

WELCOME TO THE
LAKE GEORGE
HABs ACTION PLAN MEETING
Webinar begins at 2:00 PM

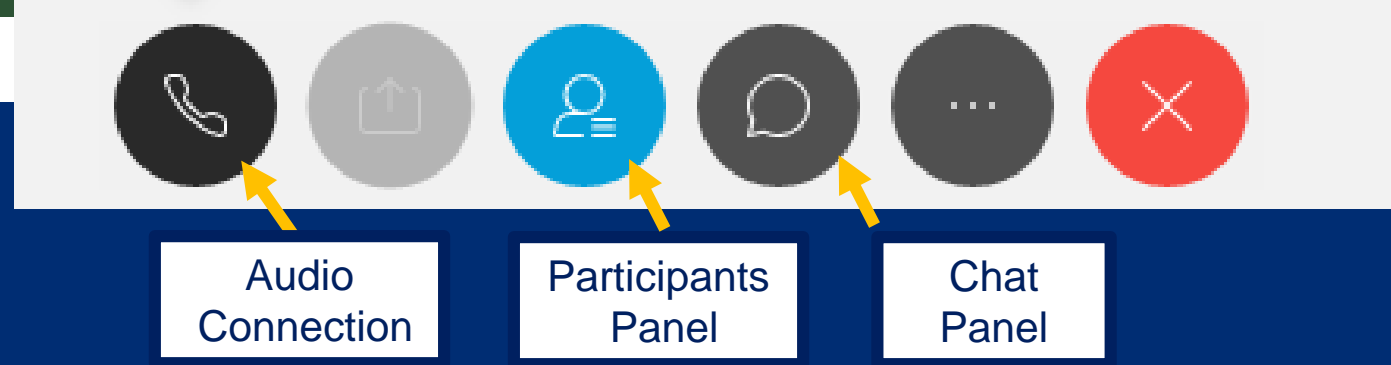
Audio connection information can be found on the next slide.

Select Audio Connection



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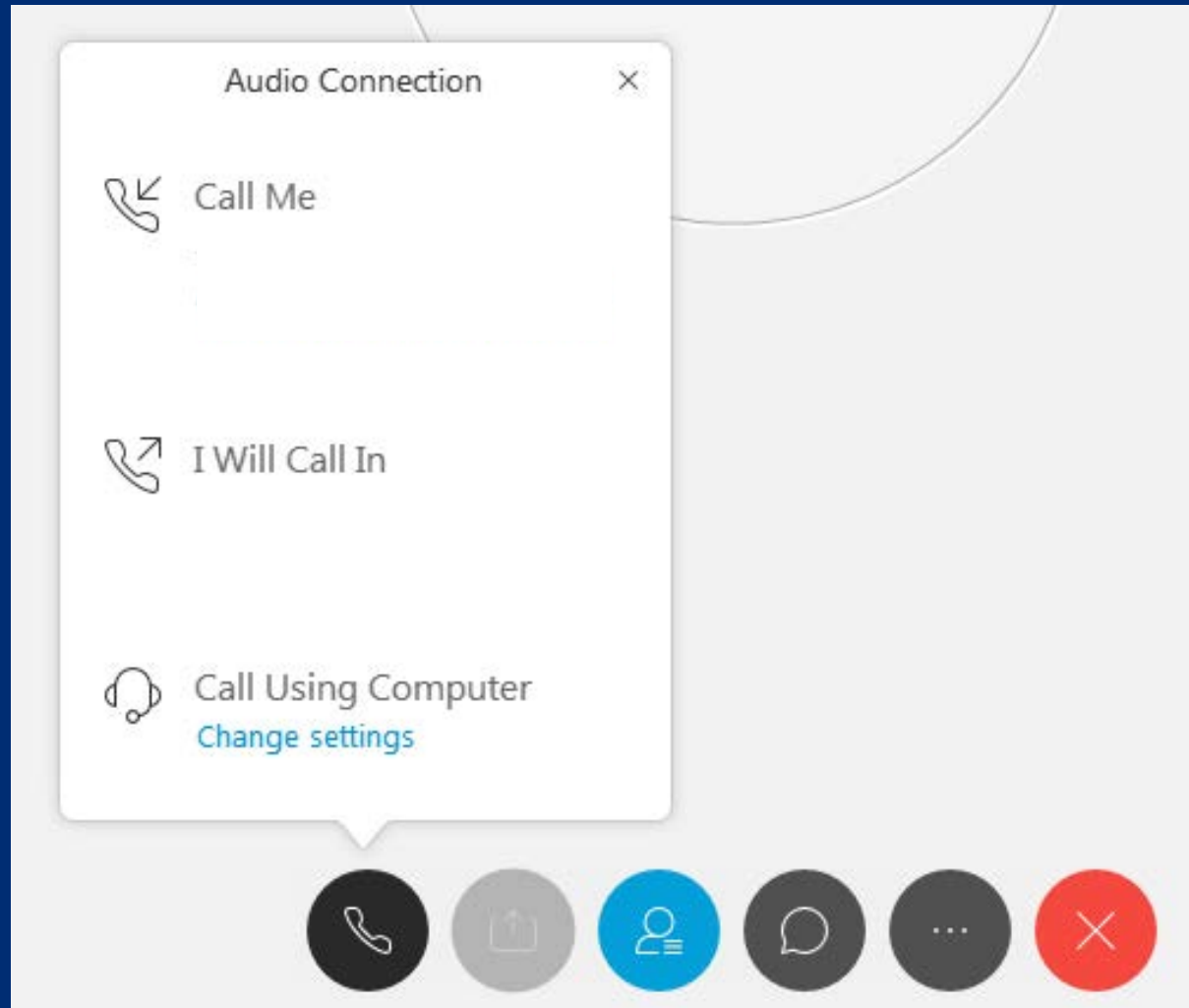
- 1. Call Me:**
Provide a telephone number
- 2. Call Using Computer:**
**Requires microphone connection*
- 3. I Will Call In:** Dial 1-518-549-0500,
Enter Access # 178 057 0730 #,
and Enter Attendee ID #



Audio
Connection

Participants
Panel

Chat
Panel

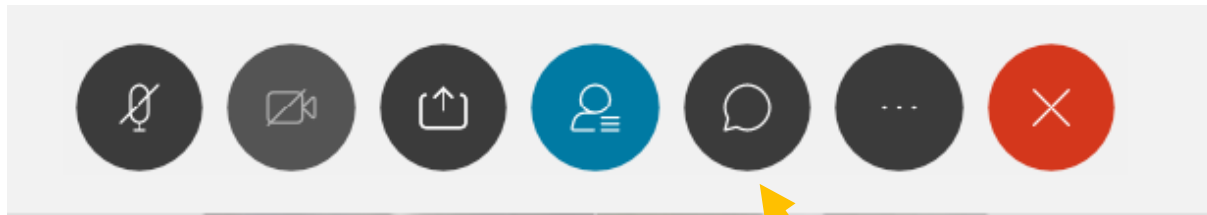


Attendees will be muted upon entry.
No video is required for attendees.

Welcome

- All lines will be muted during the webinar
- Slides will be available for viewing after the webinar
- Please type questions in the Chat box during the webinar
- Question and Answer session will be at conclusion of the webinar
- Contact Robert.Streeter@dec.ny.gov with questions or comments after the webinar

Asking a Question



Ask: All Panelists

Please type your questions here and be sure to send to all panelist. Thank you!

Send

A screenshot of the Zoom meeting interface. The top section is titled 'Participants' and includes a search bar. Below it, 'Panelist: 8' is expanded to show two participants: 'Andrea Linton Me' and 'Emma Ant... Host'. The bottom section is titled 'Chat' and shows a 'To:' dropdown menu set to 'All Panelists'. A toolbar with icons for hand raise, chat, and help is visible between the participants and chat sections.



