Partnering with communities to monitor water quality in Seneca County

Seneca County WQCC Meeting
4/19/23, 1:30 PM

Grascen Shidemantle, Ph.D.
Executive Director

Community Science Institute
Partnering with Communities to Protect Water

Agenda

- Introduction to CSI
- Synoptic Stream and Lake Monitoring Partnership in Seneca County
- Harmful Algal Bloom Monitoring Partnership in Seneca County
- Biomonitoring Partnership in Seneca County
- CSI's Outreach and Education Initiatives
- How to Get Involved

Community Science Institute

Partnering with Communities to Protect Water

Community Science Institute

Nonprofit 501(c)3 Organization

NYSDOH and EPA Certified Lab

Lake & Stream Chemistry

Volunteer Water Monitoring Partnerships

HABs

BMI Monitoring

Public Water Quality Database

Outreach and Education

CSI's Mission

To empower communities to protect water quality through volunteer stream and lake monitoring.

Water Quality Monitoring Partnerships

Four Monitoring Partnerships

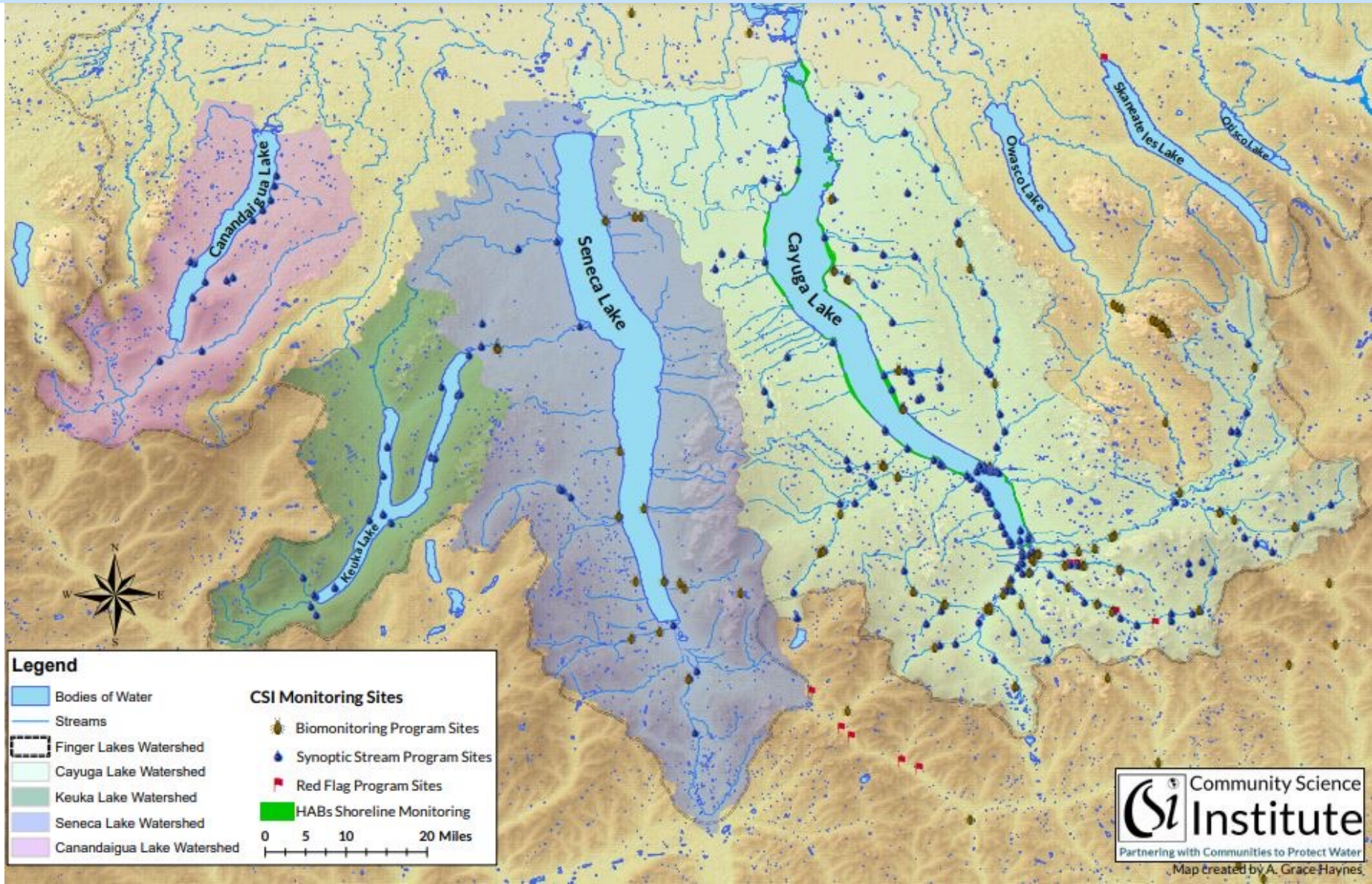
Synoptic Stream and Lake Chemistry Monitoring

Harmful Algal Bloom (HAB) Monitoring

Biomonitoring (Benthic Macroinvertebrate Monitoring)

Red Flag Monthly Stream Monitoring

CSI recruits, trains, and coordinates over 250 volunteers



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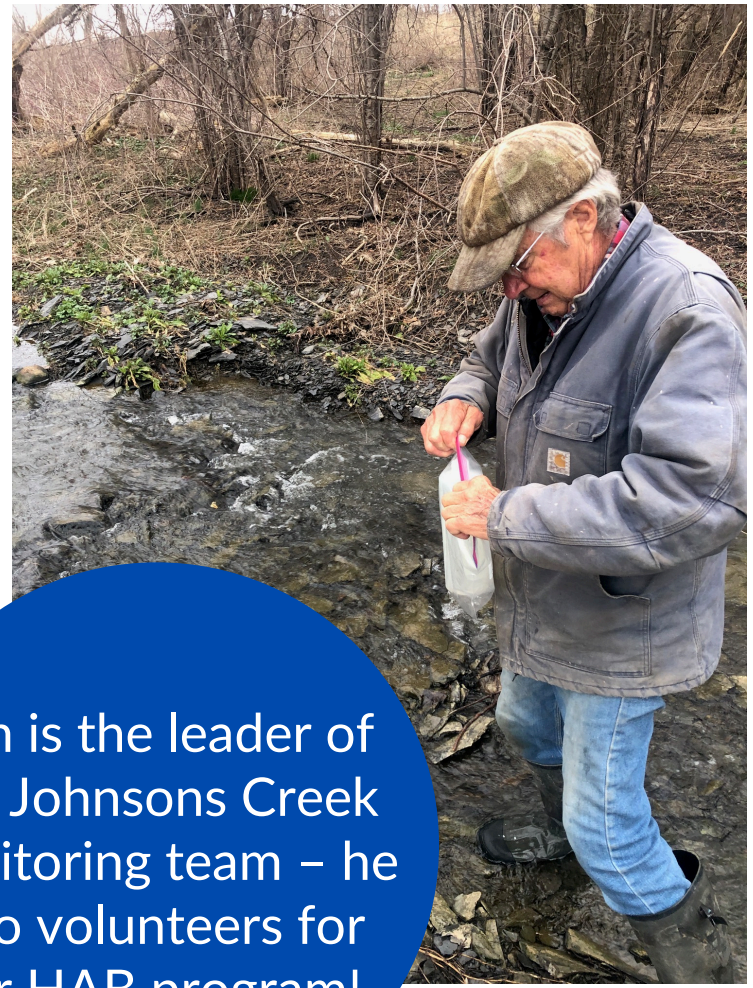
Synoptic Stream and Lake Monitoring Partnership



Ken is the leader of our Johnsons Creek monitoring team – he also volunteers for our HAB program!

