

Community Science Institute
INVITES YOU TO:



The 
JOURNEY 

 of Water

 celebration! 



Welcome!



Alyssa Johnson

Outreach & Programs Coordinator



Adrianna Hirtler

Biomonitoring Coordinator



Dan Pascucci

Water Quality Scientist

Agenda


- Community Science Institute: who we are and what we do!
- 2024 Journey of Water: a walk down memory lane!
- 6/30/24 Water Quality Cruise: THE RESULTS
- Biomonitoring: THE RESULTS
- Kits for Kids!
- Journey of Water Passport Completion

Community Science Institute



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

CSI offers three types of programming:

A light blue water drop graphic containing the text 'Fee-for-Service Water Testing'.

Fee-for-Service Water Testing

A light blue water drop graphic containing the text 'Volunteer Water Monitoring Partnerships'.

Volunteer Water Monitoring Partnerships

A light blue water drop graphic containing the text 'Outreach and Education'.

Outreach and Education

A decorative graphic at the bottom of the slide consisting of a dark blue base with a light blue wavy splash above it.

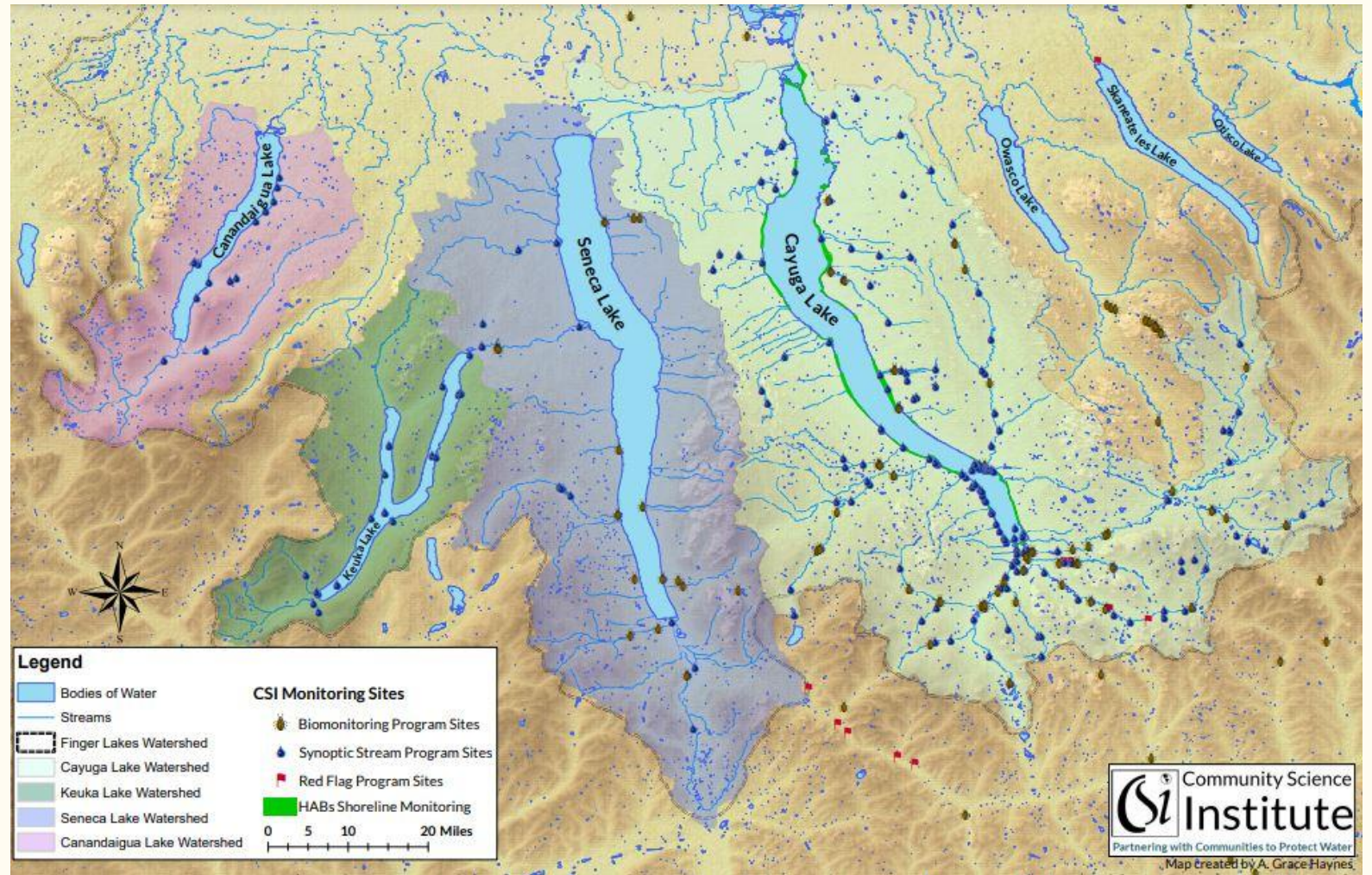
CSI's Mission

To foster and support environmental monitoring in partnership with community-based volunteer groups in order to better understand our shared natural resources and how to manage them for long-term sustainability and protection.

CSI's Water Monitoring Programs

1. Synoptic Stream and Lake Monitoring
2. Red Flag Monitoring
3. Biomonitoring
4. Harmful Algal Bloom (HAB) Monitoring

CSI recruits, trains,
and coordinates over
250 volunteers!



Community Science
Institute
Partnering with Communities to Protect Water



Wild Wetlands, Fantastic Filters



6/15/24



Montezuma National Wildlife Refuge



Water Quality Monitoring Cruise



6/30/24



Cayuga Lake, Ithaca Farmers' Market



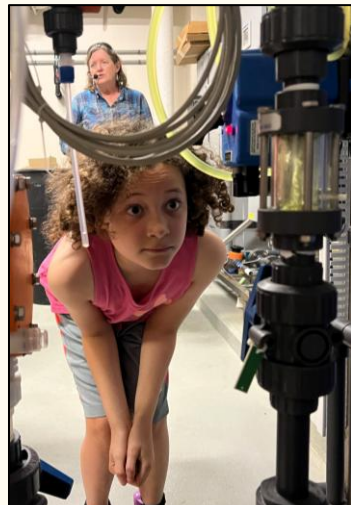
From Creek to Faucet



7/13/24



City of Ithaca Drinking Water Plant



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Stream Biomonitoring Fun!