**Department of
Environmental
Conservation**

Lake George HABs Action Plan Meeting

December 14, 2020 – 2:00 p.m. EST

Introductions and Outline

Introductions

Today's objectives - inform participants about recent evidence of HABs in Lake George and plan next steps

Outline

- Recap HABs reported in November
- Updates to Lake George HABs Action Plan
- Updated Watershed Analysis
- Discuss next steps
- Q&A Period



On the line today

Presenters:

- Rebecca Gorney, Research Scientist, DEC
- Robert Streeter, Regional Water Manager, Region 5, DEC
- Julie Berlinski, Research Scientist, DEC

Panelists:

- Jackie Lendrum, Director, Bureau of Water Assessment & Management, DEC
- Karen Stainbrook, Research Scientist, DEC
- Lauren Townley, Research Scientist, DEC
- Kristine Wheeler, Director, Bureau of Water Supply Protection, DOH

What are Harmful Algal Blooms (HABs)?

**Know it,
Avoid it,
Report it**



- Cyanobacteria = Blue-green Algae = HABs
- Highly specialized and competitive ancient microscopic bacteria
- Grow best in high temperature, high light, high nutrient conditions
- Can produce toxins
- Causes not fully understood and hard to predict

Seasonal Changes in Algae

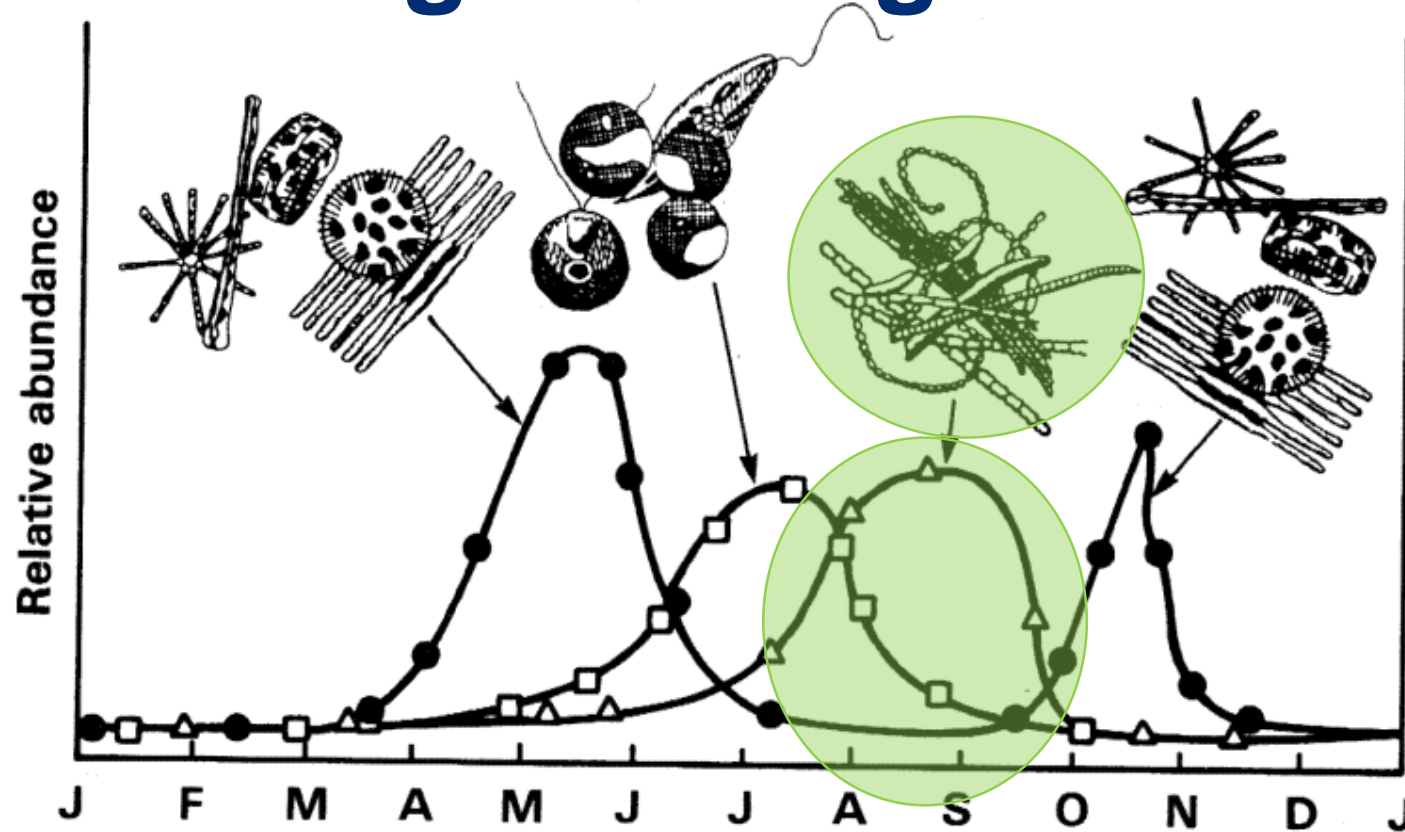
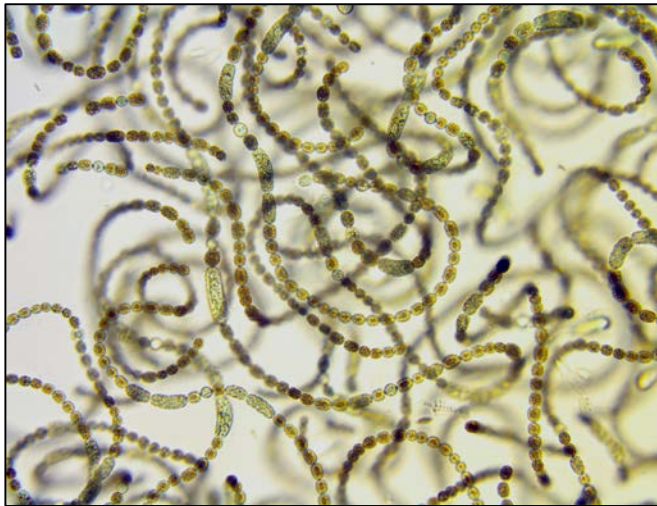


Figure 5. Seasonal Succession of Phytoplankton (Olem and Flock, 1990)

Diatoms tend to dominate in spring and fall, with greens and blue-greens dominant during summer, but many variations are possible.

Common types of Cyanobacteria

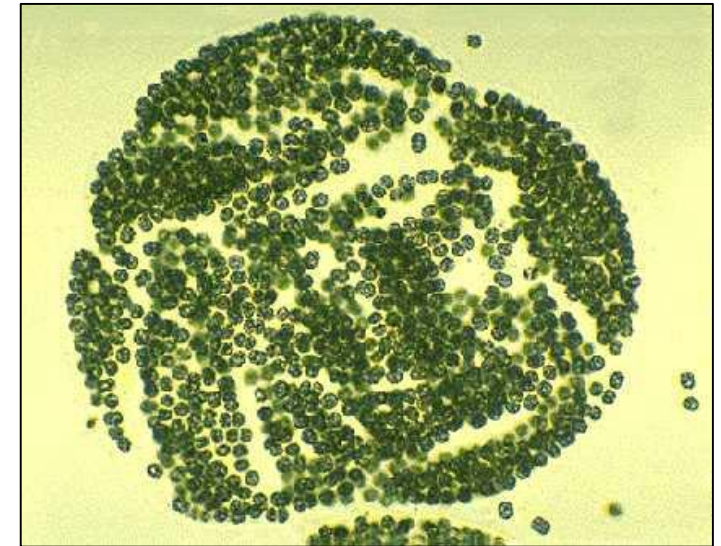
Dolichospermum



Aphanizomenon



Microcystis



- Can produce anatoxin (nerve toxin) and other toxins

- Adjusts buoyancy
- Can produce microcystin (liver toxin)

Routes of exposure to toxins



1. Consumption: incidental swallowing, drinking water
2. Inhalation: aerosols created during household use or recreation
3. Dermal: skin contact during swimming

- Consider visiting a healthcare provider if you, your family, or your animals experience symptoms related to HABs.

