Researchers creating warning system for toxic algae in lakes

July 30 2017, by John Seewer

In this Aug. 3, 2014, file photo, the water intake crib for the city of Toledo, Ohio, is surrounded by an algae bloom on Lake Erie, about 2.5 miles off the shore of Curtice, Ohio. Researchers are working on creating an early warning system that can spot when algae begins showing up on hundreds of lakes across the U.S., using real-time data from satellites that already monitor harmful algae hotspots on Lake Erie in Ohio and on the Chesapeake Bay along the East Coast. (AP Photo/Haraz N. Ghanbari, File)

Satellites in space and a robot under Lake Erie's surface are part of a

network of scientific tools trying to keep algae toxins out of drinking water supplies in the shallowest of the Great Lakes.

It's one of the most wide-ranging freshwater monitoring systems in the U.S., researchers say, and some of its pieces soon will be watching for harmful algae on hundreds of lakes nationwide.

Researchers are creating an early warning system using real-time data from satellites that in recent years have tracked algae bloom hotpots such as Florida's Lake Okeechobee and the East Coast's Chesapeake Bay.

The plan is to have it in place within two years so that states in the continental U.S. can be alerted to where toxic algae is appearing before they might detect it on the surface, said Blake Schaeffer, a researcher with U.S. Environmental Protection Agency.

"You don't have to wait until someone gets sick," said Schaeffer, one of the leaders of the project.

Across the nation, farm runoff, sewage overflows and lawn fertilizers have washed into lakes and rivers and left behind unsightly algae blooms that can sicken people and pets and harm wildlife.

But often the first reports of harmful algae on a lake come from boaters seeing something strange in the water, said Rick Stumpf, of the National Oceanographic and Atmospheric Administration.

He began using satellites in 2008 to monitor algae on Lake Erie. That work took on a new urgency after a bloom near Toledo's shoreline contaminated the drinking water for more than 400,000 people three years ago.

The EPA in recent years has been testing using the satellite data to watch

for algae in lakes in California, Vermont, New Hampshire, Massachusetts, Connecticut and Rhode Island.

This Sept. 1, 2015, file photo shows a warning sign for algal toxins on a beach in Maumee Bay State Park, located on Lake Erie in Oregon, Ohio. Researchers are working on creating an early warning system that can spot when algae begins showing up on hundreds of lakes across the U.S., using real-time data from satellites that already monitor harmful algae hotspots on Lake Erie in Ohio and on the Chesapeake Bay along the East Coast. (AP Photo/Haraz N. Ghanbari, File)

Earlier this year, the data helped detect an algae bloom in a Utah Lake near Salt Lake City before officials on the ground knew about it.

"That's exactly what we we're trying to accomplish," Schaeffer said.

The system in development will cast a wider net at a time when many states can't afford to monitor every lake threatened by harmful algae. The goal is to use the satellite data to watch for algae on 1,800 lakes across the nation and provide four different types of water quality measurements on close to 170,000 lakes.

What satellites can't measure is the amount of toxins in the water. That's where samples gathered by researchers come into play. That too can be expensive so researchers have developed an underwater lab that sits at the bottom of Lake Erie and both collects water and tests the levels of toxins before sending the results back remotely.

The whole process takes four hours—much less than the day or two it takes to test samples from a boat.

"We call it the 'lab in a can,'" said Tim Davis, a Great Lakes researcher with the National Oceanographic and Atmospheric Administration.

The first robotic lab was launched this summer and two more are in the works. While it's still in the early stages, Davis said it could work in other lakes plagued by algae.

Other researchers are testing drones on Lake Erie to see if digital images they capture can be effective monitoring the algae blooms. Already in use on the lake are buoys that measure algae in the water.

Those leading all of these research efforts say the key is provide as much information as possible. "It's really about using a combination of all of these," Schaeffer said.

Citation: Researchers creating warning system for toxic algae in lakes (2017, July 30) retrieved