7/16/24



Six Mile Creek @ Plain Street



Water Quality Monitoring Cruise



7/31/24



Cayuga Lake, Allen H. Treman State Marine Park



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From Lake to Faucet



8/6/24



Southern Cayuga Lake Intermunicipal Water Commission @ Bolton Point



Down the Drain and Into the Lake!



8/8/24



Ithaca Area Wastewater Treatment Facility



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Stream Biomonitoring Fun!

8/14/24 Enfield & Fishkill Creeks, Robert H. Treman State Park



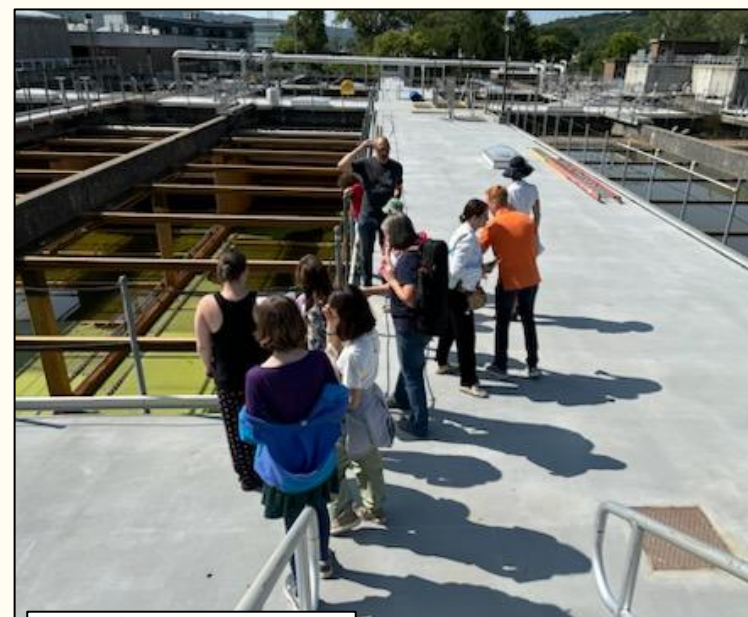
Down the Drain and Into the Lake!



8/23/24



Ithaca Area Wastewater Treatment Facility



Stream Biomonitoring Fun!



9/14/24



Buttermilk Creek, Buttermilk Falls State Park



Water Quality Monitoring Cruise



9/15/24



Cayuga Lake, Ithaca Farmers' Market



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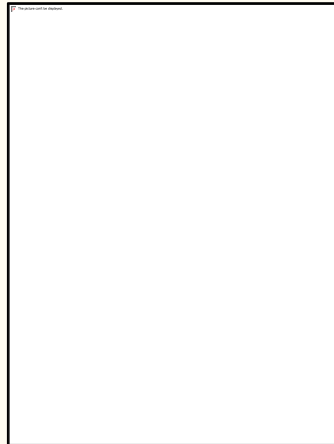
Wild Wetlands, Fantastic Filters



