

Governor Cuomo's HABs Action Plan Update

Terry Gronwall, Chairman
Honeoye Lake Watershed Task Force
HVA Annual Meeting July 14th, 2018

“Life is a Journey, not a Destination”

Ralph Waldo Emerson

- Water Quality Improvement is a Journey, not a Destination



There is no Silver Bullet Solution!

Governor Cuomo's HABs Proposal

December 21st, 2017

- \$ 65 Million Program to address the HABs issue in 12 High Priority NYS Lakes
 - Including Honeoye Lake
- DEC will developed a HABs Action Plan for each lake
- \$ 500,000 per Lake for HABs Action Plan Development
- ~\$ 60 Million to be shared by the 12 lakes for HABs Action Plan implementation
- Lakes chosen because they have either chronic toxic blue-green algae blooms, are a public water supply, or are a major tourist destination

Timeline

- January DEC started developing HABs Action Plan
 - Based on Draft DEC Total Maximum Daily Load Report
 - Recommendations from local steering committee
- Western Lake Summit Public Information Session
 - March 26 6-8 PM at Monroe Community College
 - Recommendations from nation panel of experts, local steering committee, and public
- DEC released their draft HABs Action Plan on June 18th
- Grant Funding and HABs projects implementation will take a number of years

HABs Action Plan Funding

- Competitive DEC Water Quality Improvement Grants
 - Reimbursement grants
 - 25% local match required
 - Grant applications will receive 3 bonus points
 - 2018 WQIP grant submission deadline July 27th
- Larger action plan projects will require engineering and project costs estimates before applying for grant funding
- Ontario County Board of Supervisors approved a resolution July 12th requesting NYS provide a different funding mechanism, expedite permitting, & provide funding in future years

HONEOYE LAKE

Ontario County



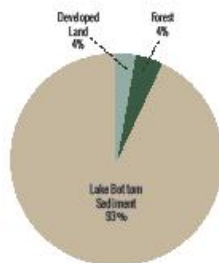
Department of
Environmental
Conservation

Department
of Health

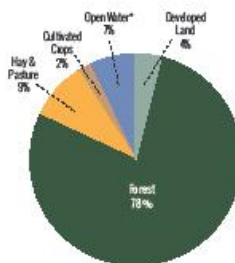
Honeoye Lake is one of twelve lakes identified as priority areas of study because they are vulnerable to HABs, critical sources of drinking water and vital tourism drivers. These lakes represent a wide range of conditions and will improve our understanding of HABs to help protect and restore other vulnerable waterbodies.

Phosphorus pollution—from sources such as wastewater treatment plants, septic systems, fertilizer runoff from farms and yards—is a major cause of HABs. There are other poorly understood factors that appear to be contributing to the uptick in HABs, including higher temperatures, increased precipitation, and invasive species. The causes of HABs varies from lake to lake.

Honeoye Lake
Phosphorus Loading



Honeoye Lake
Land Use



These charts show the percentages of different land uses within the lake watershed and an estimate of the amount of nutrients entering the lake from nonpoint sources.

*Open water represents all surface water (lake, rivers, streams) in the watershed.



The black outline shows the lake's watershed area: all the land area where rain, snowmelt, streams or runoff flow into the lake. Land uses and activities on the land in this area have the potential to impact the lake.

17'
(5m)

AVG. DEPTH

30'
(9m)

