The 2018 Cayuga Lake HABs Monitoring Program

Presented by Nathaniel Launer, Outreach Coordinator
Frequency of Cyanobacteria Blooms (HABs) on Cayuga Lake 2018

Number of Cyanobacteria Blooms per day
Identified by the Community Science Institute

- **Not Tested** for microcystin
- Blooms with microcystin levels less than drinking water limit of 0.3 ug/ L
- Blooms with microcystin levels greater than 0.3 ug/ L and less than recreation limit of 4 ug/ L
- Blooms with microcystin levels ranging from 4 ug/ L to 2,533 ug/ L

Cayuga Lake 2018 HABs Monitoring Season
Microcystin Toxin Increased with Cyanobacteria Biomass when *Microcystis* Taxa were Present or Dominant

Taxa Identified under the Microscope at CSI Lab.
- *Microcystis* Present
- *Microcystis* Dominant
- *Dolichospermum* Dominant

Log Microcystin Concentration (µg/L) as Determined by Community Science Institute

Log Total Chlorophyll a Concentration (µg/L) as Determined by Community Science Institute
When did blooms have the highest toxin levels in 2018? Blooms sampled in September had higher toxin concentrations than those sampled in July and August.
Mapping

Northwestern Quadrant

Southwestern Quadrant

Northeastern Quadrant

Southeastern Quadrant

Sheldrake Point

30% Of Cayuga Lake Shoreline Monitored Weekly

Over 75 volunteers in the first year!

Legend

- Blooms with microcystin levels less than drinking water limit of 0.3 ug/L
- Blooms with microcystin levels greater than 0.3 ug/L and less than recreation limit of 4 ug/L
- Blooms with microcystin levels ranging from 4 ug/L to 2,553 ug/L

Shore zones monitored weekly from July through September by HABs Harrier Volunteers

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Occurrence of confirmed cyanobacteria blooms on Cayuga Lake appeared to increased in 2018 compared to the previous year, though much of this may be due to improved monitoring efforts.

Nearly all blooms on Cayuga Lake in 2018 with toxin levels above state drinking water and recreation limits contained the cyanobacteria *Microcystis*.

A sharp rise in bloom toxin levels was observed in later summer months on Cayuga Lake in 2018.

On Cayuga Lake in 2018, 77% of the blooms with microcystin concentrations above 4 ug/ L occurred in the northern half of the lake.

Monitoring is essential for

1. Assessing the risk that cyanobacteria blooms may or may not present.
2. Data collection to support risk management
We Need Your Help **This Summer** Protecting Cayuga Lake from Harmful Algal Blooms (HABs)!

Who can volunteer?
- Anyone! Lake shore homeowners and avid boaters and anglers are especially encouraged to participate.

What does being a HABs Harrier entail?
- Attend a two hour HABs identification and sampling workshop in June.
- Survey assigned length of shoreline once a week, mid-July through September.
- Collect HABs samples and transport them to CSI lab for further analysis.
- Be available to respond to HABs sightings reported by members of the public.

We want to reach at least 50% of lakeshore coverage in 2019!
The Community Science Institute presents:

Water and Community

Nutrients in the Watershed, Unusual Weather, and Harmful Algal Blooms: A Public Conversation

Saturday, March 23rd
1:00 - 4:00 PM
The beautiful Lakeside Room at the Inns of Aurora
391 Main St. Aurora, NY

Refreshments will be provided by the Inns of Aurora

We invite you to come and listen to the discussion, and we encourage you to participate!

Sharon Anderson, Environmental Team Leader, Tompkins County Cornell Cooperative Extension
Moderator

Panelists will provide brief overviews of their topics prior to an open discussion

Greg Boyer, Director, Great Lakes Research Consortium and Professor of Biochemistry, SUNY - College of Environmental Science and Forestry
Cyanobacteria, Blooms, and Nutrients

Mark W. Wysocki, Senior Lecturer in Meteorology and New York State Climatologist, Cornell University
Floods, Droughts, and Temperature Swings: Not Your Grandfather's Weather

Stephen Penningroth, Executive Director, Community Science Institute (CSI)
Long-Term Nutrient Data Sets in the Cayuga Lake Watershed

Greg Albrecht, Agricultural Environmental Management (AEM) Coordinator, NYS Soil & Water Conservation Committee and NYS Dept. of Agriculture and Markets
Nutrient Management and Conservation Practices by Farms