

HABs Continue To Be a Concern for County's Lakes, Residents

<https://www.allotsego.com/habs-continue-to-be-a-concern-for-countys-lakes-residents/>

August 22, 2024

By KRISTIAN CONNOLLY

OTSEGO COUNTY

As of August 19, there had been three detected instances of harmful algae blooms on Otsego Lake this year, and all were relatively short-lived. But that doesn't mean the topic is not at the forefront of what concerned citizens, lake researchers, and scientists are paying attention to and trying to understand each and every day.

The "Otsego Lake Cleanup" event led by the Otsego Lake Association on Sunday, August 11 provided a good venue for such a discussion. Gathered together for refreshments following the cleanup, members of the OLA spoke about HABs, cyanobacteria, plastics, and per- and polyfluoroalkyl substances—more commonly known as PFAS or "forever chemicals"—at the SUNY Oneonta Biological Field Station boathouse on the western shore of Otsego Lake.

When it comes to "forever chemicals," which the U.S. Environmental Protection Agency and organizations like the Natural Resources Defense Council say—in perhaps the nicest possible terms—are "widely used," are "just about everywhere," and are "nearly indestructible," the concerns are many, and mostly unknown.

Dr. Kiyoko Yokota is a limnologist and certified lake manager who works for SUNY Oneonta as an associate professor of biology and researcher at the BFS. She also serves as a scientific advisor for both the OLA and the Village of Cooperstown's Watershed Supervisory Committee, "a collaborative effort of Otsego County towns and the Village of Cooperstown dedicated to the lake's health."

"Both plastics and forever chemicals including PFAS are substances that lake organisms as well as humans did not evolve with, and their long-term effects are not yet fully understood," said Dr. Yokota via e-mail, before adding, "The best we can do as citizens is to reduce their use and release to the environment... Reducing our dependency on plastics is the first step."

According to Dr. Yokota, the EPA has begun regulating PFAS in drinking water, and New York State is following suit. As for microplastics, Dr. Yokota reports that "there is no mandatory microplastics testing for municipal drinking water at this point."

When it comes to the health of local aquatic species, such as fish in the lake, there is concern ranging not only from how those substances interact within the fish themselves, but also how the substances are passed from fish that are part of a larger food system—including to humans.

"[The New York State Department of Health] is making a big effort to get on top of some of the forever chemicals," said SUNY Oneonta lecturer and researcher Paul Lord. "That's a really important point to understand, that it's a whole family of chemicals, it's not a single chemical. And some of these chemicals have already been better studied in other locations, and that's why we know that our

freshwater fish are extremely polluted with forever chemicals. DOH is trying to get on top of the ones that are already well studied so that they can make some reasonable guidance about eating fish.”

With regard to HABs, the situation appears to be equally uncertain in terms of the effects on human health, both from short-term exposure and from cumulative exposure. And it’s not just Otsego Lake that is of concern in the area. For example, the Canadarago Lake Improvement Association’s Facebook page reported HABs in the lake on August 2, July 23, July 21 and July 13 this summer.

Said Lord: “When the cyanobacteria comes to the surface and they do that thing called a hazardous algae bloom, where everybody can see it, and some of us react to it because either we’ve been exposed to it before and we’re allergic to it or because it’s toxic as hell and it gets in our eyes and it gets in our throat, that is acute toxicity. That means you’re getting a big dose and you’re reacting to it in a short period of time.

“What we all need to be paying attention to is the issue of chronic toxicity,” he said.

Lord also noted that cyanobacteria’s number of different toxins can range from those that affect what he termed the “brain housing group” to toxins that affect liver function.

“And your liver, of course, is what cleans your blood and everything else,” Lord said.

Dr. Yokota also weighed in on the uncertainty surrounding HAB exposure, saying, “There are a lot of studies going on regarding cyanobacterial blooms—they are a global problem, and our knowledge base is broadening every day.”

But, she added, “There are a lot of unknowns about chronic toxicity, and even for acute toxicity, it is difficult to estimate the true impact of cyanotoxins on human health at this point.”

Lord cited a recent study from the University of New Hampshire in which residents along different lakes were sampled and separated in the study depending on whether they lived on the prevailing upwind part of the lake or the prevailing downwind area. In that study, it was found that neuromuscular issues for people that lived or summered on the downwind side for a couple of decades or more were significantly larger than those found among people who were on the upwind side.

“[HABs do] go airborne,” said Lord. “The question is at what level is it airborne and how are we reacting to it.”

Lord said that one of the big challenges in managing HAB exposure has to do with how quickly the situation changes in the water. For example, a calm day on the lake is an environment in which HABs, if present, are more likely to reach the surface and become an acute issue. A day with a lot of wind and an active body of water provides a greater chance to disrupt and dissipate the bloom before it reaches surface level.

Lord noted how during one dive, he was certain he witnessed a bloom in the lake's water column, but by the time he went back to photograph it, the wind had helped do away with the bloom before it reached the surface.

Looking to the future, Lord sounded an optimistic note about how HAB exposure might be best managed. For example, technology has been introduced elsewhere that, according to Lord, "sends out light waves, and by the bouncing of light back, we can determine what kind of algae species are in the water. They are collecting data 20 times per minute, and with that tech they are able, with a good success rate, to predict within 72 hours when the algae blooms are going to occur."

Lord added, "That is what I think is the best that we could hope for, because 72 hours, we can also take a look at what the weather's going to be. And then the village could say, 'the best estimate we have of what the situation's going to be like on Friday is, if you're on the east side of the lake, shut your windows. If you're on the west side, enjoy it.'"

At the moment, such systems cost \$2 million to implement, and only larger lakes with larger communities and more resources—Lake George, Skaneateles Lake, Chautauqua Lake—have begun using such technology. But the belief is that the more common the technology, the less expensive it will become, which will make it available to all communities with such a need.

"That's not the only place we see hope," said Lord, "but that kind of project would also be grabbing ahold of other emerging technologies and merging that in with their data to make better predictions."