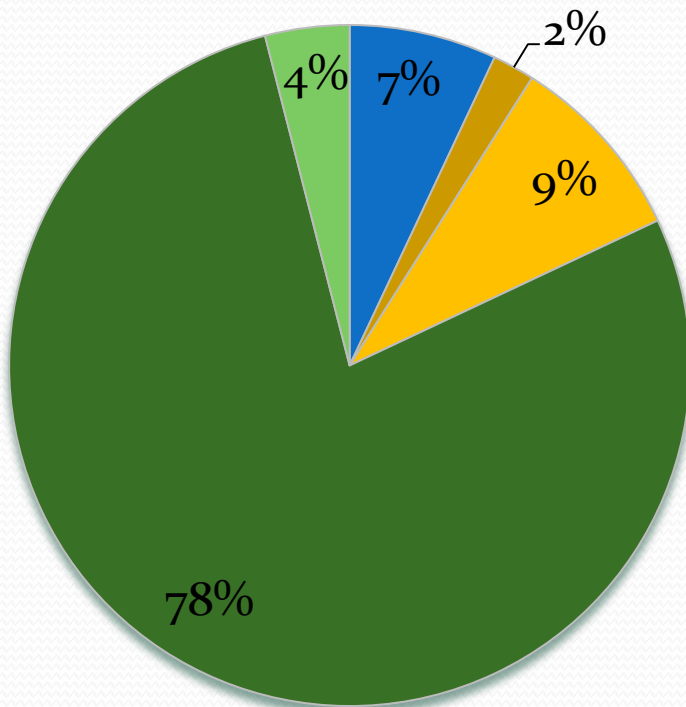
MAX. DEPTH

1,772
ACRES OF
SURFACE
AREA



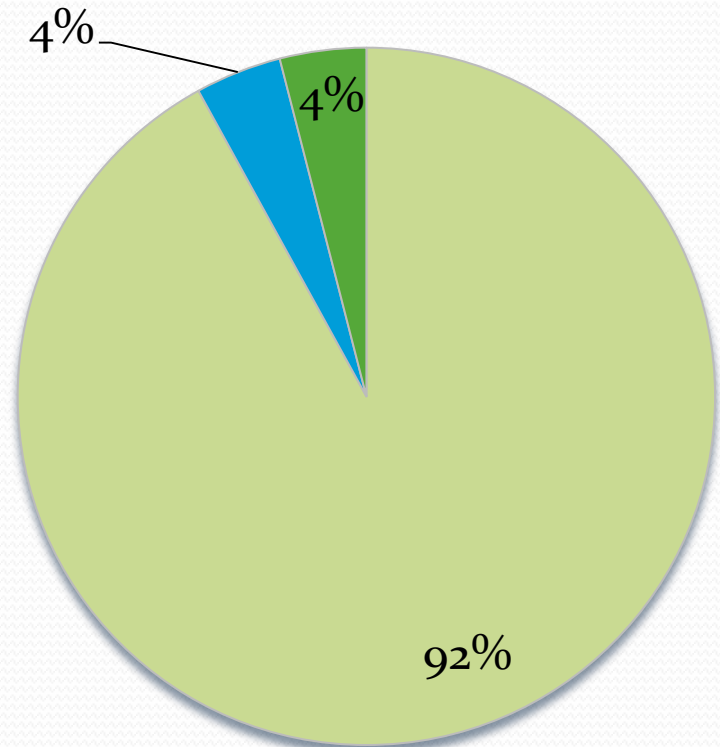
Honeoye Lake Land Use

- Open Water
- Cultivated Crops
- Hay and Pasture
- Forest
- Develped Land



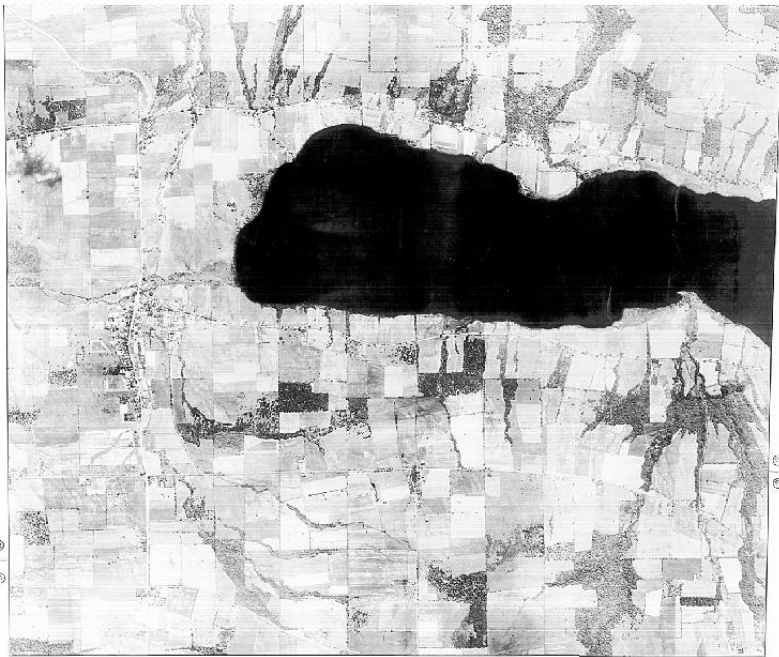
Honeoye Lake Phosphorus Loading

- Lake Bottom Sediment
- Developed Land
- Forest

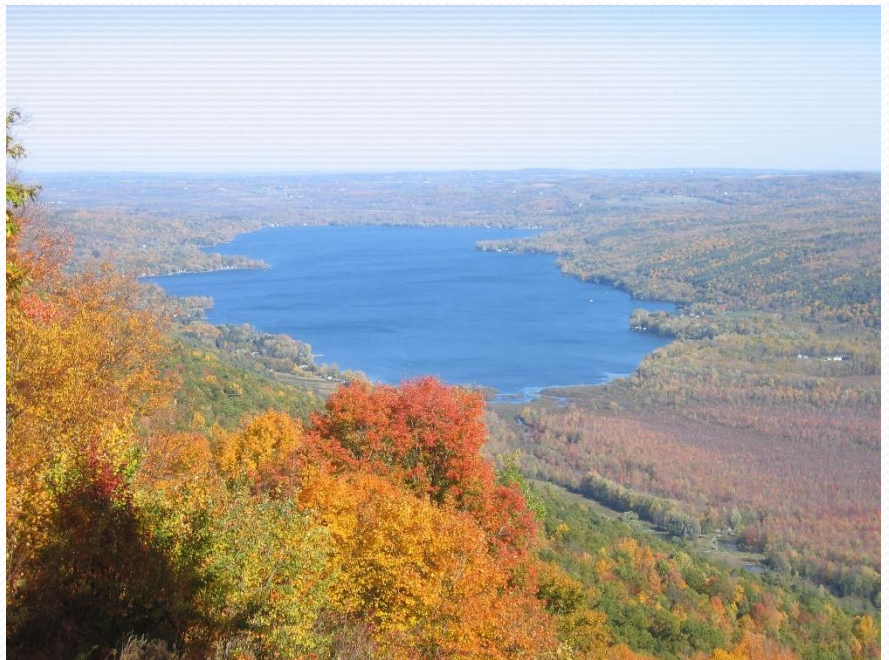


Honeoye Lake Watershed Past & Present

1929 Aerial Photo



2018 Harriet Hollister Park



HABs Action Plan Recommendations



- In-Waterbody Nutrient Inactivation - High Priority
- Watershed Best Management Practices
- Anthropogenic – Human Caused Nutrient Sources

