

Honeoye Lake Watershed Task Force

Project Update

Saturday July 15th, 2017

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Agenda

- What's happening in the watershed
- Lake monitoring activities & results
- Collaborative research project updates

What's happening in the watershed



Honeoye Lake Inlet Restoration Project

Completed October 2016



- Partnership between The Nature Conservancy, US Fish & Wildlife Service, and Ontario County Soil and Water, DEC Region 8, HVA, and the Honeoye Lake Watershed Task Force
- Ontario County Soil & Water received a DEC WQIP Grant Award for \$300,000 to fund the project implementation
- WQIP Grant required ~\$100,000 of local in-kind and cash match
 - TNC received > \$50,000 in donations
 - Thanks!!!
 - Remainder covered by in-kind match
- Construction completed Oct. 2016
- Project enhancements being planned for 2017 & 2018

Honeoye Lake Inlet DEC WMA

Project Benefits

Allow water to slow down and spread out

Use nature to filter out sediment and nutrients

Increase opportunities for recreation

Improve habitat for fish and other wildlife

5/9/2011

36

W Lake Rd

E Lake Rd

Re-create
meanders
in channel

Plug ag
ditches

Reconnect
flow to
floodplain

Removal of 24-37% of the total amount of
phosphorus entering Honeoye Lake

Google earth

Imagery Date: 5/9/2011 42°41'03.38" N 77°29'32.98" W elev 806 ft eye alt 5226 ft







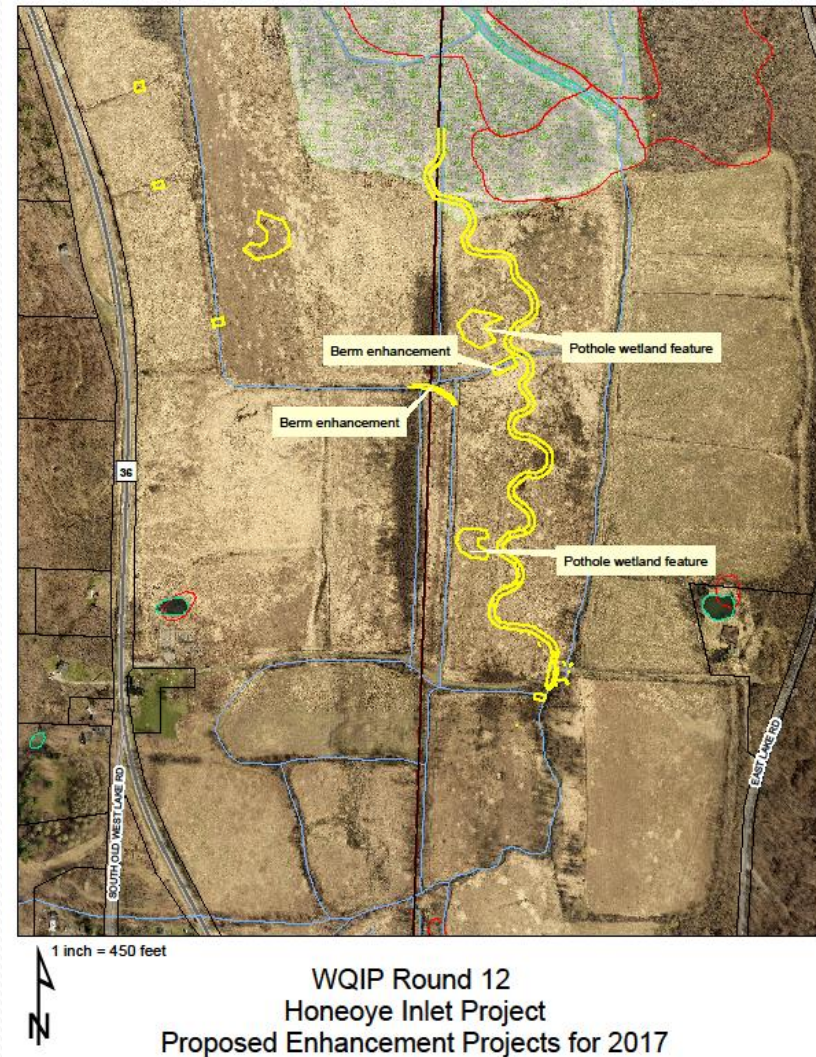
A little help from our friends



NEXT STEPS



- Creation of Pothole Wetlands
- Plugging of Agricultural Ditches
- Enhancing Berms to Retain Runoff