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.

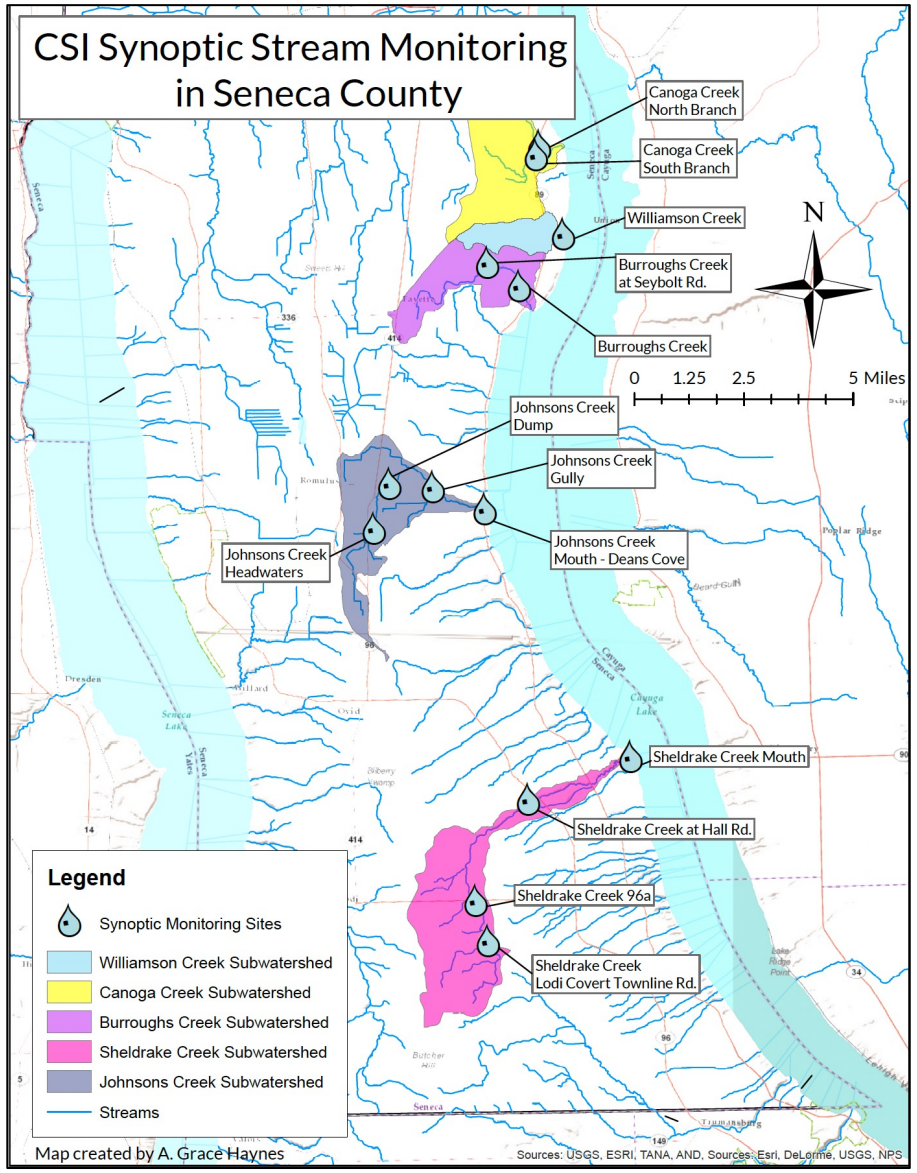
Monitor streams and lakes for:

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

Volunteers collect samples from their designated stream 3-4 times each year

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

Synoptic Stream Monitoring in Seneca County



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

1. **Canoga Creek**
2. **Williamson Creek**
3. **Burroughs Creek**
4. **Johnsons Creek**
5. **Sheldrake Creek**

These volunteers monitor 13 locations in Seneca County

CSI also collaborates with SLPWA to monitor Seneca Lake tributaries like Reeder Creek.

Impact of Synoptic Stream Monitoring: Seneca-Keuka 9E Plan

2013 – SLPWA started collaborating with CSI to monitor water quality in Seneca Lake tributaries.

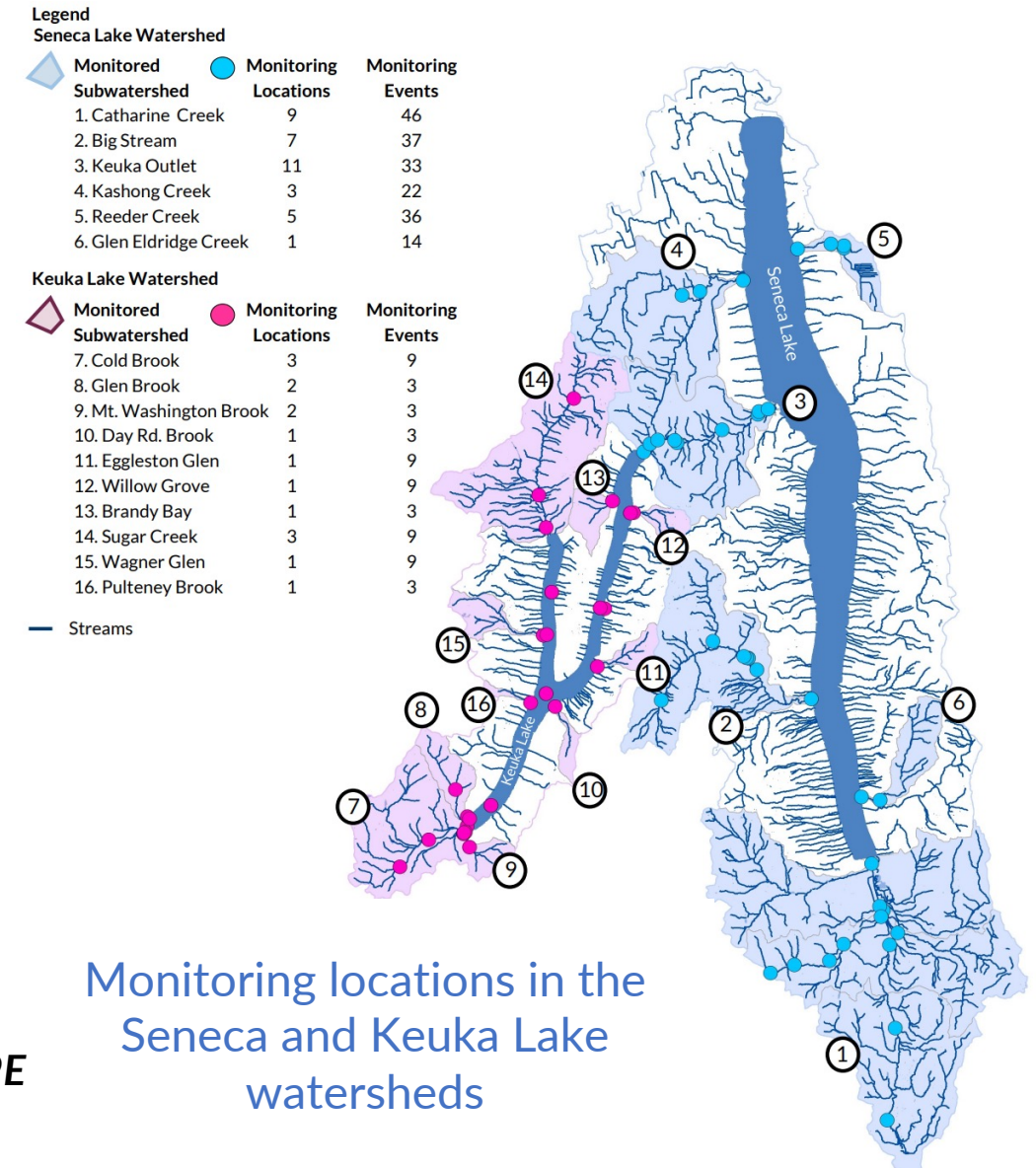
2017 – KLA started collaborating with CSI to monitor water quality in Keuka Lake tributaries.

