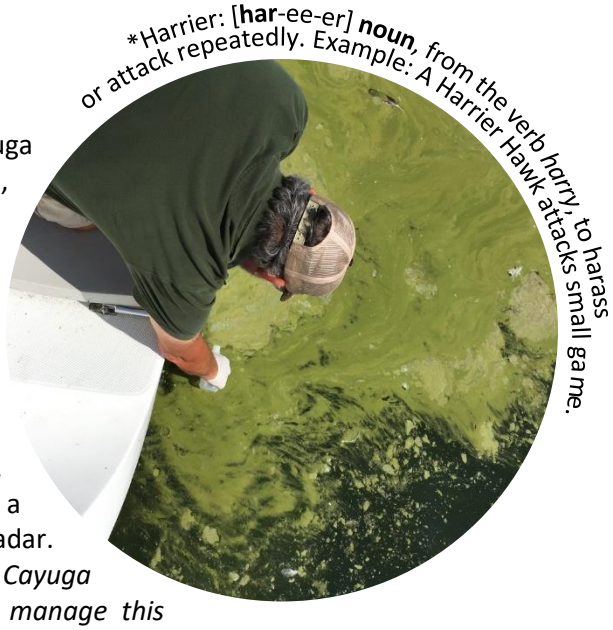
2018 Cayuga Lake HABs Volunteer Monitoring Information Packet



Dear Cayuga Lake HABs *Harrier,

Thank you for volunteering to take part in the 2018 Cayuga Lake HABs Monitoring Program! Cyanobacteria blooms, commonly referred to as harmful algal blooms (HABs), pose a threat to Cayuga Lake. They can produce toxins that lead to sickness and even death in people and pets, and they have the potential to undermine Cayuga Lake as a source of drinking water and a desirable place to live or spend a vacation. Last year, over 40 blooms were reported on Cayuga Lake, but only a fraction of those reported blooms were sampled and analyzed for toxins. This year, it is imperative that we work together as a community to prevent blooms from slipping under the radar. *As a HABs Harrier, you will play a key role in protecting Cayuga Lake by helping us track, understand, and ultimately manage this emerging threat.*

Context and Objectives

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 College of Environmental Science and Forestry (SUNY-ESF). The objective of this monitoring program is two-fold:

1. Maintain vigilant surveillance of the Cayuga Lake shoreline to observe and sample suspicious algal blooms so that users of the water in affected areas may be alerted to any threat the bloom may pose; and

2. Build a long-term HABs dataset that can help us understand where, and under what conditions, cyanobacteria most commonly bloom in Cayuga Lake. Establishing a robust dataset is the first step in effectively managing and ultimately preventing HABs.

Training Workshop

Before you can begin your harrying duties, you'll need to attend one of three workshops offered by NYSDEC. At the workshop, a NYSDEC staff member will explain what cyanobacteria are, how they are managed, and how to recognize and distinguish blooms of cyanobacteria from other types of algal blooms. You will also be provided with sampling instructions, kits for sample collection, and other helpful resources.

As part of the training workshop, immediately following NYSDEC's presentation, staff from our local CSI-CLWN-DCL consortium will consult with you to select your shoreline monitoring area (zone). We will also review essential program logistics including sample chain of custody and drop-off procedures.

Training Dates

Wednesday, June 13th
5:30 – 8:30 PM
Wells College, Aurora, NY

Thursday, June 14th
1:00 – 4:00 PM
Tompkins County Health Department, Ithaca, NY

Thursday, June 21st
5:30 – 8:30 PM
Canoga Volunteer Fire Department, Seneca Fall, NY

Survey Period and Frequency:

- once a week, every week, July 14th – September 30th, 2018

The 2018 Cayuga Lake HABs monitoring season will start on Saturday, July 14th and continue through the end of September. This survey period reflects the time frame when cyanobacteria blooms are most likely to occur. The Cayuga Lake HABs Hotline (habshotline@gmail.com or, alternatively, 607-257-6606 during normal business hours) will be open for a longer period, from July 1st – October 31st, in order to allow time to manage any issues that may arise on either end of the official HABs season.