DEC WQIP Round 11 Grant Project

- Most project work completed in 2016
- Grant Funding of \$135,000 & \$35,000 of In-kind Match
- Stream bank stabilization in road right a ways, 3 sediment basins, several debris guards, and ten vernal pools at:
 - Harriet Hollister Spencer State Rec Area- 2
 - Muller Field Station-2
 - FLLT Wesley Hill Preserve- 3
 - Cummings Nature Center-3

DEC WQIP Round 11 Grant Project

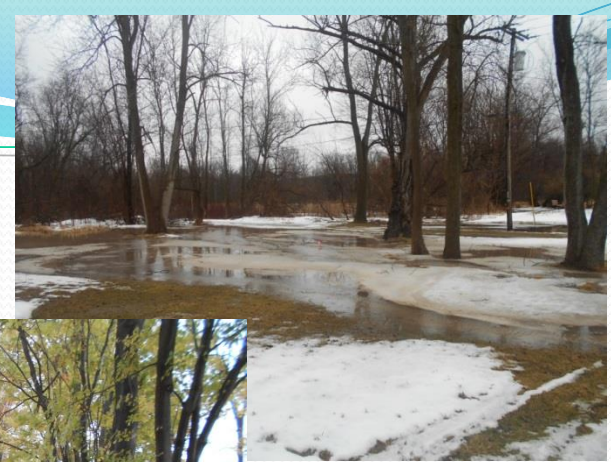
Vernal Pools



Storm Water Detention Structure



Sandy Bottom Park



Briggs Gully



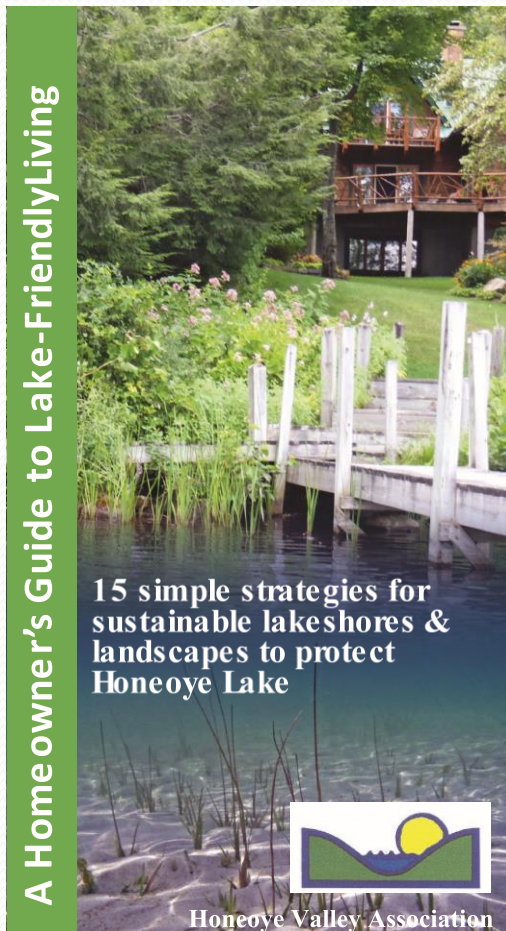
DEC WQIP Round 11 Grant Project

Honeoye Lake Watershed Sediment and Nutrient Mitigation

2017 Plans:

- Installation of Debris Guards at Cratsley Gully
- Forestry BMP Workshop
- Potential Additional Water Control Structures and Vernal Pools at Honeoye Inlet Site
- Potential Water Control Structures on Curtis Road

