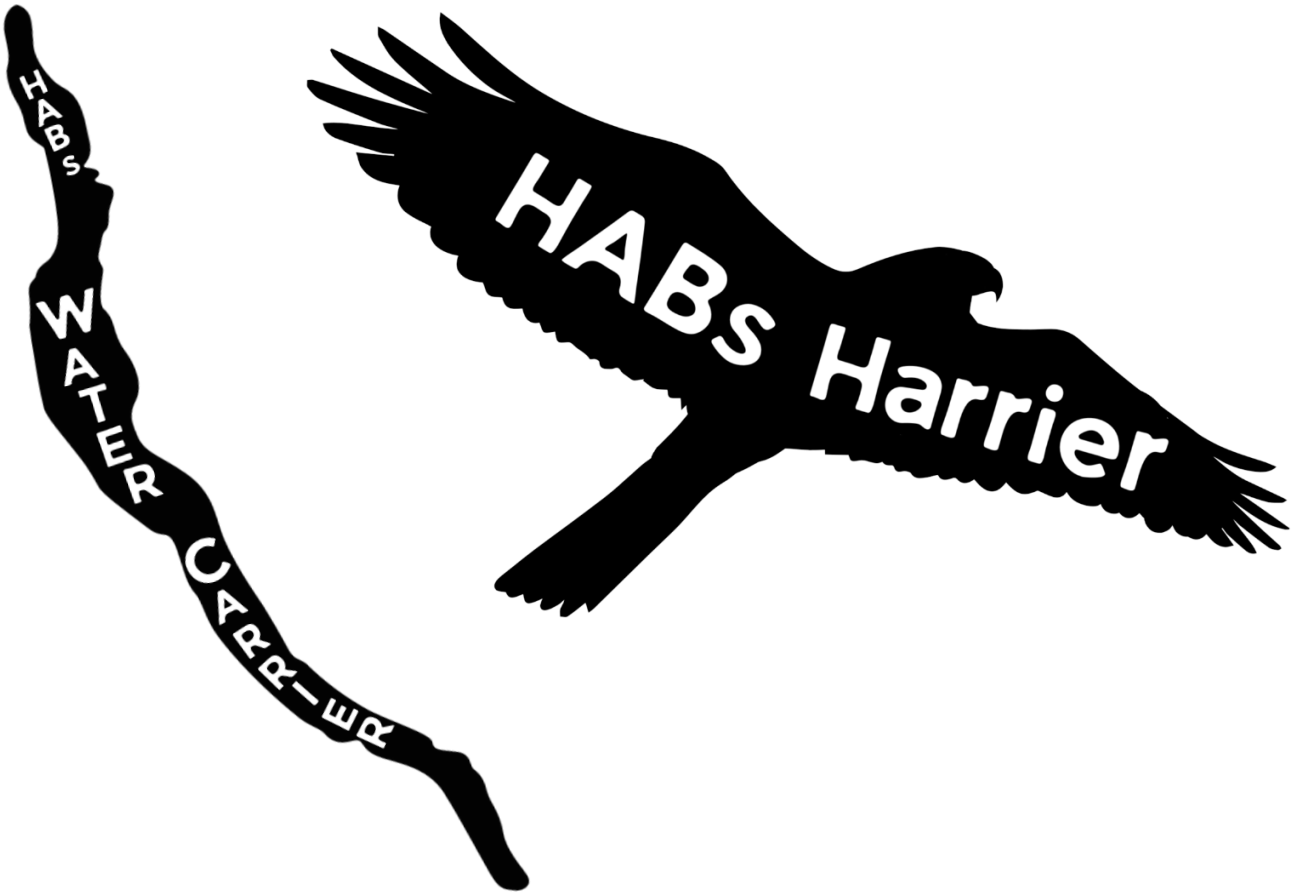
2024 Cayuga Lake Harmful Algal Bloom Volunteer Monitoring Handbook



This Volunteer Monitoring Handbook will cover:

Context & Objectives:

Initiated in 2018, the Cayuga Lake HABs Monitoring Program is led by the Community Science Institute (CSI) in collaboration with the Cayuga Lake Watershed Network (CLWN) and Discover Cayuga Lake (DCL). We partner with HABs Harrier & Water Carrier volunteers around the lake who monitor their shoreline once per week from July – September and assist in transporting HABs samples to the CSI lab.

The objectives of this monitoring program are to:

1. Maintain vigilant surveillance of the Cayuga Lake shoreline, observing and sampling suspicious algal blooms to quickly alert local communities to the potential threat blooms may pose;
    - CSI is under contract with Tompkins County Whole Health, Seneca County Health Department, and Cayuga County Health Department to relay suspicious and confirmed HABs
    - CSI's program operates under the general auspices of the New York State Department of Environmental Conservation (NYSDEC).

2. Develop long-term HABs datasets to better understand where, and under what conditions, cyanobacteria bloom in Cayuga Lake and the level of toxin that is present when a bloom occurs. Establishing robust datasets is the first step in effectively managing HABs.

Survey Period & Frequency of Monitoring:

- The **NYSDEC monitoring season** begins July 1st and ends September 30th, 2024

- The 2024 **Cayuga Lake HABs monitoring and sampling season** begins Sunday, June 30th, and ends on Saturday, October 5th.
    - Includes at least weekly monitoring, or at most daily monitoring, depending on individual situations and lake access.
    - Ideally, it occurs on the same day of the week at approximately the same time of day.
    - Includes sample collection + submitting Cayuga Lake HAB Report Form (**Attachment A**)
    - Submit No Bloom Report in weeks where no HAB is detected. (**Attachment B**)

- "Pre" season (before 6/30/24):
    - Includes monitoring on an "as-needed" or "as available" basis
    - Submit reports only if HAB is suspected
    - No samples are collected during the pre-season
    - Do not need to submit "No Bloom Reports" during pre-season

- "Post" season (after 10/5/24):
    - Collecting samples will depend on the availability of remaining funding, TBD
    - As long as you remain engaged in the monitoring program, please continue to submit No Bloom Reports during weeks you do not see a bloom.

This survey period reflects the time frame when cyanobacteria blooms are most likely to occur on Cayuga Lake based on our multi-year dataset of HABs occurrences.

The Cayuga Lake HABs Hotline (habshotline@gmail.com) or CSI's office # 607-257-6606 (during normal business hours) will be available year-round, to allow time to manage any issues that may arise or to accept any suspicious bloom reports outside of the official HABs monitoring season.

You do not have to monitor your zone before or after the "official" season, but we welcome reports of blooms if they occur.

Frequency of monitoring:

- HABs Harriers should walk, kayak, or boat along the length of your zone to look for HABs.
- You can survey your zone any day of the week, and it is recommended that you survey your zone at approximately the same time of day each week.
- It is recommended that you make a practice of monitoring your zone on the **same day of the week**, however conducting your survey on different days may be necessary due to adverse conditions such as wind, rough water, or rainfall.
- Some Harriers may have unrestricted access to their zone because they live there and can monitor on a more frequent basis than just once a week.