Weekly Survey Schedule:

- Saturday, Sunday, or Monday between 10:00 AM and 2:00 PM

Once a week, as a HABs Harrier, you'll walk, kayak, or boat along the length of your surveillance zone to look for evidence of cyanobacteria blooms. For help in recognizing suspicious blooms, you can refer to the pictures found within the Reference Materials section on page 7.

The survey can be done Saturday, Sunday, or Monday each week, preferably between the hours of 10 AM and 2 PM. Cyanobacteria blooms are most likely to be near, or at, the water's surface during direct midday sunlight.

We are providing a 3-day window for your shoreline survey because sometimes conditions are such (windy, rough water, or rainfall) that observing cyanobacteria blooms is unlikely and being on the water can be dangerous. If you plan on surveying on a Saturday and conditions are not right, move your day to Sunday or Monday when conditions are more suitable for survey work. The other reason for a Saturday-

Monday time frame is that samples must be dropped off at the CSI lab no later than 4:00 PM on Monday for processing.

How to Harry HABs

1. **Prepare** to survey your zone by making sure you have the following items with you:
    a. Sample Kit: bottle, gloves, and "CSI Shoreline Survey Form/Chain of Custody"
        i. *You will need these materials if you observe a bloom.
    b. Camera or cell phone with camera
2. **Survey** the full length of your zone for one of three possible outcomes:
    a. No blooms observed
    b. Algae bloom observed that is NOT cyanobacteria
    c. Suspicious bloom observed
3. **Take the following actions** based on your observations:
    a. **No Bloom**
        i. Complete and submit the online "No Bloom" report.
    b. **Algae present but not cyanobacteria**
        i. Complete and submit the online "No Bloom" report.
        ii. Take at least two pictures of bloom: one close up to show bloom composition and one from far away to show bloom extent.
        iii. Email pictures to habshotline@gmail.com with the following formatted subject line: ***NON-CYANOBACTERIA ALGAE PICTURES *zone#* *GPS coordinates/ landmarks* *date* *time*** EXP. NON-CYANOBACTERIA ALGAE PICTURES, zone 5, 42.6761 -76.7189, 8/23/18, 1330
    c. **Suspicious Bloom**
        i. Take two pictures of bloom: one close up to show bloom composition and one from far away to show bloom extent.
        ii. Label the sample bottle with the following information: **Sample Collector's Name, zone#, GPS coordinates, date, time.**
            1. If you are not able to determine the GPS coordinates, instead provide a street address or a physical landmark near the observed bloom.
        iii. Carefully collect sample following NYSDEC protocol, being sure to wear gloves.
        iv. Fill out the "CSI Shoreline Survey Form/Chain of Custody." Make sure information on the form matches the label on the sample bottle. Take a picture of the completed form.
        v. Email pictures of the bloom and the "CSI Shoreline Survey Form/Chain of Custody" to habshotline@gmail.com immediately. The email's subject line should be formatted as follows: ***CYANOBACTERIA BLOOM PICTURES *zone#* *GPS coordinates/landmarks* *date* *time*** EXP. CYANOBACTERIA BLOOM PICTURES, zone 5, 42.6761 -76.7189, 8/23/18, 1330
        vi. Store sample it in a cool, dark place until you can deliver it, along with the "CSI Shoreline Survey Form/Chain of Custody," to the CSI lab at 95 Brown Rd, Room 283, Ithaca, NY.