- For more information: www.health.ny.gov/HarmfulAlgae

Potential Symptoms:

- Allergic reaction
- Skin, eye, or throat irritation
- Diarrhea
- Nausea
- Vomiting
- Respiratory difficulties



NYS HABs Beach Protocol

- Closure based on visual determinations
- Reopened after being clear of HAB for 24 hours and microcystins are $< 4.0 \mu\text{g/L}$
- There are >90 beaches on Lake George



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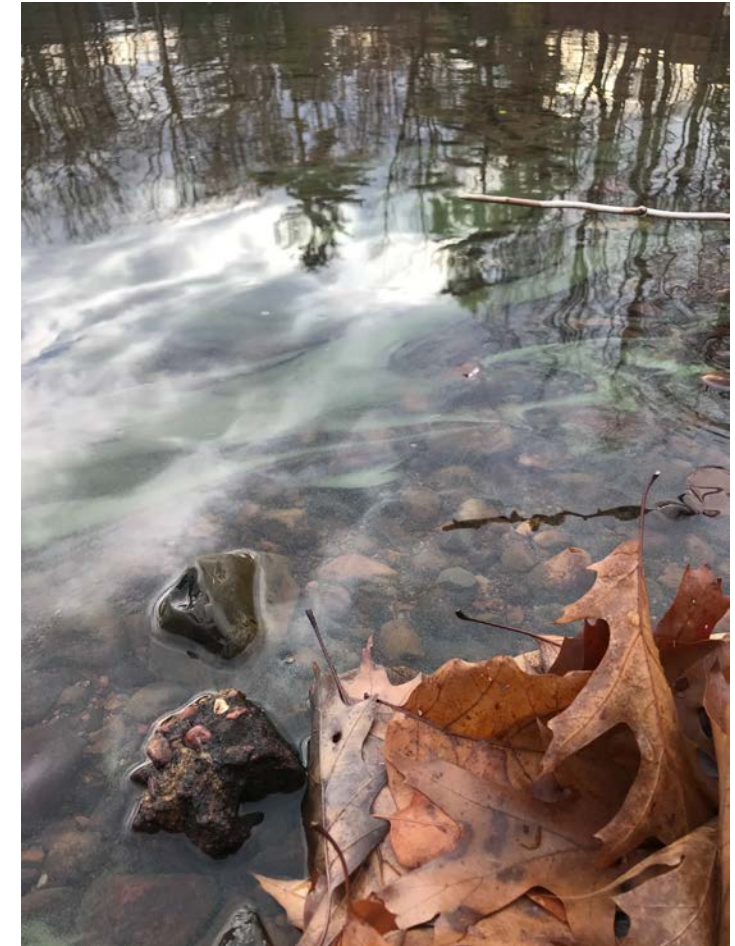


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Visual Based Response: Why?

- Symptoms possible with or without toxins
- Sampling and analysis takes time
- Not all toxins analyzed
- Blooms are dynamic:
 - Spatial, temporal & toxin gene expression
- Not practical to sample all waters at all times
- **Know it, Avoid it, Report it!**



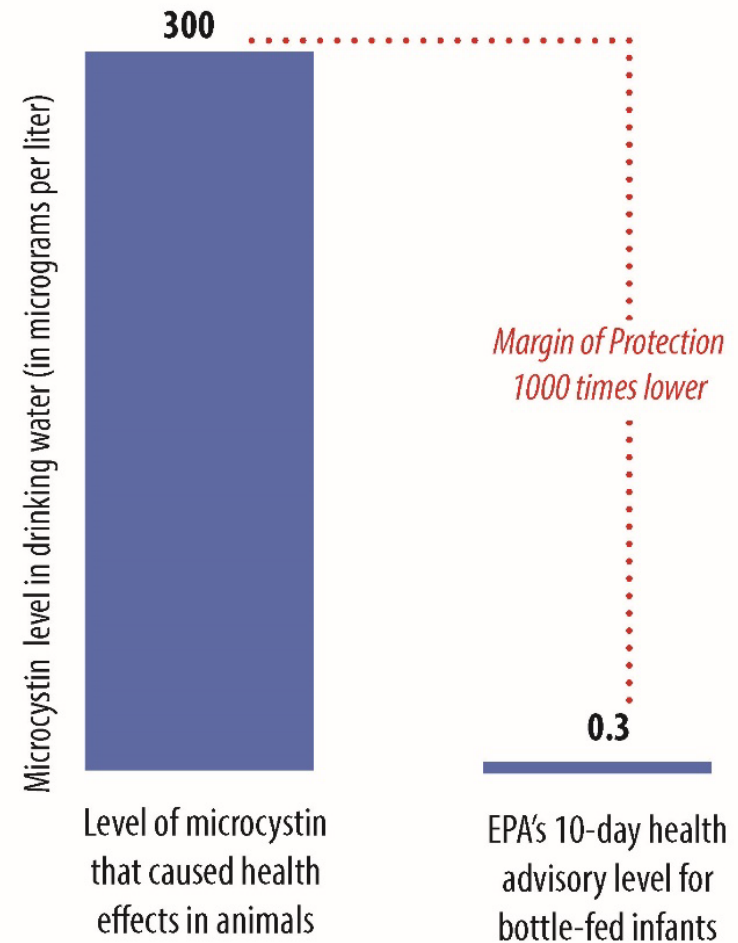
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EPA Microcystin Drinking Water Health Advisory

- Protects the public from being exposed to unregulated drinking water contaminants.
- Build in a large margin of protection and factor in vulnerable populations
- Exceedance indicates actions should be taken to reduce levels to preserve the margin of protection
- Does not mean health effects are likely to occur
- Actions include:
 - Optimize to reduce microcystins
 - Notify public



EPA defines a 10-day health advisory as the concentration of a chemical in drinking water at which adverse health effects are not anticipated to occur over a 10-day exposure period



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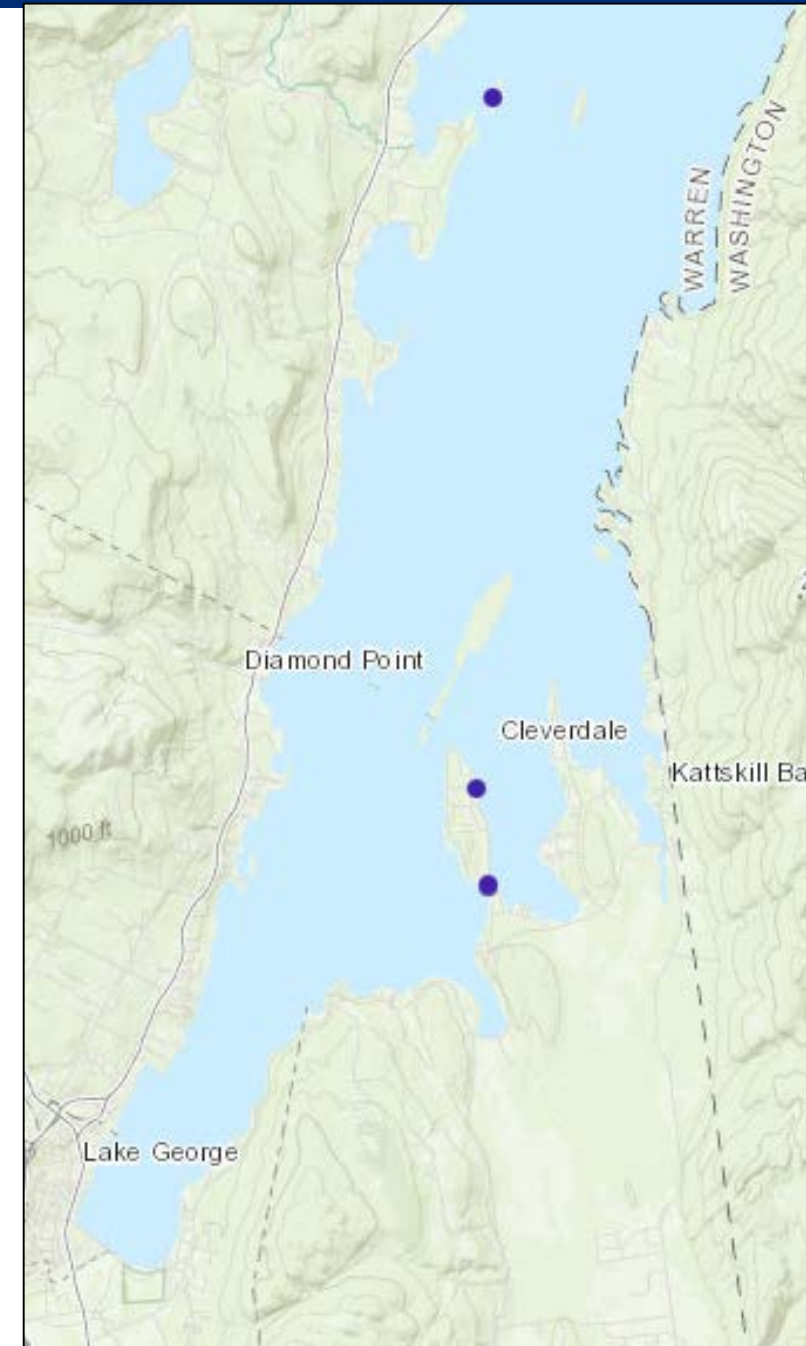