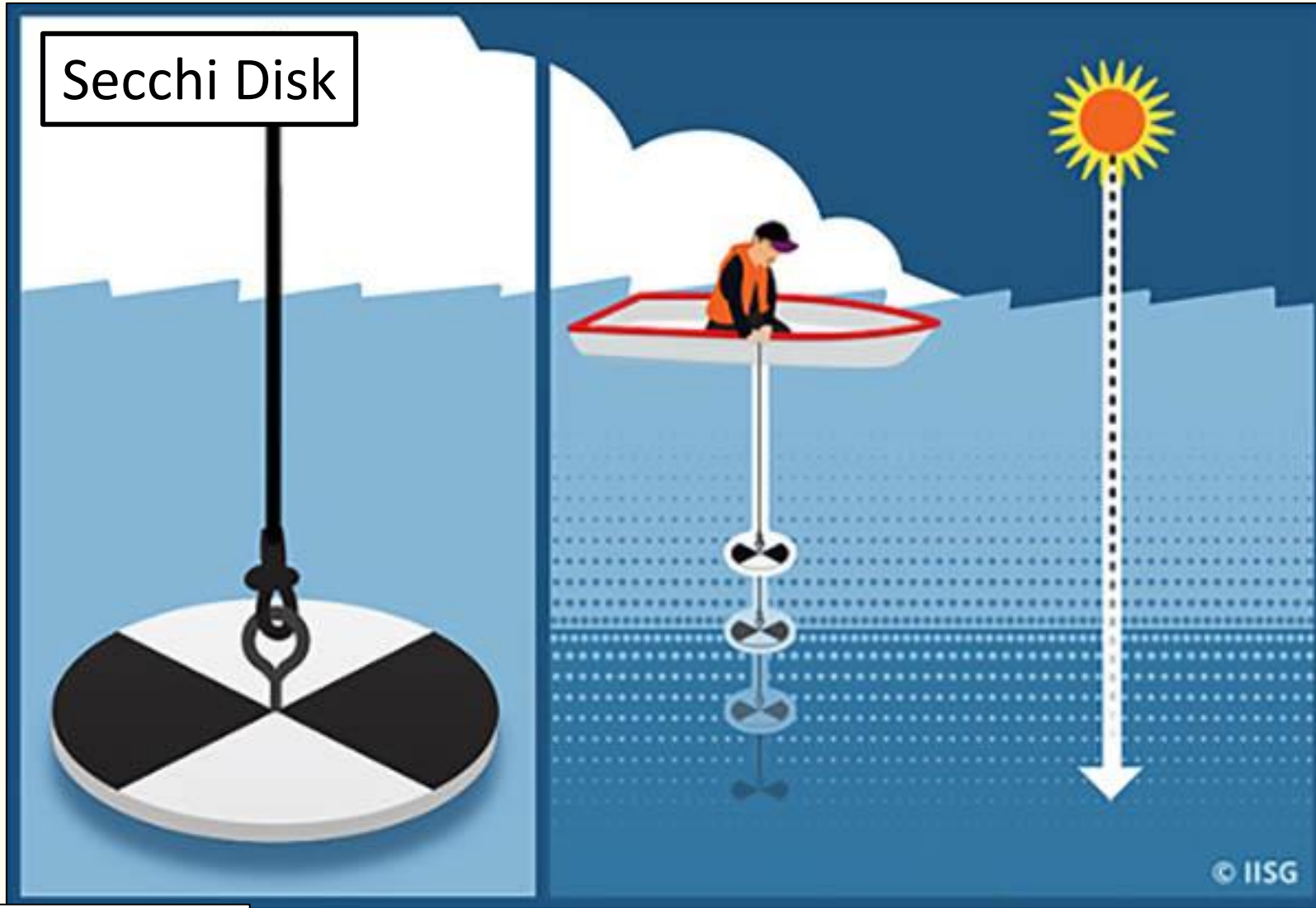
9/28/24



Lake Treman, Upper Buttermilk Falls State Park



Water Quality Monitoring Cruises: Water Sample Collection



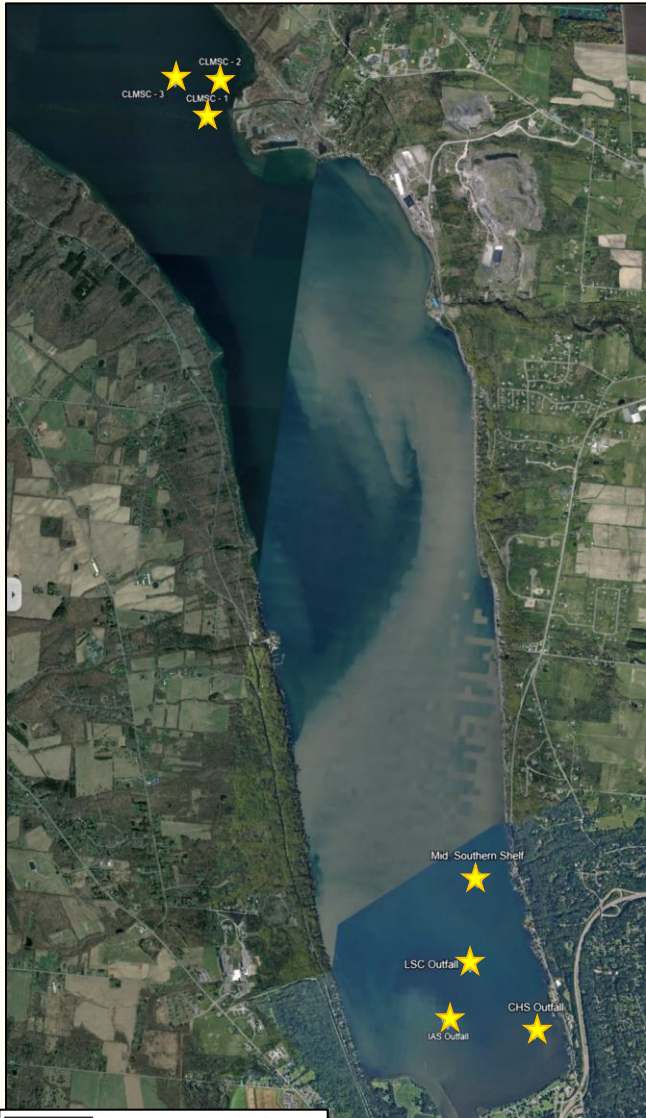
Water Quality Monitoring Cruises: Water Sample Collection



Van Dorn
Sampler

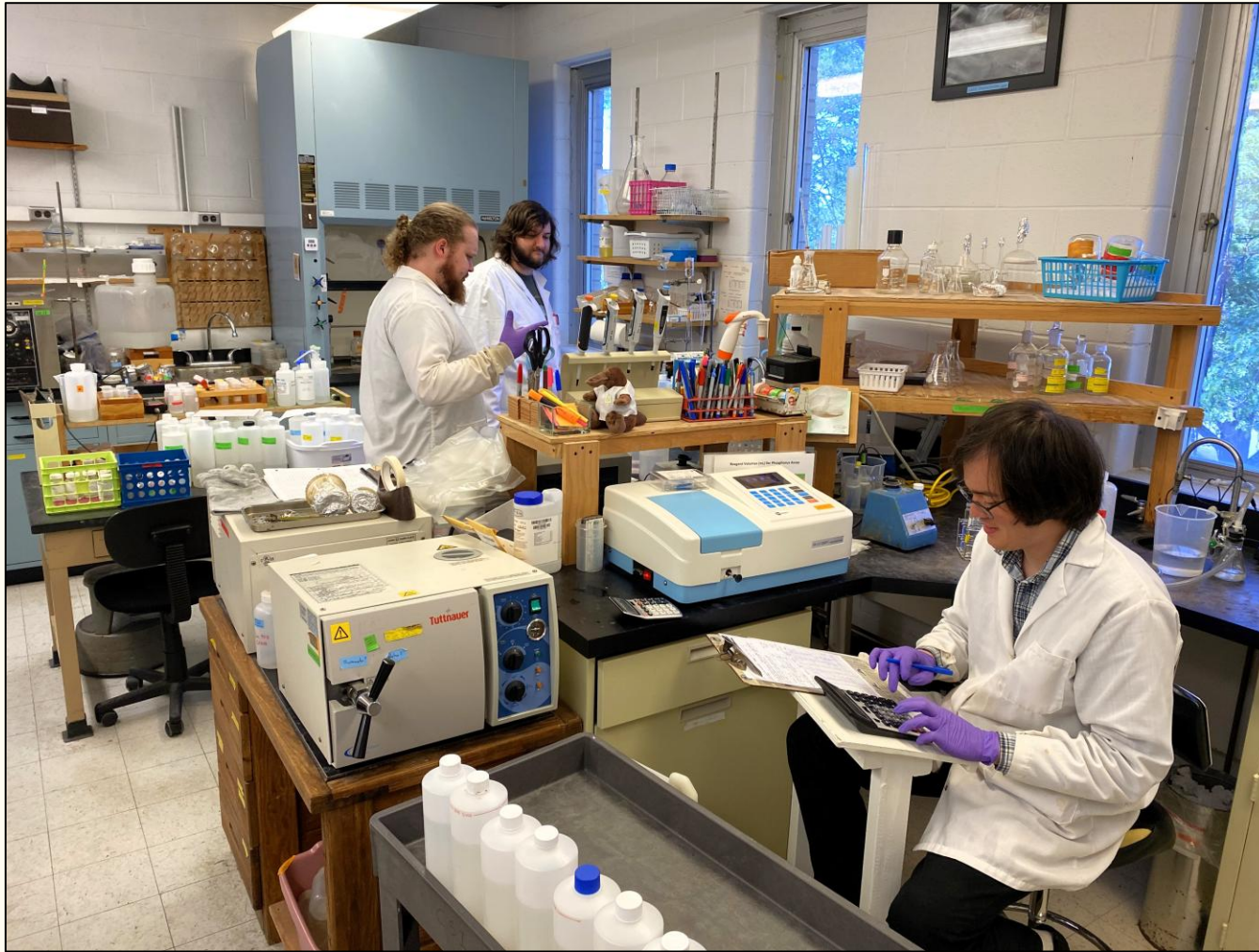


Water Quality Monitoring Cruises: Water Sample Collection



Site #1	Site #2	Site #3	Site #4	Site #5	Site #6	Site #7	Site #8	Site #9
Cayuga Lake Mouth Salmon Creek	Cayuga Lake Mouth Salmon Creek	Cayuga Lake Mouth Salmon Creek	Cayuga Lake Mouth Salmon Creek	Cayuga Lake Mouth Salmon Creek	Middle of Shallow Southern Shelf	Lake Source Cooling Outfall	Ithaca Sewage Outfall	Cayuga Heights Sewage Outfall

Water Quality Monitoring Cruises: Water Sample Collection



What are we testing the water samples for?