CSI's role:

- **Provide volunteer training and supplies**
- **Certified water testing**
- **Publish data on public database**

2022 - The samples collected by SLPWA and KLA volunteers and analyzed in CSI's certified lab were foundational to the formation of the now approved Seneca-Keuka 9E Plan.

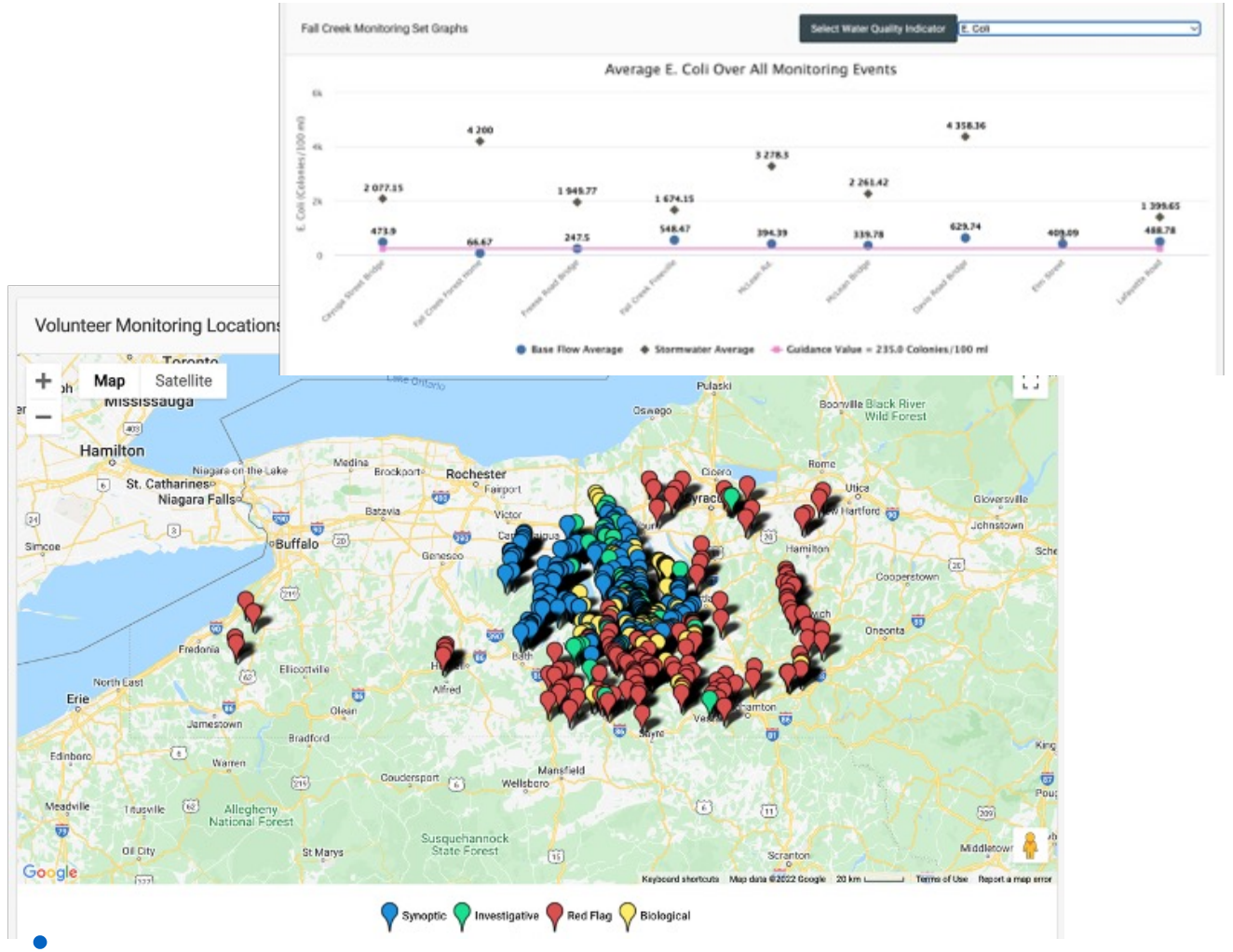
Read more about CSI's role in the Seneca-Keuka 9E plan in our 2021 Water Bulletin Newsletter!



Monitoring locations in the Seneca and Keuka Lake watersheds

Online Public Database – Stream and Lake Chemistry

Our database houses over 100,000 regulatory-quality measurements of water quality!



www.database.communityscience.org

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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.