A Home Owners Guide to Lake-Friendly Living



1. Reduce Impermeable Surfaces
2. Limit Lawn Size
3. Use Water Wisely
4. Minimize Erosion
5. Be Smart About Lawn Care
6. Use Phosphorus-Free Fertilizer
7. Maintain Your Septic System
8. Don't Flush Your Drugs
9. Maintain Your Vehicles
10. Conserve Water
11. Install a Vegetative Buffer
12. Reduce Household Hazardous Wastes
13. Plant a Rain Garden
14. Go Native
15. **Contact Edith Davey at Ontario County Soil & Water for assistance
585-396-1450 Edith.Davey@ontswcd.com**

Lake monitoring activities & results



Honeoye Lake

Blue-Green Algae Monitoring



- Started July 2013 at the request of NYSDEC
- Weekly June–mid October
 - 10 BGA Monitoring Sites
 - Send 3-6 BGA Samples to SUNY ESF for Testing every Monday
 - Visual Surveillance with Digital Pictures every Monday & Friday
- BGA visual observations and SUNY ESF test results posted on DEC BGA web site late every Friday afternoon
- 2016 72 samples collected for testing over a 20 week time period
- Please report BGA Blooms to me: watershedtaskforce@gmail.com

NYSDEC Harmful Algal Blooms (HABs) Notifications Page

<http://www.dec.ny.gov/chemical/83310.html>



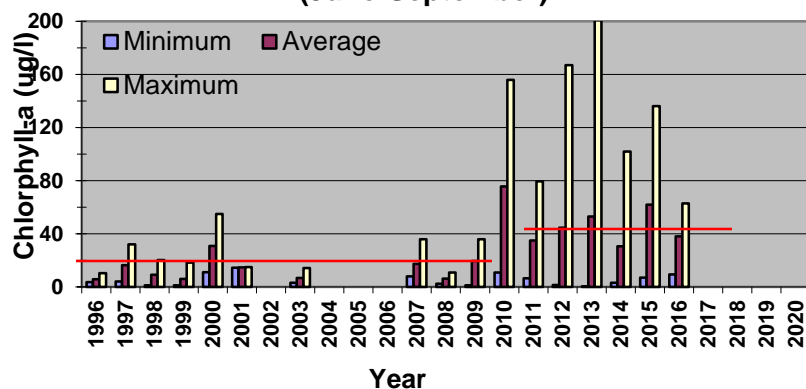
Waterbodies with HABs Notifications							
Map Number	Waterbody Name	County	Bloom Status	Extent of Bloom	Status Date	Type of Report	Change in Status
1	Agawam Lake	Suffolk	Confirmed with High Toxins	Widespread/Lakewide	6/6/17	Lab sample	Updated listing
2	Bowne Pond	Queens	Confirmed	Widespread/Lakewide	6/5/17	Lab sample	New
3	Dean Pond	Cortland	Confirmed	Large localized	5/27/17	Lab sample	New
4	Eagle Pond	Franklin	Confirmed	Small localized	5/28/17	Lab sample	No change
5	Georgica Pond	Suffolk	Confirmed	Not reported	6/6/17	Lab sample	New
6	Goose Pond	Queens	Confirmed with High Toxins	Not reported	5/23/17	Lab sample	No change
7	Kissena Lake	Queens	Confirmed with High Toxins	Not reported	6/5/17	Lab sample	Updated listing
8	Lake Lacoma	Monroe	Confirmed	Small localized	6/5/17	Lab sample	New
9	Lake Neatahwanta	Oswego	Confirmed	Small localized	6/6/17	Lab sample	Updated listing
10	Maratooka Lake	Suffolk	Confirmed	Not reported	6/5/17	Lab sample	New
11	Orange Lake	Orange	Suspicious	Not reported	6/8/17	Visual report	Updated listing
12	Prospect Park Lake	Kings	Confirmed with High Toxins	Small localized	6/6/17	Lab sample	Updated listing
13	Roaring Brook Lake	Putnam	Confirmed	Not reported	6/4/17	Lab sample	New
14	Song Lake	Cortland	Suspicious	Small localized	6/2/17	Visual report	No change
15	The Lake in Central Park	New York	Confirmed	Small localized	6/6/17	Lab sample	New

