

Cayuga Lake Watershed Water Quality Monitoring in Cayuga County: *Insights & Updates from the 2025 Monitoring Season*

Cayuga County WQMA Meeting
3/5/26, 10 AM

Grascen Shidemantle, PhD
Executive Director
Community Science Institute



CSI HAB Harrier, Holly Davidson,
surveying her shoreline for HABs

Agenda

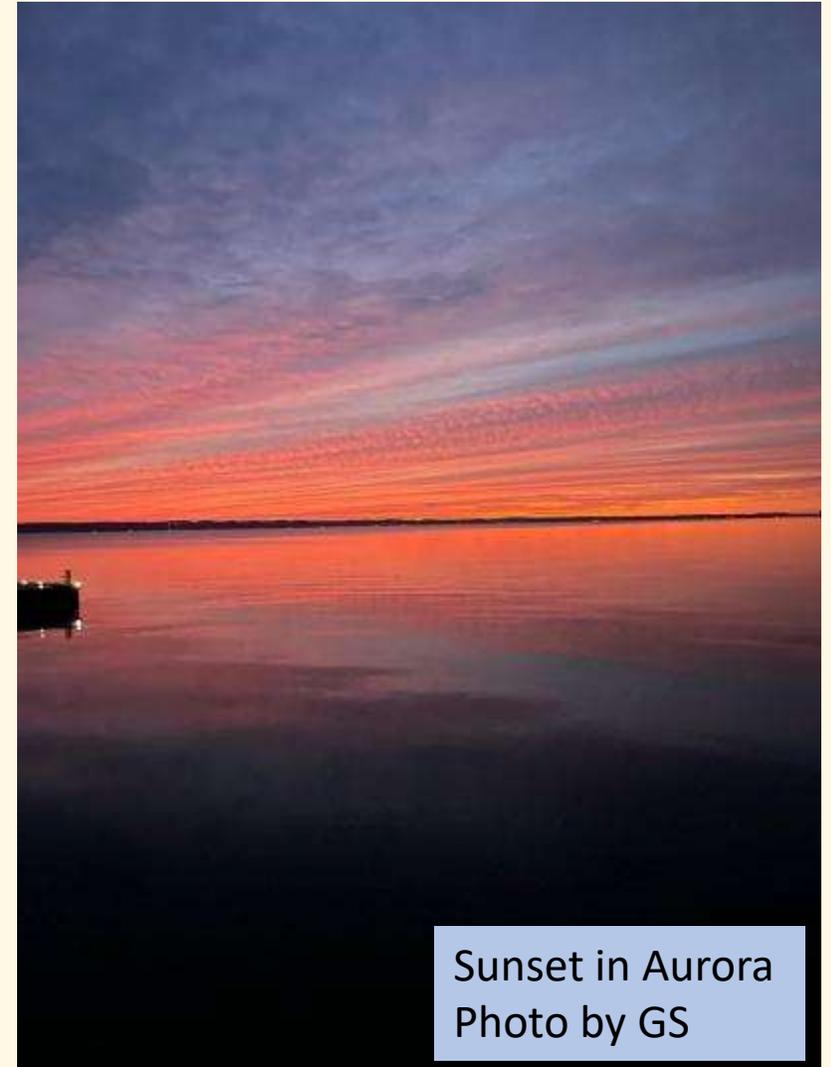
Intro: Community Science Institute

Synoptic Stream and Lake Monitoring Partnership in Cayuga County

Cayuga Lake Harmful Algal Bloom Monitoring

Cayuga Lake Water Quality Monitoring

Acknowledgements and Questions



Sunset in Aurora
Photo by GS

Agenda

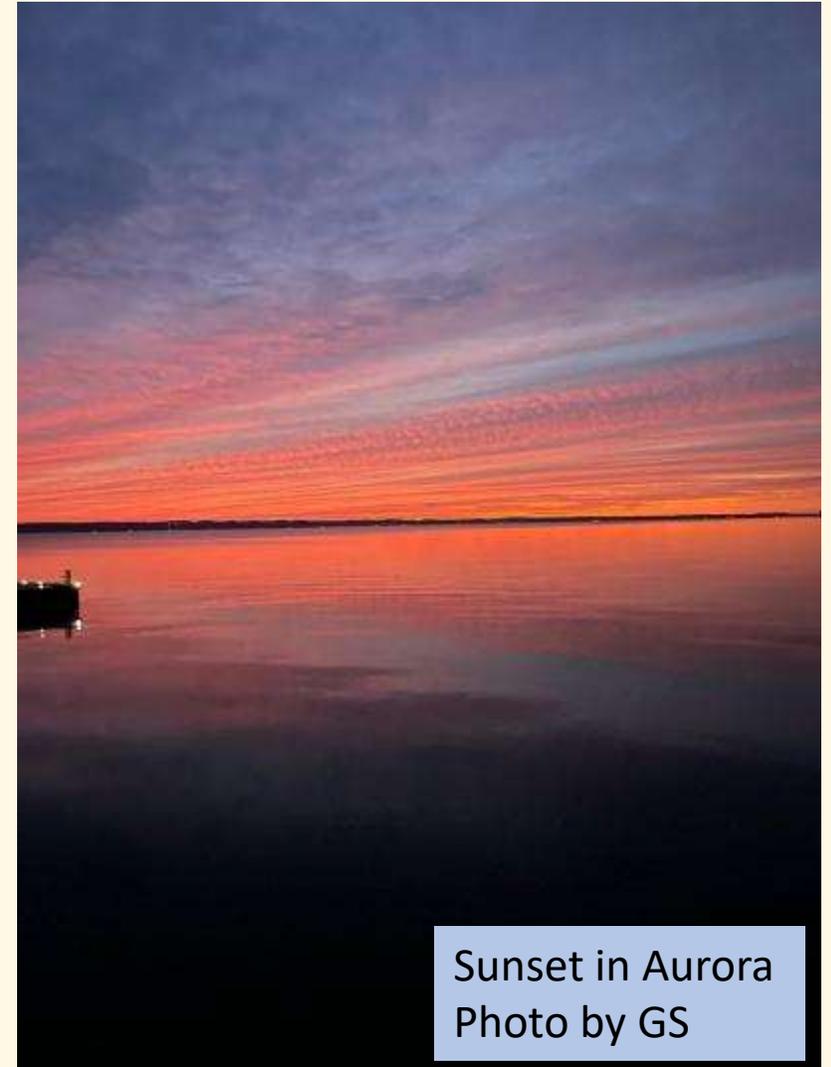
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Community Science Institute

CSI is a 501(c)3 non-profit and NYSDOH-ELAP certified water testing lab in Ithaca, NY



Volunteer Water Monitoring Partnerships



Outreach and Education



Fee-for-Service Water Testing

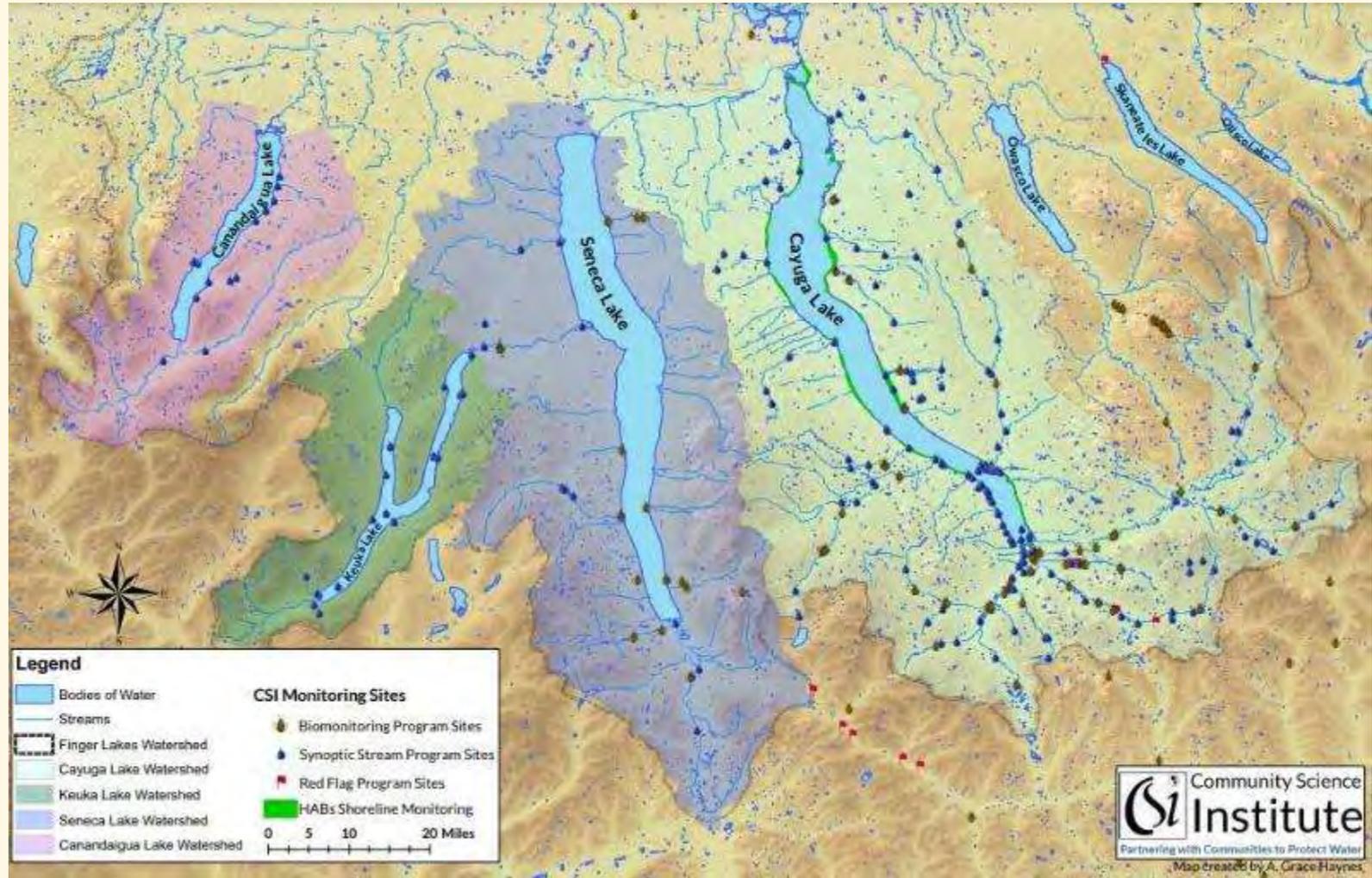
Our Mission: To inspire and empower communities to safeguard water resources by cultivating scientific literacy through volunteer water quality monitoring, certified laboratory analyses, and education.