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Timeline of HABs in Fall 2020

- 10/23: HAB observed near Bolton Landing, shared with DEC on 11/10
- 11/7: HAB observed in Harris Bay
- 11/9: DEC notified by LGA, CSLAP sampler collects a sample, DEC responds on site
- 11/10: Sample confirmed to be cyanobacteria
- 11/10-12: No further scums observed; DEC monitoring confirms fall turnover has already occurred
- 11/13: Test results indicated no microcystin or anatoxin above detection limits
- 11/15: Additional shoreline visual report in Harris Bay



Sampling Results

From Samples Collected November 9, Harris Bay

Lab	Fluoroprobe Chl (µg/L)		Toxins (µg/L) #				Microscopy	
	Bluegreen Chl*	Total Chl	Microcystin	Anatoxin	Cylindrospermopsin	Saxitoxins		Method
UFI	32.2	36.6	BDL# (<i>< 0.30 µg/L</i>)	N/A	N/A	N/A	ELISA	<i>Dolichospermum</i>
SUNY ESF	47.6	51.4	BDL (<i>< 0.30 µg/L</i>)	BDL (<i><0.01 µg/L</i>)	BDL (<i>< 0.07 µg/L</i>)	N/A	LCMS	N/A
USGS	N/A	N/A	BDL (<i>< 0.30 µg/L</i>)	BDL (<i>< 0.30 µg/L</i>)	BDL (<i>< 0.10 µg/L</i>)	BDL (<i>< 0.04 µg/L</i>)	ELISA	<i>Dolichospermum</i>

#BDL: Below Detection Limit; DL is the minimum concentration that can be measured with 99% confidence that the value is above zero

*Bluegreen Chl >25 µg/L meets the DEC Criteria for Confirmed HAB



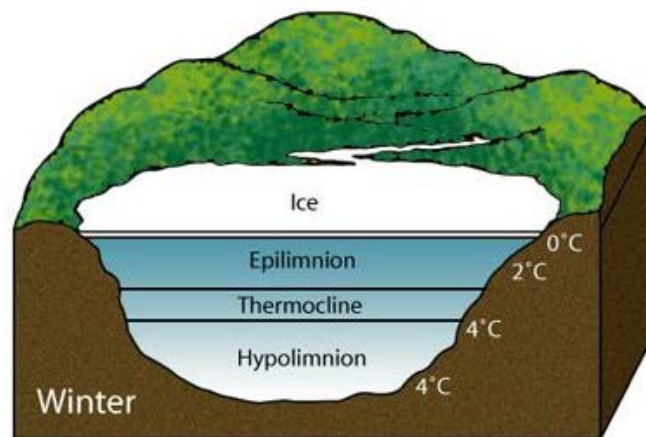
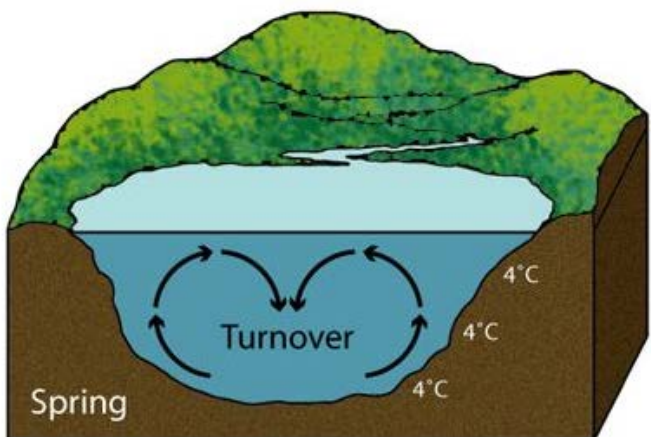
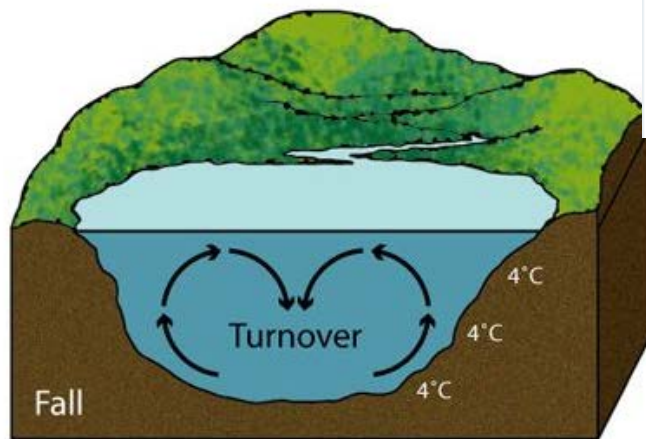
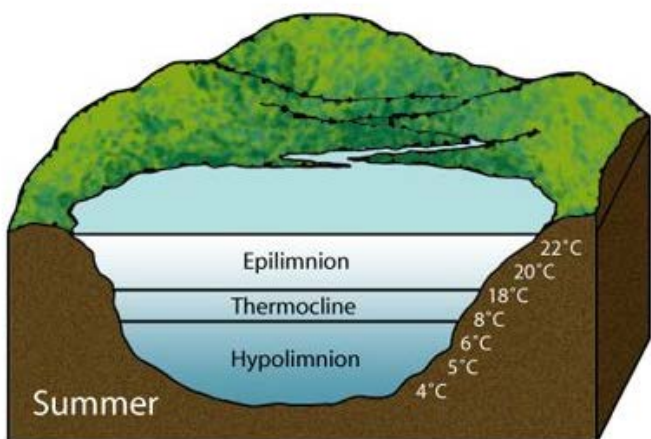
What do these results mean?

Dolichospermum



- Toxins were not detected on 11/9 but *Dolichospermum* can produce toxins.
- Cyanobacteria can cause health effects whether or not toxins are present.

Why now?