1. *E. coli* numeration
2. pH
3. Alkalinity
4. Total Hardness
5. Dissolved Oxygen
6. Total chlorophyll-a
7. Soluble Reactive Phosphorus
8. Total Phosphorus
9. Total Kjeldahl Nitrogen
10. Nitrate + Nitrite
11. Chloride
12. Conductivity
13. Turbidity



Water Quality Monitoring Cruises: *E. coli*



1. **What is *E. coli*?** *E. coli* are germs called bacteria.
2. **Where does *E. coli* come from?** Primarily intestines of warm-blooded animals.
3. **Is *E. coli* bad for you?** Some *E. coli* can make people sick (there are 6 different kinds of *E. coli*).
4. **If *E. coli* is already living in our intestines, how does it make us sick?** People can get infected after swallowing *E. coli* through contaminated food or water.

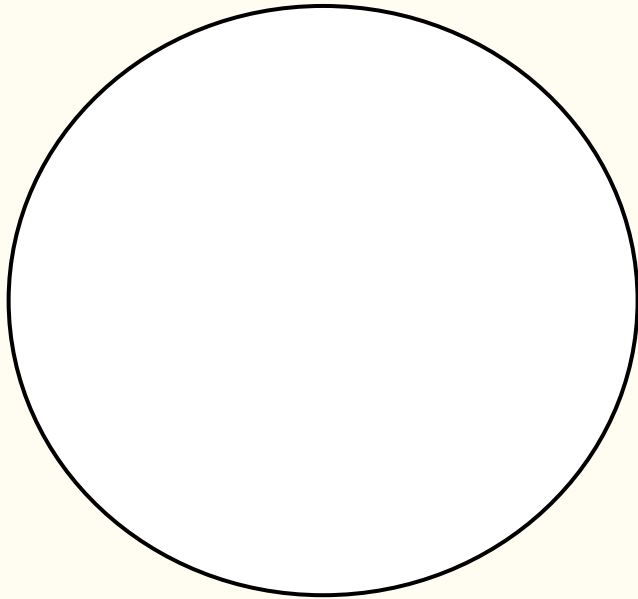
Water Quality Monitoring Cruises: *E. coli*



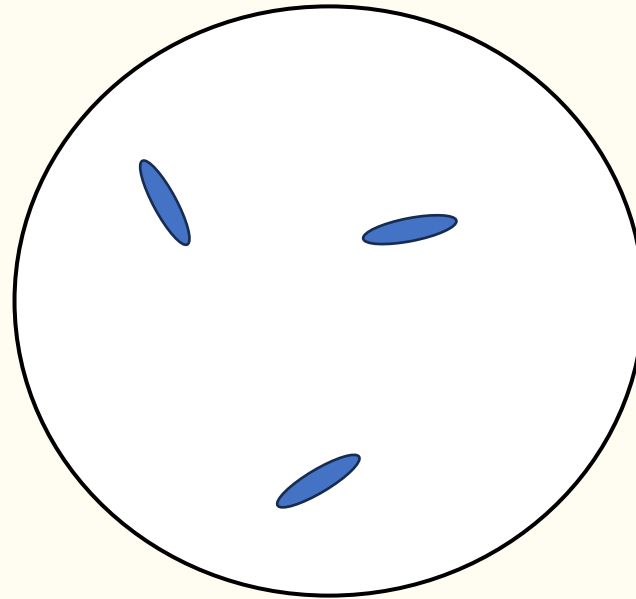
Water Quality Monitoring Cruises: *E. coli* numeration

Site	Value	Unit	Remarks	Test Location
Cayuga Lake Mouth Salmon Creek	5	Colonies/100 ml	non-detect	Lab
Cayuga Lake North of Myers Point (SD)	5	Colonies/100 ml	non-detect	Lab
Cayuga Lake North of Myers Point (50m)	5	Colonies/100 ml	non-detect	Lab
Middle of Lake Opposite Mouth of Salmon Creek (SD)	5	Colonies/100 ml	non-detect	Lab
Middle of Lake Opposite Mouth of Salmon Creek (50m)	5	Colonies/100 ml	non-detect	Lab
Middle of Shallow Southern Shelf	30	Colonies/100 ml		Lab
Lake Source Cooling Outfall	190	Colonies/100 ml		Lab
Ithaca Sewage Outfall	60	Colonies/100 ml		Lab
Cayuga Heights Sewage Outfall	60	Colonies/100 ml		Lab

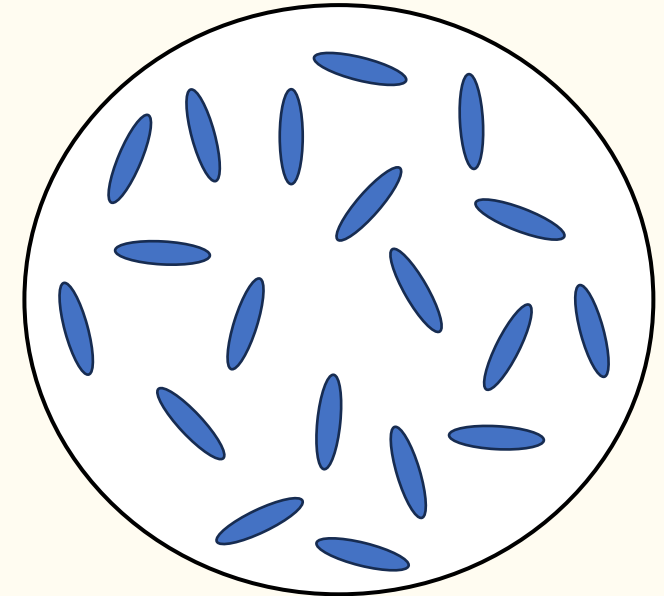
Water Quality Monitoring Cruises: *E. coli* numeration



