

****Press Release**** For Immediate Use July 31, 2018 ****Press Release****

Harmful Algal Blooms on Cayuga Lake: Information

Blooms reported, sampled, tested & mapped, from July 2 - present

Pasted below and attached is HABs Update - "Harmful Algal Bloom Update" issue 5, newsletter for the week of July 30, 2018.

New in this issue:

- Explanation of the DEC HABs Program's four levels of bloom status
- Description of cyanotoxins

Attention: DO NOT ENTER THE WATER IF HABs ARE PRESENT!

If you see a bloom, don't touch it. Keep your children and dogs away. Report the bloom to habshotline@gmail.com with the location, time, date and two photos.

Link to the map of reported HABs locations around Cayuga Lake with test results, and shoreline zones regularly patrolled by HABs Harriers:

<http://www.communityscience.org/cayuga-lake-2018-harmful-algal-blooms-results/>

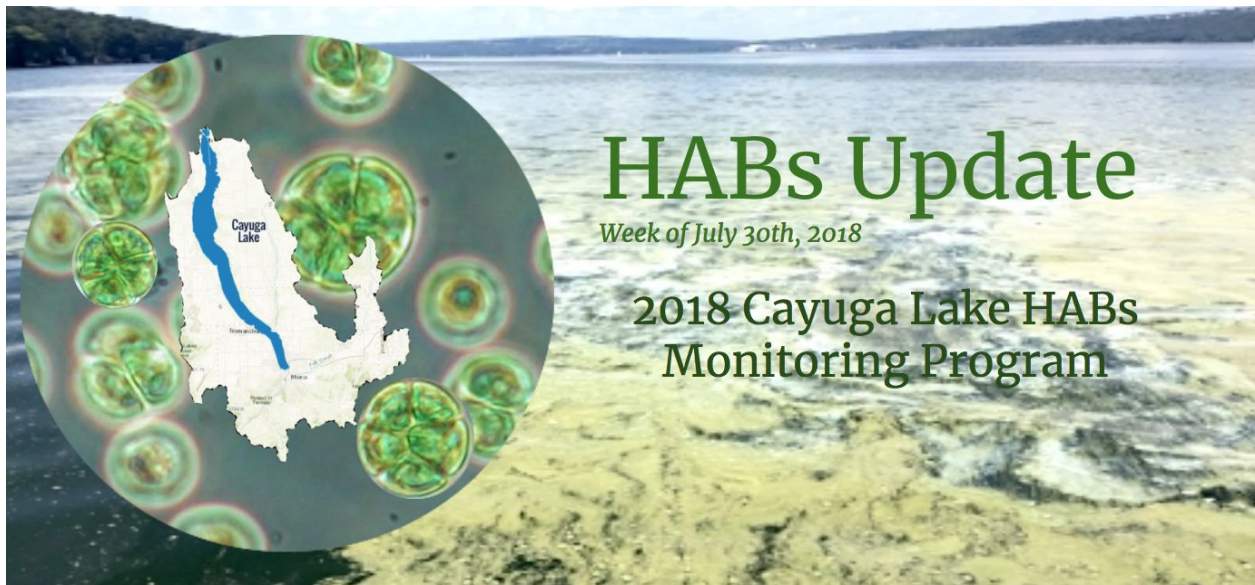
Please read more in the July 31 *HABs Update* below, share widely with friends and the public, and keep an eye out for updates throughout the summer.

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Harmful Algal Blooms Update 5

Wondering what a "suspicious" harmful algal bloom is, in comparison to a "confirmed" bloom? The [DEC's 2018 Harmful Algal Blooms \(HABs\) Program Guide](#) provides more information on how reported

blooms are classified. Here is a detailed explanation of the four levels of bloom status, as described in the HABs Program Guide:

No Bloom: A report has been evaluated by DEC HABs Program or NYSDOH [NY State Department of Health] staff, and there is a low likelihood that a cyanobacteria bloom is present. *At least one* of the following criteria must be met:

1. In the absence of a sample, visual evidence is not consistent with a cyanobacteria bloom
2. BG chlorophyll levels ≤ 25 $\mu\text{g/L}$
3. Microscopic confirmation sample is not dominated by cyanobacteria and not present in bloom-like density
4. Only in absence of the previous criteria being met: microcystin ≤ 4 $\mu\text{g/L}$.

Suspicious Bloom: DEC HABs Program or NYSDOH staff have determined that a report of a bloom is likely to be cyanobacteria; digital photographs, a descriptive field report from professional staff or trained volunteer or closure of a regulated swimming area all may constitute reports that can be considered Suspicious Blooms. For surveillance reports received from the public, lay monitors, etc., DEC HABs Program staff will determine if a bloom is Suspicious and whether collection of a sample is feasible or warranted.

Confirmed Bloom: The DEC HABs Program receives laboratory analytical results from a sampled bloom that fulfills *at least one* of the following criteria:

1. BG chlorophyll levels ≥ 25 $\mu\text{g/L}$
2. Microscopic confirmation that majority of sample is cyanobacteria and present in bloom-like densities
3. Only in absence of the previous criteria being met: microcystin ≥ 4 $\mu\text{g/L}$ but less than high toxin thresholds and accompanied by ancillary evidence of the presence or recent history of a bloom.