Test HABs samples to:

- Identify cyanobacteria genera
- Measure chlorophyll a
- Measure cyanotoxins (e.g., microcystin)

HABs Harriers perform weekly shoreline surveys for HABs

Blooms are reported to CSI via our HABs Hotline

Samples are analyzed in our state certified lab

Bloom information is uploaded to our NEW HABs Database

Collaboration with CLWN

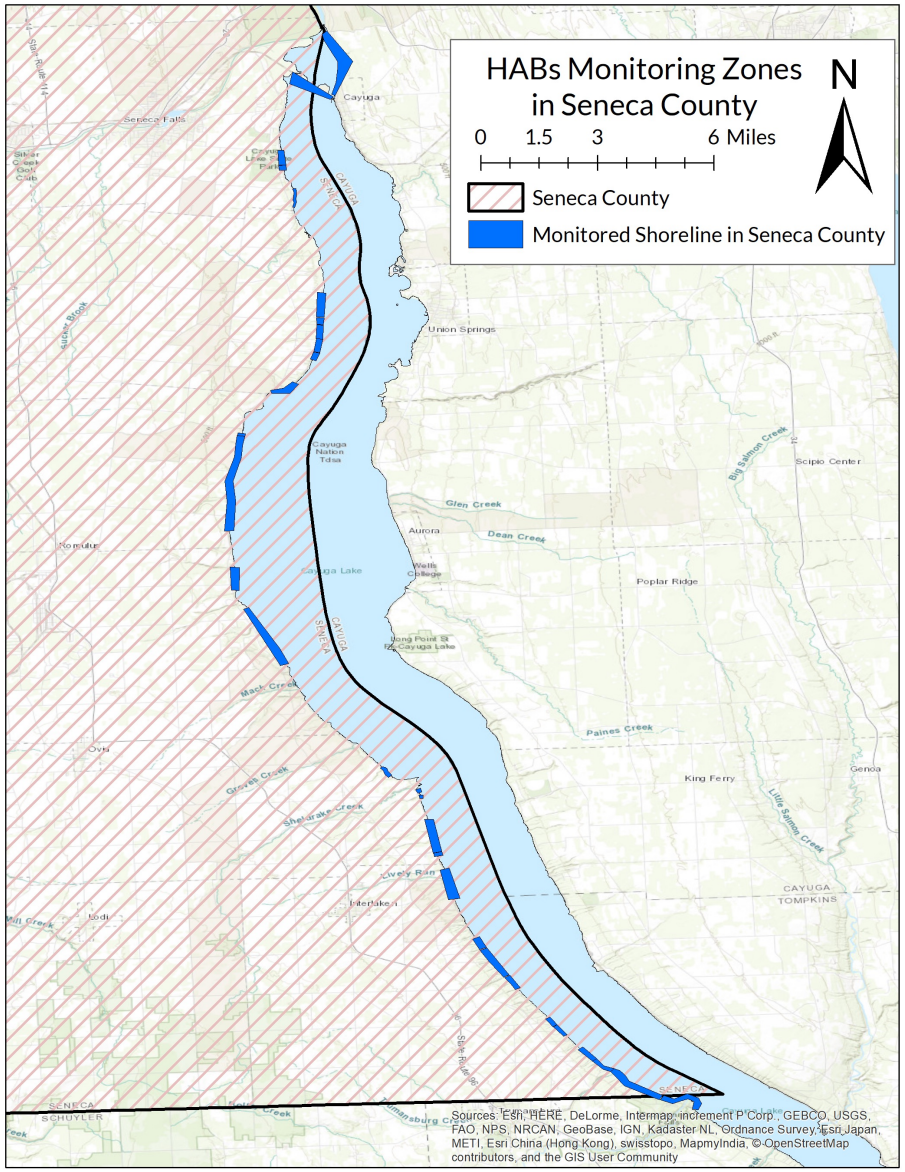
HAB Monitoring in Seneca County

CSI's HABs Harriers monitor 42% of the shoreline in Seneca County

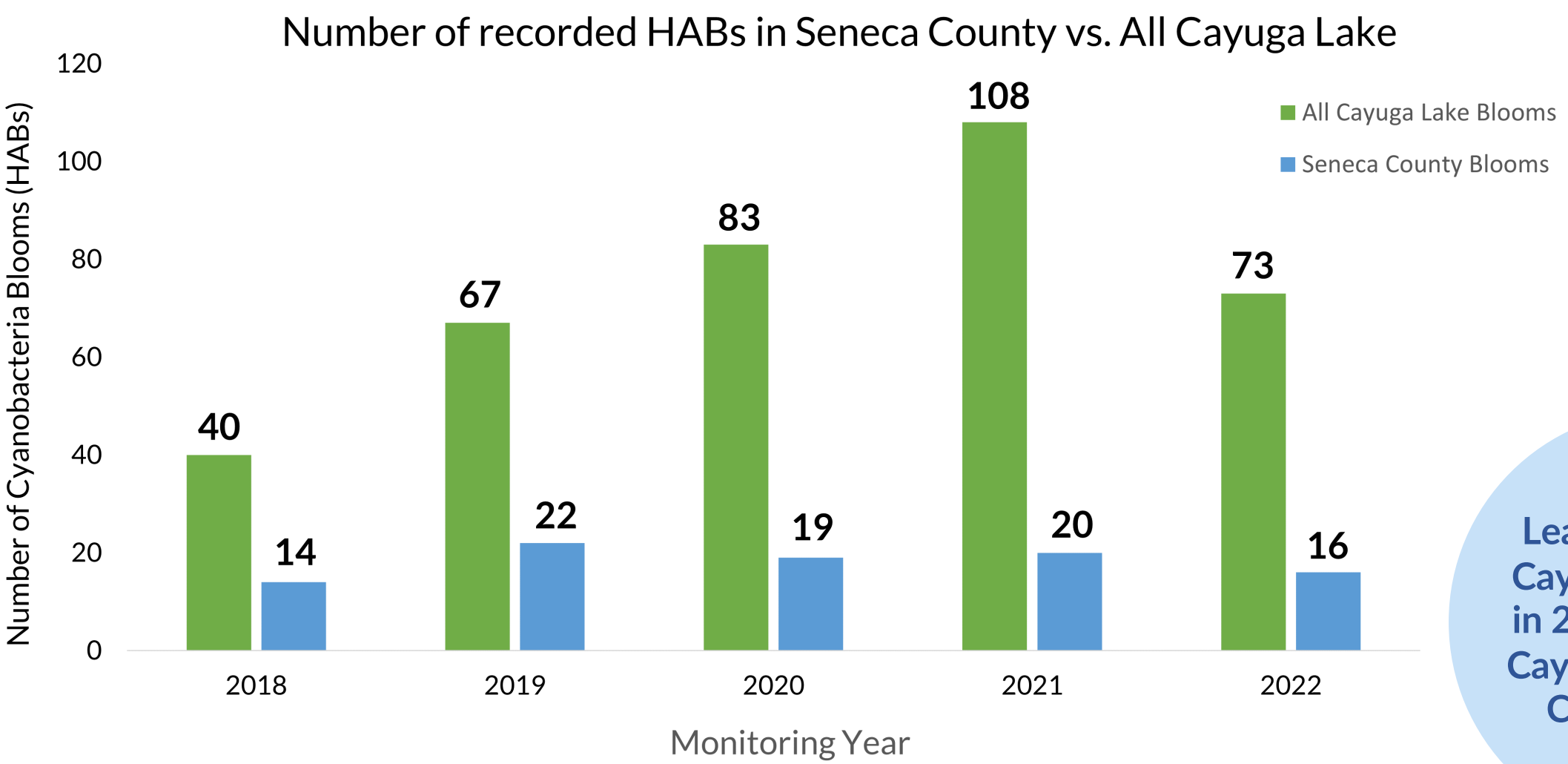
Members of the public can also report HABs to our HABs hotline

Thank you to Seneca County for supporting our HAB monitoring program in Seneca County in 2022 and again in 2023!

We are always looking for more volunteers to fill in the gaps!