0 colonies x 10ml =
<10 colonies/100 ml

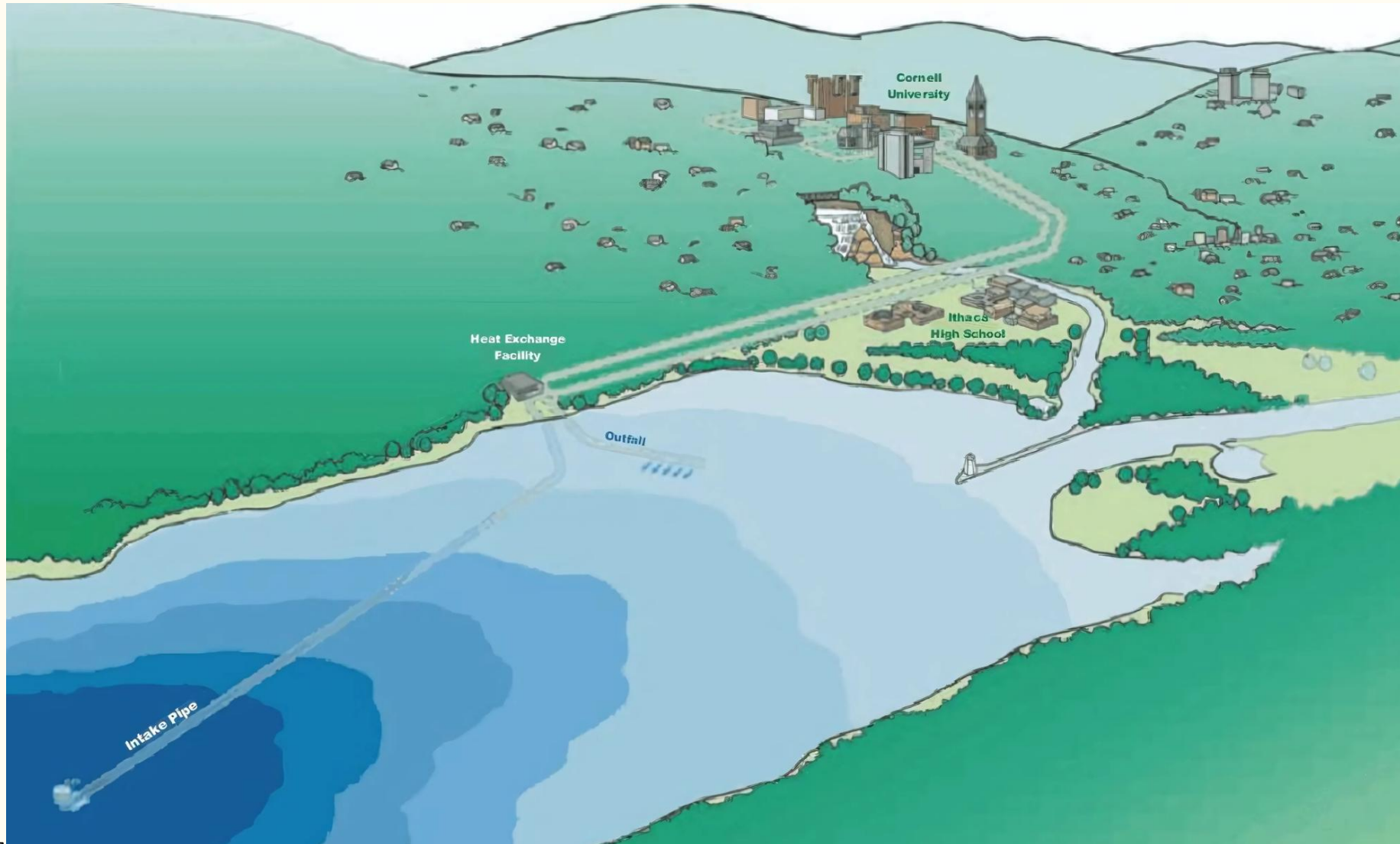


3 colonies x 10ml =
30 colonies/100 ml



19 colonies x 10ml =
190 colonies/100 ml

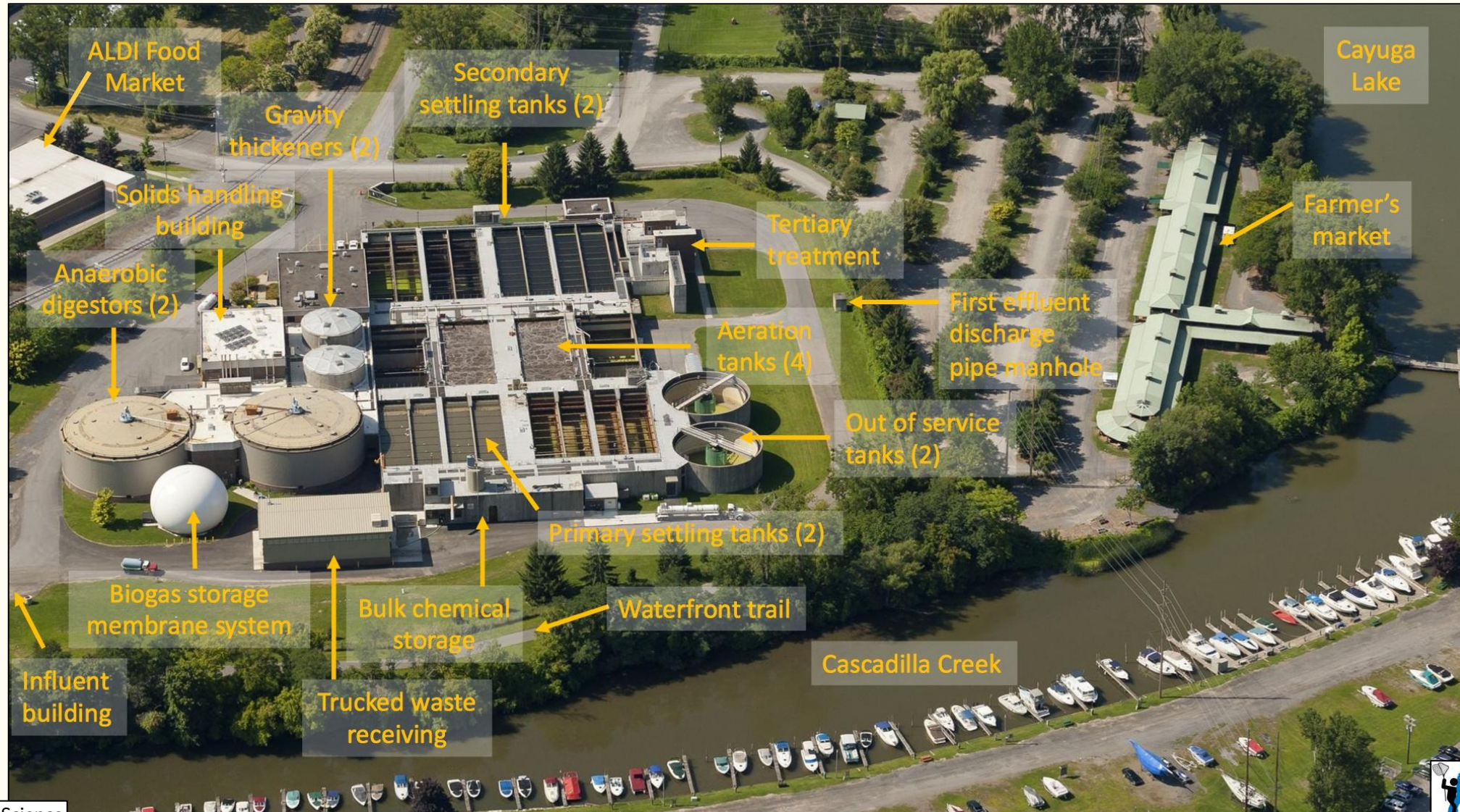
Water Quality Monitoring Cruises: Lake Source Cooling Outfall



