TOXINS IN DRINKING WATER SETS OFF ALARMS

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For the first time ever in New York, dangerous toxin from blue-green algae has been found in treated drinking water.

Cayuga County health and municipal officials reported this week that a dangerous toxin released by an algal bloom in Owasco Lake in the Finger Lakes region, had survived the treatment process in two different plants, and made it into the supplies being distributed to homes and businesses. Combined, the two systems serve more than 50,000 customers in Cayuga County.

Officials said the concentrations were low enough that no one should have suffered ill effects, and reported that by Wednesday afternoon toxin was no longer detectable in the lake water entering the plants.

"Water is drawn into the treatment plants in the northern part of the lake — which is precisely where a large bloom of blue-green algae was reported last week", said Eileen O'Connor, director of environmental health for the Cayuga County Health Department.

Algal blooms are commonplace at Owasco Lake, but none have had this much of an effect on drinking water before.

"Possibly the conditions this year were better for a bloom," O'Connor said. "There is still a lot the scientific community doesn't know about blue-green algae blooms and what triggers them."

WAKE-UP CALL FOR UPSTATE

The incident may serve as a wake-up call for upstate New York residents, many of whom consume water from lakes afflicted by blue-green algae blooms. Officials say toxin from blue-green algae has been found in the water entering other upstate treatment plants, including the city of Canandaigua facility last summer.

In those cases, however, treatment-plant operators were able to intercept the toxin, add special measures to the course of treatment and remove the toxin before it reached consumers. Operators at the city of Auburn and town of Owasco plants in Cayuga, despite employing some of those same special measures, weren't able to do so.

Bob Brower, president of the Owasco Watershed Lake Association, said the event has been an eye-opener there.

"Within the lake association, there's clear and heightened concern," Brower said. "Our members are usually concerned about recreational use of the lake. The possibility of the toxin making it through a filtered supply is ... not what anybody expected."

"This new harmful algal bloom issue has just heightened everybody's appreciation for the value of the lakes. I see that all through the Finger Lakes," Brower said.

"Concentrations of the toxin detected in the treated drinking water from Owasco Lake were below health advisory levels set last year by federal officials, and no ill effects are expected in people who consume the water", O'Connor said.

The incident marks the first time algal toxins have ever been found in treated public drinking water in New York State, the New York State Department of Health has confirmed. The event is particularly noteworthy in communities that get drinking water from lakes such as Erie, Canandaigua, Conesus, Seneca, Cayuga, Chautauqua and Champlain that have suffered at least occasional algal blooms.

"It's definitely something we're aware of and monitoring for," said Peter Virkler, chief operator at the city of Canandaigua's water treatment plant.

Lake Ontario and Hemlock Lake, which provide drinking water to the city of Rochester, the Monroe County suburbs and some surrounding communities, have never reported any problems with blue-green algae.

Canandaigua Lake, the source of water for five municipal systems with roughly 59,000 customers in total, suffered a rare major outbreak of blue-green algae last year.

Workers at the Canandaigua city plant began sampling the lake and incoming water for algal toxin, and at one point found it in the water that was drawn into the Canandaigua city plant, Virkler said. Activated carbon was added to the water to remove the toxin and it was not detected in the "finished" water sent to customers, he said. The city plant serves about 39,000 customers.

There was no sizable bloom on Canandaigua Lake this summer or fall, so no toxin sampling was needed, Virkler said.

SAMPLING BEGAN AFTER TOLEDO OUTBREAK

In the summer of 2014, public attention was riveted on Toledo, Ohio; whose public water system was briefly shut down after algal toxins from a massive bloom in Lake Erie were found in the treated water.

That episode, in which no one was reported to have been sickened, opened eyes nationally to the threat of algal **>>>**

toxin in water supplies.

The two municipal systems that draw water from Owasco Lake began collecting samples for toxin testing after the Toledo event, O'Connor said. They're gathered in late summer and fall, when blooms are most likely. Analysis is done by the state Department of Health.

Nothing was found in 2014. Last year, toxin was found in the "raw" or untreated water at one plant, she said.

Beginning about a week ago, samples began to show toxin in both the city of Auburn and the town of Owasco systems — first in the raw water and then in the post-treatment or "finished" water.

Levels reached as high as 0.18 parts per billion in the finished water. While no drinking-water standards have been established, the U.S. Environmental Protection Agency advised last year that young children and people with pre-existing health problems should not consume water containing more than 0.3 parts per billion. Older children and healthy adults can tolerate up to 1.6 ppb, the agency said.