CSI's Volunteer Water Monitoring Partnerships

Monitoring Partnerships

1. Synoptic Stream and Lake Monitoring
2. Harmful Algal Bloom (HAB) Monitoring
3. Biomonitoring
4. Other projects as need or interest arises

We retired CSI's Red Flag Monitoring Program at the end of 2024



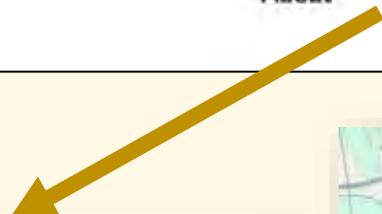
CSI's Water Quality Database



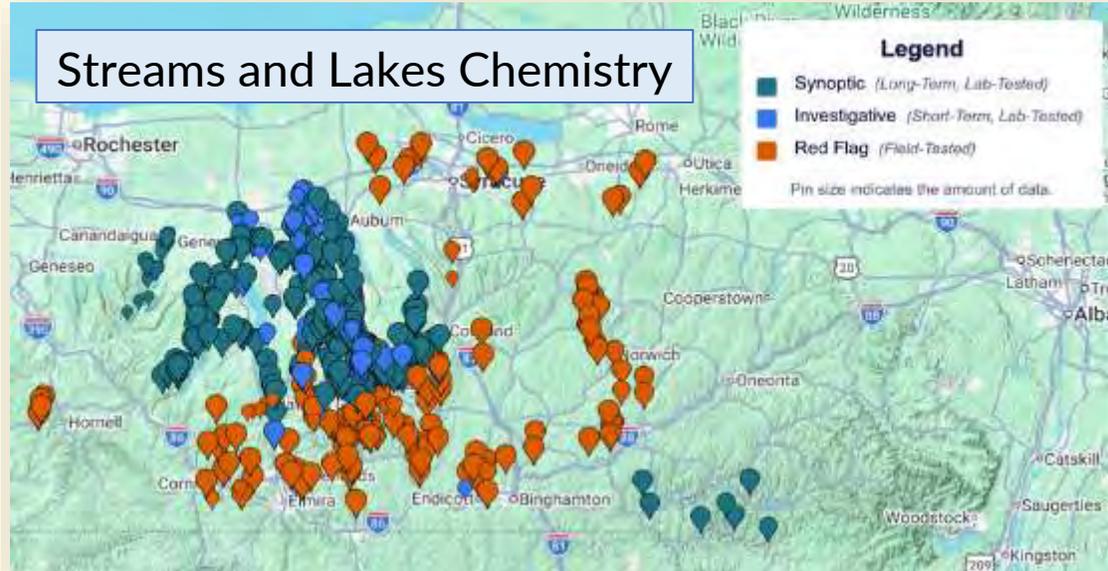
Community Science Institute Database
Partnering with Communities to Protect Water

About Streams and Lakes Chemistry Harmful Algal Blooms (HABs) Groundwater Baseline

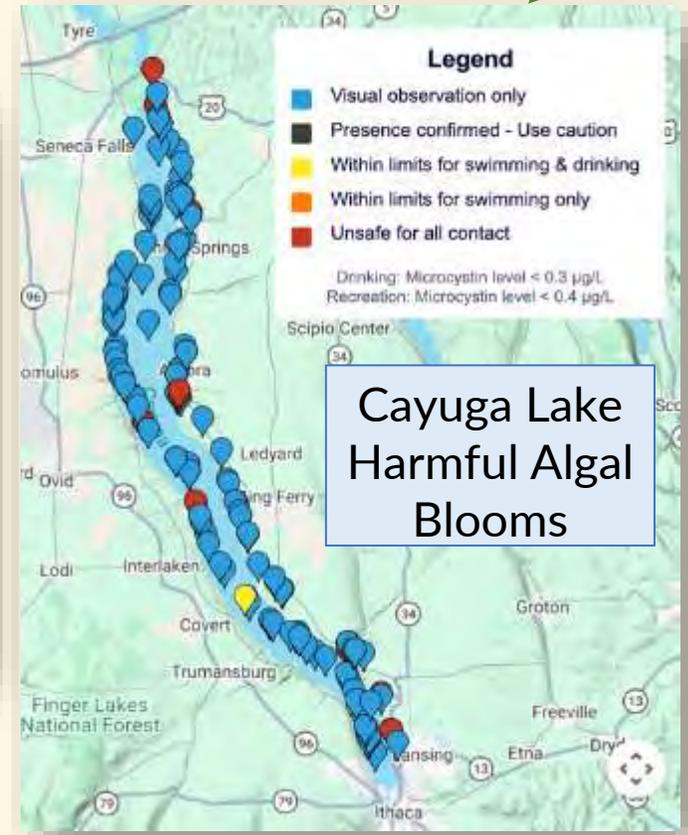
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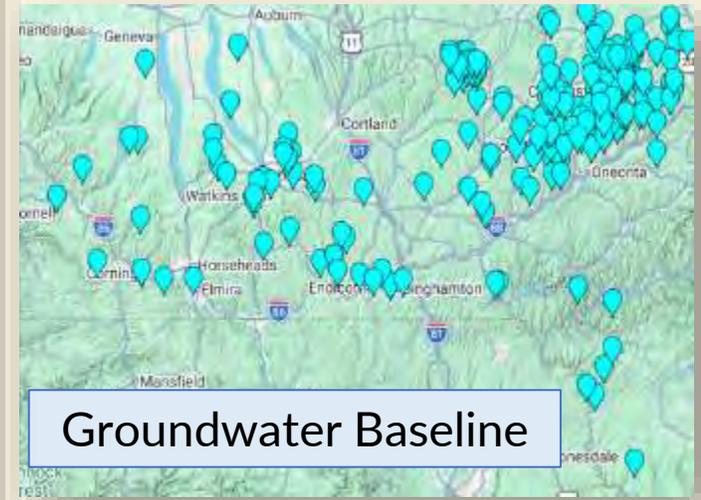
Streams and Lakes Chemistry



Cayuga Lake Harmful Algal Blooms



Groundwater Baseline



www.database.communityscience.org



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Salmon Creek at Genoa

Synoptic Stream Monitoring in Cayuga County



Salmon Creek at
Tile Kiln Road

Purpose: Produce regulatory-quality stream and lake water chemistry data that can inform water resource management decisions as well as keep the public informed on the state of their local water resources.

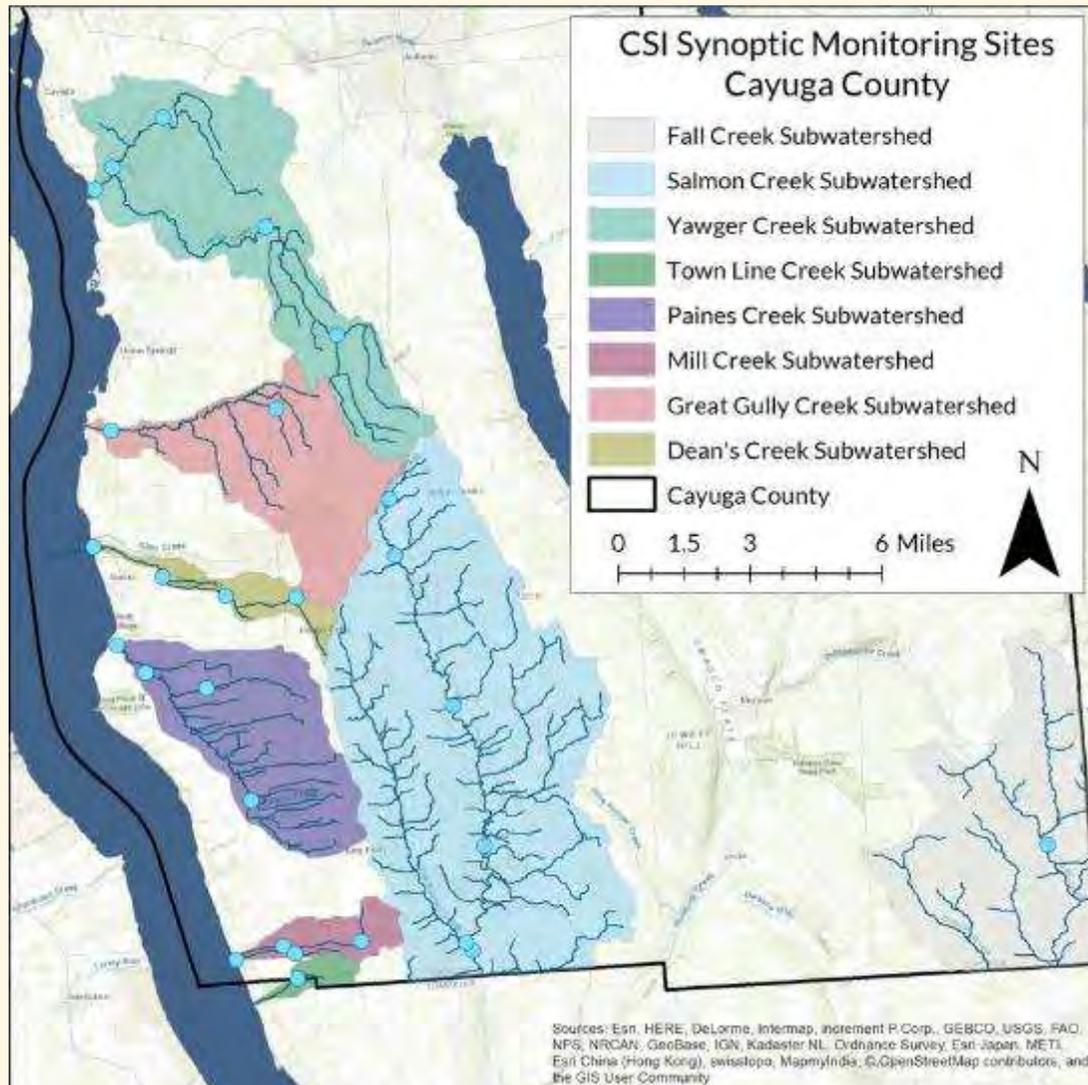
Monitor streams and lakes for:

- Nutrients (TP, SRP, NO_x)
- Sediment (TSS)
- Bacteria (*E. coli*)
- Salt (Chloride)
- pH, hardness, alkalinity, turbidity, conductivity

Volunteers collect samples from their designated stream 3 times each year

Samples are analyzed in CSI's state-certified water testing laboratory

Synoptic Stream Monitoring in Cayuga County



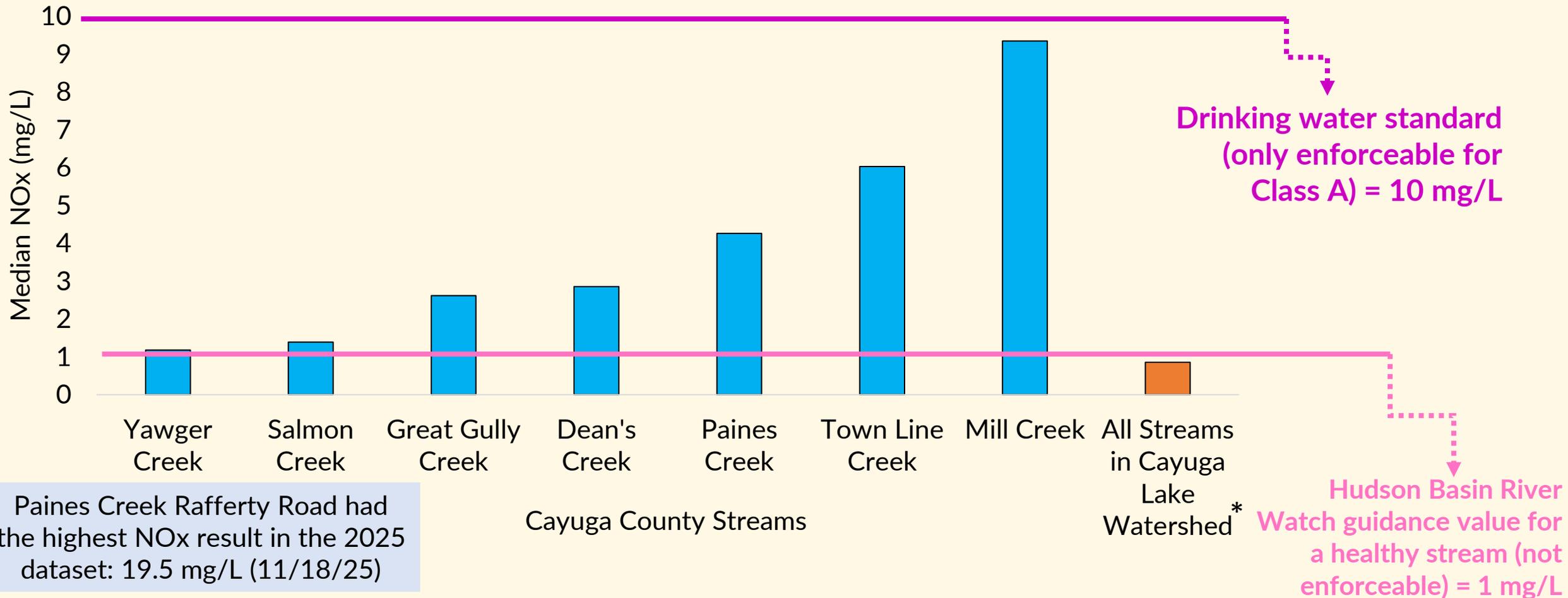
CSI's synoptic stream volunteers monitor the following Cayuga Lake tributaries in Cayuga County:

1. Yawger Creek
2. Great Gully Creek
3. Dean's Creek
4. Paines Creek
5. Mill Creek
6. Town Line Creek
7. Salmon Creek

Thank you to
Cayuga County for
supporting our
stream monitoring
efforts in Cayuga
County since
2018!

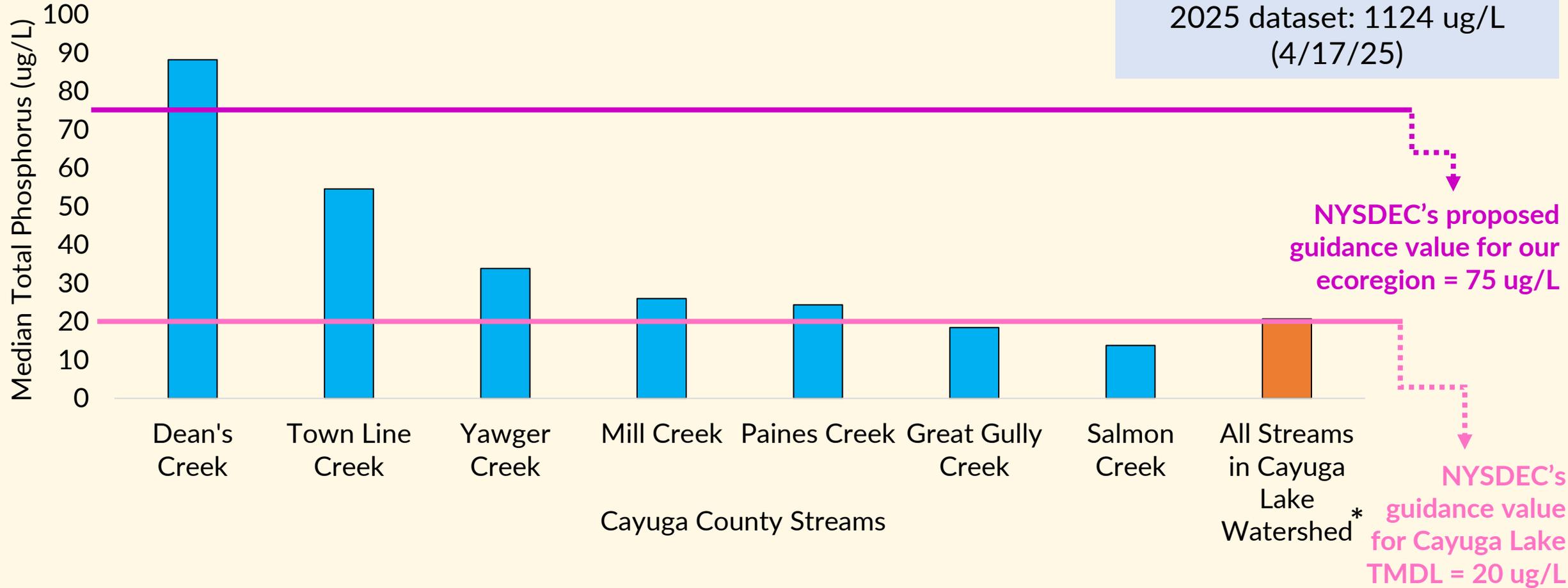
Synoptic Stream Monitoring in Cayuga County