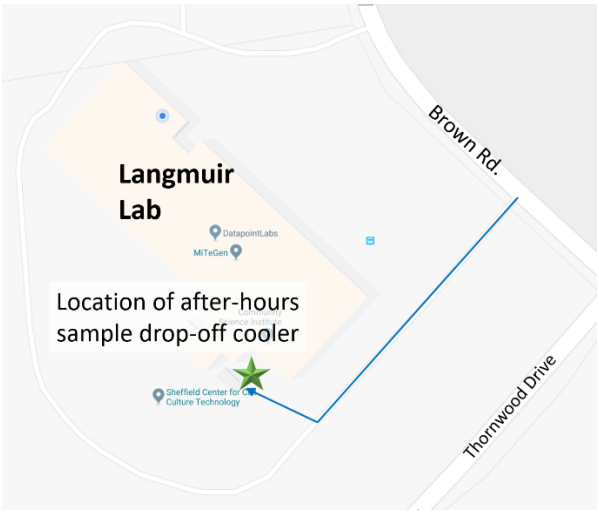
Sample Drop-off at CSI Lab

The Community Science Institute is located at 283 Langmuir Lab, 95 Brown Rd, Ithaca, NY and is open Monday – Friday, 9:00 AM – 5:00 PM. If possible, samples should be dropped off at the CSI lab between 9:00 AM and 4:00 PM on Monday. When you arrive, bring the sample up to room 283 where someone in the lab will accept it, complete the chain of custody, and provide you with a fresh sample kit.

If you are unable to drop off a sample between 9:00 and 4:00 on Monday, an after-hours drop-off location is available in the back of Langmuir near the dumpsters (Figure 1). Deposit samples and completed "CSI Shoreline Survey Form/Chain of Custody" in the provided cooler inside the fenced structure. **Please be sure to fill out the chain of custody information at the bottom of the form.** This is the date and time that the sample was dropped off, not the date and time that the sample was collected.

If you happen to observe a suspicious algal bloom at a time other than your regular survey time, either by chance or in response to a Hotline report, you can also drop off samples between 9:00 AM and 4:00 PM from Tuesday through Friday. It may take longer for CSI to analyze the sample for microcystin toxin, depending on the lab's workload. Never the less, the sample should be delivered to the CSI lab as soon as possible, even if it is not Monday, in order to prevent deterioration.

Figure 1) HABs sample drop-off location for the weekend and after normal business hours



Map to drop-off location: Follow the blue arrow to the drop-off location marked by the green star. The cooler will be inside the fenced structure (see right).

Fenced structure with cooler: The door to the structure will be unlocked. Please close the door after depositing the sample.

What happens to the samples?

CSI will analyze suspicious bloom samples for total chlorophyll a and visually assess samples for cyanobacteria using microscopy. CSI will also perform microcystin analyses (dependent on funding) using

a certified EPA method. All suspicious bloom samples will be split upon arrival at the CSI lab. Half of the sample will be shipped to SUNY-ESF, where the NYSDEC contract lab for cyanotoxin analysis is located. The SUNY-ESF lab will independently characterize the bloom and perform extensive toxin analyses. SUNY-ESF results will serve as a control on CSI results.

Where are the results reported?

CSI will report all results as they become available, including results obtained by CSI *and* SUNY-ESF. Results will be posted on CSI's website at www.communityscience.org *and* in the CSI database at www.database.communityscience.org

Blooms that are interpreted as "Confirmed" and "Confirmed with High Toxins" by NYSDEC will be labeled as such on the CSI website and database as soon as this information becomes available. The CSI-CLWN-DCL consortium will email results as well as weekly survey reminders to HABs Harriers. The consortium will also notify regional Health Departments, local stakeholders, and the general public via E-blasts, press releases, and social media when blooms are interpreted as "Confirmed" or "Confirmed with High Toxins" by NYSDEC.

Reference Materials and Contact Information

The process described in this document is presented as a flowchart in Attachment A. Please take a moment to look at the flowchart, identify your activities as a volunteer (in green boxes), and note how they are critical to the entire process of monitoring HABs on Cayuga Lake.

HABs Harriers will receive a copy of NYSDEC's HABs Volunteer Guide at their training session. This guide has excellent photos of HABs that you can use as a reference to help you identify suspicious algal blooms.