Water Quality Data Collection Protocols

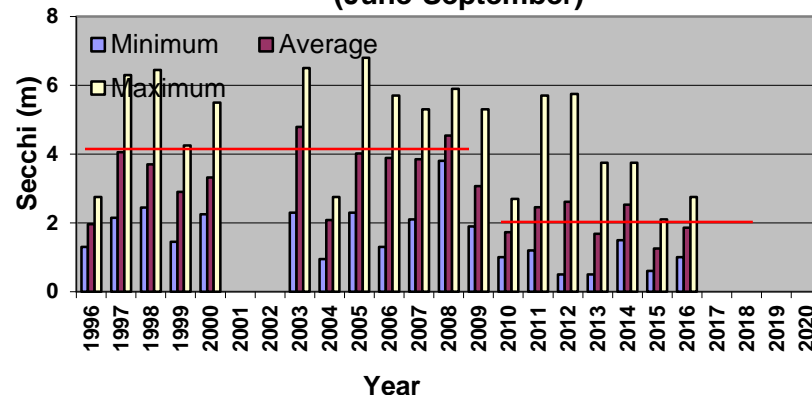
Mon., Wed. & Fri. May – October Water Clarity & Temp/DO Profiles	Twice a Month June-September Chl-a & Phosphorus	Twice a Month June-September Nitrogen
Secchi (Water Clarity) Temperature & Dissolved Oxygen Profiles	Total Chl-a (Algae) at Surface Total Phosphorus & Soluble Reactive Phosphorus at Surface & ~26 Feet	Nitrate/Nitrite, TKN, & Ammonia at Surface & ~26 Feet

Long Term Water Quality Data Trends

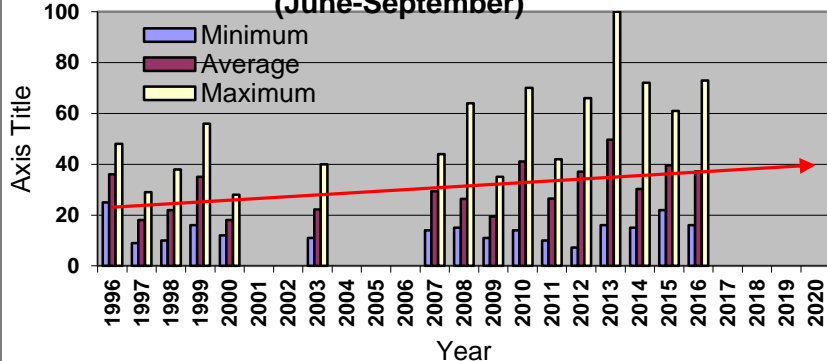
Midlake Site D Chlorophyll-a Reading (Algae)
(June-September)



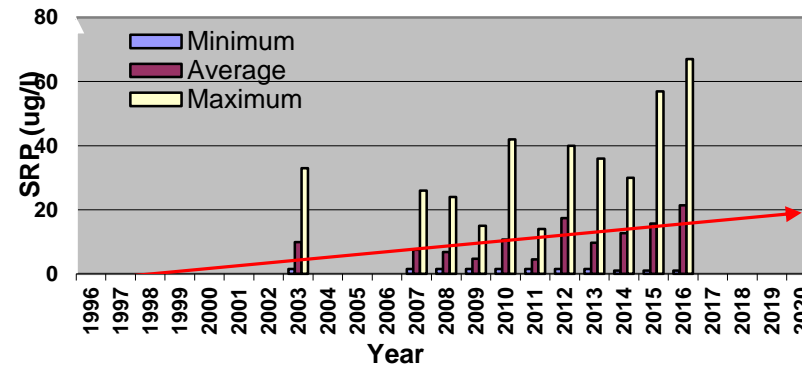
Midlake Site D Secchi Reading (Water Clarity)
(June-September)



