

MEMO

Date: September 8, 2022

To: Grant Bogle, Twin Lakes Association

From: Aquatic Ecosystem Research - 1204 Main St. #161; Branford, CT 06405

RE: Shoreline accumulations of algae

Dear Grant:

In the latter part of the 2022 summer season, members of the Twin Lakes community observed unusually high accumulations of filamentous algae along some of the shoreline areas of the lakes. This development may have been a result of low lake levels due to drought conditions. The low water levels may have exposed the naturally occurring algae, which grows attached to the bottom or other substrates, to greater than normal disturbances that dislodged it, allowing it to accumulate along the shoreline.

A sample was provided to AER who identified it as a filamentous cyanobacteria, possibly from the genus *Oscillatoria*. This genus of cyanobacteria (aka blue-green algae) and others naturally grow as mats on areas of the lake bottom. It is also one of a number of cyanobacteria genera that have been shown to produce toxic compounds within the cells. It is important to recognize that not all populations of a cyanobacteria genus considered toxigenic are genetically coded to produce toxic compounds, and even if they have the genes, are not always expressing it, i.e., creating the compounds.

In the interest of public safety, the TWA had samples of the algae tested for levels of microcystin and saxitoxin. Microcystin is the toxin that is most often used to assess risk to the public due to cyanobacteria toxins. Saxitoxin is another toxin that remains relatively stable (i.e., does not rapidly degrade) and therefore can be measured relatively easily. Analyses for both were being conducted at Western Connecticut State University. Two samples were collected by members of the TWA and conveyed to AER on August 31st who delivered them to the WCSU research laboratory of Dr. Edwin Wong where the analyses were being performed.

Results from analyses were received on September 7th. Based on US EPA's recreational criterion, CT Department of Public Health recommends a microcystin toxin threshold of 8 µg/L microcystin; concentrations should be below the threshold. Microcystin levels of both Twin Lake samples were <0.2 µg/L.

There is no recommended State standard or threshold for saxitoxin in inland water of Connecticut. Several states do have a standard including the State of Ohio that uses a

recreational threshold of 0.8 µg/L. Saxitoxin levels in the samples from the Twin Lakes were both ≤0.005 µg/L.

Based on these results, recent accumulations of the filamentous cyanobacteria did not pose any risk to human or pet health from microcystin or saxitoxins. It is advisable for member of the public to avoid recreating in areas where visible accumulation of the algae have occurred. Cyanotoxin production by cyanobacteria is highly variable and strongly influenced by the environmental conditions which are not well understood.

Kind regards,

AQUATIC ECOSYSTEM RESEARCH



Larry Marsicano
NALMS Certified Lake Manager

Literature Cited

Connecticut Department of Public Health and Connecticut Department of Energy and Environmental Protection. 2021. Guidance to Local Health Departments for Blue–Green Algae Blooms in Recreational Freshwaters. See https://portal.ct.gov/-/media/Departments-and-Agencies/DPH/dph/environmental_health/BEACH/2021/Guidance-to-LHD-for-Blue-Green-AlgaeBlooms_June2021_FINAL.pdf