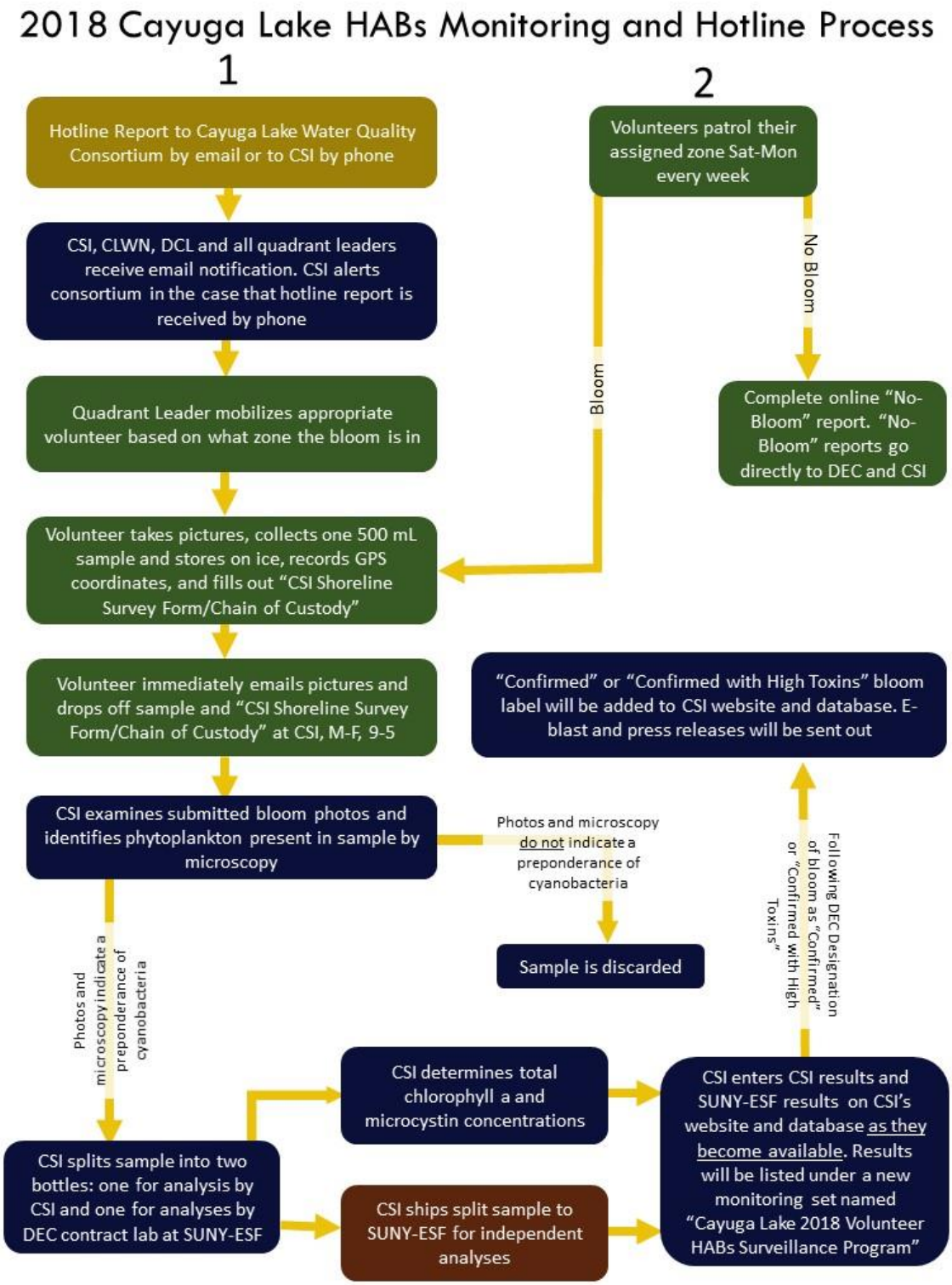
The NYSDEC maintains an excellent website at: http://www.dec.ny.gov/chemical/77118.html that can be referred to for additional information.

Please don't hesitate to contact your local HABs consortium if you have any questions!