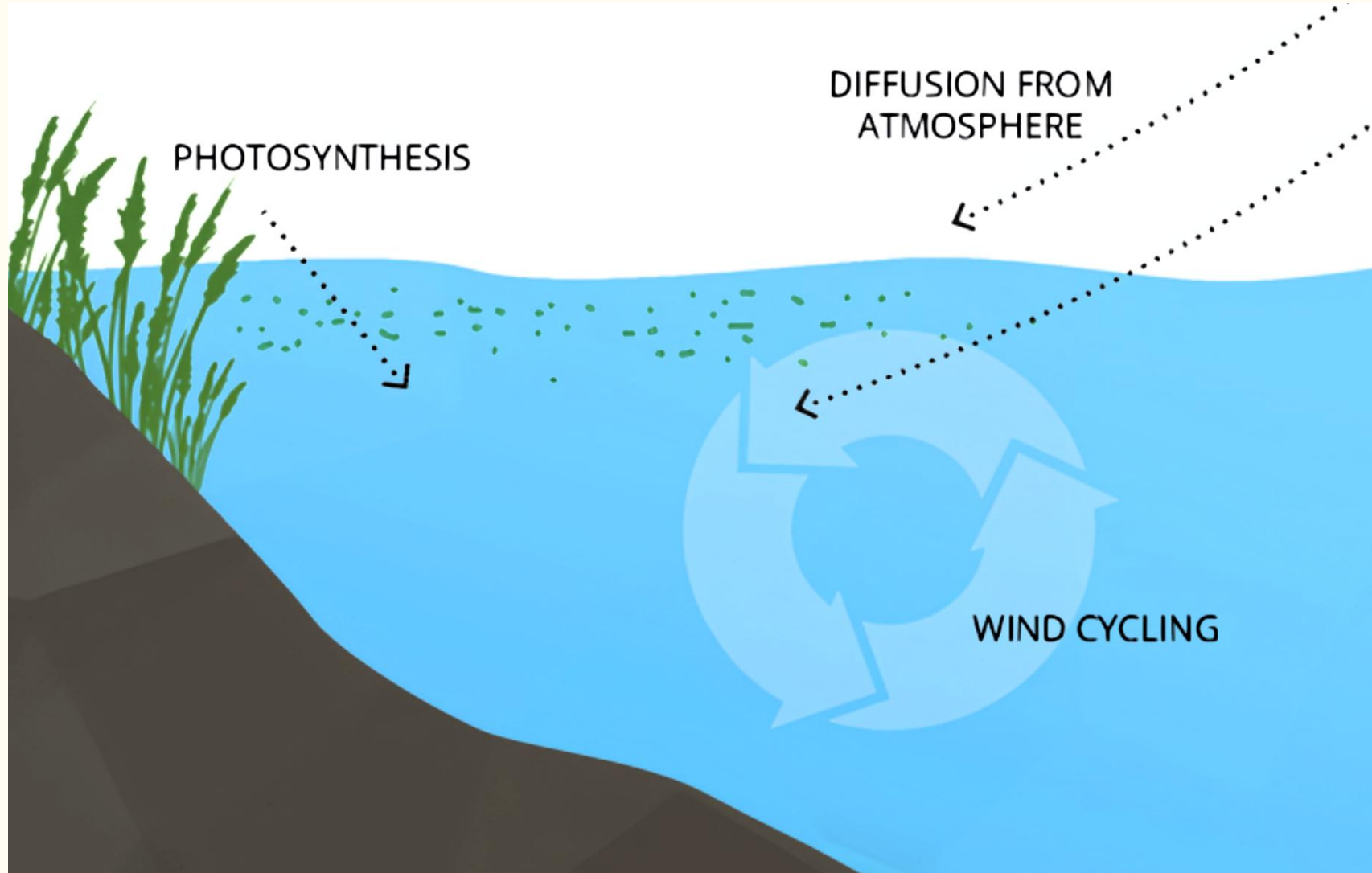
Water Quality Monitoring Cruises: Cayuga Heights Sewage Outfall