Median Baseflow Nitrate-+Nitrite-Nitrogen (NOx) in 2025

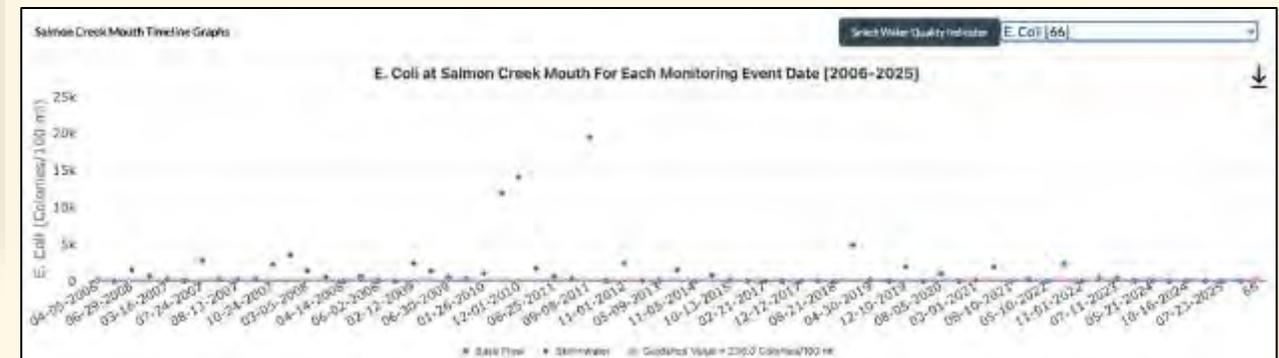
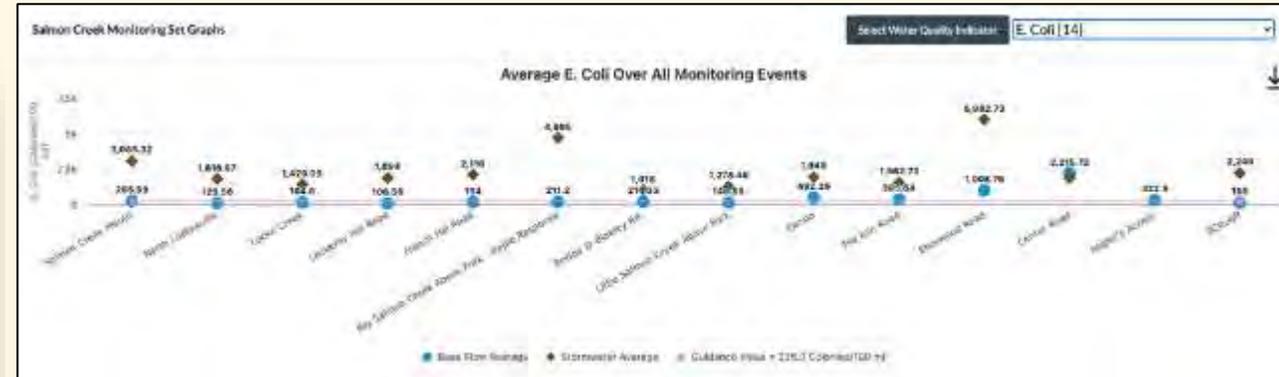
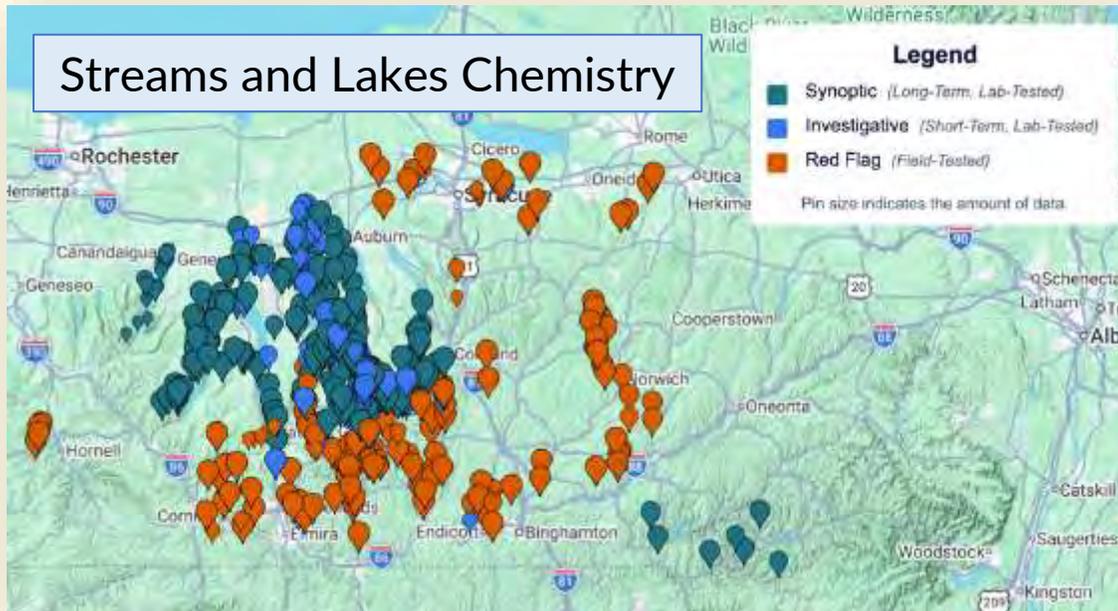


Synoptic Stream Monitoring in Cayuga County

Median Baseflow Total Phosphorus in 2025



CSI's Water Quality Database – Stream and Lake Chemistry



Explore over 130,000 data points!

Over 91,000 data points in the Cayuga Lake watershed alone!

<https://www.database.communityscience.org/>

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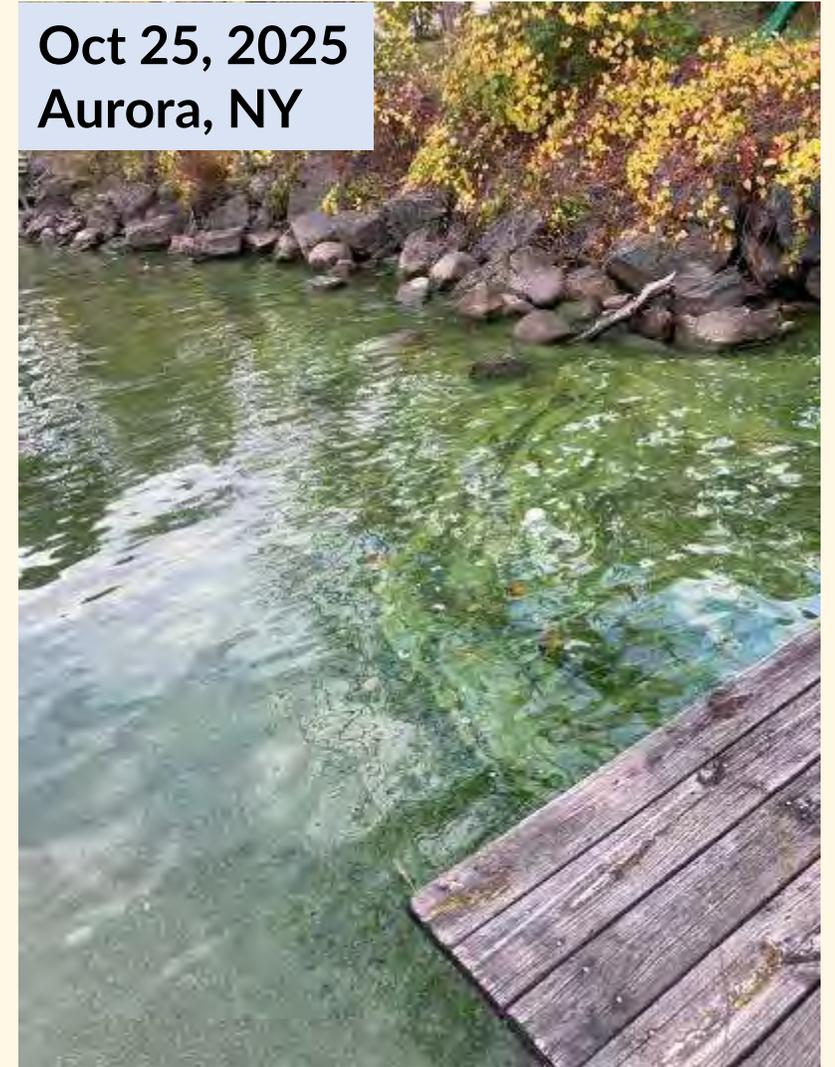
Synoptic Stream and Lake Monitoring
Partnership in Cayuga County

**Cayuga Lake Harmful Algal Bloom
Monitoring**

Cayuga Lake Water Quality Monitoring

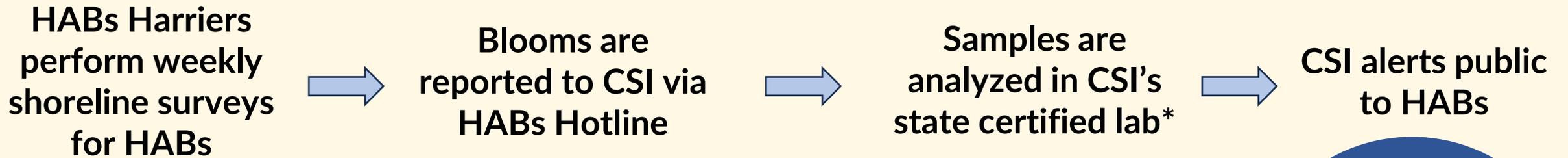
Acknowledgements and Questions

Oct 25, 2025
Aurora, NY



Cayuga Lake Harmful Algal Bloom (HAB) Monitoring Partnership

Purpose: Collect actionable data on cyanobacteria blooms, protect public health, and relay bloom information and testing results quickly and efficiently.



Thank you to Cayuga County for supporting our HABs Monitoring Program!

The Cayuga Lake HABs Monitoring Program is led by CSI in collaboration with CLWN and DCL

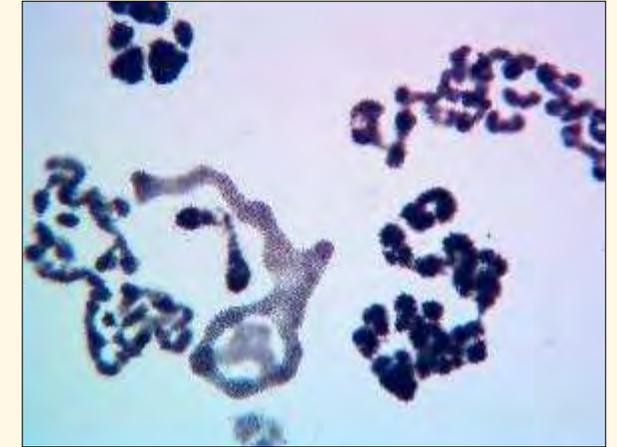
Cayuga Lake Harmful Algal Bloom (HAB) Monitoring Partnership

HAB samples are analyzed to:

- Identify cyanobacteria genera
- Measure chlorophyll a
- Measure microcystin

Bloom information is uploaded to CSI's [Cayuga Lake HABs Database](#)

CSI reports all blooms to county health department officials and NYSDEC



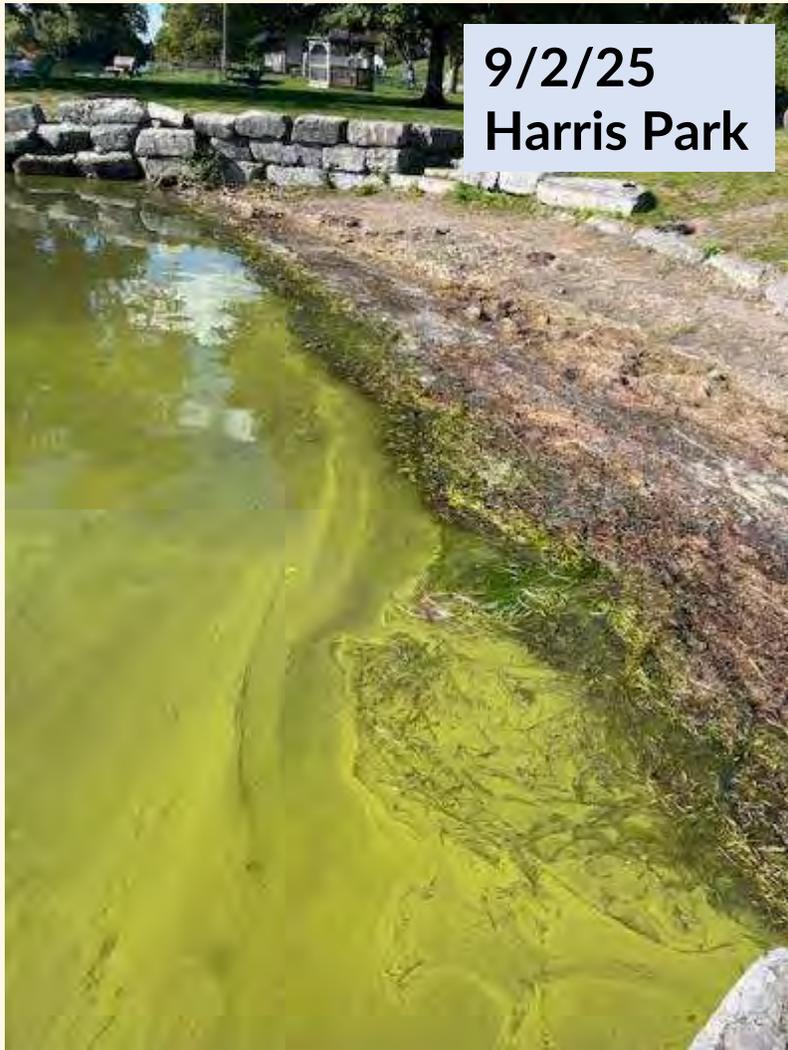
Microcystis sp.