Community Science Institute
Outreach Coordinator – Claire Weston, claire.weston@communityscience.org

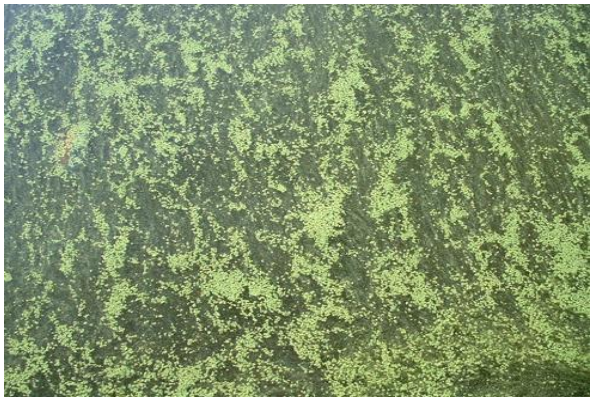
Cayuga Lake Watershed Network
Programs Manager – Jennifer Tufano, programs@cayugalake.org

Attachment A: 2018 Cayuga Lake HABs Monitoring Flowchart



Attachment B: NYSDEC HABs Identification Photos

HABs may look like parallel streaks, usually green, on the water surface.



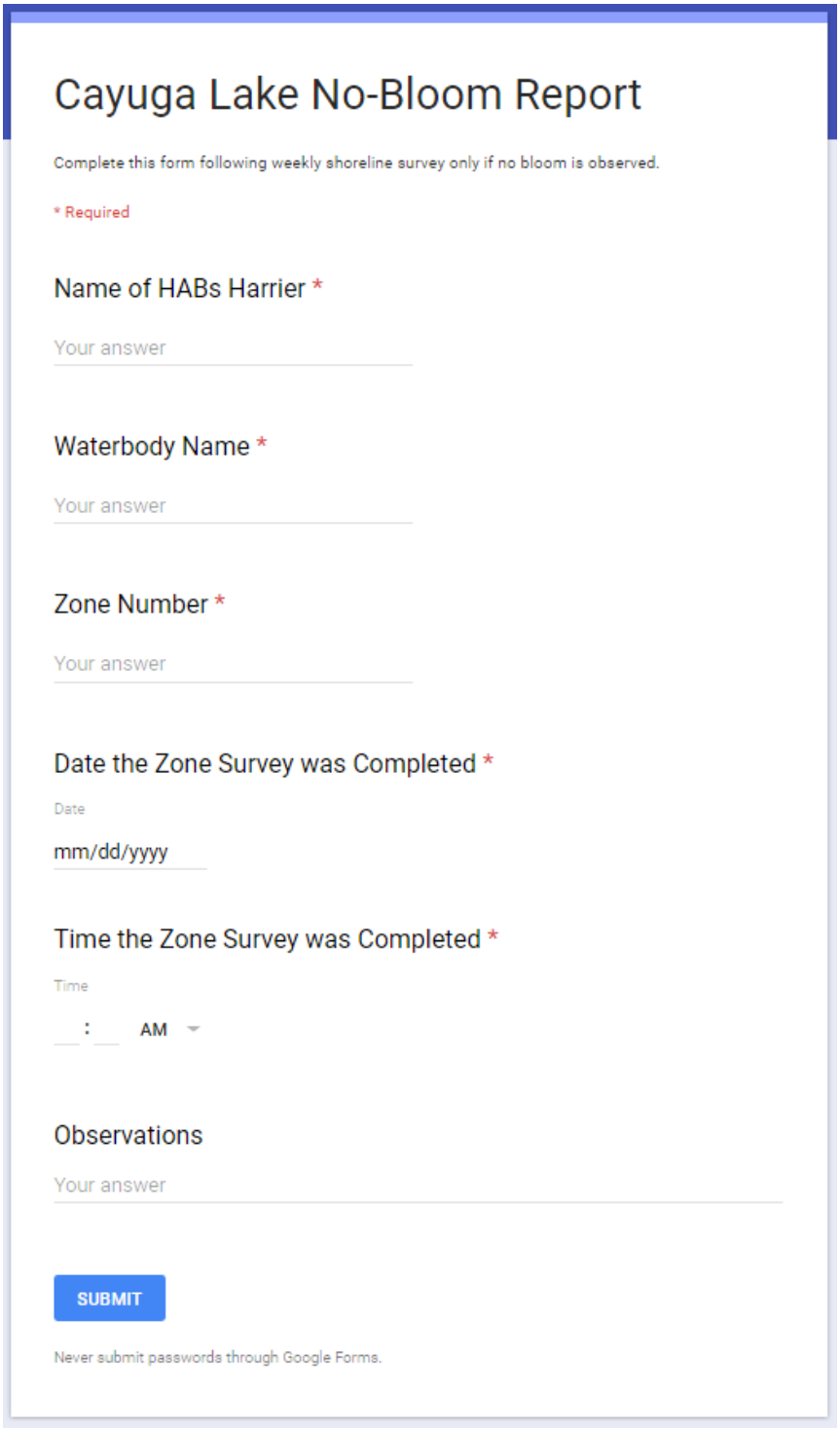
HABs may look like green dots, clumps, or globs on the water surface.

