

# **“New Ideas & Leadership” CLP End-of-Season Rally, September 2, 2017**

## **Welcome/Agenda Review**

### **2017 Update**

Data Collection (herbicide) Project

Shoreline/Near Shoreline Demonstration Project

Grant Requests Submitted/Status

Fundraising

### **Weed Cutting Impacts**

**Expert Panel QAs/Audience Qs**

### **2018 Plans**

**Volunteer Needs**

**Community Involvement**

**Wrap up/thank you**

After Rally...

**Community Breakouts**

# Chautauqua Lake, A Great Lake Seeking a Greater Future

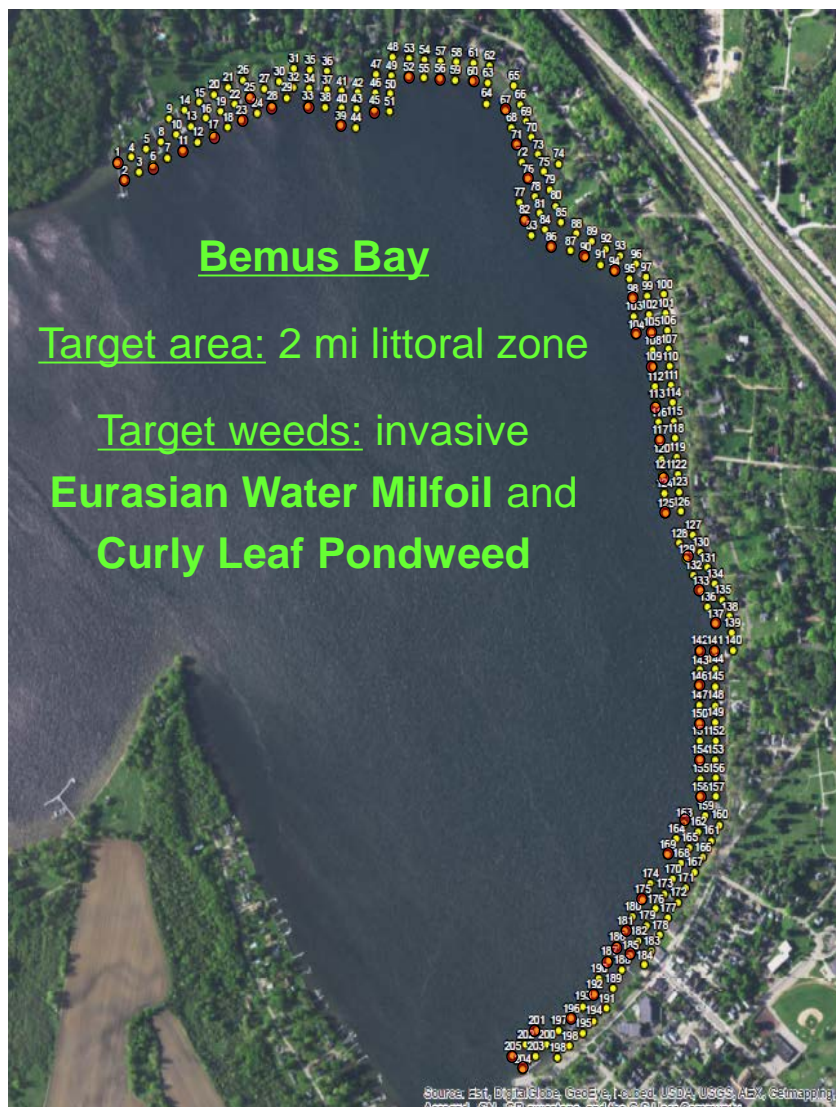
## Chautauqua Lake Partnership – Data Collection Project

- Permit-Required Goals and Constraints
- Herbicide treatment – June 26, 2017
- Treatment Areas and Control Sites
- Results and Post-Treatment Survey
- Next steps



# Chautauque Lake, A Great Lake Seeking a Greater Future

## Permit-Required Goals and Constraints



- Primary Goal
  - Assess effectiveness of four combinations of **Aquathol-K** and **Navigate** on **Eurasian Water Milfoil** and **Curley-Leaf Pondweed**
- Secondary Goal
  - Assess impact of four combinations of **Aquathol-K** and **Navigate** on **desirable native weeds**
- Tertiary Goal
  - Assess drift and dilution resulting from **small treatment areas** within a **larger lake**
- Data Collection-Related Constraints
  - Later than optimal early-May timing
  - Limited to less than 200 ft offshore
  - Non-optimal herbicide combinations
  - Earlier than optimal post-treatment survey
- Note: Project doesn't address algae