Dolichospermum sp.



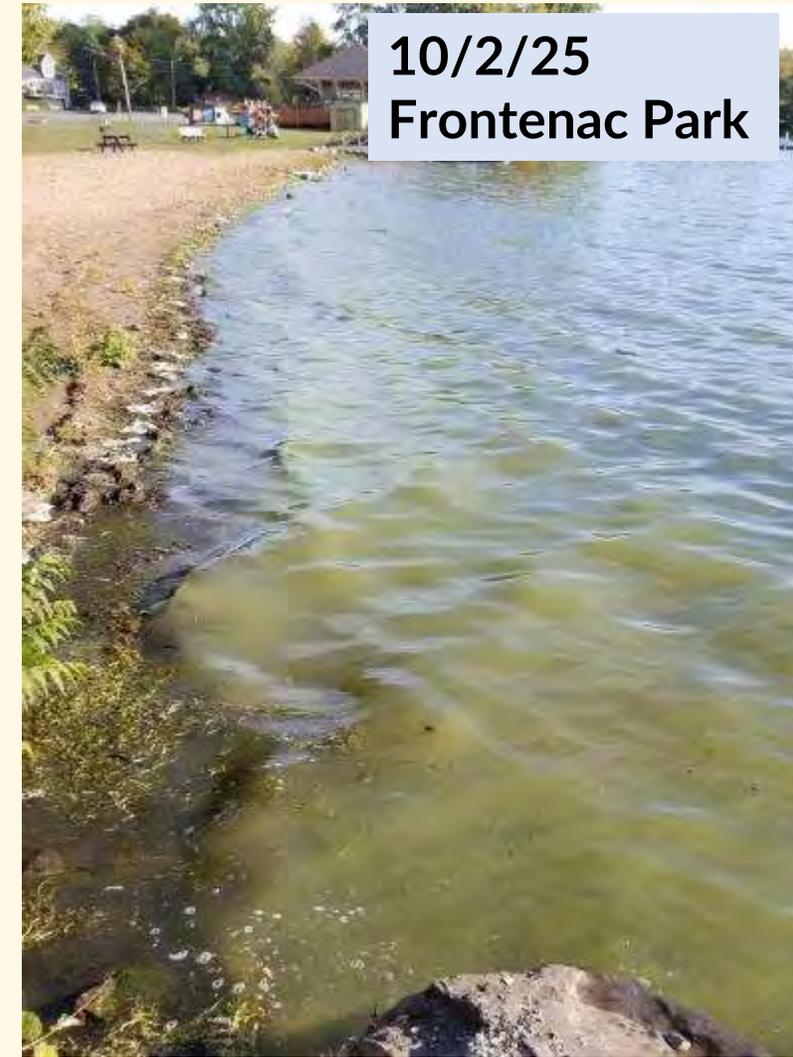
2025 Cayuga Lake HAB Monitoring Season



9/2/25
Harris Park

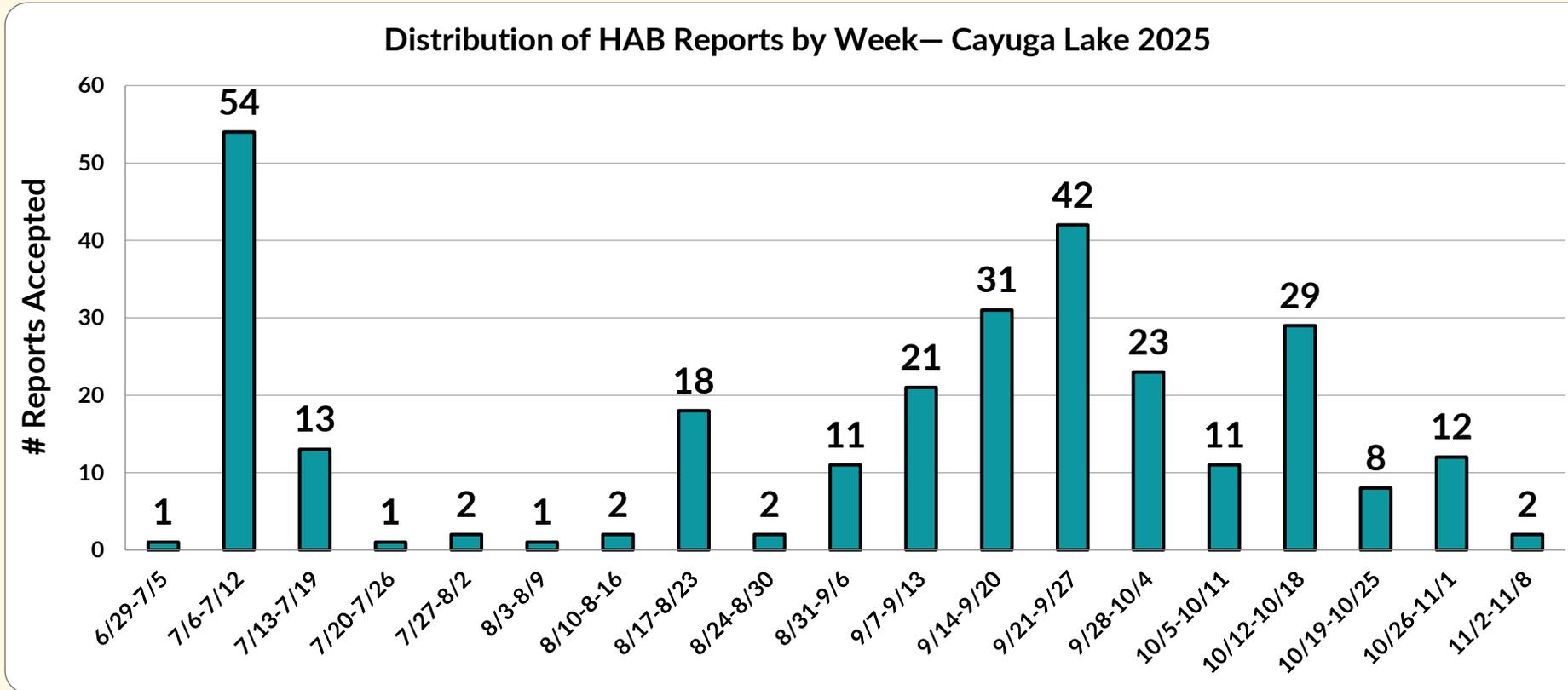


9/23/25
Long Point State Park



10/2/25
Frontenac Park

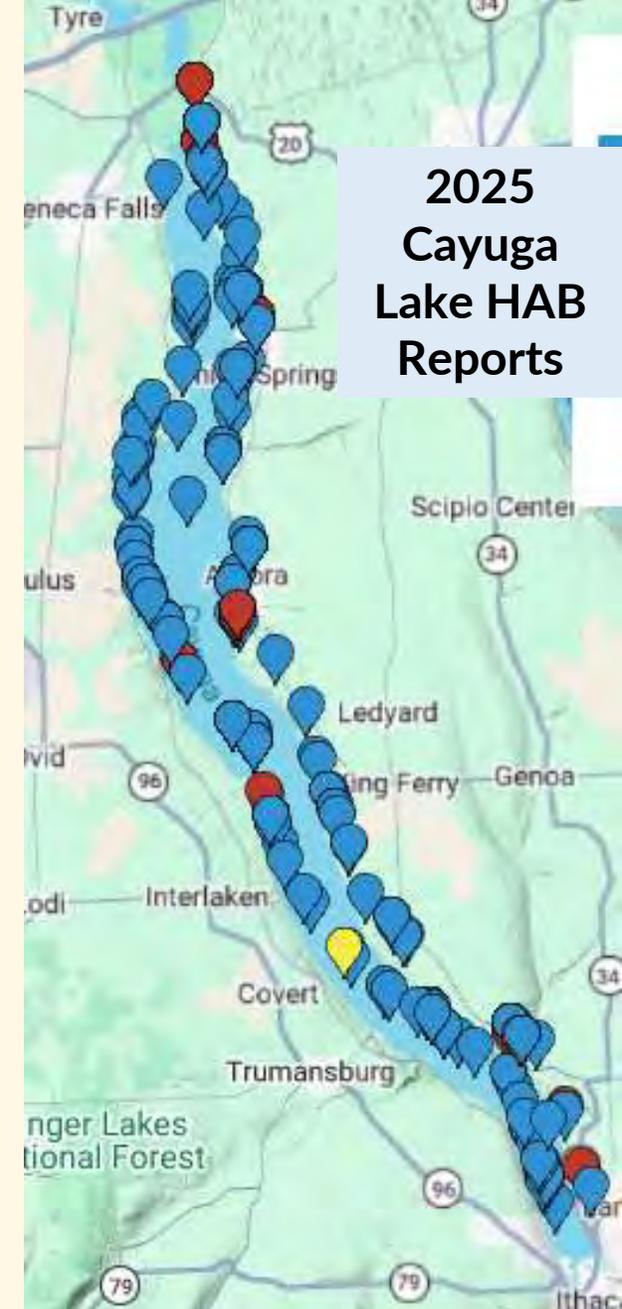
2025 HAB Monitoring Season



First HAB reported: 7/5/25

Last HAB reported: 11/7/25 ← Latest HAB report received by CSI

284 HAB reports accepted ← Most reports received by CSI



2025 HAB Monitoring Season

 Visually confirmed bloom

 Microscopy confirmed bloom

 MC < 0.3 µg/L

 MC 0.3 µg/L - 4.0 µg/L

 MC > 4.0 µg/L

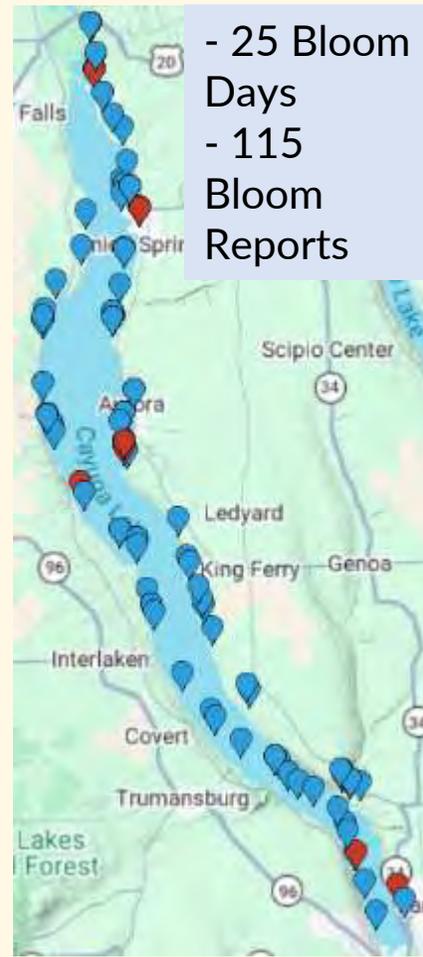
July



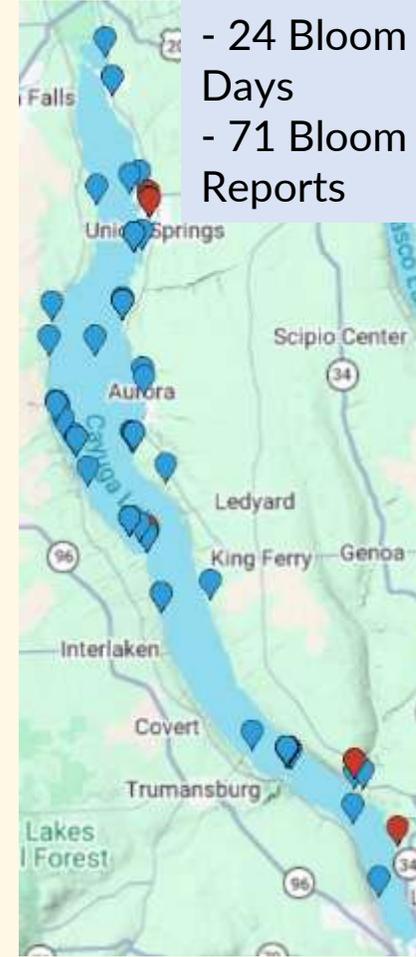