HABs may look like blue, green, or white spilled paint on the water surface.

HABs may make the water look bright green or like pea soup.

Attachment C: Picture of what a Cayuga Lake "No Bloom" report looks like online

(A link that will give you access to this Google form will be provided in the coming weeks)



Cayuga Lake No-Bloom Report

Complete this form following weekly shoreline survey only if no bloom is observed.

* Required

Name of HABs Harrier *

Your answer

Waterbody Name *

Your answer

Zone Number *

Your answer

Date the Zone Survey was Completed *

Date

mm/dd/yyyy

Time the Zone Survey was Completed *

Time

: AM

Observations

Your answer

SUBMIT

Never submit passwords through Google Forms.

Volunteer

Suspicious Algal Bloom Sample Tracking Sheet

Lab Code: _____

Attachment D: CSI Shoreline Survey Form/Chain of Custody

Cayuga Lake Shoreline Survey Form and Certified Lab Chain of Custody

Suspicious Bloom Sampling and Tracking Procedure: A) Take at least two pictures of bloom: one close up to show bloom composition, one from far away to show bloom extent. Email pictures to habshotline@gmail.com . B) Collect sample in provided container or a glass substitute. Wear Gloves! Label with sample collector's name, zone#, GPS coordinates, date, time. C) Complete this chain-of-custody document for each sample. Information must match the information on the corresponding sample bottle *and* photos.

Name and email of person who collected bloom sample: _____

Name and email of person who observed bloom (if different): _____

Cayuga Lake quadrant and zone number where bloom was collected: _____

Exact Location of Bloom

1.) GPS Coordinates _____

2.) Nearest Address _____

3.) Nearby Landmarks _____

Date that bloom was collected: _____ **Time that bloom was collected:** _____

Date that bloom sample was observed: _____ **Time that bloom sample was observed:** _____

Bloom Extent:

- ☐ Small Localized (few properties)
- ☐ Large Localized (many properties)
- ☐ Widespread

☐ Bloom pictures have been emailed to habshotline@gmail.com with the subject line: ***Cyanobacteria Bloom Pictures *zone#* *GPS coordinates/landmarks* *date* *time*** EXP. CYANOBACTERIA BLOOM PICTURES, zone 5, 42.6761 -76.7189, 8/23/18, 1330

Sample Preservation for toxin testing (check all that apply)

☐ On ice ☐ If no ice is available, drive to CSI lab immediately to prevent deterioration ☐ Refrigerate if sample is collected after business hours

Chain of Custody Documentation

	Date	Time	Relinquished by	Accepted by	# Containers	Temp upon receipt
1.	_____	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____	_____

Go to www.database.communityscience.org or www.communityscience.org to see test results and confirmed bloom locations.


Cayuga Lake
Watershed Network


Discover
CAYUGA LAKE