ECOSYSTEM THREAT

'Blue-Green Godzilla' invades Lake Erie

What was once thought to be a 'Southern' algae problem has spread to Lake Erie, creating what one expert likens to "a four-alarm fire with no responders."
Photo courtesy of Sandy Bihn

Algae's long-term impact on the fishery remains unknown, but biologists fear the worst

By ROBERT MONTGOMERY
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OREGON, Ohio — Residents saw very few mayflies along the shores of Maumee Bay in western Lake Erie in 2008. One year before, these insect indicators of good water quality were plentiful, according to Sandy Bihn, an environmental watchdog for western Lake Erie.

What caused the mayfly decline?

No one knows for certain, but Bihn suspects a recent outbreak of *Lyngbya wollei* played a key role.

Two years ago, *BASS Times* was one of the first national publications to reveal the threat to U.S. fisheries posed by this toxic bacterium masquerading as a filamentous blue-green alga. At that time, it appeared to be confined to Southern waters, where Dr. John Rodgers of Clemson University labored to understand and control what he termed "the beast of water algae."

But now lyngbya has moved north, possibly on the trailer or hull of a boat. No matter how it traveled, it's now firmly entrenched in the western basin of Lake Erie, the warmest and shallowest of the Great Lakes.

Unlike most algae that bloom, float and eventually die, lyngbya grows into the sediment and stays there.

"Maybe it would have gotten more attention if it came in ballast water [as have most invasives, including the zebra mussel]," said Bihn, who warned the Lake Erie Commission of the threat and is leading the charge against what one expert called a "Blue-Green Godzilla."

"Southern waters where it's been found are much smaller than Lake Erie," she added. "Here, the problem could be much worse. Lyngbya likes 3 to 4 feet of water, but it's growing in 8 to 10. It's covering the bottom and smothering the food chain, and no one is doing anything about it."

Anglers have reported that the alga is fouling hooks and lines, covering up the lake bottom around marinas and possibly driving away fish. Mark Brush of The Environment Report said he saw mounds of lyngbya growing up to 3 feet high along the

"It's like a carpet that grows on top of itself and becomes matted. And it appears to dry, but it doesn't deteriorate," resident Jerry Brown told Brush. "What used to be my wonderful seafront with waves lapping up against my seawall is now what I call my Lower 40 because it's a field."

Discovered in summer/fall 2006, this year's outbreak wasn't quite as bad as the one in 2007, according to Bihn, with cooler summer weather possibly a mediating factor. Although it has proved that it can survive cold winters, lyngbya grows most abundantly when the water temperature is 80 degrees or higher.

"Last fall [2007] there were huge mounds of it. They looked like dunes, sticking right up out of the water," Bihn reported. "It covered up the marina just down the street from where I live and it clogged water intakes.

"It was 6 to 8 feet deep around the outflow of a coal-fired plant [see related story below]. The thermal use of water probably is having a more profound effect than most believe, but everyone is afraid to look at it. Simply put, the growing lyngbya problem in Maumee Bay and western Lake Erie is a four-alarm fire with no first responders."

Feeding the beast

OREGON, Ohio — Why is lyngbya thriving in the shallow waters of Lake Erie? And can it survive the harsh winters?

In response to those questions, consider the following: Three coal-fired plants in the area discharge nearly 3 billion gallons of heated water per day, providing ideal growing

Continued on page 19

Continued from page 18

conditions during summer and a thermal refuge in winter.

"At North Cape near Detroit Edison, the water in summer gets up to 100 degrees," Waterkeeper Sandy Bihn said. "And there's a report that lyngbya was there in 2006 before the storm that probably blew it down here [to the southern shores of Maumee Bay]."

In addition, the alga receives plenty of nourishment from sewage outflows and runoff from yards, farm fields and factory farms. Contrary to popular belief, water quality in Lake Erie, and likely the rest of the Great Lakes as well, is no longer improving.

Experts say the Lake Erie ecosystem declined annually until 1970. Then it stabilized through 1975, according to Dr. Jeffrey Reutter, director of Ohio Sea Grant. The Clean Water Act and other environmental regulations put the lake and its sisters on the road to recovery until 1995 when degradation began again, mostly because of runoff pollution and shoreline development. Filter-feeding by billions of invasive zebra mussels also has added to the phosphorus increase.

Ironically, this high nutrient load also contributes to Lake Erie containing more consumable fish than the rest of the Great Lakes combined. "Our waters are incredibly fishy," Bihn said, adding that the Maumee is the most biologically productive river feeding the lake and world famous for its huge walleye run.

But fish and lyngbya don't mix.

Fortunately, lyngbya doesn't kill fish, but it does interrupt the food chain and drives away aquatic life. And once established, it persists, said Bill Frazier, a water-quality expert who is combating the alga on City Lake in High Point, N.C.

"If there's too much light, it creates a scab to block it out to a level it likes," Frazier explained. "This is what most people see floating on top of the water and blocking whole areas of waterways."

The black "scab" absorbs heat, as decomposition robs the water of oxygen. "I've never seen anything close to it in my career other than one of our sewer lagoons," Frazier continued.

Aging, pollution and other stressors, including warm water, make a lake vulnerable, he added.

"The key is to recognize it, report it and get it treated quickly," he said. "Unlike hydrilla or some of the other arguably beneficial weeds, there's nothing good about lyngbya."

Bihn, meanwhile, has recognized and reported it in Lake Erie and is trying her best to inspire local, state and federal officials to get started devising a plan to combat it.

"When zebra mussels came into the lakes in the 1980s, we didn't try to contain them, and look what happened. Now, they're out West where people actually are trying to do something about them. If we don't do something, lyngbya could have a profound impact on the lake and reduce the quantity of fish significantly.

"Right now, it's not really in a tourism area. But as it moves east toward Clinton, people will have a higher level of concern because of the tourism. People should be concerned that it's growing and it's coming."

— *ROBERT MONTGOMERY*

Lyngbya poses threat

The U.S. Army Corps of Engineers may be helping lyngbya spread.

"About 800,000 cubic yards of sediment are dredged and most is open-lake dumped in 15 to 20 feet of water," said Waterkeeper Sandy Bihn. Suspended sediment can travel 100 miles or more by wind-driven current, meaning lyngbya could be introduced east of Cleveland.

"Accelerating the spread of lyngbya because of open-lake dumping is simply unacceptable," Bihn told the Lake Erie Commission.

To learn more about dredging, lyngbya and other Lake Erie issues, visit www.westernlakeerie.org.

— *ROBERT MONTGOMERY*