August



September



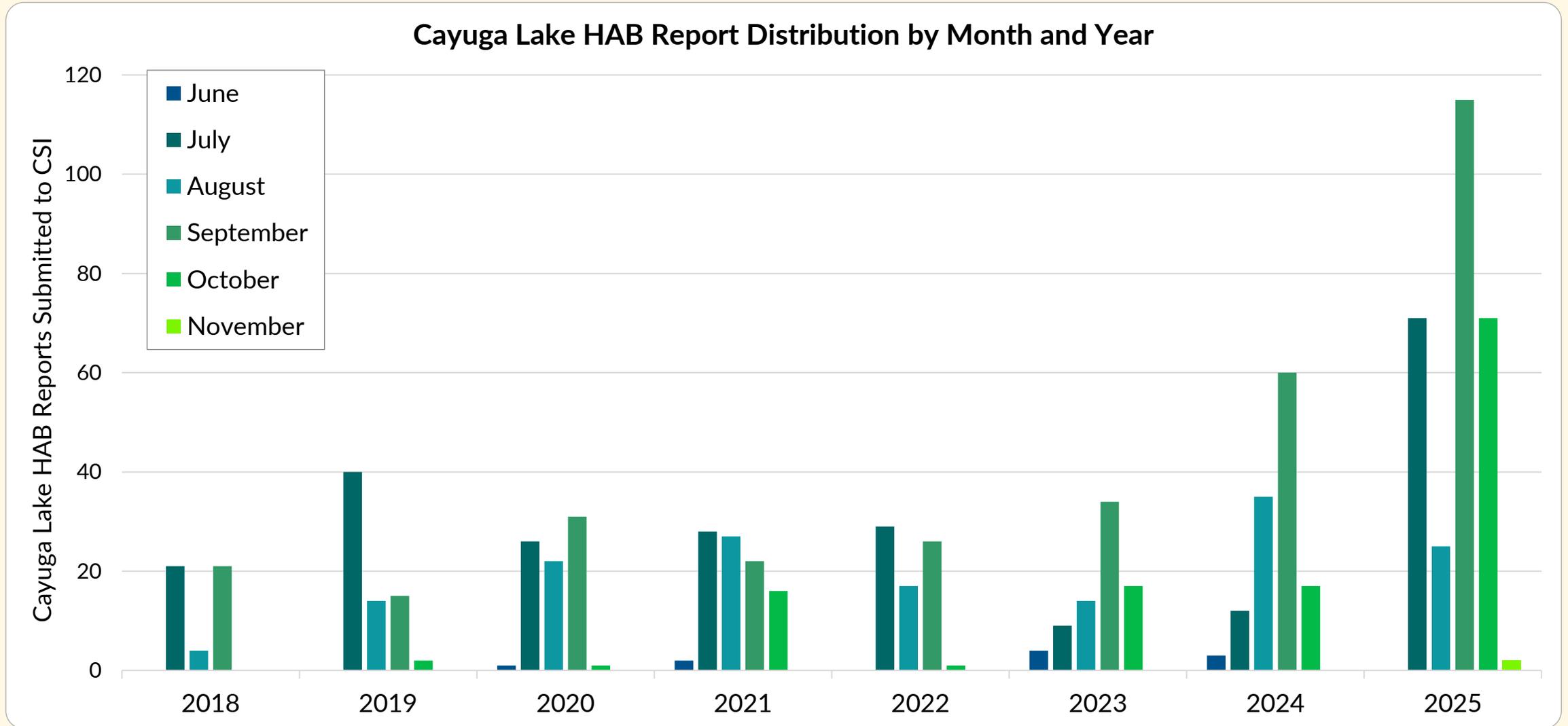
October



November



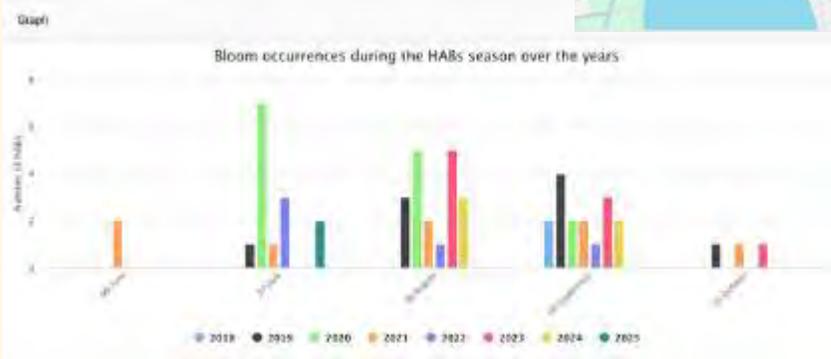
2018-2025 Cayuga Lake HAB Reports



CSI's Cayuga Lake HAB Database



View historic HAB reports



View recent HAB reports

- **Where**
 - Latitude and Longitude
 - Segment
 - County
 - Extent
- **When**
 - Bloom Reported
 - Bloom Sampled (if applicable)
- **What**
 - Bloom Genera
 - Present
 - Dominant
 - Bloom Chemistry
 - Microcystin Concentration
 - Chlorophyll a Concentration
- **Other**
 - Bloom Description



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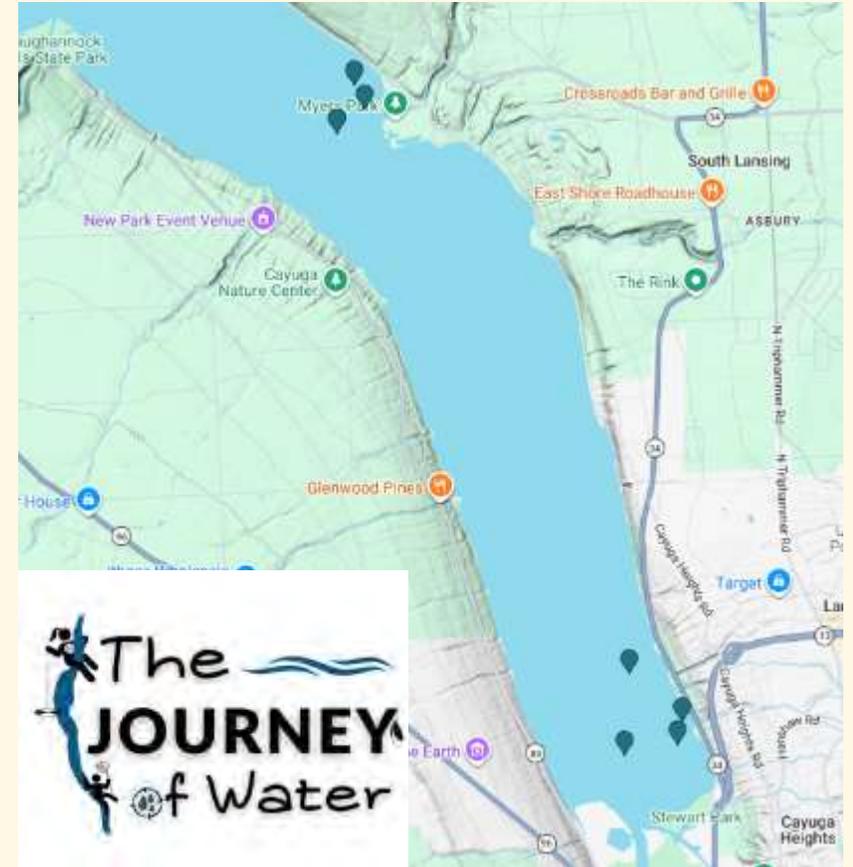