HELPFUL LINKS:

- 2024 Volunteer Training Workshop, led by Alyssa Johnson (HABs Program Coordinator)
- HABs Identification Training Video: It can be hard to tell the difference between a Harmful Algal Bloom (HAB) and non-toxic algal blooms or other water quality concerns. This video provides some helpful identification tips and several image examples of HABs. Produced by NYSDEC.

HABs Monitoring & Sampling Protocol

1. **Prepare** to monitor your zone by making sure you have the following items with you:
   - ☐ Sample Kit:
     - ☐ 500 ml amber glass bottle,
     - ☐ gloves, and
     - ☐ CSI Shoreline Survey/ Chain of Custody form
   - ☐ Camera or cell phone with a camera

2. **Survey** the full length of your zone(s) for one of two possible outcomes:
   1. No blooms observed
   2. Suspicious bloom observed

3. **Take the following actions** based on your observations:
   1. If there **is NO BLOOM**
      - ➢ Fill out and submit a 'No Bloom Report' using the online Google form provided. After that, you're done until the next week!
   2. If there is a **SUSPICIOUS BLOOM**
      - ➢ Fill out and submit a Cayuga Lake HABs Report Form using the online Google form provided.
      - ➢ Take two pictures of the suspicious bloom: one close-up to show bloom composition and one from far away to show bloom extent (**Attachment C**). You will upload those directly via this Google Form. If you have issues uploading the pictures, please submit the form without the pictures, and instead email them to HABsHotline@gmail.com and include your Zone # and the Date/Time of the bloom.
      - ➢ Label the sample bottle with the following information:
        - Waterbody name
        - Sample code: 24 - __ __ __ __ - B __
        - Date sampled
        - Time sampled
        - Sampler Name

Zone #

The "B" is the number bloom you've reported. If it's the first bloom, it will be B1, if it's the second it will be B2, and so on. You can leave it blank or fill it in!

4. **Carefully collect a sample:**
   - ➢ Wear gloves and/or knee boots, waders, etc. to avoid exposing your skin to the potential toxins in the water.

- Sample the densest part of the bloom
- Make only ONE pass through the water, not multiple passes
- Fill the amber bottle to the "neck"
- Cap the bottle tightly, and place it back into the gallon plastic bag it came in,

5. **Complete the "CSI Shoreline Survey Form/Chain of Custody"** (**Attachment D**)
   - Make sure the information on the form matches the label on the sample bottle.
   - To ensure the form does not get ruined, please return it to the small plastic bag to keep from getting wet.

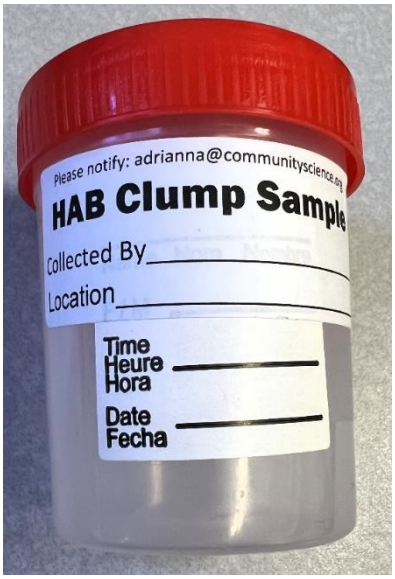
6. **Send an email to habshotline@gmail.com:**
   - This is to alert the CSI Lab that a suspected HAB has been collected and will be coming to the Lab soon.
   - The email's subject line should be formatted as follows:
     - CYANOBACTERIA BLOOM PICTURES *zone#* *GPS coordinates/landmarks* *date* *time* EXP. CYANOBACTERIA BLOOM PICTURES, zone 5, 42.6761 - 76.7189, 8/23/18, 1330

7. **Store the sample in a cool, dark place (preferably on ice or refrigerated)**:
   - This includes during transit to either a drop-off location or directly to the CSI Lab
   - Samples should be delivered the same day they are collected if possible and **no** later than 4:00 PM the following day.
   - If you need assistance transporting your sample to the CSI Lab, please include that information in your email to habshotline@gmail.com so we can facilitate a HABs Water Carrier to assist.
   - Be sure to include the CSI Shoreline Survey Form/Chain of Custody form when dropping off the sample as well.

NEW IN 2024: Clump or Benthic Cyanobacteria

At **ANY TIME**, if you observe floating clumps that you suspect to be the atypical "clump HAB":

1. Fill out the HAB Clump – Sample Tracking Sheet (see page X)
2. Take two photos: 1 showing the extent of clump distribution and 1 a close-up of one clump (see page X)
3. Wear gloves and/or knee boots, waders, etc. to avoid exposing your skin to the potential toxins in the water.
4. Collect a sample using the supplied bottle OR if you do not have a sample bottle, a clean container like a mason jar or food storage container will work. Please label the container with your name, date/time, and location of sample collection.
5. Scoop some of the clumps into the bottle with water (so it does not dry out).
6. **E-mail Adrianna Hirtler (adrianna@communityscience.org) AND HABshotline@gmaill.com to alert CSI that a Clump HAB sample has been collected and is coming to the Lab. If you need assistance transporting the sample, please include this in your email.**
7. Keep the sample in a cool, dark place (either on ice or refrigerated) while it is in your possession, during transport, and if you're leaving it at a drop-off location make sure you leave it with ice.
8. Samples should be delivered the same day they are collected if possible and no later than 4:00 PM the following day.
9. Be sure to completely fill out and include HAB Clump – Sample Tracking Sheet when dropping off the sample as well.



Water Carrier Logistics

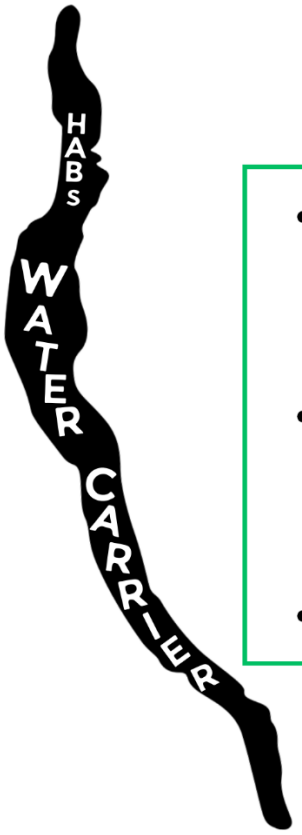
Mobilizing the Water Carrier Volunteers will be done by the HABs Leadership Team (HABs Program Coordinator, Quad Leaders, and CSI's and CLWN's Executive Directors).

The Water Carriers contact list is maintained by the HABs Program Coordinator and will be shared with the HABs Leadership Team to limit any confusion and unnecessary travel.