HAB Monitoring in Seneca County



Learn more about Cayuga Lake HABs in 2022 at CLWN's Cayuga Lake Spring Conference on May 18.

CSI's Public HABs Database

Landing Page

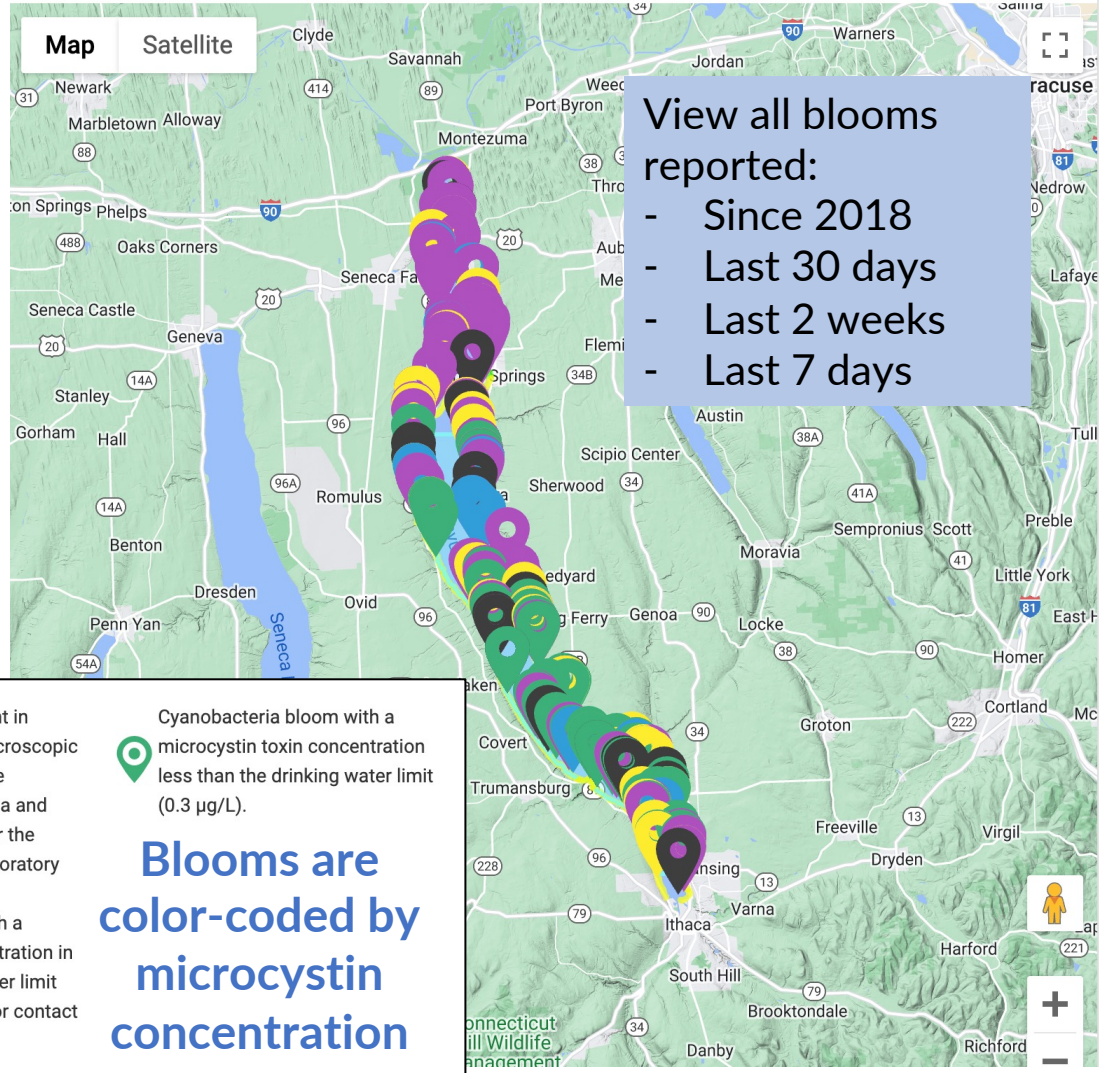
Events

	Bloom Code	Observed	Segment	Extent
1	22-3492-B2	October 05, 2022	Lakeshore Segment Southeast 1: Elmwood Point to Lake Ridge Point	Small Localized (few properties)
2	22-3458-B7	September 30, 2022	Lakeshore Segment Northeast 1: Northern Marshes to Harris Park	Large Localized
3	22-3492-B1	September 30, 2022	Lakeshore Segment Southeast 1: Elmwood Point to Lake Ridge Point	Large Localized
4	22-3414-B1	September 24, 2022	Lakeshore Segment Northeast 10: Long Point State Park to Elmwood Point	Small Localized (few properties)
5	22-3410-B1	September 24, 2022	Lakeshore Segment Northeast 9: Long Point State Park	Widespread
6	22-3478-B2	September 24, 2022	Lakeshore Segment Southeast 1: Elmwood Point to Lake Ridge Point	Large Localized

Table of HAB Events with links to lakeshore segments and blooms

Map defaults to display all HABs since 2018. Use drop-down menu to select recent bloom reports

All Blooms since 2018



378

HABS REPORTED SINCE 2018

Tally of the number of blooms reported since the start of our monitoring program

Suspicious Bloom. Photos indicate that the suspicious bloom is highly likely to be a harmful algal bloom (HAB). No laboratory results are yet available.

Cyanobacteria bloom with a microcystin toxin concentration that exceeds the limit for contact recreation (4.0 µg/ L).

Cyanobacteria are present in bloom (HAB) sample. Microscopic examination indicates the presence of cyanobacteria and therefore the potential for the bloom to be harmful. Laboratory results are pending.