Water Quality Monitoring Cruises: Ithaca Area WW Treatment Outfall

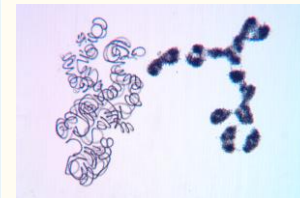
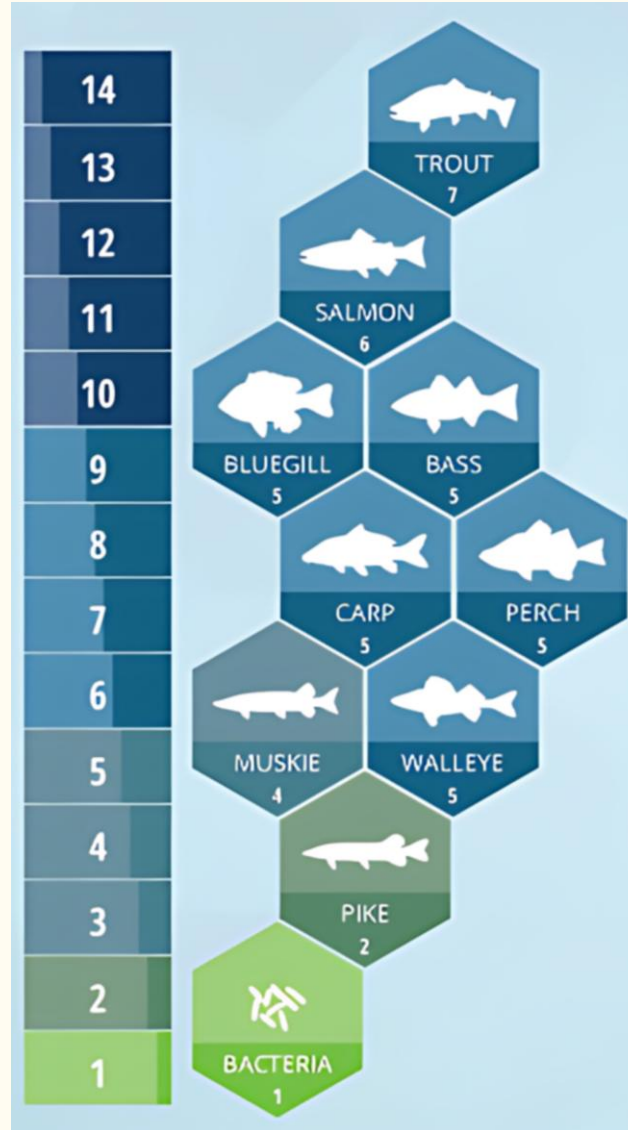


Water Quality Monitoring Cruises: Dissolved Oxygen



Water Quality Monitoring Cruises: Dissolved Oxygen

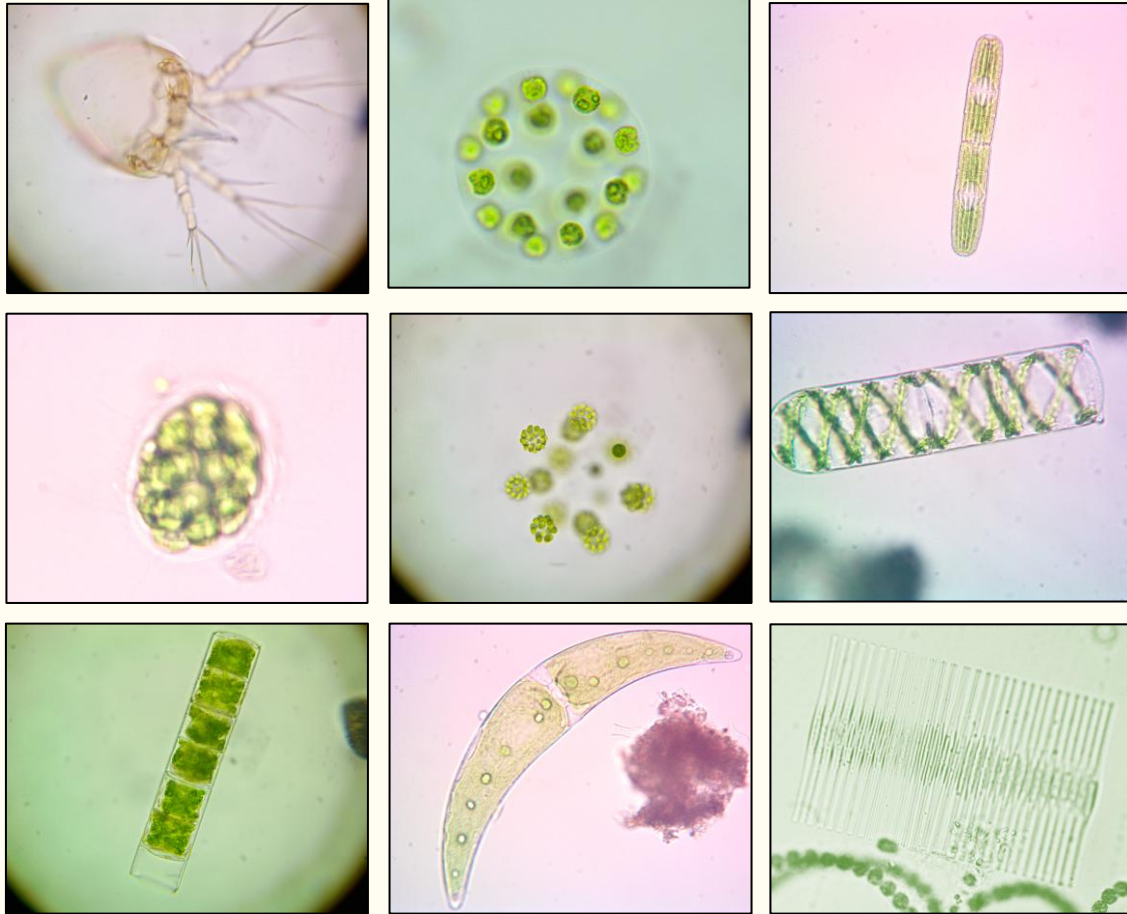
Oxygen requirements
mg/L



Water Quality Monitoring Cruises: Dissolved Oxygen

Site	Value	Unit	Remarks	Test Location
Cayuga Lake Mouth Salmon Creek	?	mg/L	All DO samples contained small air bubbles. According to DP, all were collected and fixed w/o headspace. Data discarded.	Field
Cayuga Lake North of Myers Point (SD)	?	mg/L		Field
Cayuga Lake North of Myers Point (50m)	?	mg/L		Field
Middle of Lake Opposite Mouth of Salmon Creek (SD)	?	mg/L		Field
Middle of Lake Opposite Mouth of Salmon Creek (50m)	?	mg/L		Field
Middle of Shallow Southern Shelf	?	mg/L		Field
Lake Source Cooling Outfall	?	mg/L		Field
Ithaca Sewage Outfall	?	mg/L		Field
Cayuga Heights Sewage Outfall	?	mg/L		Field