All HABs Harriers MUST alert HABSHotline@gmail.com when a sample has been collected

- Even if you are driving the sample directly to the CSI lab yourself (to let us know one is on the way)
- To let us know that you need assistance in transporting a sample to the CSI lab.

HAB Water Carrier Duties & Responsibilities



On an as-needed basis

- Be "on call" from July-September to assist in the relay/transport of HABs samples from around Cayuga Lake to the CSI lab by the airport
- Communicate/coordinate transport logistics among with Quadrant Leaders and other volunteers
- Frequency of trips depends on frequency of HABs

Water Carriers:
Please use a cooler/ice to transport the samples.

Sample Drop-off & Transport

Northwest Quadrant

Currently, there is **not** a Quad Leader in the NW Quadrant of Cayuga Lake (i.e., north of Sheldrake Point on the west side of the lake). All communication should be made directly to the HABsHotline@gmail.com that a sample is en route and/or if you need assistance in transporting your sample to the CSI Lab.

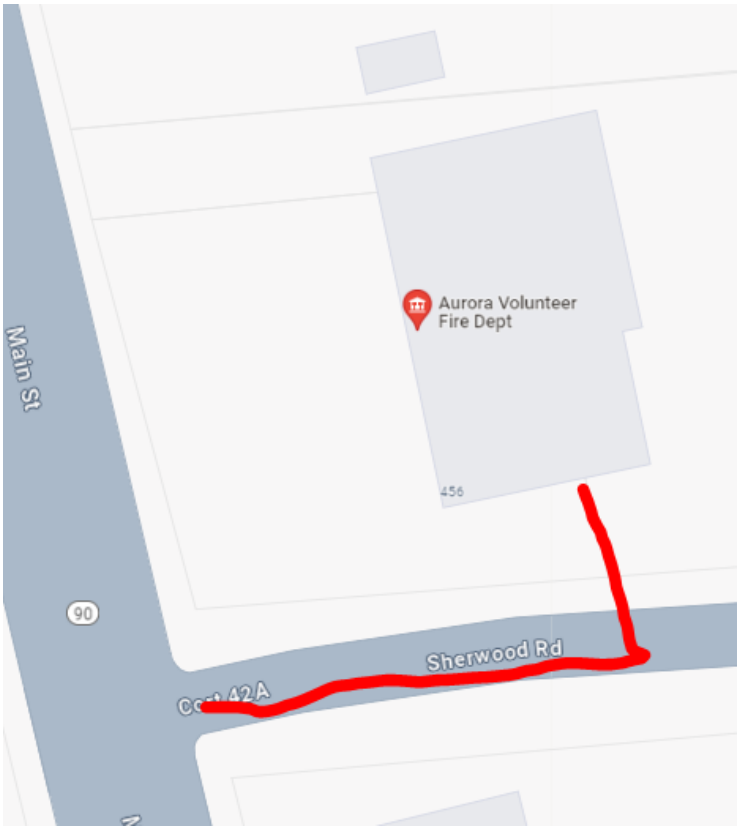
Once you've notified HABsHotline, you can drop your samples off at "Ken's HABs Shack" which is just south of Buttonwood Grove Winery off Route 89.

6041 Lakeview Ln.
Romulus, NY

Replacement kits will be available at the cooler to pick up when Harriers drop off the sample they just collected. The driveway can be recognized by the Canada Goose mailbox and the address:

Contacting the HABs hotline is *critically important* because we will then mobilize CSI's transportation "Carrier" volunteers. If you do not let anyone know you've dropped the sample off, it may not be transported to CSI's laboratory in time for analysis.

Northeast Quadrant



The Quad Leader in the NE Quadrant this year is Marie Eckhardt.

When you have collected a sample, please send one email to both habshotline@gmail.com **and** Marie (mzeckhardt@gmail.com) to alert us that a sample will be dropped off at the Aurora Fire House. After that, samples can be dropped off at the cooler located at:

Village of Aurora Fire House
456 Main St.
Aurora, NY 13026
(Best access is from Sherwood Rd)

Replacement kits will be available at the cooler to pick up when Harriers drop off the sample they just collected. Once this has been done, the leadership team will mobilize CSI transportation volunteers on the east side of the lake to get the sample from Aurora to CSI's laboratory.

Contacting the HABs hotline is *critically important* because we will then mobilize CSI's transportation "Carrier" volunteers. If you do not let anyone know you've dropped the sample off, it may not be transported to CSI's laboratory in time for analysis.

Southwest & Southeast Quadrants

After collecting a sample, HABs Harriers in the southern two Quadrants of Cayuga should contact the habshotline@gmail.com to alert CSI that a sample is on its way.

For additional support, you can contact the Quad Leader in your Quad:

SW Quad Leaders: John Abel - jfa5@cornell.edu
Suzanne Feehan - sbf1940@gmail.com
SE Quad Leader: Glenn Ratajczak - gratajczak@boltonpoint.org

HABs Harriers in these two quadrants should transport their samples **directly** to Community Science Institute, where replacement kits will be available.

If possible, samples should be dropped off at the CSI lab between 9:00 AM and 5:00 PM on weekdays at:

Langmuir Lab Room 283 (second floor)
95 Brown Rd. Ithaca

If you are unable to drop off a sample between 9:00 and 5:00 a weekday, an after-hours drop-off location is available behind the Langmuir Lab building in a small, covered structure near the dumpsters.