Midlake Site D Surface Total Phosphorus
(June-September)



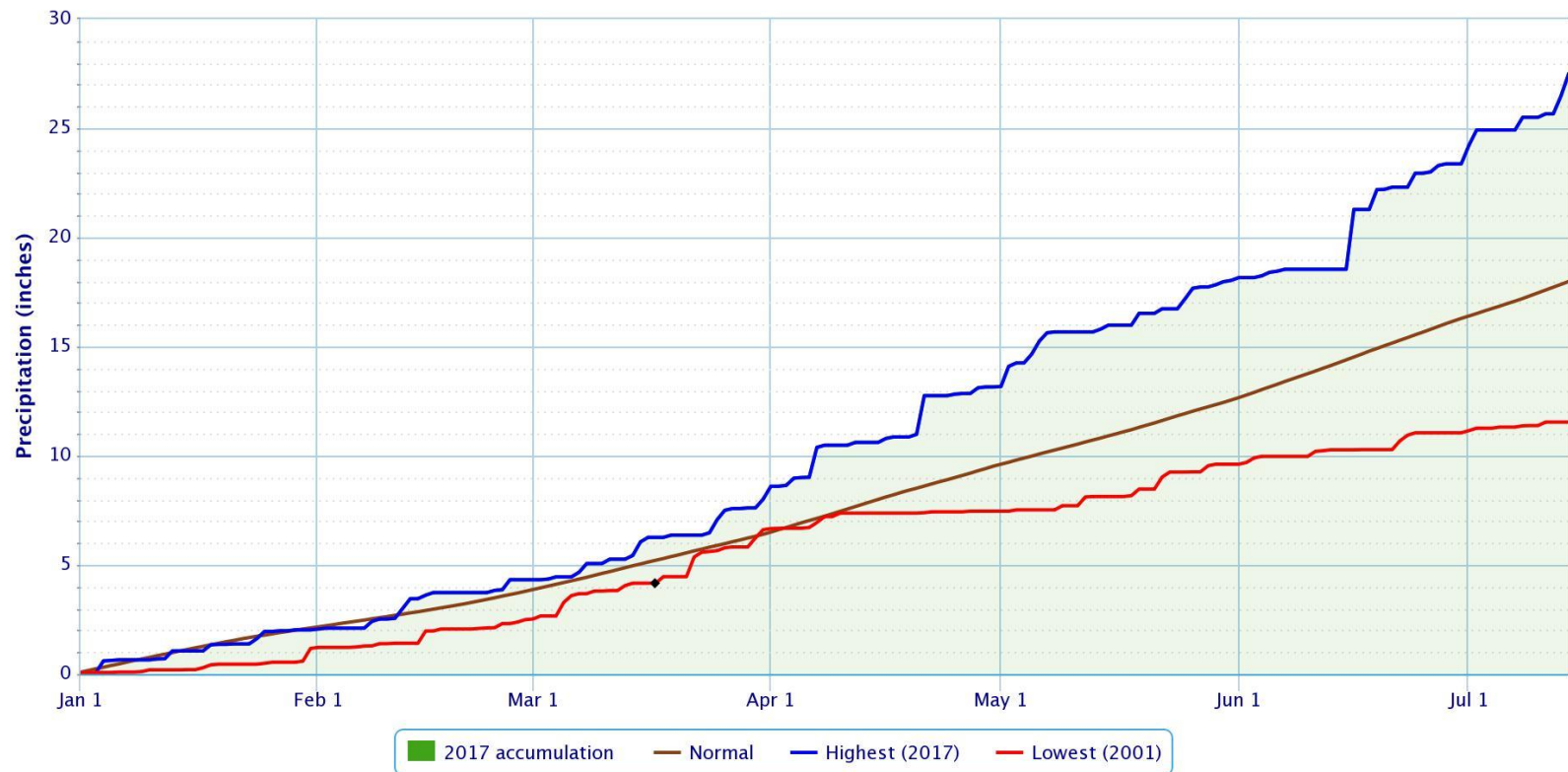
Midlake Site D Surface SRP (June-September)