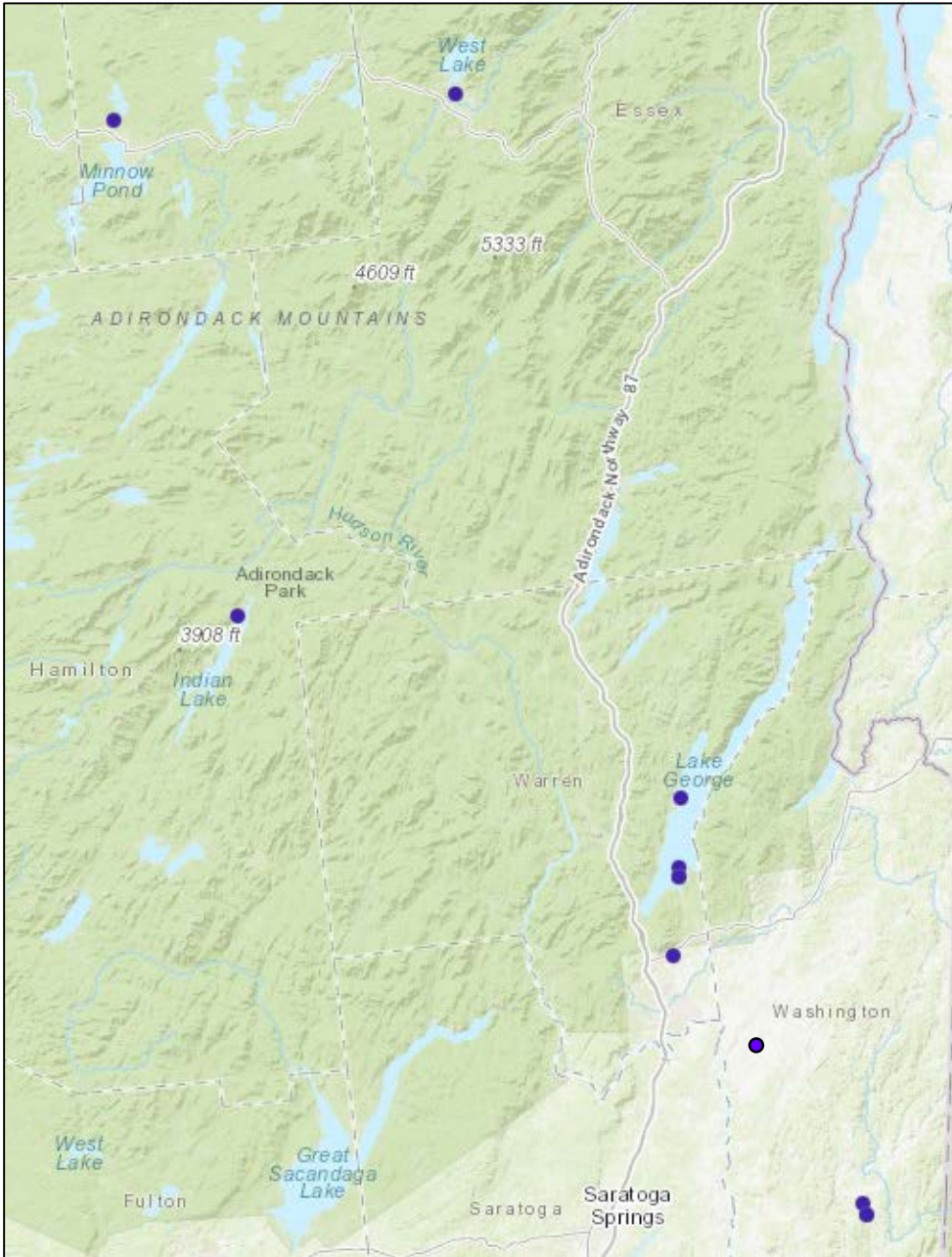


NWS Albany

@NWSAlbany

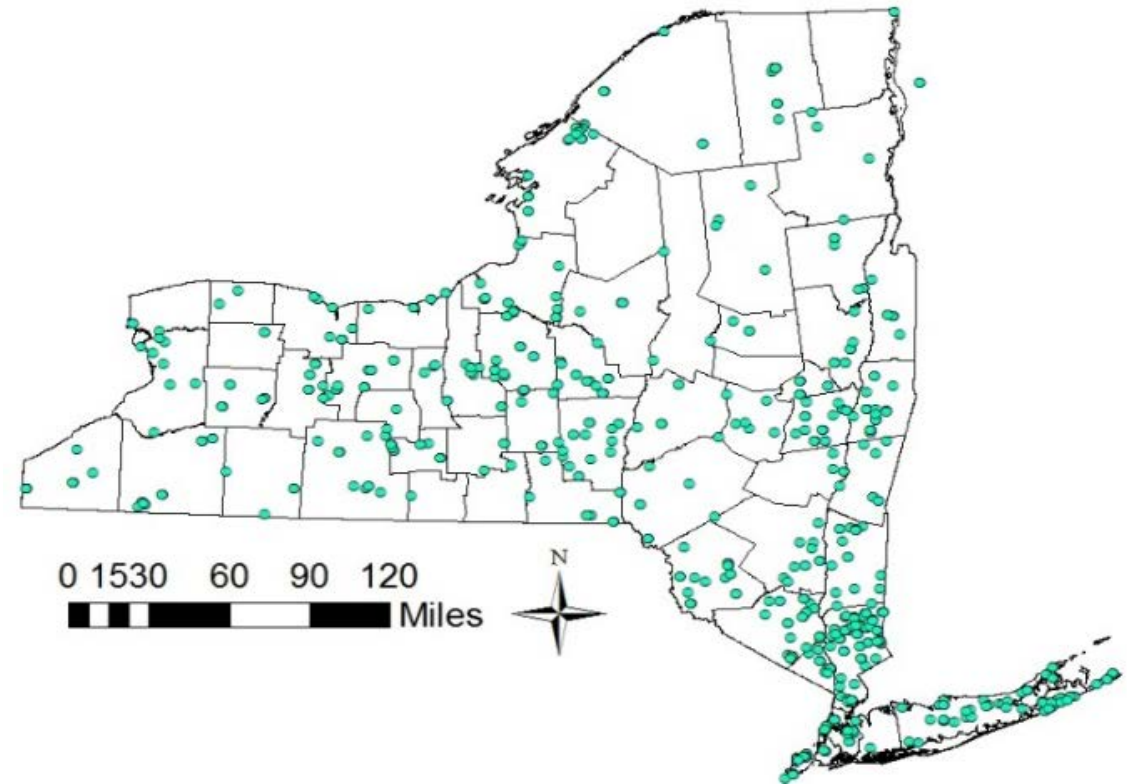
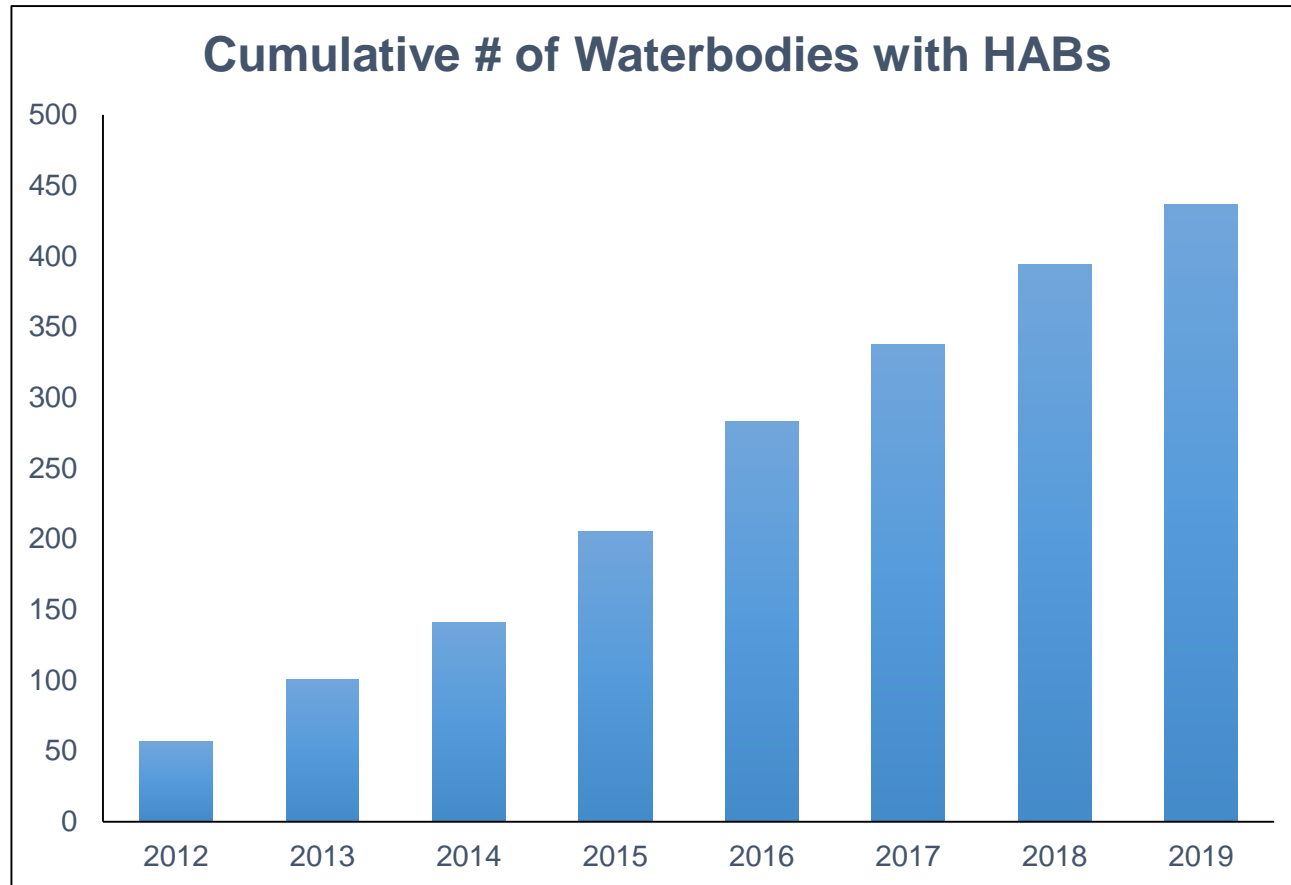
Since Nov 6th, Albany has seen five days with high temperatures at least 70 degree which is ~20 degrees above normal! The last time we had such a mild stretch for this period was back 1975. Enjoy the warmth as it lasts as it will be cooler starting tomorrow. #nywx