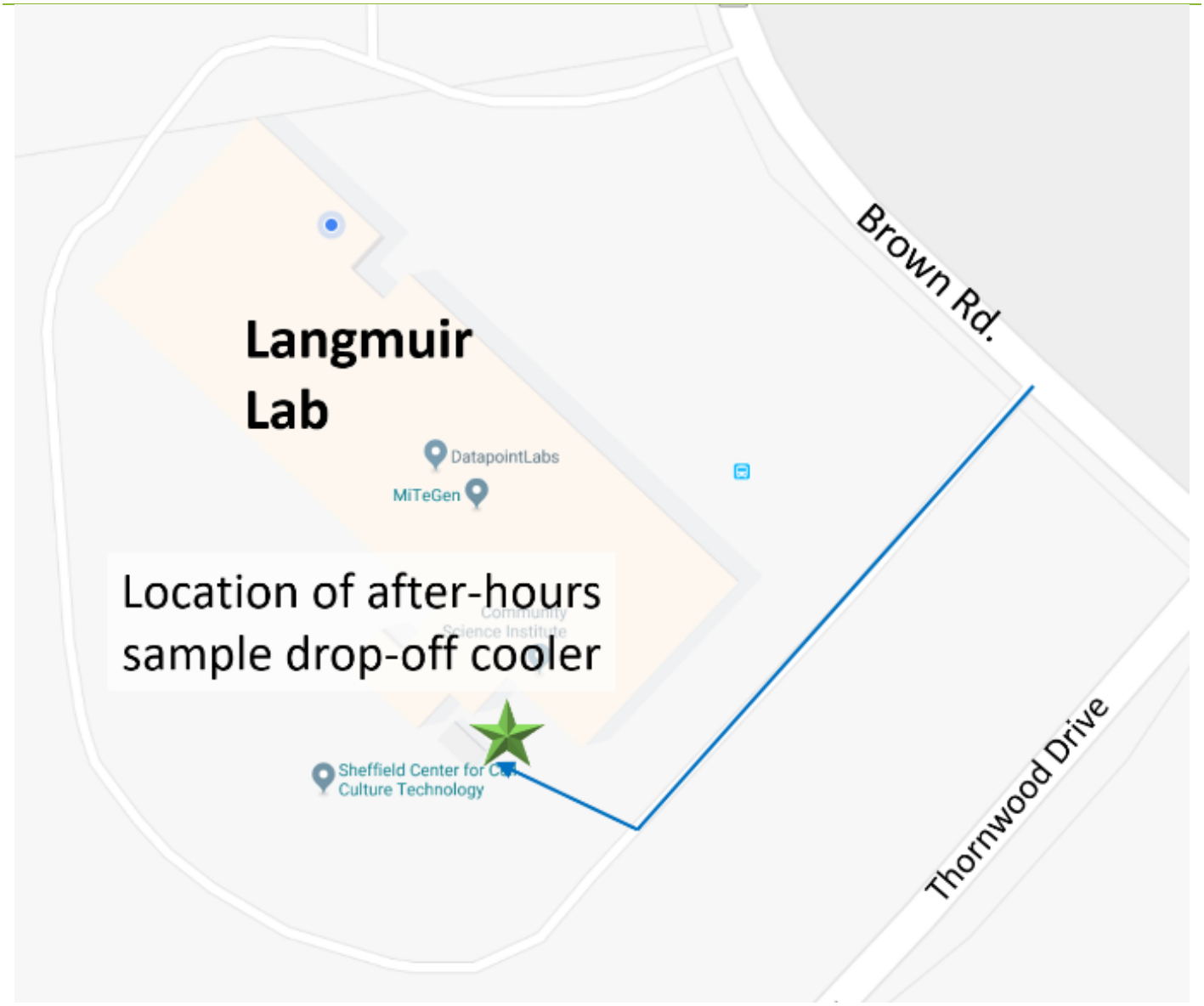
Place samples and completed “CSI Shoreline Survey Form/Chain of Custody” IN A PLASTIC BAG in the provided refrigerator inside the fenced structure.

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.

In this structure there is a cooler containing fresh sampling kits for you to take if you drop off a sample. The gate may look locked, but it is not, just flip the handle up.

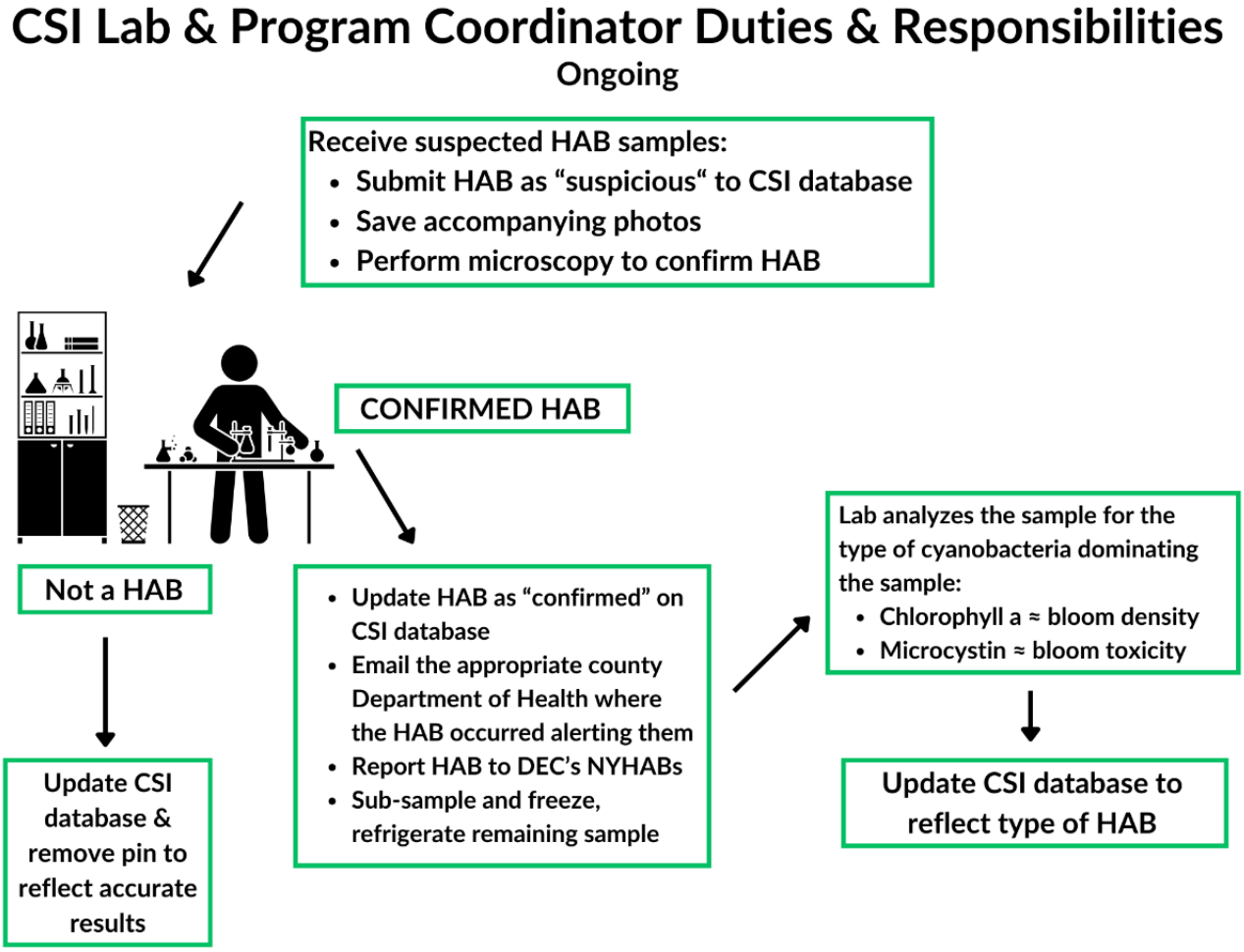
If you drop your sample off at this location after hours,
you must notify a staff person at CSI
by phone at (607) 257-6606 (leave a message)
or email at info@communityscience.org.

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 refrigerator and cooler will be inside the fenced structure.

What happens to the samples once they're at CSI?



Where are the results reported?

CSI will report all results as they become available from our lab, with a goal of reporting all results for suspicious blooms within 24-72 hours.