2017 YTD Precipitation

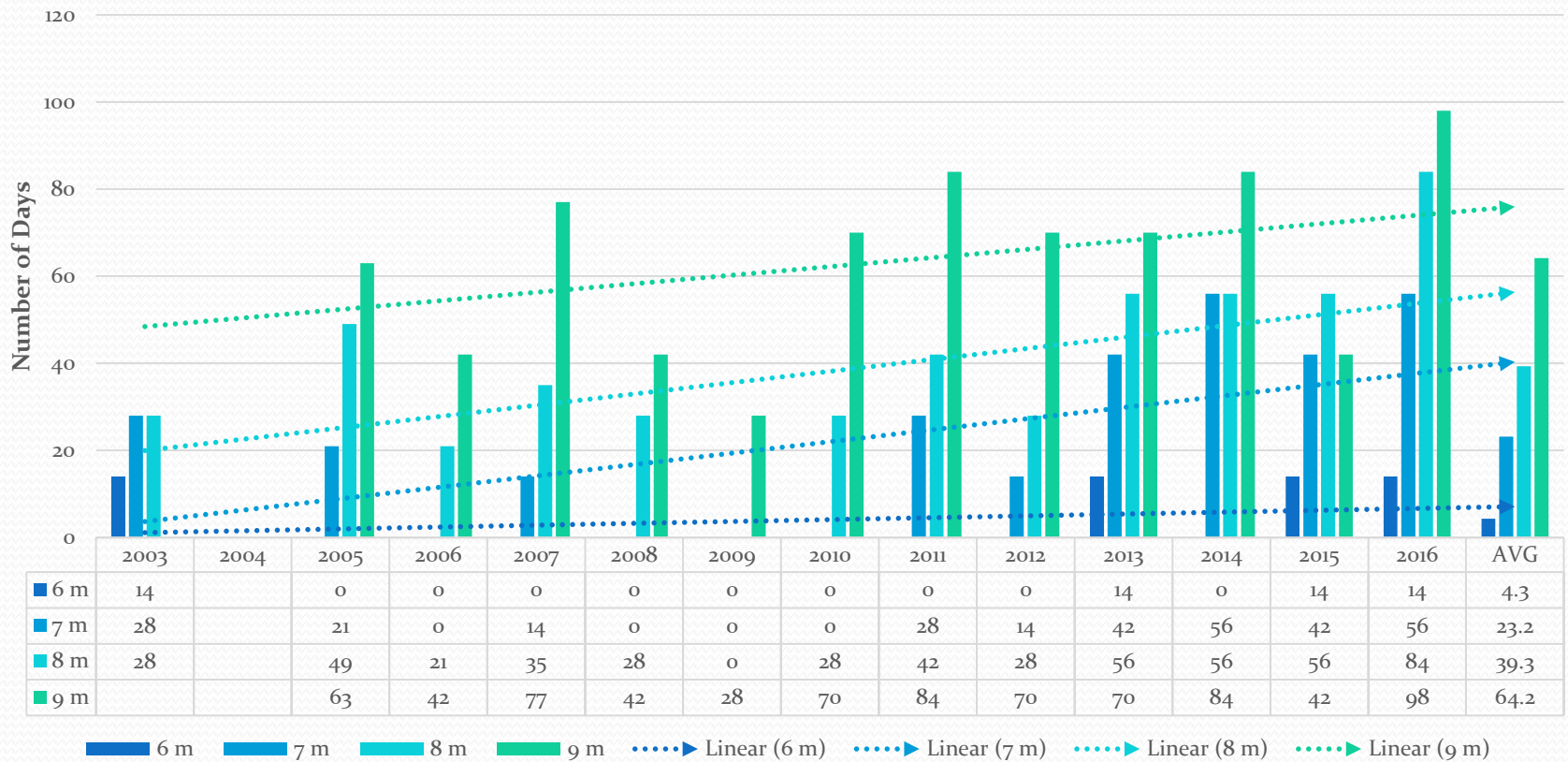
Accumulated Precipitation - HONEOYE, NY

Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



2003-2016 June-Sept Days of Anoxia DO<1

June-Sept Days of Anoxia (DO<1 ug/l)