# Chautauqua Lake, A Great Lake Seeking a Greater Future

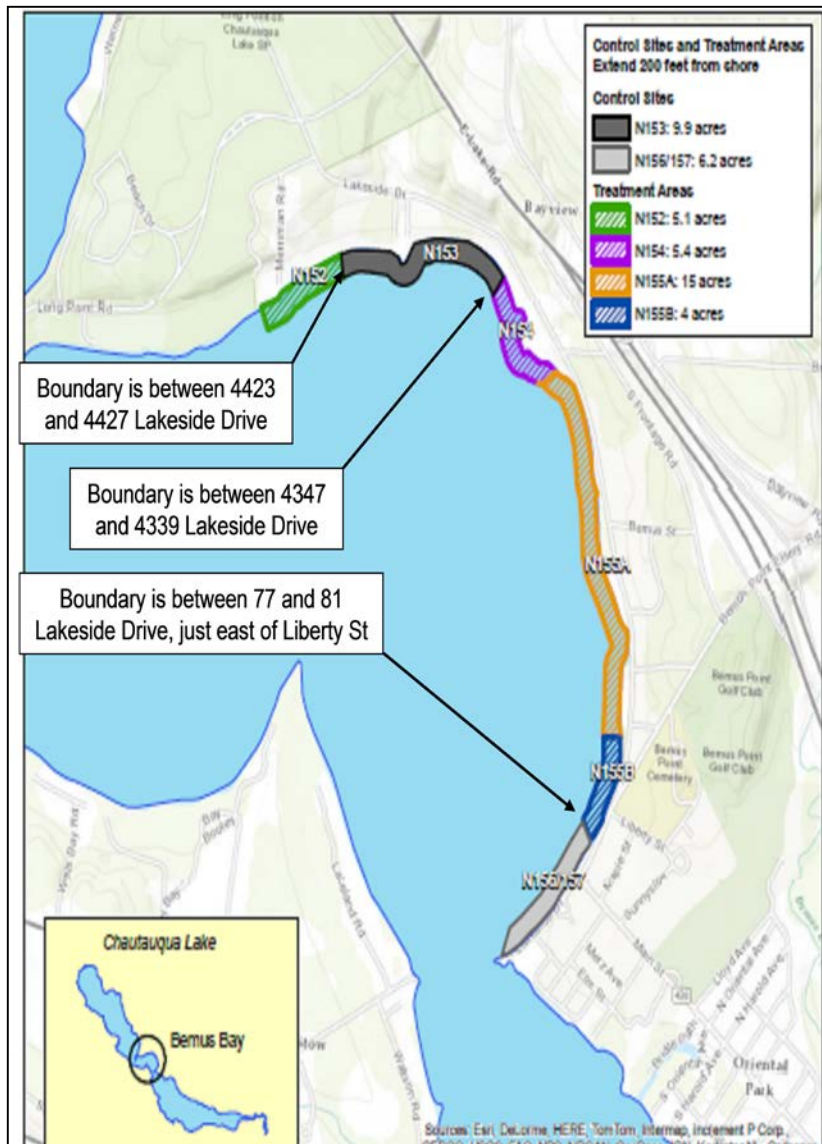
## Herbicide Treatment – June 26, 2017



- Treatment conducted by SOLitude Lake Management for Town/Village
- Staged from Bemus Point boat landing
- Supervision by NYS DEC
  - 4 herbicide and fisheries scientists
- Security by CC Sheriff's Department and NYS DEC
  - 5 Deputies + 5 DEC enforcement officers
  - On-water Bemus Bay boat patrol
  - On-land car patrol
- Baseline water sampling: by CLP with CC Department of Health
  - 4 permit-required sites near Bemus Bay
  - 2 CLP-added sites at uplake water intakes

