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## Lake Erie algae blooms linked to underwater sediment shifts

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A toxic form of algae that has overtaken Lake Erie's western basin in recent summers appears to be thriving not only because fertilizers are getting washed into area rivers and streams by rain but also because the silt doesn't stay put once it gets into the water.

Tom Bridgeman, a researcher at the University of Toledo's Lake Erie Center, told members of the Ohio Lake Erie Commission yesterday the new finding is significant because it goes beyond the usual correlation between algae and rain. It also raises new questions about the federal government's long-standing practice of dumping silt dredgings from the Toledo shipping channel into the open lake water, which has drawn the ire of Michigan and Ohio politicians since the mid 1980s.

The lake's western basin was blanketed by one of its largest swaths of free-floating microcystis algae this summer, even though seasonal rainfall was average.

That apparently was because resuspended sediment made the warm, shallow western basin turbid enough to protect the algae from sunlight. Sunlight usually kills most forms of algae as it rises to the lake's surface.

"We really think the turbidity of the water helps microcystis grow," Mr. Bridgeman said.

Lake Erie has hundreds of types of algae, most of which are at the bottom of the food chain and are consumed by microscopic forms of life that fish eat.

"In general, if there's no algae, there are no fish," Mr. Bridgeman said.

But microcystis is one of two notorious types of blue-green algae that have taken a strong hold on the western basin in recent years.

It has killed dozens of people in Brazil and has become a costly menace to control locally. Toledo spends \$3,000 to \$4,000 a day running a carbon-activated filtration system at its water plant to neutralize the algae when they are in bloom, according to Gail Hesse of the Ohio Environmental Protection Agency, who sat in for agency director Chris Korleski at yesterday's meeting.

The commission was told by various people that algae blooms affect more than public health. They drive away tourists, hurt property values, and, in excess, can affect the region's multibillion-dollar fishery.

Although most of the resuspended sediment that's aiding microcystis is probably the result of high winds and storms, Mr. Bridgeman agreed the research raises new questions about what the U.S. Army Corps of Engineers dumps into the lake after dredging the Toledo shipping channel. Toledo's harbor is the shallowest and most heavily dredged in the Great Lakes region.

Most of the shipping channel's sediment is dumped in one area of northern Maumee Bay.

But Jeff Reutter, director of Ohio Sea Grant and Ohio State University's Stone Laboratory, said the western basin is so shallow there is no place the dredged material can be deposited without it being resuspended and swirling up near the top of the water column again. He said it gets redeposited across the lake's western basin.

"If it had stayed all in one place, you would have seen a big mountain of it [in the bay] by now," Mr. Reutter said.

The Corps practice is more effective in deep bodies of water such as Lake Superior, he said. Duluth, Minn., has clear water near its surface and few signs of algae because Lake Superior is hundreds of feet deep.

"An area like that doesn't exist in the western basin of Lake Erie," Mr. Reutter said.

Fishery biologists have long cried foul over the practice of open-lake dumping, claiming that turbidity generated by suspended sediment has kept western Lake Erie - the most biologically productive part of the Great Lakes region - from achieving its full potential for fish production. The Corps has said it deposits about two-thirds of what it dredges from the Toledo shipping channel each summer, material which meets U.S. Environmental Protection Agency chemical thresholds.

The most polluted sediment, typically that dug from Toledo's inner harbor, goes to a waterfront landfill called a confined disposal facility.

The agency has said it has few other options unless nonfederal sources came up with millions of dollars to help the federal government build a new confined disposal facility.

The question is not whether the Corps is having an impact. It's how much it is exacerbating the problem, Mr. Reutter said.

"The Corps of Engineers will look with great interest at any study that involves the health and well-being of the Great Lakes," Bruce Sanders, Corps spokesman, said.

Oregon activist Sandy Bihn, founder of the Western Lake Erie Waterkeeper Association and the Toledo Harbor Lighthouse Preservation Society, called upon the commission to build an "Eco Island" near the lighthouse.

She said she envisions a pilot project in which geo tubes packed with dredged material are used to build a structure in the lake for fish habitat and spawning.

Doing that quickly would reduce or eliminate the need for open-lake dumping, she said in a letter to the commission.

"We need to think out of the box about ways to help Lake Erie and to enhance economic opportunities created by an abundant sport fishery, bird watchers, and lighthouse lovers," she wrote.

The commission, a panel of state agency directors, meets quarterly. Yesterday's meeting was its first at UT's Lake Erie Center in Oregon.

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