- Results will be posted on CSI's database at database.communityscience.org/hab. Results will include the cyanobacteria taxa identified in the sample, and total chlorophyll-a and microcystin concentrations.

- CSI lab will be reporting all suspicious bloom reports and results from bloom sample analysis at CSI lab in Ithaca to the NYSDEC on a weekly basis. These HABs data from Cayuga Lake will then be reported on the NYSDEC's NYHABs state-wide HABs reporting database. The link for the NYHABs reporting database is: https://bit.ly/NYHABs

- In addition, the HABs Program Coordinator will send weekly emails including data updates, reminders, important links for reporting, and other programmatic information.

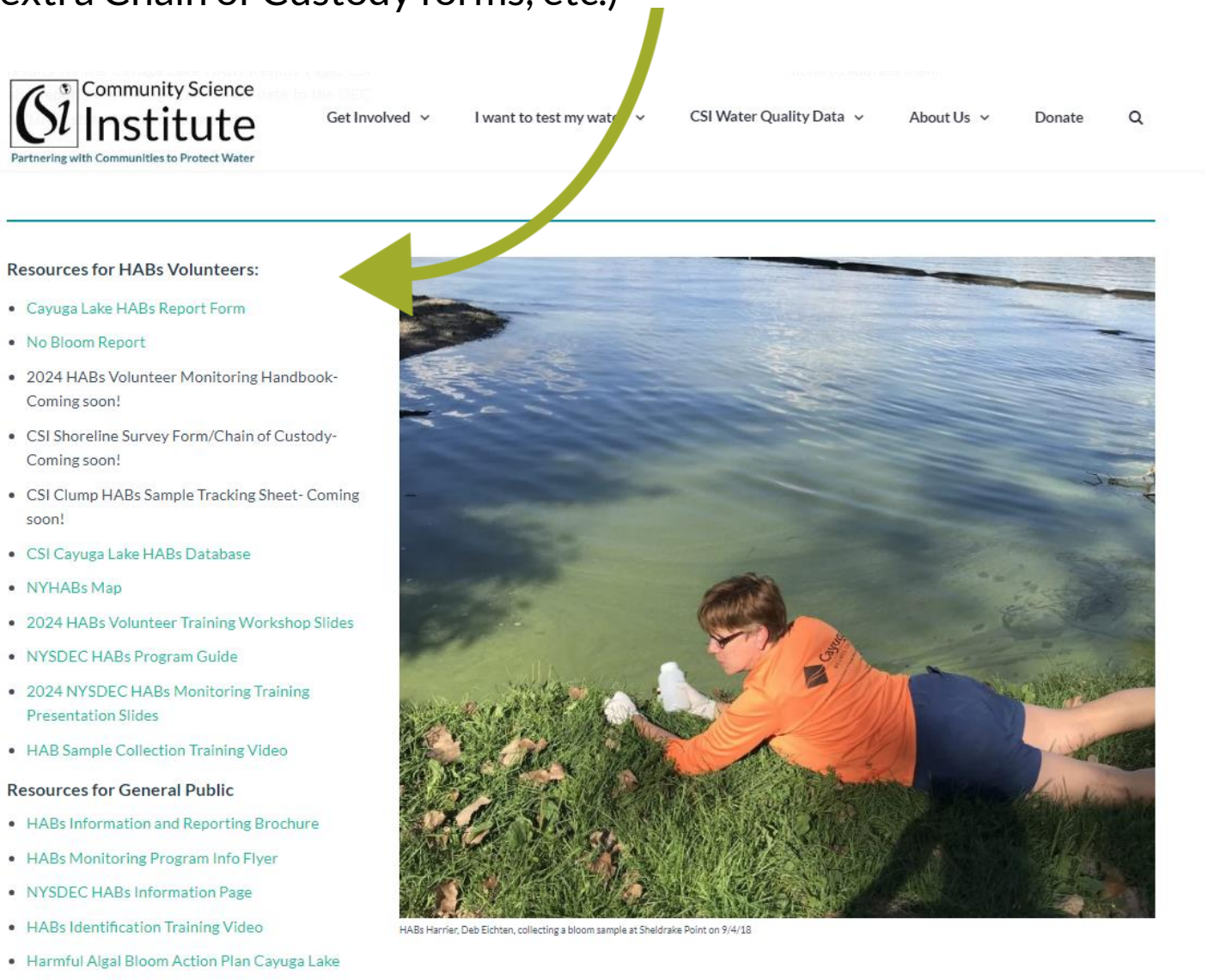
- The HABs Program Coordinator notifies local health departments, local stakeholders, and the general public via email, press releases, website articles and social media with the recent reports of suspicious/confirmed blooms and the results of suspicious bloom sample analysis as they become available.

- The CLWN will be sending out weekly summaries of recent bloom activity on Cayuga Lake to the public during the summer months. To receive these weekly updates, please contact CLWN at steward@cayugalake.org

Reference Materials

Volunteers can find a list of resources on our website: http://www.communityscience.org/monitoring-partnerships/harmful-algal-bloom-monitoring

Once on the website, scroll down to find a list of links. Some are links to other websites, some are pdf files you can download and print (like extra Chain of Custody forms, etc.)



Contact Information

Cayuga Lake HABs Leadership Team

Please do not hesitate to contact your local HABs Leadership Team if you have any questions!

Community Science Institute
Alyssa Johnson, *Cayuga Lake HABs Monitoring Program Coordinator*,
alyssa@communityscience.org | Lab (607) 257-6606 | Cell (607) 233-0811

Cayuga Lake Watershed Network
Liz Kreitinger, *Steward and Executive Director*
steward@cayugalake.org

Northwest Quadrant Leader vacant	**Northeast Quadrant Leader** Marie Eckhardt - mzeckhardt@gmail.com
Southwest Quadrant Leaders John Abel - jfa5@cornell.edu Suzanne Feehan - sbf1940@gmail.com	**Southeast Quadrant Leader** Glenn Ratajczak - gratajczak@boltonpoint.org

Attachment A: Screenshot of the 2024 Cayuga Lake HABs Bloom Reporting Page

(This Google form can be accessed at: https://forms.gle/FTk58ZfXfav1RXSa7)

Cayuga Lake HABs Report

Please fill out this form as completely as possible. If you are experiencing difficulty advancing the survey or submitting, please check that you have answered each question that has a red asterisk (*) is answered. That is a required question. We are transitioning away from accepting HAB information via email, and prefer it be submitted via this form for better data organization. Thank you for taking the time to report, and for your diligence in the field!

First Name *

Short answer text

Last Name *

Short answer text

Email Address *

Short answer text

Phone Number (with area code) *

Providing your phone number will help our HABs Leadership Team respond to the bloom faster.

Attachment B: Screenshot of the 2024 Cayuga Lake No Bloom Reporting Page

(This Google form can be accessed at: https://forms.gle/6SAyQBd2g2J9jbQT8)

Cayuga Lake No Bloom Report 2024

Please fill out this form as completely as possible.