# Chautauqua Lake, A Great Lake Seeking a Greater Future

## Treatment Areas and Control Sites



- 4 Treatment Areas in Bemus Bay
  - MMS Zones N152, N154 and N155
  - Herbicide-acceptable MMS Zones
  - Highest concentrations of invasives
- Shoreline/edges/200 ft bounded Areas
  - 1-1/4 miles (65%) of the 2 mile shoreline
  - 30 acres total
  - 45' wide Summit Park Drive channel
  - GPS positioned application
- 2 Control Sites not treated
  - MMS Zones N153, N156 and N157
  - OK for herbicides but MMS outdated

# Chautauqua Lake, A Great Lake Seeking a Greater Future

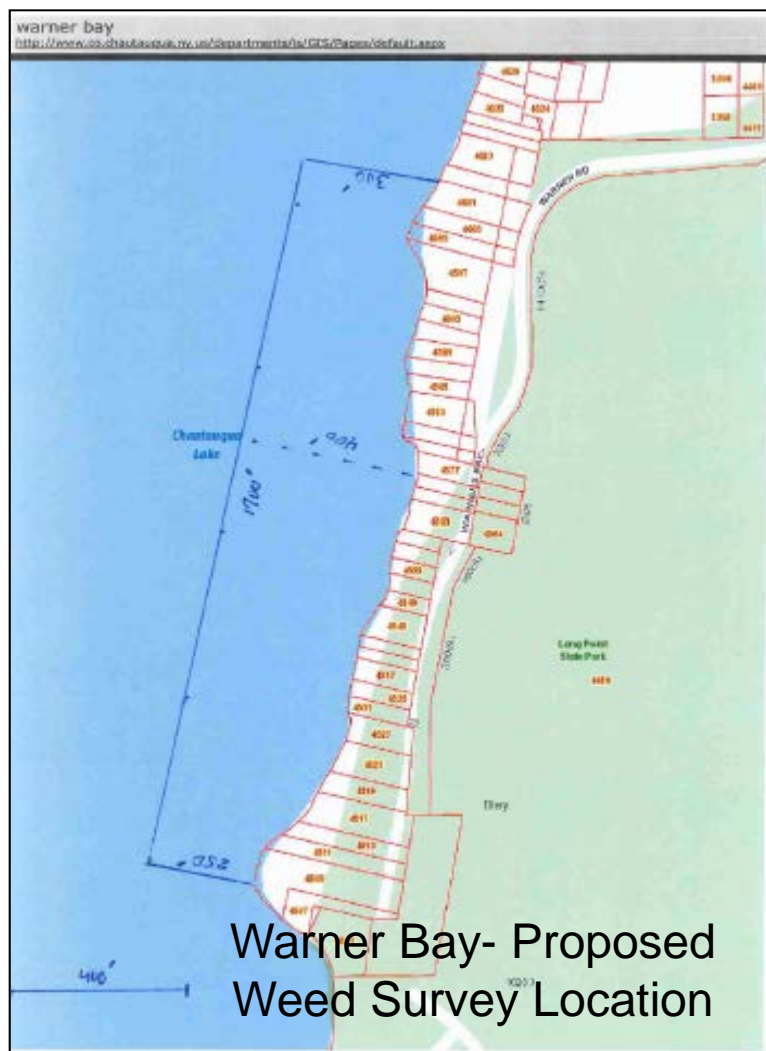
## Results and Post-Treatment Survey



- No weed cutting since ~June 23
  - 1 month suspension supporting Project
  - Limited to Bemus Bay-Ellery shoreline
  - Suspension extended in Treatment Areas
  - No weed cutting for 10 weeks now
- Visual results show effective treatment
  - Reduction in near shore CLP and EWM
  - Increase in native weeds
  - CC Executive, “Best he’s ever seen the Bay”
  - Unaware of weed-related boat problems
- Post-treatment survey conducted July 20
  - Focus: Data Collection Project goals
  - Safety/control effectiveness already proven
  - Draft report review in process
  - Results to be used in future permitting

# Chautauqua Lake, A Great Lake Seeking a Greater Future

## Data Collection Project - Next Steps



- Complete Post-Treatment Survey Report
- Focus on 2018 weed management
  - 2017 Project behind us
- Inquiries from/working for 2018 with...
  - Burtis Bay
  - Point Stockholm/Greenhurst
  - Stow between Ferry and Bridge
  - Sunrise Cove
  - Warner Bay
- Potential weed surveys 3Q2017
  - Maps from interested communities
  - Seeking CC funding through Alliance
- Community outreach beginning 3-4Q17
  - Lakeshore Towns, Villages and clubs