Potential Contributing Factors

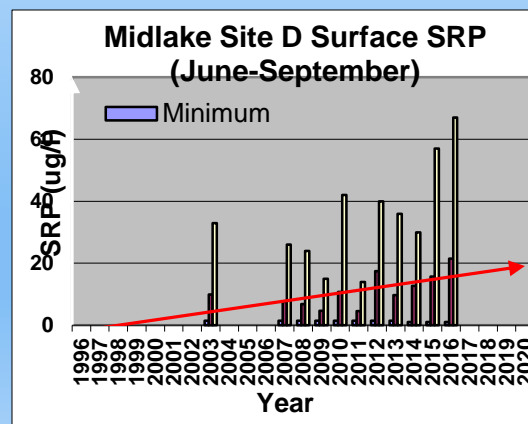
Physical

- Warming Surface Water Trend
- Mild Winters with Early Ice Out
- More Frequent Severe Storm Events (3 “100 yr.” Storms in Last 3 Years)
- Wind
- Etc.



Chemical

- Phosphorus levels increasing
- Nitrogen in surface water after lake mixing event
- Hydrogen sulfide in deep water
- Etc.



Biological

- Gloeotrichia Algae Blooms 2007-2016 (Except in 2015)
- Weed Line has Moved from 17' to 12'
- Zebra Mussel Population Decline (33% 2002-2014)
- Quagga mussels recently found in lake
- Etc.



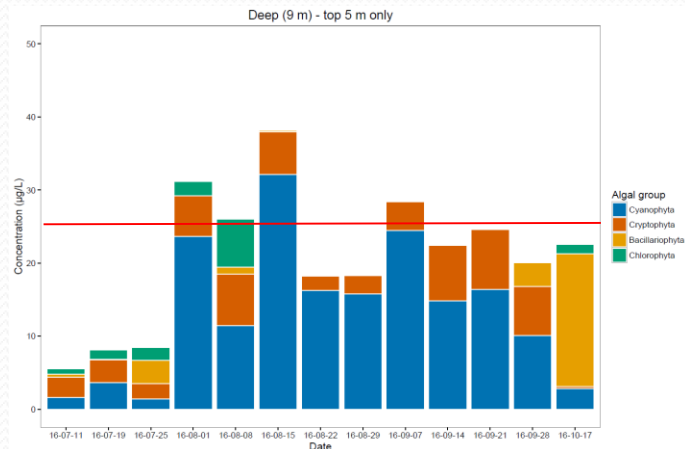
Our collaborative research project updates

Hobart William Smith College
drone blue-green algae monitoring project



Finger Lakes Institute

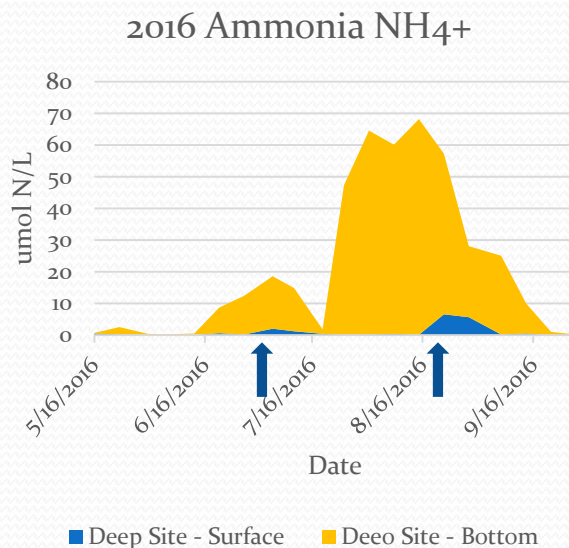
Water quality and algal community dynamics in the Finger Lakes