If you are experiencing difficulty advancing the survey or submitting, please check that you have answered each question that has a red asterisk (*) is answered. That means it is a required question and you can not submit the form until all required questions are answered.

Name of HABs Harrier *

Short answer text

Email of HABs Harrier *

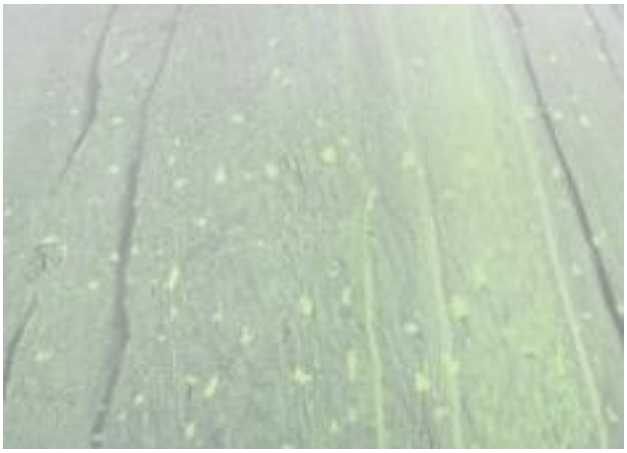
Short answer text

Waterbody Name *

- Cayuga Lake
- Other...

Attachment C: Examples of Types Bloom Photos to Submit with each Report

"Typical" HABs "wide view" to show extent



"Typical" HABs "close up" to show composition

"A-typical" or Clump/Benthic HABS "wide view" to show extent

"A-typical" or Clump/Benthic HABS" close up" to show composition

Attachment D: CSI Shoreline Survey Form/Chain of Custody Form (page 1)

Volunteer

Suspicious Cyanobacteria Bloom Sample Tracking Sheet

Bloom Code (Lab Use Only): _____

Community Science Institute www.communityscience.org

Volunteer Partnerships Watershed Science Online Public Database

Cayuga Lake Shoreline Survey and Certified Lab Chain of Custody Form

Suspicious Bloom Sampling and Tracking Procedure

1. Take at least two pictures of bloom: one close-up to show bloom detail and one from far away to show bloom extent.
2. Report the bloom by submitting pictures, GPS Coordinates, location description, and date and time of observation on CSI's website at https://bit.ly/CayugaLakeHABsReport.
3. Completely fill out the label with the sample collector's name, zone number, date, and time sampled. Collect bloom samples in the provided amber glass sampling container. Wear gloves!
4. Complete this chain-of-custody document for each sample. The information must match the information on the corresponding sample bottle *and* photos.

Name of the person who collected the bloom sample: _____ Email: _____

Name of the person who observed the bloom (if different): _____ Email: _____

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

Exact location of the bloom

1.) **GPS Coordinates** Latitude: _____ Longitude: _____

2.) **Nearest Address** _____

3.) **Location Description** _____

Date the bloom sample was collected: _____ **Time the bloom sample was collected:** _____

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

Bloom Extent (See back for descriptions):

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

☐ The bloom has been reported on CSI's website at https://bit.ly/CayugaLakeHABsReport

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 the sample is collected after business hours

Chain of Custody Documentation

	Date	Time	Relinquished By	Accepted By	# Containers	Temp. Upon Receipt
1.	_____	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____	_____

283 Langmuir Lab/Ste 1044 95 Brown Road, Ithaca NY 14850 Voice/Fax 607 257 6606
Certified Water Testing NYSDOH-ELAP #11790 EPA Lab Code NY01518
Grascen Shidemantle Executive Director <info@communityscience.org>

Attachment D: CSI Shoreline Survey Form/Chain of Custody Form (page 2)

Community Science Institute www.communityscience.org
Volunteer Partnerships **Watershed Science** **Online Public Database**

Bloom Extent Determination Descriptions (NYSDEC)

Small Localized: Bloom affects a small area of the waterbody, limited from one to several neighboring properties.

Large Localized: Bloom affects many properties within an entire cove, along a large segment of shoreline, or in a specific region of the water body.

Widespread: Bloom affects the entire waterbody, a large portion of the lake, or most to all of the shoreline.

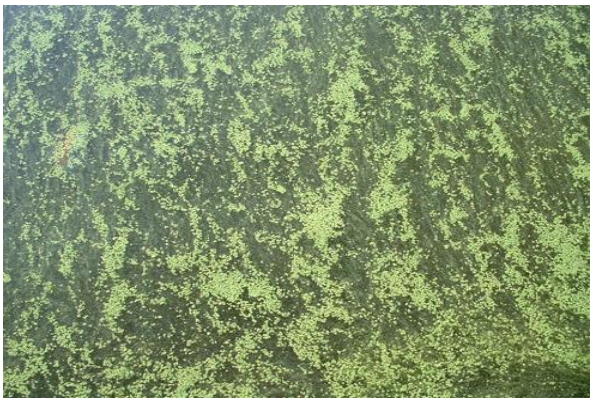
Open the camera app on your smartphone and scan this QR code to be brought directly to the Cayuga Lake HABs Report Form

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

283 Langmuir Lab/Ste 1044 95 Brown Road, Ithaca NY 14850 Voice/Fax 607 257 6606
Certified Water Testing **NYSDOH-ELAP #11790** **EPA Lab Code NY01518**
Grascen Shidemantle *Executive Director* *<info@communityscience.org>*

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.