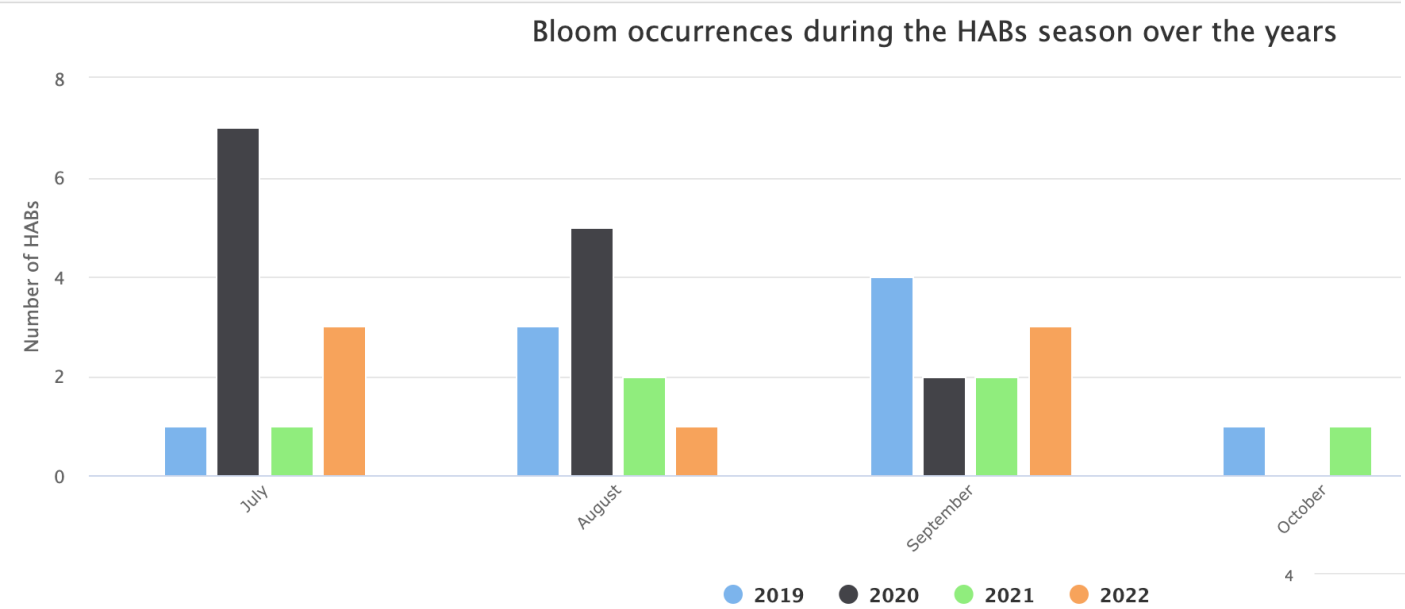
Cyanobacteria bloom with a microcystin toxin concentration in between the drinking water limit (0.3 µg/L) and the limit for contact recreation (4.0 µg/L).

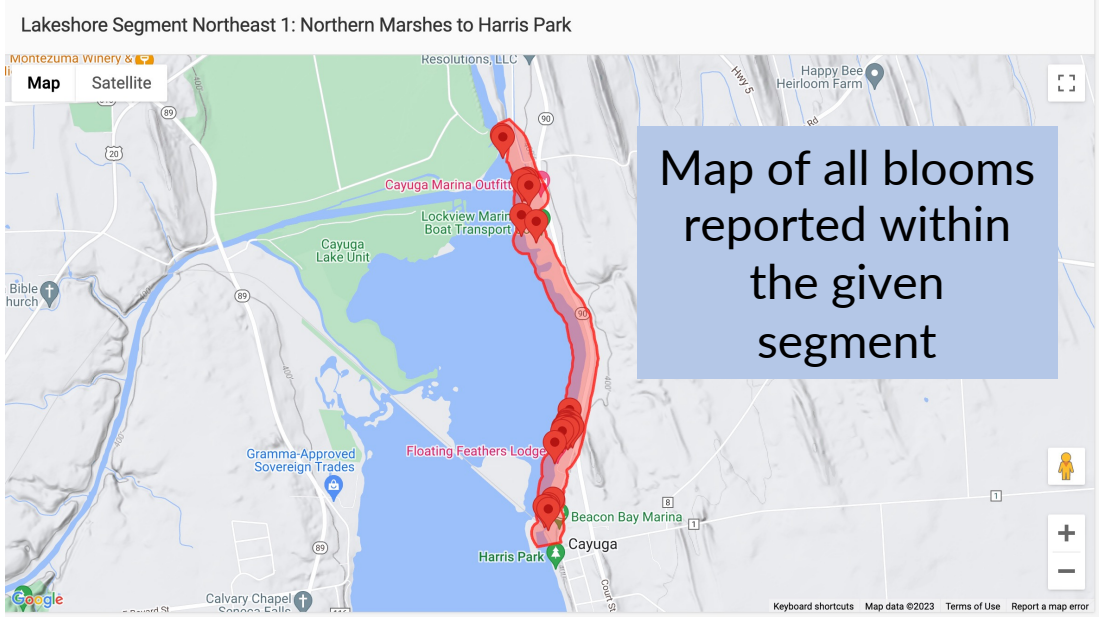
Cyanobacteria bloom with a microcystin toxin concentration less than the drinking water limit (0.3 µg/L).

Blooms are color-coded by microcystin concentration

CSI's Public HABs Database

Segment Page

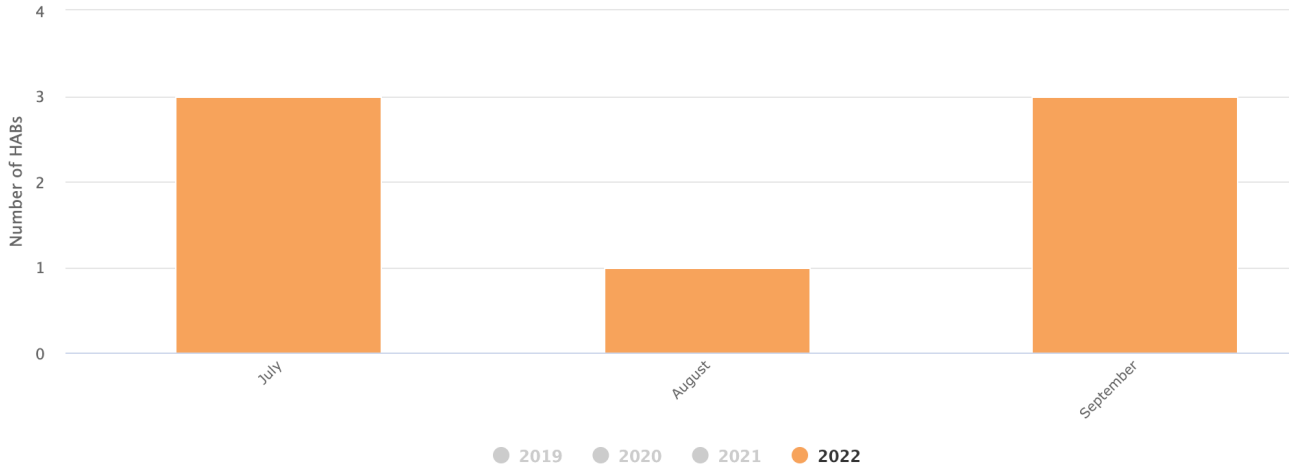




Map of all blooms reported within the given segment

Visualize monthly trends in HABs during each year of our monitoring program

Graphs can be modified to include multiple years or just one year

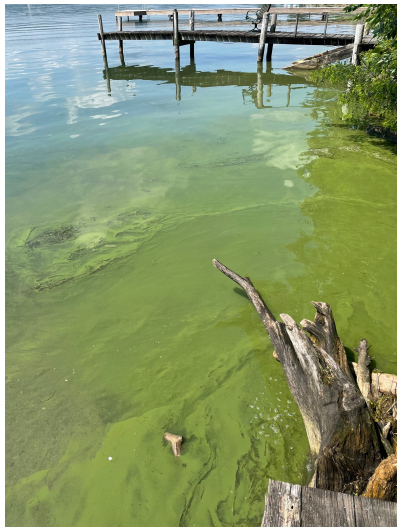


CSI's Public HABs Database

Event Page

Where, When, and What details for a single bloom

Photo of bloom



Harmful Algal Bloom (HAB) Event Information

Bloom Code 22-3473-B2

Where

Water Body	Cayuga Lake
LatLong	42.63014, -76.68778
Segment	Lakeshore Segment Southwest 9: Frontenac Point to Lively Run
County	Seneca
Extent	Large Localized