# Chautauqua Lake, A Great Lake Seeking a Greater Future Shoreline and Near Shore – 2016 Memories



Late Season: August – September 2016





# Chautauqua Lake, A Great Lake Seeking a Greater Future Shoreline and Near Shore – 2017 Memories



## Early Season: June - July 2017



# Chautauqua Lake, A Great Lake Seeking a Greater Future Shoreline and Near Shore Cleanup – HydroRake

Shoreline/Near Shore Cleanup Demonstration Project (focus on ~2 mi shoreline, Summit Park Dr to Casino): deployment of safer, more cost effective, more reliable and less labor intensive removal of weed fragments and rotted weed sludge



# Chautauqua Lake, A Great Lake Seeking a Greater Future Shoreline and Near Shore Cleanup – HydroRake



## Shoreline/Near Shore Cleanup – Performance/Plans

**Chautauqua Lake Shoreline/Near Shore Cleanup**  
 Chautauqua Lake Partnership Demonstration Project  
 Performance update 080917  
 (Not Final)

**Safety is #1 Priority**

Note: deployment delayed from July 17 to July 27  
 Note: unannounced CC visit July 31 (3rd of 10 day demo) - premature performance evaluation (Chicago)  
 Note: lake level dropped >12" from planned start on July 17 to actual start on July 27  
 Note: amount of weed fragments limited by suspension of weed cutting in late June and reduction in prop-out weeds after herbicide application

1. What is the shallowest water depth the HydroRake can operate in without grounding?

2. How far from the shore side of barge can the HydroRake's mechanical equipment reach?

3. Can the HydroRake's mechanical equipment pick up weeds (1) on the shoreline and (2) on the water?  1  
 2

4. Can the HydroRake's mechanical equipment pick up sludge (1) on the shoreline and (2) on the water?  1  
 2

5. Are people required to get in the water to load weeds and sludge on the transport barge?

6. How many people are required where to operate the process?

7. How much weed material (lb and ft<sup>3</sup>) can be loaded onto a transport barge from the shoreline?  
 - In 1/2 hour confirmed 7500  
 - In 1 hour weed limited/estimated 5500  
 - In 2 hours weed limited/estimated 3500 1 barge load  
 - In 3 hours weed limited/estimated 4500  
 - In 4 hours confirmed minimum 4-6 barges/8 hour day 6000 2 barge loads

8. How much weed material (lb and ft<sup>3</sup>) can be loaded onto a transport barge from the near shore?  
 - In 1/2 hour confirmed 4000  
 - In 1 hour weed limited/estimated 3000  
 - In 2 hours weed limited/estimated 17000  
 - In 3 hours weed limited/estimated 24000  
 - In 4 hours weed limited/estimated 30000 1 barge load