Confirmed with High Toxins Bloom: The DEC HABs Program receives laboratory analytical results from a waterbody with a Confirmed Bloom that meets *either of the following criteria:*

1. Microcystin ≥ 20 $\mu\text{g/L}$ (shoreline samples only)
2. Microcystin ≥ 10 $\mu\text{g/L}$ (open water samples only)
3. Known risk of exposure to anatoxin or another cyanotoxin, based on consult between DEC HABs Program and NYSDOH staff.

Here are some additional things to remember when trying to understand these bloom designations:

- Possible blooms are not assigned any other bloom categories in the absence of corroborating information.
- The designation of a bloom as Suspicious or Confirmed does not ensure that toxins are not present, but merely that they were not above the High Toxins threshold.
- A bloom remains categorized as a Suspicious Bloom until lab results are received or in the case of a lack of sampling, when a report indicates that bloom has disappeared.
 - A Confirmed Bloom can later be changed to a Confirmed with High Toxins Bloom if the toxin threshold is met.

Where did these bloom status criteria come from? What do these thresholds mean?

The status criteria is a combination of “visual assessment, pigment concentration (BG Chl.a), toxin concentrations and professional judgment,” “based on an adaptation of the World Health Organization (WHO) guidance values for moderate risk of acute health effects from recreational exposure to harmful algal blooms” ([DEC 2018 HABs Program](#)).

Currently, there are no federal guidelines on exposure to cyanotoxins in recreational waters, and there are wide variations in individual state advisory values. This means that you should avoid all cyanobacteria blooms (HABs), even if recommended threshold level is not met, because other toxins may be present.

These thresholds are based on levels of detected toxins. **Microcystin** is the most commonly detected cyanotoxin. The DEC HABs Program bloom status criteria for a Confirmed with High Toxin Bloom threshold for microcystin is 10 µg/L for open water and 20 µg/L for shoreline. These values were derived from the WHO criteria moderate risk thresholds.

Anatoxin-a is an alkaloid neurotoxin produced by some types of cyanobacteria. Animals, specifically dogs, are primarily threatened by this toxin. “Symptoms of exposure from animal case reports include staggering, paralysis, muscle twitching, gasping, convulsions, and death” ([2018 HABs Program Guide](#)). The Confirmed with High Toxin criteria does not include a threshold for anatoxin-a for a few reasons. “This toxin is not often detected in water samples in New York State, in part because the rapid photo-degradation rate thwarts detection” ([2018 HABs Program Guide](#)). Additionally, due to a lack of research and current data available, the USEPA has not released any guidance values for anatoxin-a in recreational or drinking waters.

Another toxin produced by cyanobacteria is **Cylindrospermopsin**. This toxin is rarely detected in water samples analyzed by the DEC HABs Program. “In 2015, the USEPA released a 10-day drinking water health advisory for cylindrospermopsin (0.7 µg/L for children <6 years of age, 3.0 µg/L for older children and adults). Draft human health recreational ambient water quality criteria for cylindrospermopsin released by USEPA in 2016 suggest a swimming advisory threshold of 8 µg/L not to be exceeded on any day, or not more than 10 percent of days per recreation season up to one calendar year to designate waterbody impairment” ([2018 HABs Program Guide](#)).

However, there is good news! As of when the 2018 HABs Program Guide was published, none of the finished water samples have exceeded the 0.3 µg/L microcystin health advisory limit. Additionally, “drinking water HABs toxin sampling has increased substantially since 2015 when the USEPA released the microcystin and cylindrospermopsin HALs” ([US EPA’s Guidelines and Other Activities Related to Harmful Algal Blooms](#)).

The NYS Dept. of Health reminds us that it is never advisable to draw drinking water from a surface source unless it has been treated by a public drinking water system, regardless of the presence of HABs. Surface drinking water and HABs Fact Sheet:

<https://www.health.ny.gov/publications/6629.pdf>

The following table illustrates the World Health Organization’s guidance values for the relative probability of health effects resulting from exposure to cyanobacteria blooms and microcystin:

Relative Probability of Acute Health Effects	Cyanobacteria (cells/mL)	Microcystin-LR (µg/L)	Chlorophyll-a (µg/L)
Low	<20,000	<10	<10
Moderate	20,000-100,000	10-20	10-50
High	100,000-10,000,000	20-2,000	50-5,000
Very High	>10,000,000	>2,000	>5,000

We hope that by clarifying these system of criteria, they will seem less arbitrary and that you will be able to make informed decisions about your lake recreation. We are also posting updates about the temperature, wind, cloud cover and other ecological aspects of Cayuga Lake on our website. The information in these updates was sent in by some of our HABs Harriers and are not verified by the DEC.

<http://www.cayugalake.org/habs-updates.html>

To see where HABs have been reported on Cayuga Lake:

Check out the following map provided by the Community Science Institute:

<http://www.communityscience.org/cayuga-lake-2018-harmful-algal-blooms-results/>

Check out the DEC HABs Notification Page:

<https://www.dec.ny.gov/chemical/83310.html>



To learn more about HABs with links to research, the global scope of this problem, and information about possible causes and solutions, check out our HABs page at

www.cayugalake.org/harmful-algal-blooms-habs-immediate-action-and-information.html



The Cayuga Lake HABs Monitoring Program is a collaborative effort led by a local consortium of three nonprofits: The Community Science Institute (CSI), the Cayuga Lake Watershed Network (CLWN), and Discover Cayuga Lake (DCL), working in collaboration with the New York State Department of Environmental Conservation (NYSDEC) and the State University of New York Environmental School of Forestry (SUNY-ESF).