When

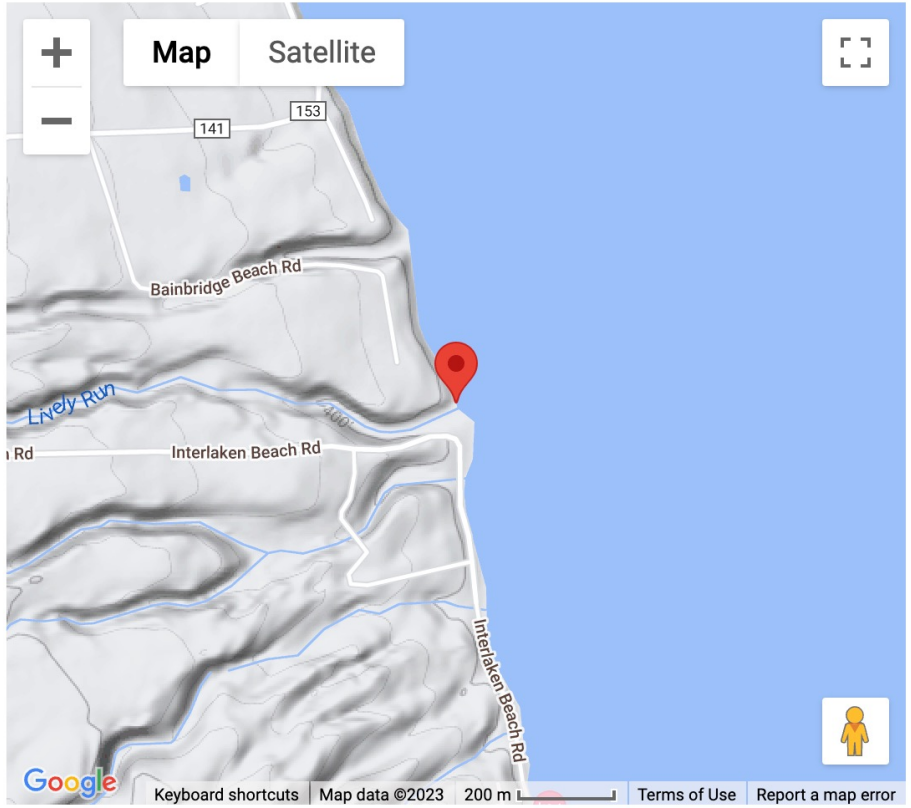
Bloom Reported	September 13, 2022
Bloom Sampled	September 13, 2022
Microscopic Examination	September 14, 2022

What

Bloom Genera [1]

Bloom Chemistry

Map



Bloom Description

shoreline along Interlaken Beach Rd, just east of Shepherdess Cellars

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Biomonitoring Partnership

Purpose: Determine the ecological and long term health of streams while educating community members about local aquatic biodiversity

Collect and identify samples of benthic macroinvertebrates (BMI) to calculate:

- Total Family Richness
- EPT Richness
  - Ephemeroptera = mayflies, Plecoptera = stoneflies, Trichoptera = caddisflies
- Family Biotic Index
- Percent Model Affinity
- Biological Assessment Profile

non-impacted
slightly impacted
moderately impacted
severely impacted

Volunteers collect samples in the field during the summer.

They sort and identify organisms during Open Lab Nights in the winter.

Biological Monitoring Results – Database in progress!

Biomonitoring in Seneca County

We are adding a biomonitoring location on Canoga Creek this summer!

Join us to learn about the fascinating aquatic biodiversity in our local streams!

We will also hold an Open Lab Night in Fayette this Winter.

Thank you to the Town of Fayette for generously sponsoring this monitoring!