Date	Max Temperature
11/1/2020	48
11/2/2020	38
11/3/2020	41
11/4/2020	56
11/5/2020	64
11/6/2020	70
11/7/2020	70
11/8/2020	72
11/9/2020	67
11/10/2020	70



Regional HABs, October-November 2020

Statewide Distribution of HABs

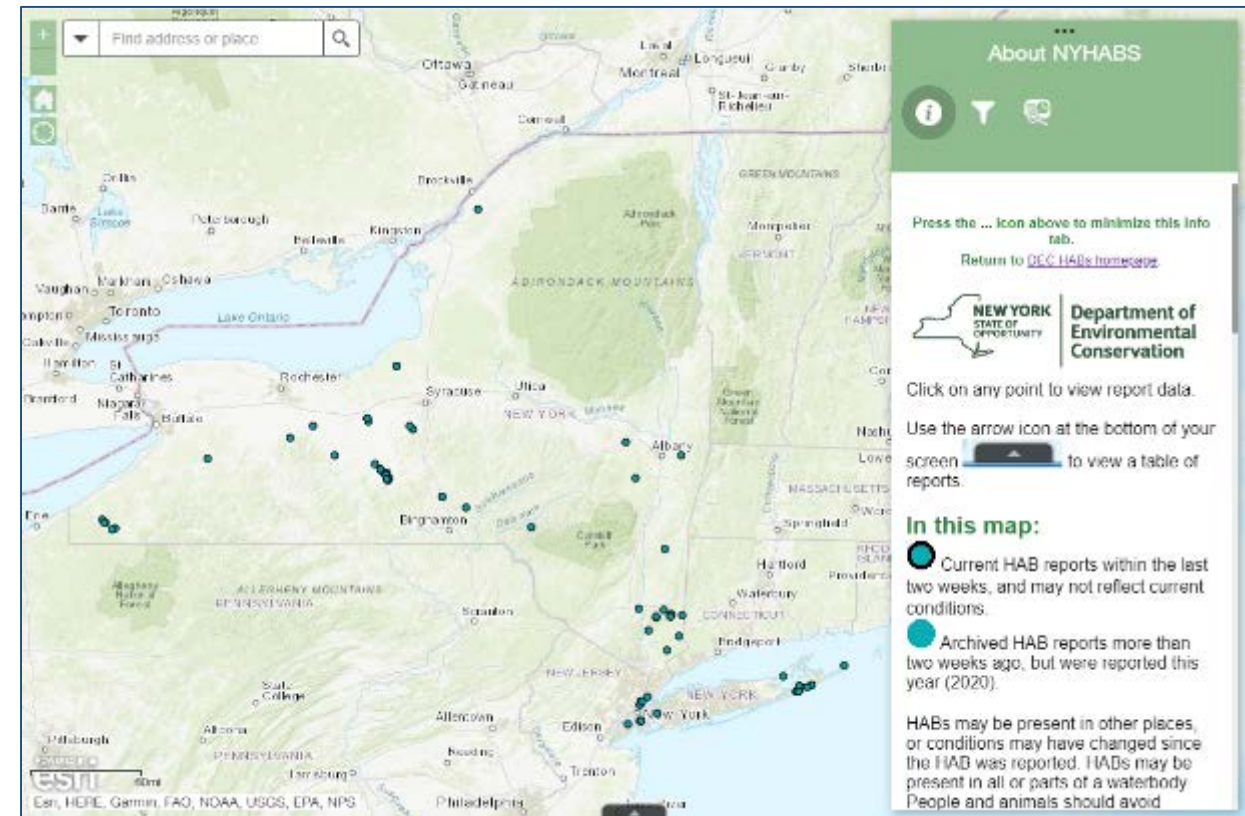


New York Harmful Algal Bloom System

NYHABS

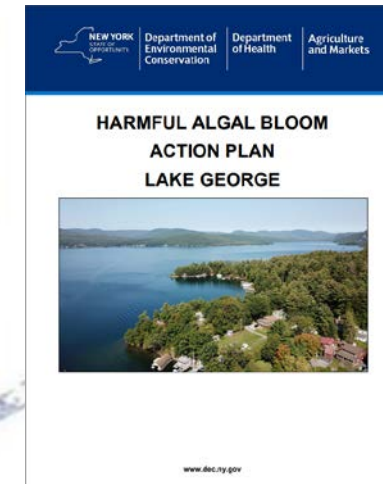
- Interactive map of HAB reports, updated daily
- Reports include photos, status, extent, reported by, exact location
- Reports remain Current on map for 2 weeks
- After 2 weeks, all HABs remain visible as Archived
- User can filter by lake or county and export reports

on.ny.gov/nyhabs



2018 Gov. Andrew Cuomo's HAB Initiative

- Key goals
 - Identify contributing factors
 - Lessen frequency and/or impact of HABs
 - Protect and conserve quality of our water resources
- \$189 million investment over the last two years
 - Priority Waterbodies
 - Four Regional Summits
 - Waterbody HAB Action Plans
 - Advanced Monitoring
 - Mitigation Pilot Projects





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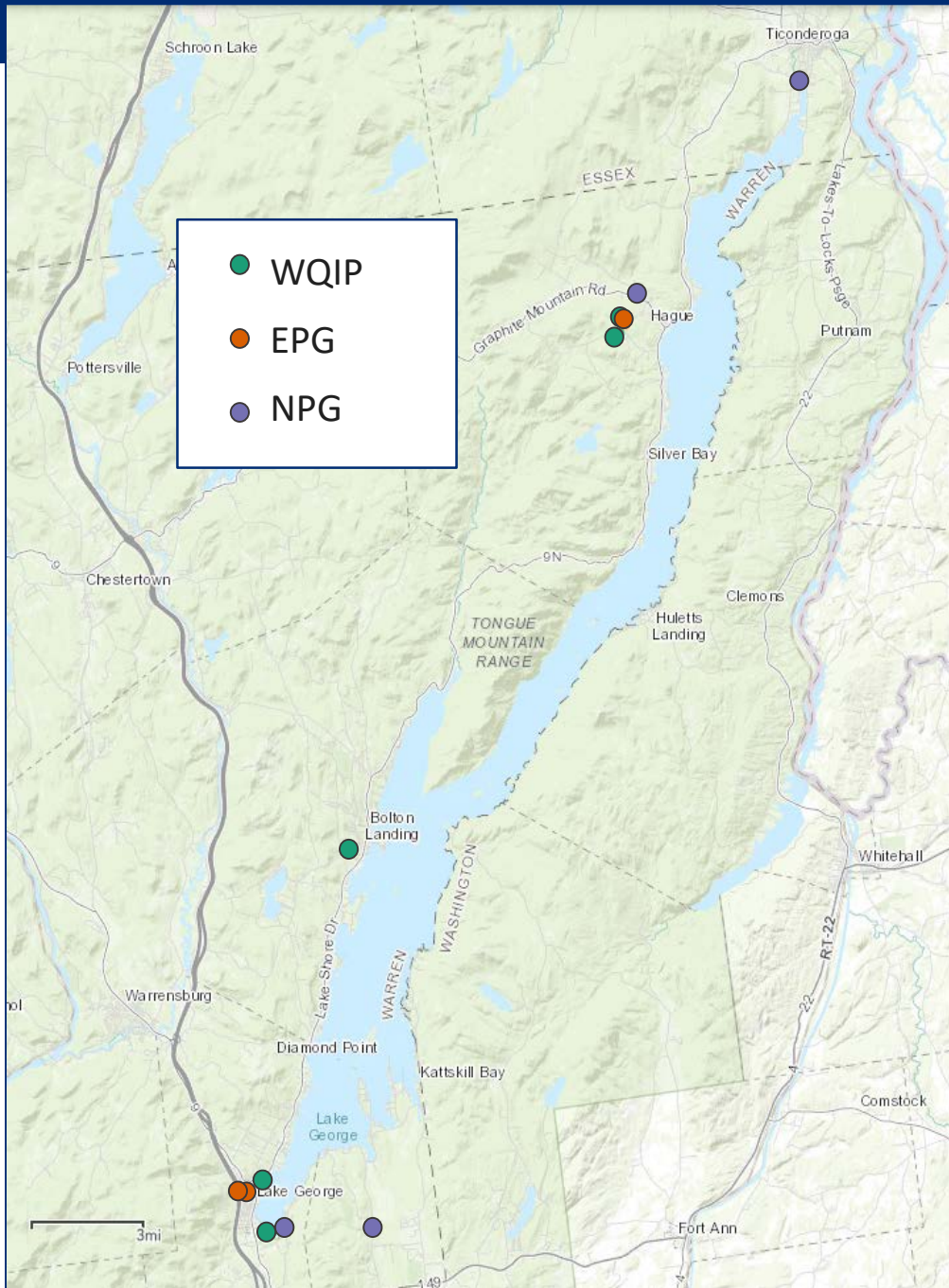
Update the Action Plan