Recommended In-Waterbody Nutrient Inactivation Projects

- Recommendations
 - Alum Treatment combined with an
 - Aeration Destratification System
- Next Steps
 - Secure ~\$50K of funding to engage a certified lake management consultant ASAP
 - Internal load study & make specific recommendations
 - Detailed engineering design for recommendations
 - Detailed project cost estimates
- Grant funding & permits dependent recommendation of lake management consultant study and on successful 2018 DEC pilot project completion

Legacy Phosphorus in Bottom Sediments

- When the lake bottom water has dissolved oxygen the phosphorus in the bottom sediments is bound to iron
- Once lake stratifies and forms a thermocline, decaying dead organic matter consumes the dissolved oxygen
- Then the phosphorus/iron bond weakens causing phosphorous to be released into the water near bottom
- Thermocline keeps the nutrient rich water from mixing with the surface water
- A thermocline disturbance or mixing event causes the nutrient rich water to reach the surface
- This causes a blue-green algae bloom!

Alum Treatment

- Alum (Aluminum Sulfate) bonds with the phosphorus instead of the iron
- Alum/phosphorus bond remains strong when there is no dissolved oxygen
- This inactivates the phosphorus in the bottom sediments
- Expected life span of 5-7 years
- Regularly used in lakes in all 49 states except for NY
- NYSDEC is reviewing their Alum permitting guidelines with the expectation that Alum treatments will be allowed in the future once the new guidelines are approved

Aeration Destratification System

- Uses large air compressors to supply air through pipes to air diffusers in deep water that stratifies
- This will provide dissolved oxygen in the deep water keeping the phosphorus bonded to the iron
- The phosphorus will stay in the bottom sediments and not reach surface water reducing the nutrients to fuel a blue-green algae bloom
- Expected life span of 20-30 years
- Permittable under certain conditions in NY

Recommended In-Waterbody Nutrient Inactivation Projects

- Evaluate the use of blue-green algae mitigation strategies at the Sandy Bottom Park Swimming Beach
 - Action HLWTF & Richmond to secure funding to engage a lake management consultant to evaluate and recommend mitigation strategy; algaecides, ultrasonic devices, water circulation systems, and/or physical barriers.
- Purchase additional equipment to Increase the productivity of removing aquatic vegetation fragments from the lake shoreline
 - Action Ontario County preparing WQIP grant application for a custom conveyer for shoreline weed fragment pick-up barge.
- Design & conduct a pilot study to evaluate the effectiveness of Zequanox at reducing zebra and quagga mussel populations
 - Not feasible currently due to the cost of a Zequanox treatment.

Recommended Watershed Best Management Projects

- Storm Water BMPs
 - On-going - OCSWCD currently pursuing with WQIP grant funding; inlet restoration project, prefabricated sediment basins, debris guards, vernal pools, Plans to submit future grant proposals.
- Streambank & Shoreline Stabilization Projects
 - Action OCSWCD plans to submit a WQIP grant application for the design and implementation of a nature based Sandy Bottom Park lake bank stabilization project. Also, plans to submit future grants to stabilize stream banks.
- Improved Riparian Corridors
 - Action OCSWCD plans to submit future grant proposals.
- Terrestrial Invasive Species Control
 - Action FL-PRISM & OCSWCD to collaborate to secure grant funding

Recommended Anthropogenic Actions to Reduce Human Caused Nutrient Sources

- Purchase sewer lift stations back-up power generators
 - Action Ontario County preparing a grant application
- Sewer extension to serve additional residents near the lake that are using private septic systems today
 - Action Ontario County – Dependent on securing funding for waste water treatment plant upgrades first
- Septic system replacement and repair program for private land owners within 250' of lake or tributary
 - Ongoing OCSWCD – In first year of a five year program

Recommended Anthropogenic Actions to Reduce Human Caused Nutrient Sources

- Forestry BMPs
 - On-going - OCSWCD pursuing with WQIP Round 11 funding currently. Plans to submit additional grant applications in future years.
- Agricultural BMPs
 - On-going - OCSWCD pursuing currently with multiple projects. Just received a \$100K grant for Genesee river watershed projects.
- Education/Outreach on Landowner BMP
 - On-going – HVA/OCSWCD/FLI initiatives. Expect additional grant funded projects in the future.

Questions

- Water Quality Improvement is a Journey, not a Destination



There is no Silver Bullet Solution!