Aug 13, 2025
Cayuga Lake

Cayuga Lake Water Quality Monitoring



- 3 Water Quality Cruises each summer since 2007
- Monitor 7 sites:
 - At two sites, collect an epilimnion and hypolimnion sample
 - 4 sites in the southern end, 3 sites in the Main Lake Mid-South



Cayuga Lake Water Quality Monitoring

Total Phosphorus Guidance Value = 20 µg/L

Chlorophyll a Targets

Table 10. Water quality targets by regulatory segment

Waterbody Segment (WI/PWL ID)	Classification/Highest Best Use	Summer Average Total Chlorophyll-a Target (µg/L)
Northern End (0705-0030)	Class B – Primary and Secondary Contact Recreation, Fishing	8 µg/L
Main Lake, Mid-North (0705-0025)	Class A – Source Water Supply	6 µg/L
Main Lake, Mid-South (0705-0050)	Class AA – Source Water Supply with limited treatment	4 µg/L
Southern End (0705-0040)	Class A – Source Water Supply	6 µg/L

Total Maximum Daily Load (TMDL) for Phosphorus in Cayuga Lake

Cayuga, Seneca and Tompkins Counties, New York

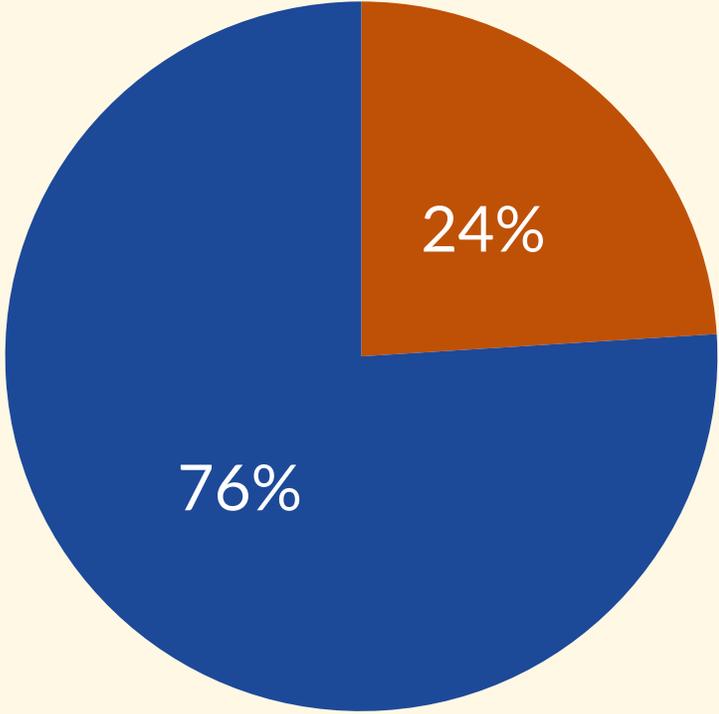
2024

New York State
 Department of Environmental Conservation
 625 Broadway, 4th Floor
 Albany, NY 12233-3500

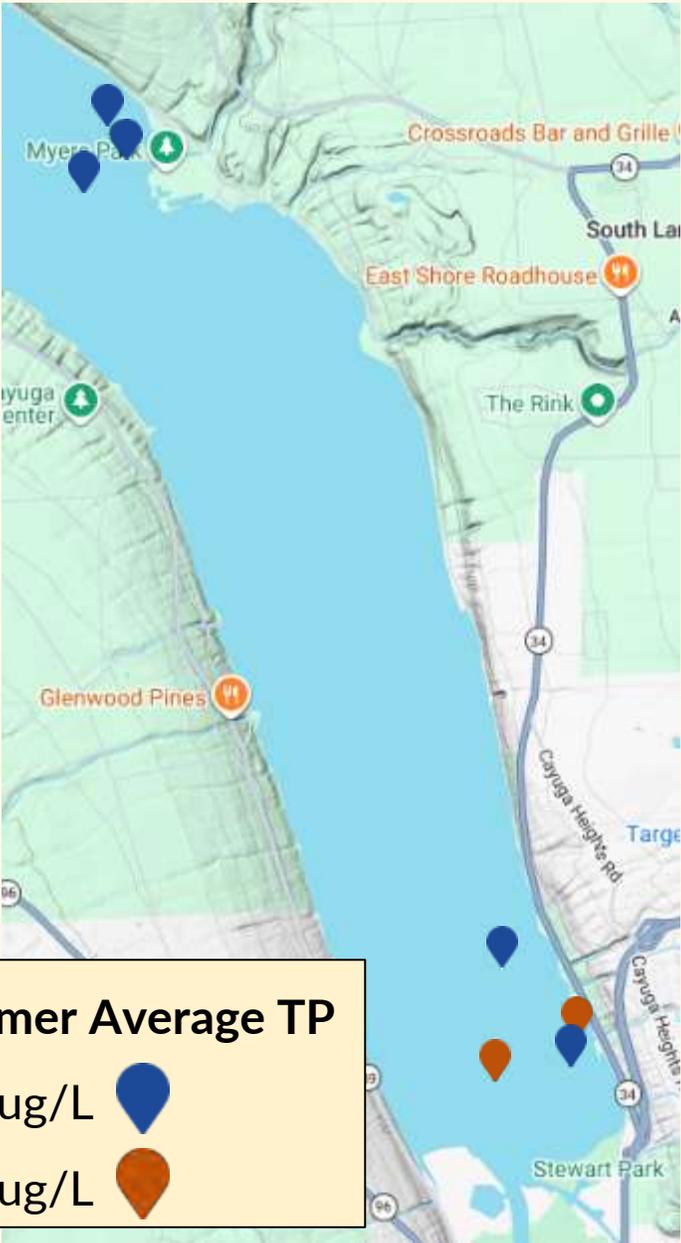
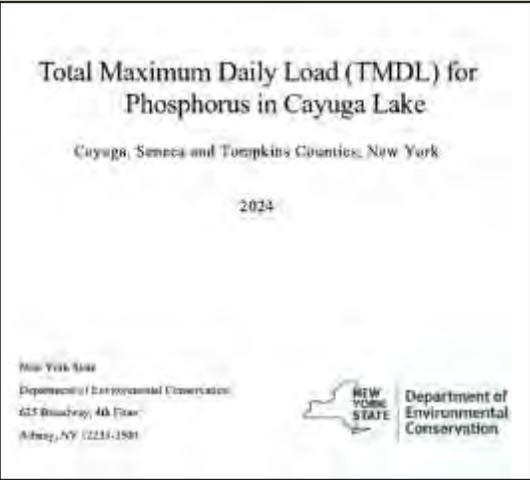