- Drafted in 2018
- Review grants that have been awarded
- Review accomplishments
- Identify how priorities have changed
- Funding opportunities can be found at:
<https://on.ny.gov/HABsAction>

HARMFUL ALGAL BLOOM ACTION PLAN LAKE GEORGE



Summary of Awarded Projects 2018-2019



Project Type (#)	Grant Year		
	2018	2019	Total
WW Infrastructure Engineering Planning (3)	\$100,000	\$80,000	\$180,000
Non-agricultural Nonpoint Source Planning (4)	--	\$114,454	\$114,454
Water Quality Improvement Projects - NPS (2)	\$65,200	\$66,000	\$131,200
Water Quality Improvement Projects - WW (3)	\$1,887,653	--	\$1,887,653
Total	\$2,052,853	\$260,454	\$2,313,307

Action Plan Priority 1 & 2 Project Progress

Project	Progress
Woodchip bioreactor demonstration project at Bolton Landing Wastewater Treatment Plant. Evaluate treatment efficiency at the Bolton Landing Wastewater Treatment Plant	Implementation grant awarded 2018; One unit in place and operational. Additional reactors approved and construction will start in spring 2021. The technology augments nitrate removal; the only application of this WW treatment type in the NE.
Upgrade Town of Lake George Caldwell Sewer District	Planning grant awarded 2019; Progress has been made; video inspections to identify problematic areas. Repairs made at areas of concern. Sliplining performed at several sections. Future work planned.
Upgrade Town of Hague Wastewater Treatment	Planning grant awarded 2019
Implement an inspection and maintenance program for near-shore septic systems	Towns of Bolton & Queensbury implemented local laws for septic inspection and replacement programs, 2018-19. The Town of Lake George implemented a Septic Initiative Program in 2018 to catalogue and inspect on-site WW systems. Including parcels within 500 ft of Critical Environmental Areas, 100 ft from AA Special Streams and APA wetlands.
Upgrade WWTP for the Village of Lake George	Implementation grant awarded 2019 (consolidate pump stations); EFC grants & loans. WWTP under construction, on-line in or about 2021. New facility will be a Sequential Batch Reactor, enhanced treatment of wastewater.
Extend sanitary sewer infrastructure along Route 9N to the Tahoe Resort	Preliminary discussions underway
Slip lining the conveyance pipes, Towns of Lake George and Bolton, Village of Lake George	Planning grant awarded 2018; Projects have been completed at all municipalities, with future work to be performed as investigations and needs continue.
Project	Progress
Address roadside erosion issues throughout the watershed on local, County, and State roads through systematic roadside hydroseeding and erosion control.	Several implementation projects awarded 2018 & 2019
Implement the North Queensbury Wastewater Management District Matching Grant Program.	Status update needed
Create a Rockhurst Wastewater District and design a collection system and treatment plant in the Town of Queensbury.	Status update needed

Action Plan Priority 3 Project Progress

Project	Progress
Implement a matching grant program in the Town of Lake George for OWTS Replacement.	Completed, Not a matching grant program, but low interest loans thru 2 local banks. 2 grants awarded so far, more to come
Install transportable sensor units in Jefferson Project buoys to determine nutrient reduction benefits.	Status update needed
Implement a Save the Rain Program in the Village of Lake George that mimics Onondaga County's Program and includes stormwater retrofits	Status update needed
Enhance stormwater swales adjacent to I87 that discharge to West Brook and East Brook.	~1100ft already completed
Implement systematic roadway stormwater pre-treatment & infiltration program in the Town & Village of Lake George	Status update needed
Implement stormwater pre-treatment and infiltration program in Town of Bolton.	Status update needed
Upgrade NYS Route 9, 9N, and 9L stormwater conveyance systems	DOT was working 9N this year; made some conveyance alterations.
Implement stormwater reduction projects in Gull Bay.	3 concrete sediment basins installed.
Implement stormwater runoff controls on Baldwin Road, Blackpoint Road	Status update needed
Install stormwater capture and infiltration systems at Town & Village of Lake George Municipal Centers	TOLG implemented stormwater controls by Town Hall. Village DPW made off-site swale improvements at access road.
Implement a stormwater reduction and infiltration program in Assembly Point.	Status update needed
Install green infrastructure retrofits at Lake George Elementary and High Schools, including green roof, cisterns, rain gardens, and pervious pavement.	Status update needed
Install stormwater infiltration systems at Rogers Park and the Dula Street public parking areas with porous asphalt.	Warren Co SWCD added dry well and rain on Dula Place. Town of Bolton added porous paving in Rogers Park.
Install stormwater infiltration and retention facilities at Steamboat Landing.	Status update needed

Environmental Facilities Corp. Funding

- Water Infrastructure Improvement Act (WIIA) Grants
- Intermunicipal Water Infrastructure Grant (IMG)
- Clean Water State Revolving Fund (CWSRF)
- Green Innovation Grant Program (GIGP)



Village of Lake George WWTP Funding

- Lake George Village WWTP total grants and loans to date: **\$6.8M in grants and \$15.1M in zero interest loans**
- Planning, design and construction of upgrades to the wastewater treatment plant/Denitrification Project

Assistance Provided:

- \$4,273,923 WIIA Grant (EFC)
- \$28,750 Engineering Planning Grant (EFC/DEC)
- \$2,500,000 Water Quality Improvement Project Grant (DEC)
- \$15,164,327 EFC Hardship Zero Interest Loan (EFC)