- **Where?** Honeoye & Canandaigua Lakes.
What? Nearshore water quality and algal community composition
Collaborators? Roxanne Razavi, FLI; Terry and Dorothy Gronwall, HLWTF
- **Funding Agency?** NYS Water Res. Inst.
- **Project summary**
This project aims to characterize algal blooms throughout the summer
- Determine water chemistry conditions before, during, and after successive algal blooms to assess what factors are associated with HABs
- FluoroProbe will be used to differentiate four major phytoplankton groups (green algae, diatoms, cryptophytes, and cyanobacteria) in the water column in open water and nearshore areas

Finger Lakes Institute

A study of the role of nitrogen in harmful algal blooms (HABs) in the Finger Lakes



- **Where?** Honeoye Lake
What? Role of nitrogen in the occurrence of harmful algal blooms
Collaborators? Roxanne Razavi, FLI; Mark McCarthy and Silvia Newell, Wright State University; Terry and Dorothy Gronwall, HLWTF
Funding? GLRC \$25,000 for 2017 -18
- **Project Summary**
Freshwater systems are generally thought to be phosphorus limited
- Research shows cyanobacteria growth is higher with the addition of both phosphorus & nitrogen compared to either nutrient alone
- This project will quantify the most bio-available form of nitrogen, ammonium to assess the availability of this essential growth factor in causing HABs

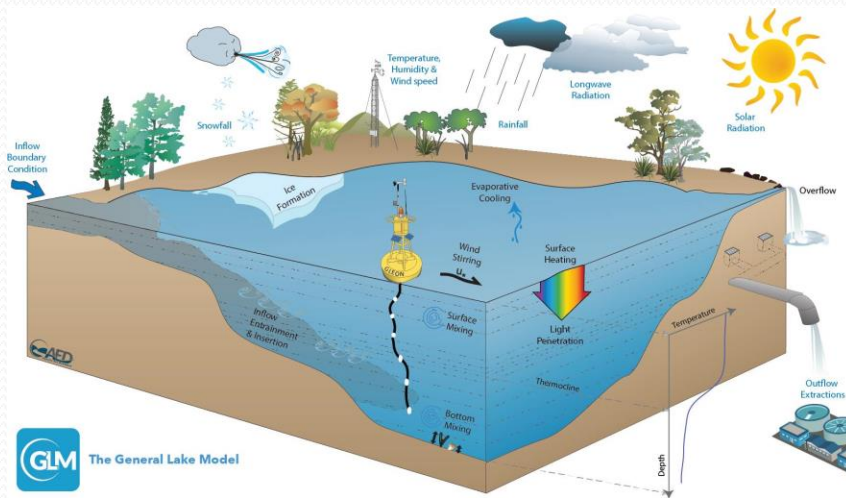
Cornell University & Finger Lakes Community College

Effects of Climate Warming in NY's Shallow Large Lakes: Temperature Stratification and Water Quality



- Researcher's
 - Dr. Nelson Hairston Jr., Cornell
 - Dr. Bruce Gilman, FLCC
- Lakes - Honeoye & Oneida Lakes
- Time Period – Yr. 2 of a 3 yr. project
- Research Funded by Grants
 - US Department of Agriculture
 - Cornell's Atkinson Center for a Sustainable Future
- Hypothesis
 - Climate warming is causing the surface water to be warmer creating stronger and longer time periods of stratification in the water column. This causes the water near the lake bottom to be anoxic (no oxygen) for longer periods of time increasing the amount of legacy phosphorus being released from bottom sediments

Next Dr. Bruce Gilman, FLCC



- How may climate change affect shallow inland lakes of New York State?
- A simple question with a complex answer...