Cayuga Lake Water Quality Monitoring

Percent of Samples Above or Below Total Phosphorus Guidance Value

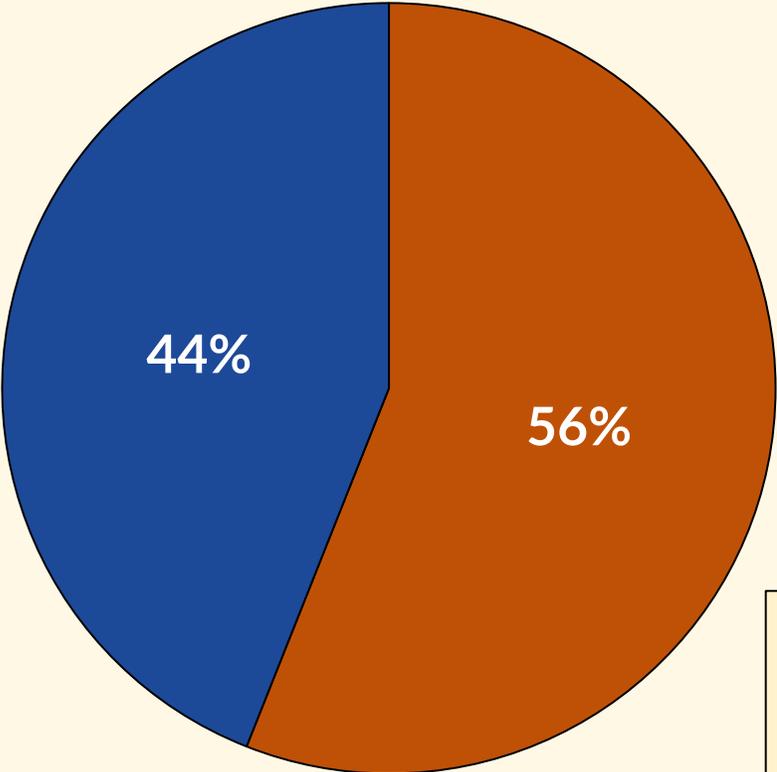


■ Above Guidance Value ■ Below Guidance Value

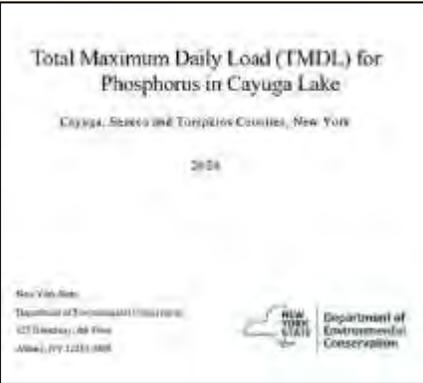


Cayuga Lake Water Quality Monitoring

Percent of Samples Above or Below Target Chlorophyll a Levels

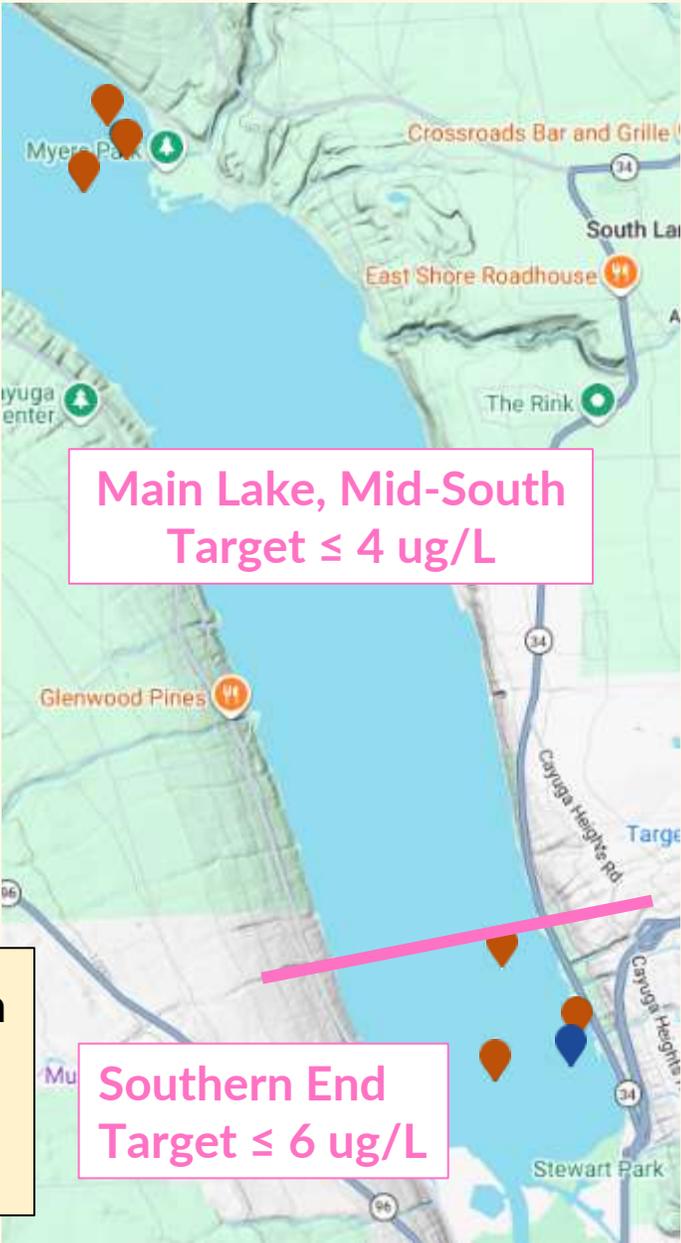


■ Above Target ■ Below Target



Summer Average Chlor a

- < Target
- > Target



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Monitoring

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Acknowledgements



Dedicated volunteers!

CSI Members

CSI Staff Past and Present



Partners



Local Governments

Cayuga County
Seneca County
Tompkins County
City of Ithaca
Town of Caroline
Town of Danby
Town of Dryden
Town of Enfield
Town of Ithaca
Town of Lansing
Town of Newfield
Town of Ulysses
Village of Cayuga Heights

Thank you!

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monthly updates



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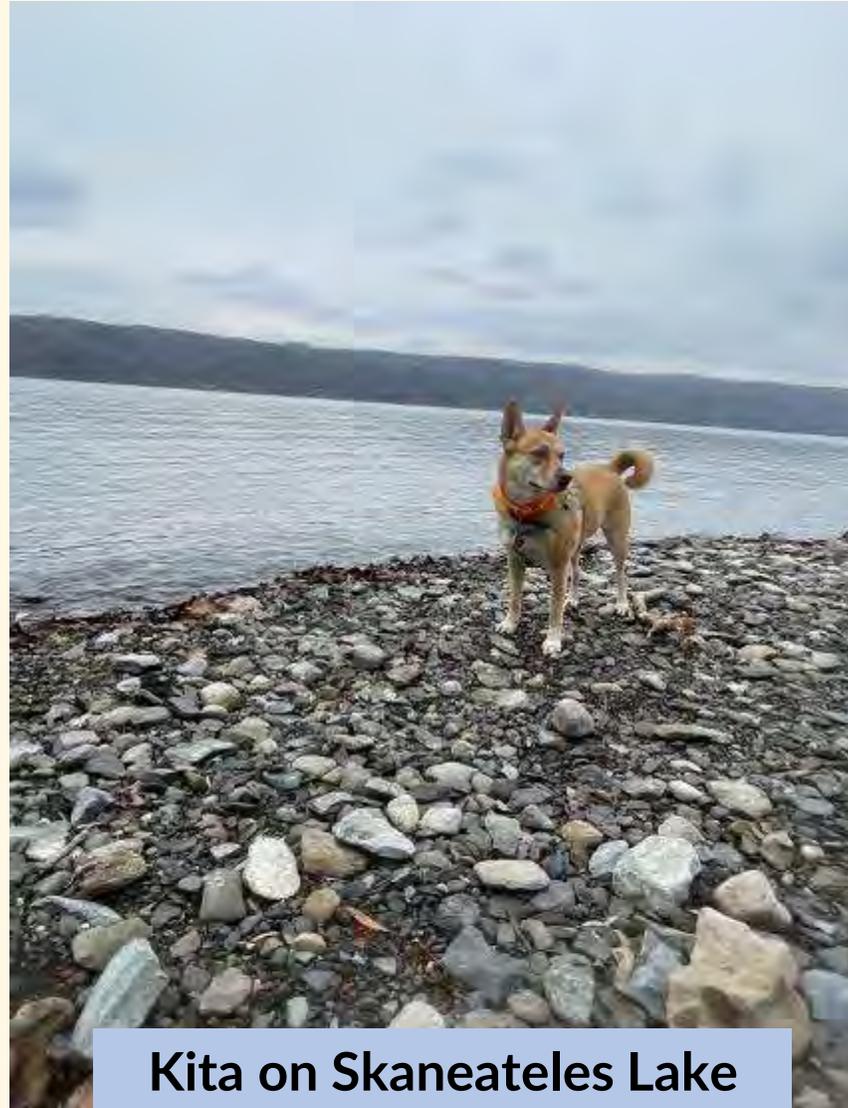
Set up a meeting with me

gshidemantle@communityscience.org

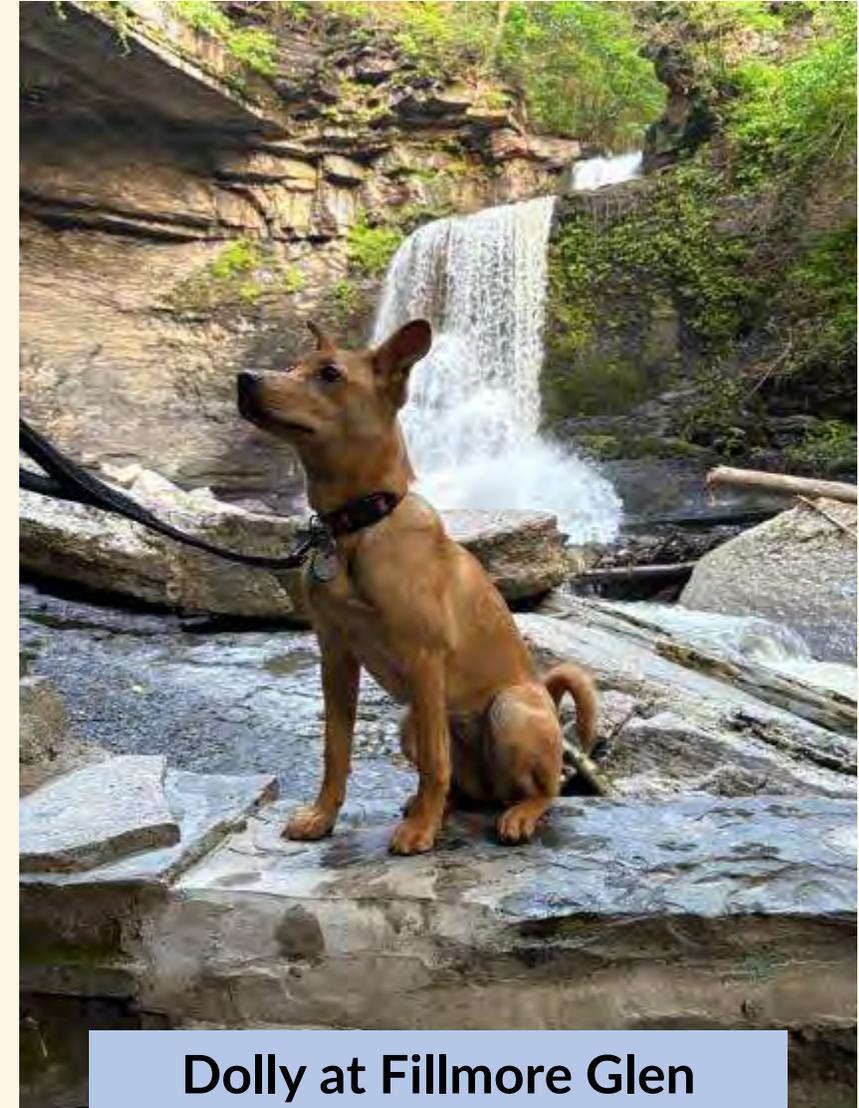
(607) 257-6606

www.communityscience.org

Questions



Kita on Skaneateles Lake



Dolly at Fillmore Glen