Water Quality Monitoring Cruises: Total chlorophyll-a

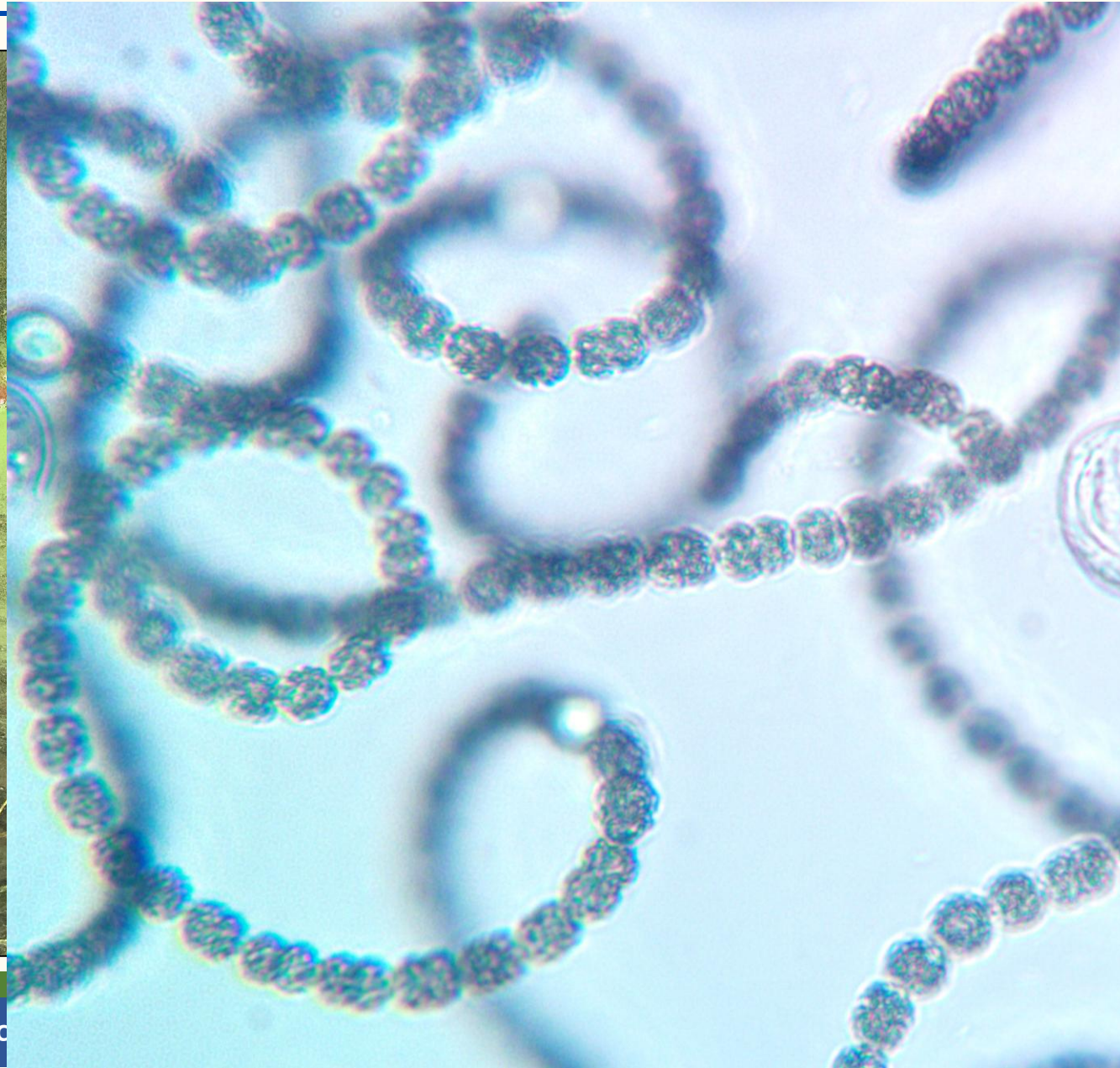


Total chlorophyll-a is a common way to measure the biomass of phytoplankton, which are marine organisms that use chlorophyll a as their primary photosynthetic pigment.

Water Quality Monitoring Cruises: Total chlorophyll-a

Site	Value	Unit	Remarks	Test Location
Cayuga Lake Mouth Salmon Creek	7.11	ug/L		Lab
Cayuga Lake North of Myers Point (SD)	5.57	ug/L		Lab
Cayuga Lake North of Myers Point (50m)	0.66	ug/L		Lab
Middle of Lake Opposite Mouth of Salmon Creek (SD)	5.72	ug/L		Lab
Middle of Lake Opposite Mouth of Salmon Creek (50m)	1.03	ug/L		Lab
Middle of Shallow Southern Shelf	6.09	ug/L		Lab
Lake Source Cooling Outfall	7.7	ug/L		Lab
Ithaca Sewage Outfall	3.96	ug/L		Lab
Cayuga Heights Sewage Outfall	5.13	ug/L		Lab

Harmful Algal Blooms: Cyanobacteria



Total chlorophyll-a comparisons: lake samples vs. HABs

Site	Value	Zone	Value
Cayuga Lake Mouth Salmon Creek	7.11 ug/L	24-3459-B1	10,400 ug/L
Cayuga Lake North of Myers Point (SD)	5.57 ug/L	24-3479-B1	85.9 ug/L
Cayuga Lake North of Myers Point (50m)	0.66 ug/L	24-3475-B1	887 ug/L
Middle of Lake Opposite Mouth of Salmon Creek (SD)	5.72 ug/L	24-3459-B2	8,950 ug/L
Middle of Lake Opposite Mouth of Salmon Creek (50m)	1.03 ug/L	24-3459-B3	2,460 ug/L
Middle of Shallow Southern Shelf	6.09 ug/L	24-3409-B1	120 ug/L
Lake Source Cooling Outfall	7.7 ug/L	24-3478-B2	217 ug/L
Ithaca Sewage Outfall	3.96 ug/L	24-3416-B1	4,760 ug/L
Cayuga Heights Sewage Outfall	5.13 ug/L	24-3419-B1	226 ug/L

Biomonitoring



Community Science Institute
Partnering with Communities to Protect Water

Creek Exploration: KITS for KIDS



SUPPORTED BY THE FOLLOWING ORGANIZATIONS:

Community Science Institute's Tapan
Mitra Environmental Education Fund
provided by the Tapan Mitra Family Estate



Learning Ecosystems
Northeast

PARK
FOUNDATION



Journey of Water Passport Completion!



(1) “Wild Wetlands, Fantastic Filters” program,

(1) of the “Water Quality Monitoring Cruises” with Discover Cayuga Lake,

(1) “Creek to Faucet” or “Lake to Faucet” program,

(1) “Stream Biomonitoring Fun!” program and

(1) “Down the Drain and into the Lake!” program.