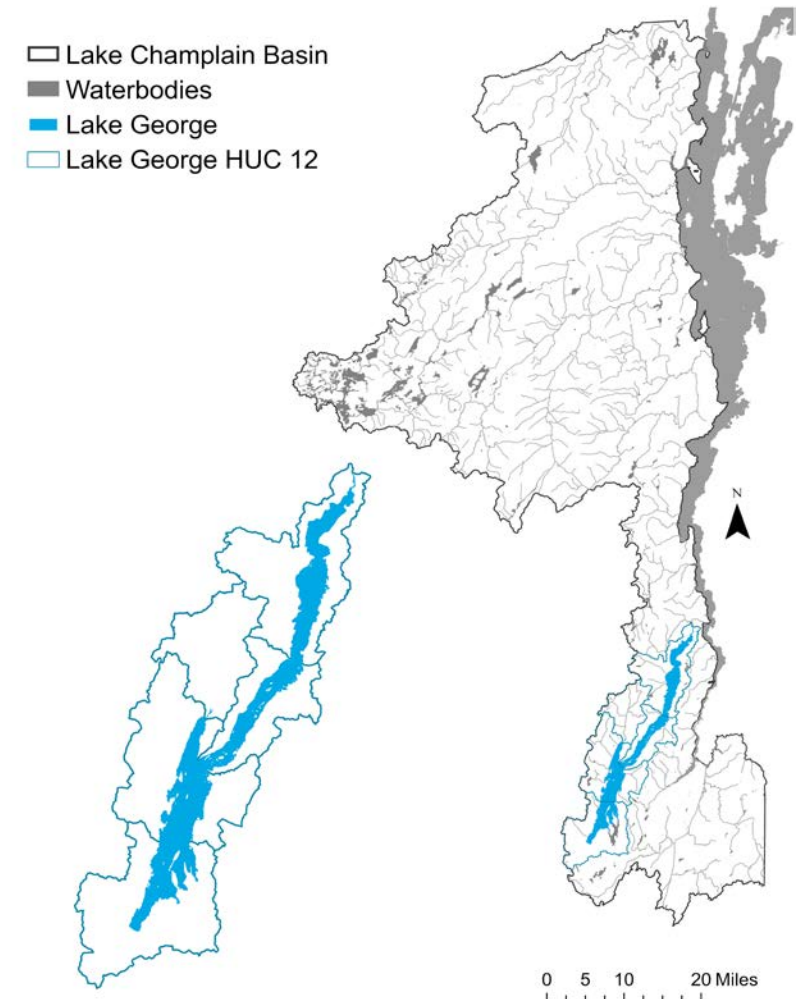


Lake George Village WWTP Funding (cont.)

- Project to improve infiltration beds and septage receiving station
Total Project Cost: \$1,798,566
Assistance Provided: **\$1,663,041 EFC subsidized financing**
- Planning, design and construction costs associated with improvements to Shepard Park pump station and slip lining of sewer main
Total Project Cost: \$1,654,508
Assistance Provided: **\$1,654,358 EFC subsidized financing**

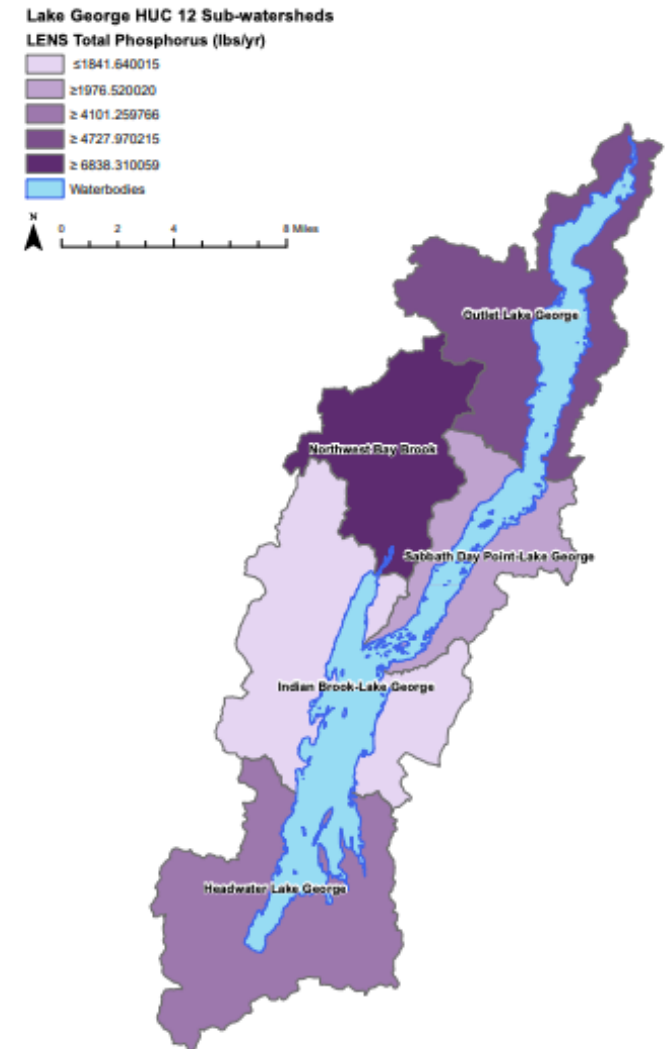
Watershed Implementation Plan (WIP)

- DEC is working on an updated watershed implementation plan for the Lake Champlain watershed (expected to be publicly released in 2021)
- As part of the WIP, DEC completed a land use and loading analysis to estimate current phosphorus contribution from both point and nonpoint sources



Load Estimator of Nutrient Sources (LENS)

- Using 1-meter high resolution land cover data, phosphorus loads were estimated for HUC 12 watersheds within the Lake Champlain Basin using NYS DEC's LENS tool
- LENS analysis in Lake George HABS Action Plan will be updated to include this more accurate land cover data and associated phosphorus load estimate



Supplemental Nonpoint Source Projects

- Additional projects identified in the Lake Champlain Non-Point Source Pollution Sub-watershed Assessment and Management Plan
- Projects in Lake George watershed will be added to updated HABs Action Plan

Sector	Number of Projects	Implementation Cost
Natural	33	\$4,580,000
Developed	8	\$3,907,000
Septic	2	\$1,700,000
Total	43	\$10,187,000

Next Steps

- Long record of successful implementation in the watershed.
- Stakeholders can propose additional projects, initiatives, or project updates
- Review existing priority projects and bring up those which require further study or expansion in the future.
- Please send DEC comments on HAB Action Plan by January 31, 2021.
- List of funding opportunities can be found at: <https://on.ny.gov/HABsAction>
- List of implementation projects can be found at: Lake Champlain Non-Point Source Pollution Subwatershed Assessment and Management Plan: https://lclgrp.org/assets/pdf_files/LC%20Nonpoint%20Source%20Pollution%20Subwatershed%20Assesment%20and%20Mangement%20Plan%20Final.pdf





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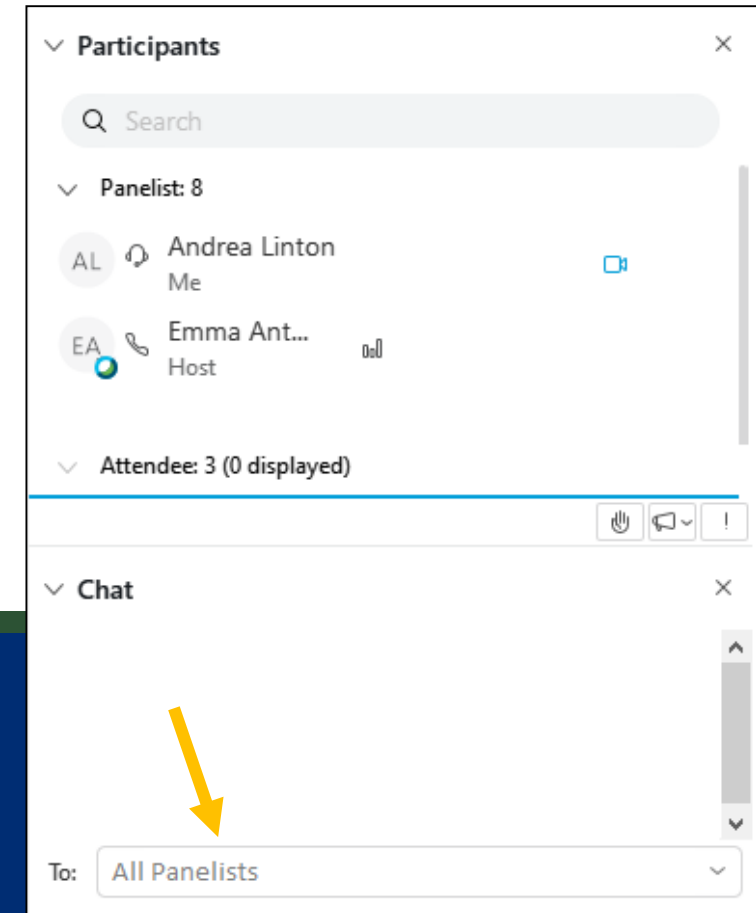
Thank you, Any Questions?

- Please type questions in the Chat box
- Please be sure to send to “All Panelists”
- We will address as many as we can in the time allowed
- Contact Robert.Streeter@dec.ny.gov with Action Plan comments or questions

For more information about DEC HABs Efforts, visit:

<https://www.dec.ny.gov/chemical/77118.html>

Or type “NYSDEC HABs” into your web search bar



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