New York state is using those levels as guidelines, officials said.

The EPA advisory applied to microcystins, which are the type of toxins found in Owasco Lake water. Microcystins, the most common cyanotoxins in New York waters, are the toxins that appeared in Canandaigua's raw water last year and bedeviled Toledo residents two years ago.

Microcystins can cause a host of symptoms in people who ingest sufficient quantities or are exposed to them via skin contact. They are hepatotoxins, meaning they affect the liver, though they can cause skin, digestive-system and other health problems.

State health officials said Wednesday they monitor all reported algal blooms to look for cases in which public water supplies could be impacted. When they find them, they reach out to local officials to make sure they're aware, and to offer help in analyzing water samples for the presence of toxins.

The state Health Department lab has analyzed several dozen samples from "a handful of systems" in recent years, officials said.

The state officials said they have been working with county health departments and treatment-plant operators for the last several years to inform them of the steps they should take when an algal bloom appears near their water intake.

Operators are encouraged to draw on a battery of techniques that can help remove toxin from incoming water, including deployment of activated carbon and increased chlorination.

O'Connor said the Cayuga County treatment plants did follow those procedures, and also cleaned their internal filters more often. Small amounts of toxin still make it through the treatment process, however.

State health officials said Wednesday they were still trying to determine why that happened, but would speak only on background to the Democrat and Chronicle about the issue.

O'Connor said that once this episode has ended, attention will have to turn to broader efforts to reduce the loading of nutrients into Owasco Lake. Owasco, surrounded by a small city and numerous large dairy farms, has been hobbled by an overload of nutrients and has had more frequent algal blooms than any of the 10 other Finger Lakes.

Efforts are underway in the Owasco Lake watershed to reduce nutrient loading. Bob Brower, president of the Owasco Watershed Lake Association, was able to tick off a half-dozen initiatives that have or will address runoff control, nutrient reduction, stream-bank restoration and the like.

But more is needed. "We're going to request assistance to increase our watershed protection," O'Connor said. "It's is clear that things cannot remain the way they are. They are going to have to improve."

She said the Cayuga County board of health decided earlier this week to ask a newly formed state drinking-water "rapid response team" to step in, and Brower said his group would support that request. "We also need federal help," he said. "We have to have some federal leadership here to help pull this together. We can't do this one lake a time, one citizen group at a time."

TOXINS HARMFUL TO HUMANS, ANIMALS

Blue-green algae, which more properly are known as cyanobacteria, occur naturally in many freshwater lakes, ponds and streams. Under certain conditions, cyanobacteria can grow rapidly, or bloom. Some cyanobacteria release toxins that, in sufficient concentrations, can be harmful to the health of humans, pets and wildlife.

Experts say blooms are promoted by hot, windless conditions and occur most often in waters that are rich with nutrients — phosphorus and nitrogen, mostly — that can be naturally occurring but also come from animal manure, man-made fertilizer, sewage treatment systems and other sources.

It is widely believed that climate change, which is bringing higher temperatures and more frequent heavy rainstorms that wash nutrients into streams and lakes, is worsening the cyanobacteria problem globally.

The usual route of exposure to toxins is skin contact or accidental ingestion during recreational use of surface waters; not ingestion via drinking water. But there have been a number of occasions on which people have become ill from consuming water tainted with cyanotoxins.

The most notorious drinking-water problems occurred in Brazil in 1988 and 1996, where a total of 140 people died after their water supplies were contaminated by cyanotoxin. At least three mass-poisoning events in the United States have been linked to toxin in drinking water, the most recent coming in 1974. >>>

KEY FINDINGS

Toxin from blue-green algae has been found in treated drinking water from Owasco Lake supplied to 50,000 customers in Cayuga County.

It is the first time the toxin has been detected in treated water in New York state, state Health Department officials confirmed.

Concentrations were below levels classified as dangerous, set by federal officials last year.

No ill effects are expected in people who consumed the water.

Stakeholders say that the discovery is a wake-up call for water supplies in the Finger Lakes and Great Lakes regions.

The lakes that supply the city of Rochester, Monroe County and surrounding communities have not reported blue-green algae outbreaks.

Canandaigua Lake, which supplies 59,000 customers with water, had a major outbreak of blue-green algae last year but toxin did not get into drinking water supplies.

The state recently set up a water quality "rapid response team," and it will be asked to look into the source of the Owasco Lake outbreak. 💦💦💦