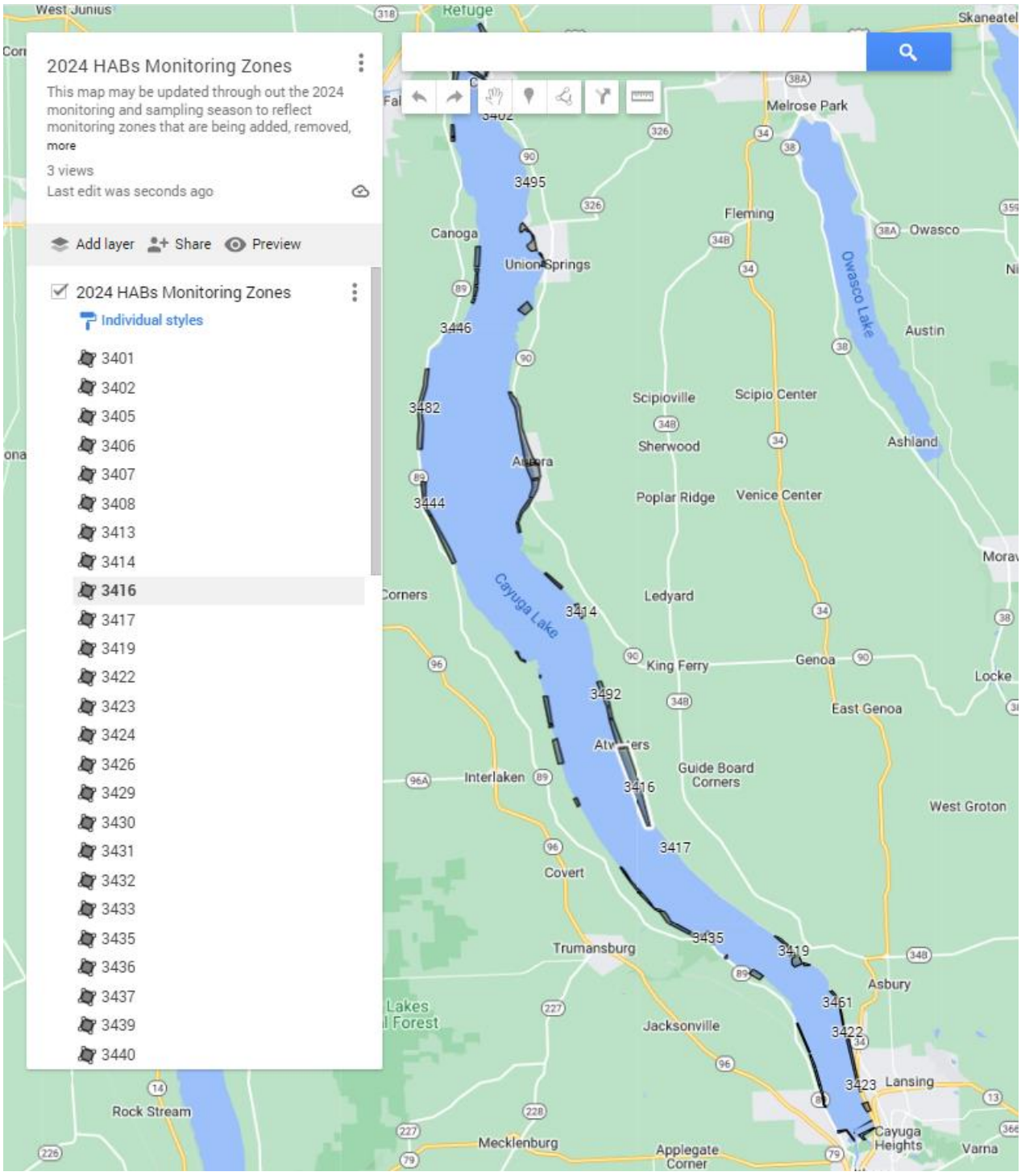
For more information about how to identify a HAB, please visit our HABs Monitoring Information page (www.communityscience.org/volunteer/harmful-algal-bloom-monitoring).

You can also watch a short HABs Identification Tricks and Tips video created by the NYSDEC (www.youtube.com/watch?v=8nL_s77FV-o).

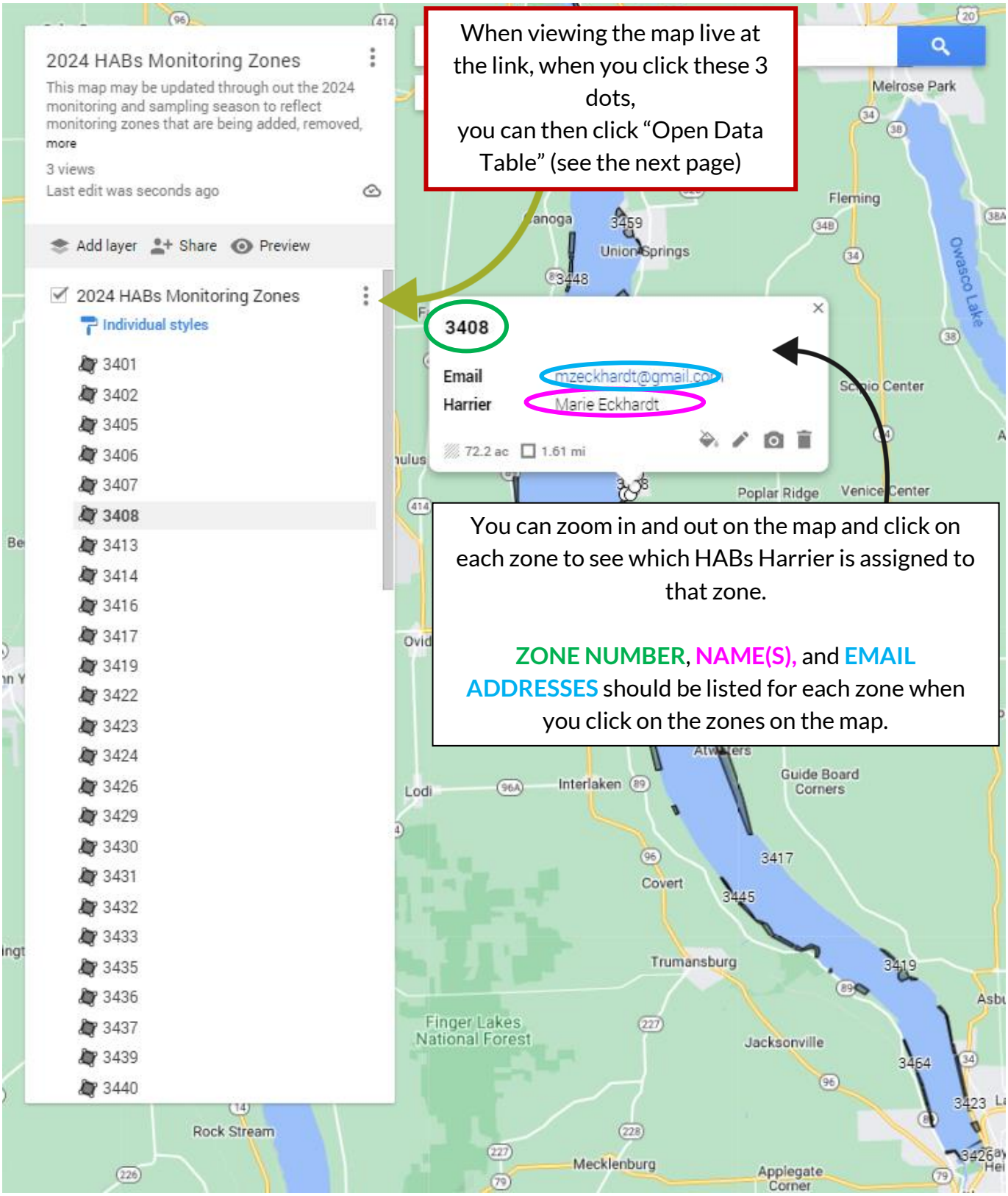
2024 HABs Monitoring Zones Map

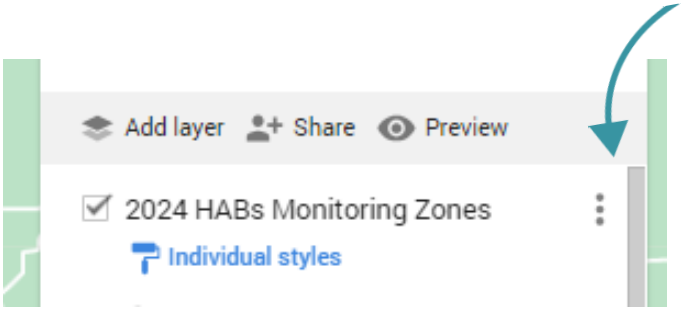
You can view this interactive map LIVE at this link: [2024 HABs Monitoring Zones]

This map will be updated if/when volunteers join or leave throughout the season to try and keep this “directory” as accurate as possible. The map will update live and you will see the most recent version each time you view it at that link.