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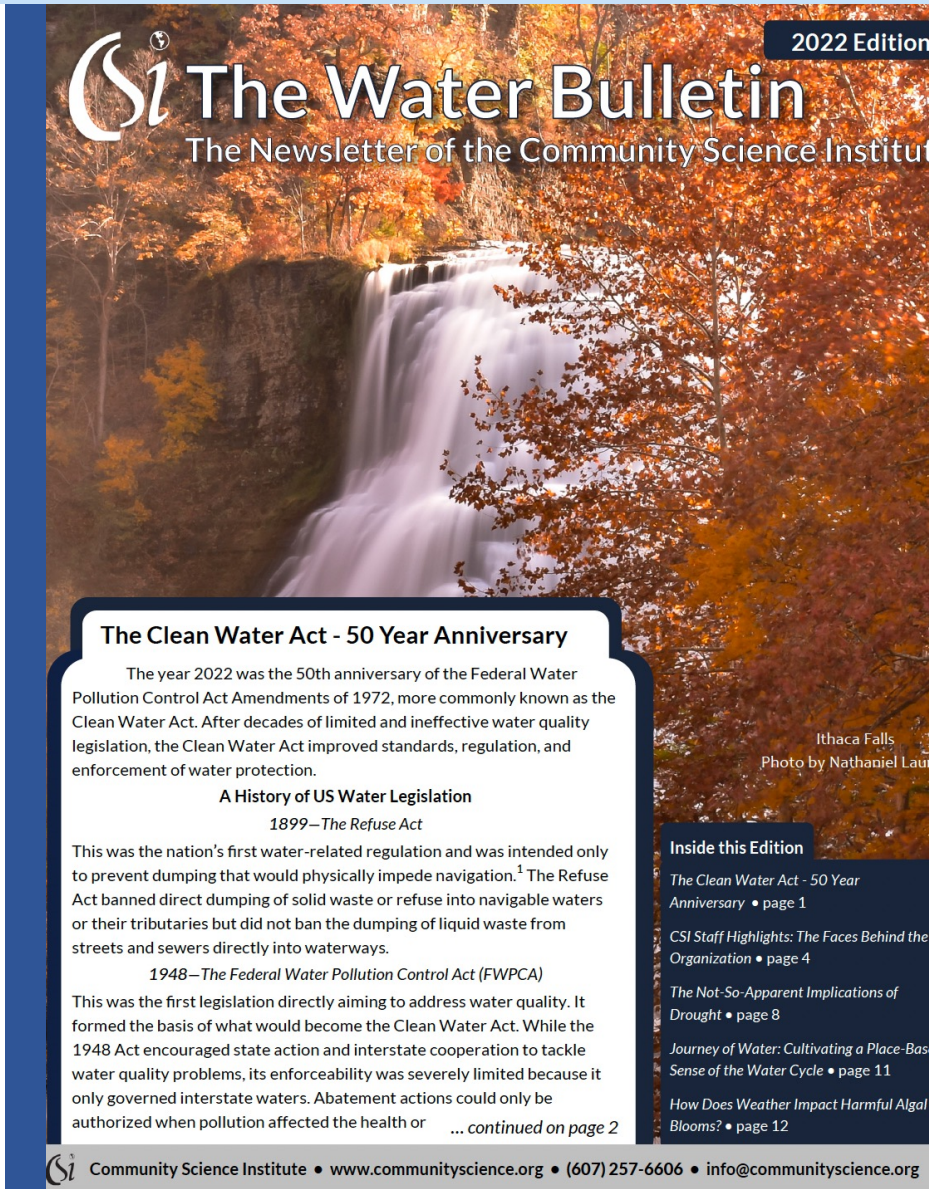
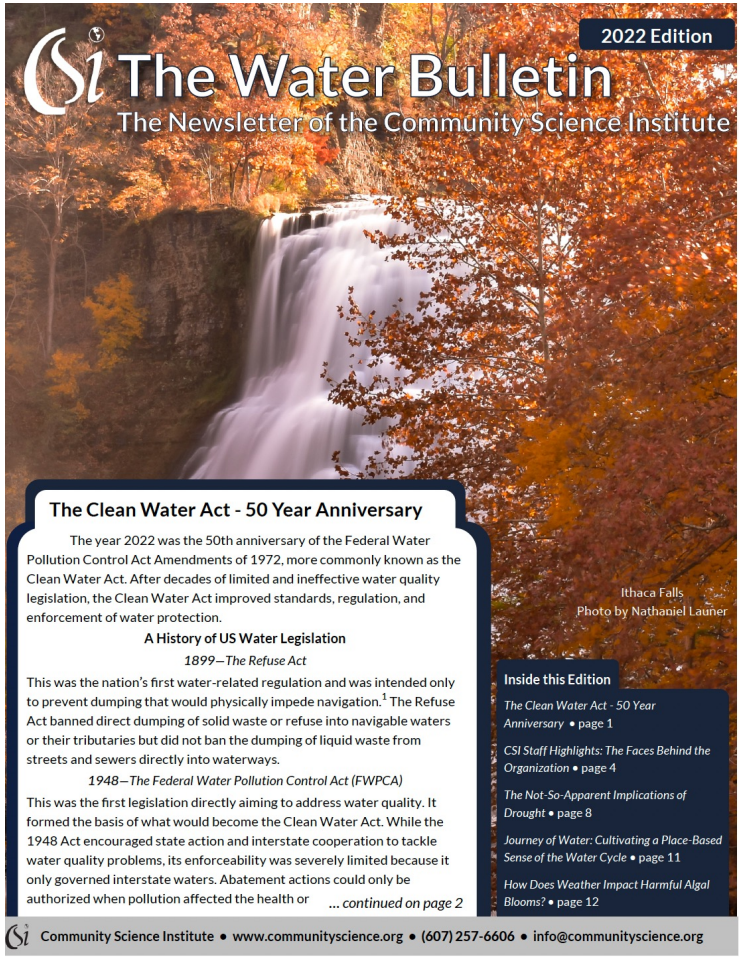
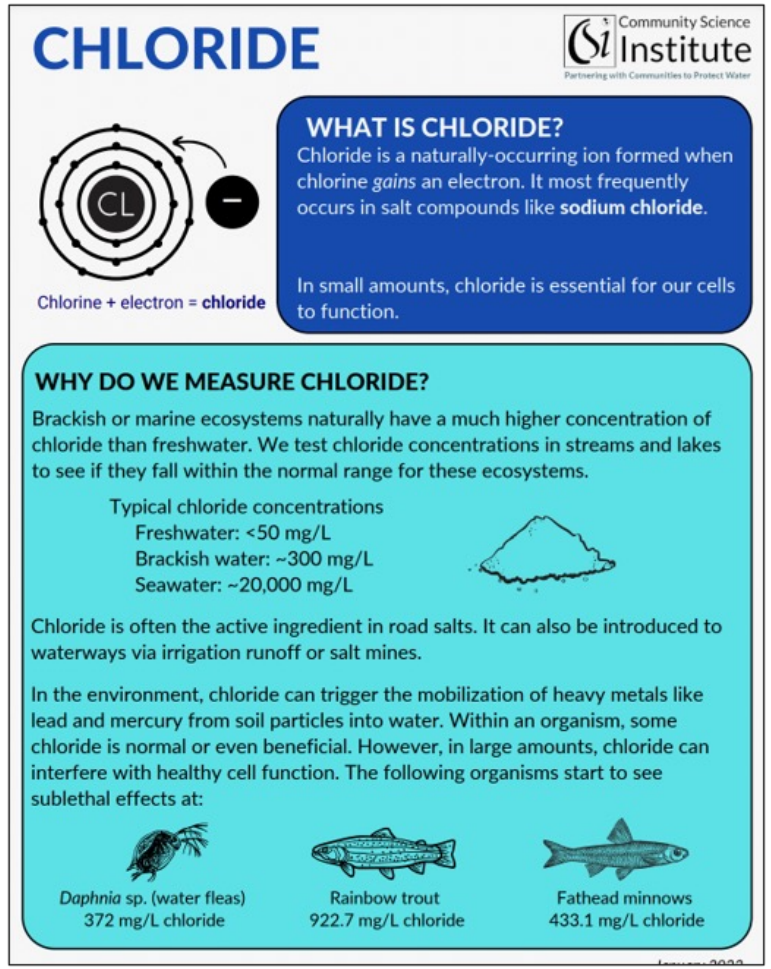


Outreach and Education

4-H2O Summer Youth Education Program



Annual Water Bulletin Newsletter



Free Learning Materials

Outreach and Education

CSI's Outreach and Education Committee provides an opportunity for community members to get involved in educating their friends and neighbors about water quality.

Meeting are held via Zoom once per month

Jody, an educator for over 40 years, serves on CSI's outreach and education committee

Jody and her husband, Griff, also monitor Sheldrake Creek and are HABs Harriers!

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How to get involved

Synoptic Stream and Lake Monitoring

Email Grascen at gshidemantle@communityscience.org

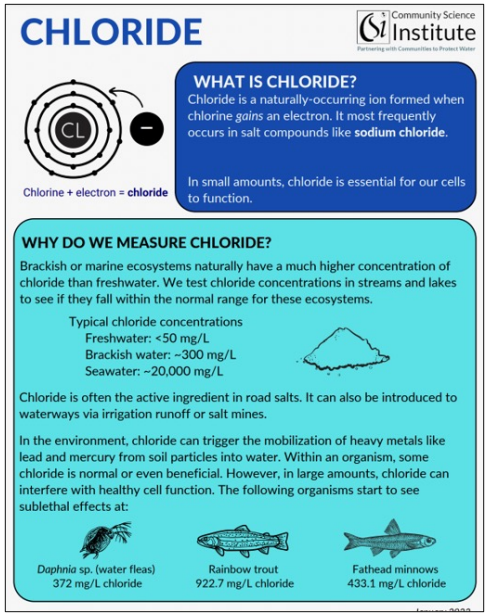
HAB Monitoring

Email Grace at aghaynes@communityscience.org

Biomonitoring

Email Adrianna at Adrianna@communityscience.org

Outreach and Education Committee



Email Grace at aghaynes@communityscience.org

Sign up for our email list for monthly updates!

Thank you!

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