collapse. Within days, entire mussel colonies die.

So far, biologists have tested the bacteria on native mussels, brown trout, fathead minnows and sunfish and found no adverse effects. Other tests are planned.

P. fluorescens apparently is deadly to the invasive mussels even when cultures of the bacteria are dead, said Fred Nibling Jr., a research biologist with the U.S. Bureau of Reclamation, who, in August, observed a test of the bacteria with samples of water and zebra mussels taken from Lake Mojave near Laughlin, Nev.

Researchers and a commercial company are seeking permits from the U.S. Environmental Protection Agency to test the method in Western streams.

"That was a bench-top test," Nibling said of the Lake Mojave experiment. "We want to see it on a larger scale."

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