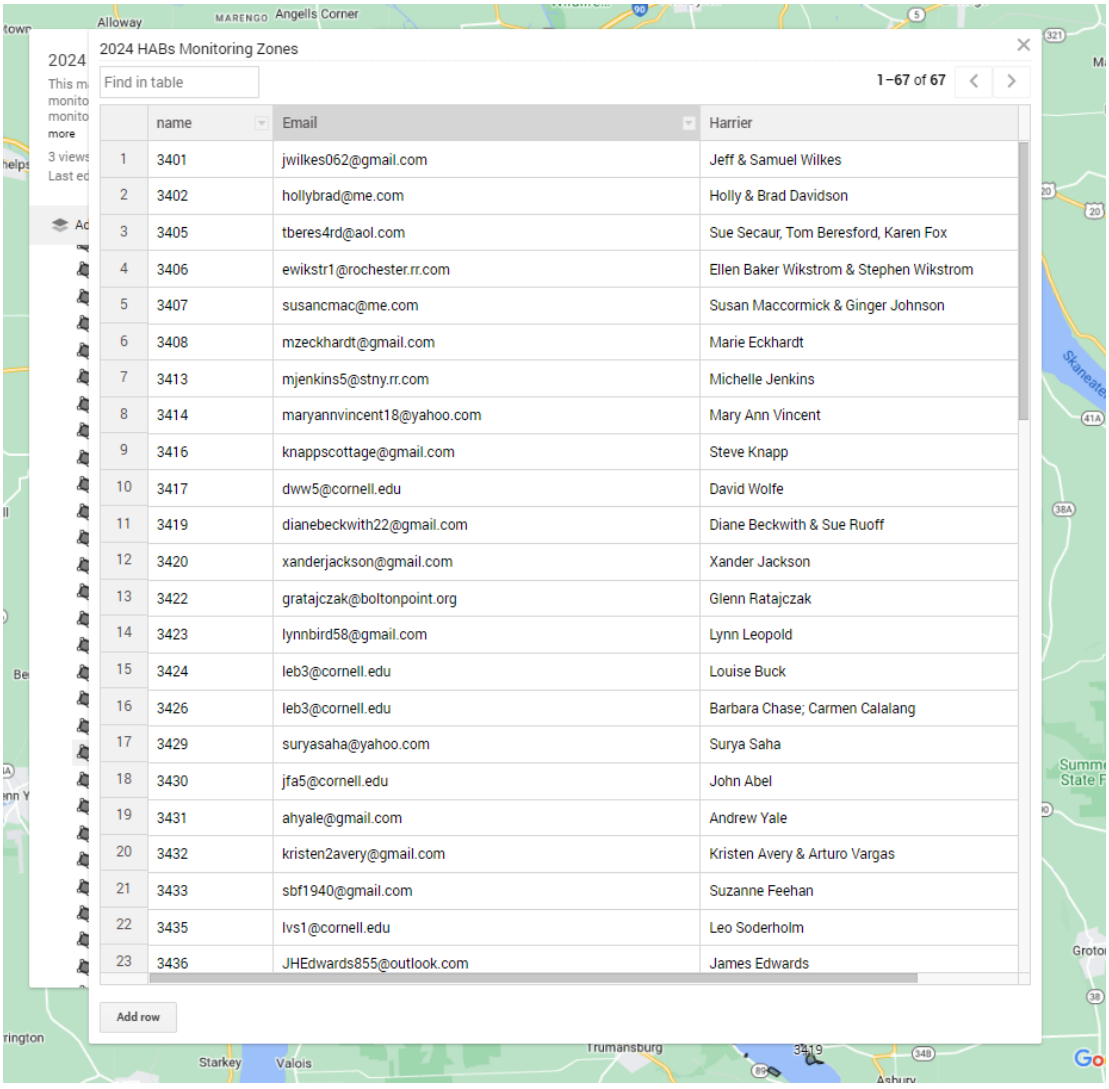
You can click on zoom in and out on the map and click each zone to see who is responsible for it and their email address.





From the previous page, when you click the 3 dots, then click “Open Data Table”, the table below will open.

This provides a way to view all 2024 HABs Harriers and their Zone #s, Names, and Emails in a table format. It does not tell you where the zones are but may be easier to read.



2024 HABs Monitoring Zones

Find in table

1–67 of 67

	name	Email	Harrier
1	3401	jwilkes062@gmail.com	Jeff & Samuel Wilkes
2	3402	hollybrad@me.com	Holly & Brad Davidson
3	3405	tberes4rd@aol.com	Sue Secaur, Tom Beresford, Karen Fox
4	3406	ewikstr1@rochester.rr.com	Ellen Baker Wikstrom & Stephen Wikstrom
5	3407	susancmac@me.com	Susan Maccormick & Ginger Johnson
6	3408	mzeckhardt@gmail.com	Marie Eckhardt
7	3413	mjenkins5@stny.rr.com	Michelle Jenkins
8	3414	maryannvincent18@yahoo.com	Mary Ann Vincent
9	3416	knappscottage@gmail.com	Steve Knapp
10	3417	dww5@cornell.edu	David Wolfe
11	3419	dianebeckwith22@gmail.com	Diane Beckwith & Sue Ruoff
12	3420	xanderjackson@gmail.com	Xander Jackson
13	3422	gratajczak@boltonpoint.org	Glenn Ratajczak
14	3423	lynnbird58@gmail.com	Lynn Leopold
15	3424	leb3@cornell.edu	Louise Buck
16	3426	leb3@cornell.edu	Barbara Chase; Carmen Calalang
17	3429	suryasaha@yahoo.com	Surya Saha
18	3430	jfa5@cornell.edu	John Abel
19	3431	ahyale@gmail.com	Andrew Yale
20	3432	kristen2avery@gmail.com	Kristen Avery & Arturo Vargas
21	3433	sbf1940@gmail.com	Suzanne Feehan
22	3435	lvs1@cornell.edu	Leo Soderholm
23	3436	JHEdwards855@outlook.com	James Edwards

Add row

You can view this interactive map LIVE at this link:

[2024 HABs Monitoring Zones]