9. What is the maximum safe weed load (lb/ft<sup>3</sup>) for a transport barge?

10. How long does it take to fill a transport barge?

11. How long does it take to move the transport barge to the unloading area?

12. How long does it take to unload a transport barge?

13. How long does it take to fill a truck? CLA

14. How many weed material boxes a truck hold? CLA

15. How long does it take to transport weeds to the disposal site, unload and return ready for more?

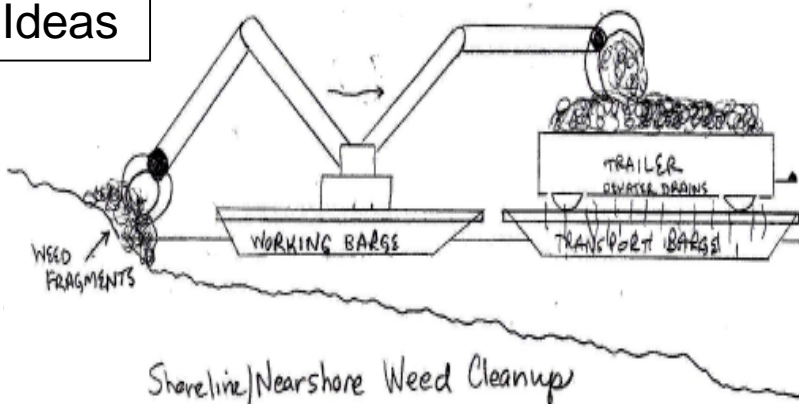
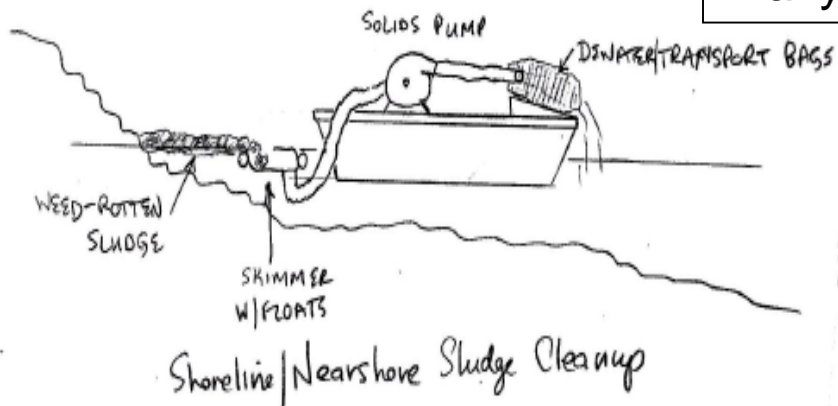
16. What challenges impeded safety, efficiency? required 15' water depth no further than 15' from shore limits access, limited HydroRake arm rotation requires reposition of HydroRake to barge, make hydraulics level "base" required for precise weed pickup, prioritize "base" on transport barge limit bad weather operation, variation in operator experience/capability, HydroRake/barge transport in bad weather

17. What improvements to equipment, staff and operation could improve safety and efficiency? design/build HydroRake requiring less water depth closer to stern (minimum vs. slow bagel arm), additional flotation in barge front, ballast shifting capability, longer arm, arm rotation to a minimum 60 degrees from front, adjustment of arm/hydraulics to improve "feel", deep up barge spud system, improved motor design (hulls, better screen mounting, improved modified "fingers")

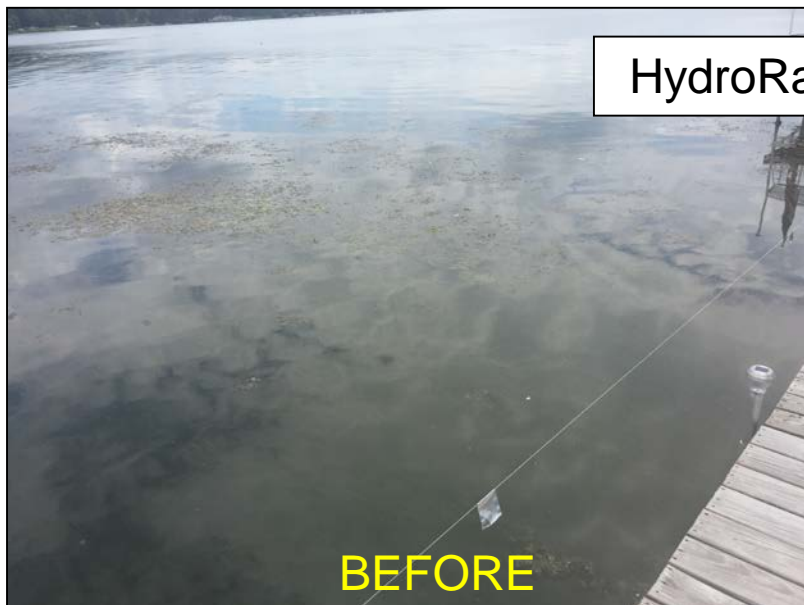
- HydroRake redesign/fabrication based on 2017 Demonstration Project
  - Aluminum hull/arm
  - Additional flotation/ballast system
  - Longer pickup arm with 90 degree swing
  - Improved hydraulics and "feel"
  - "Spud" system
  - Rake designed for weeds/sludge
- Minor change to "bare bones" transport barge design ("spud system")
- "MobiTrac" to be further evaluated
  - Amphibious/tracked vehicle
  - Would run along shoreline/near shore
  - Permit requirement to be tested (environmental cost worth the benefit)
- Transport by water (barge) or land (truck)

# Chautauqua Lake, A Great Lake Seeking a Greater Future Shoreline and Near Shore Cleanup – Equipment

## Early Ideas



## HydroRake Results



# Chautauqua Lake, A Great Lake Seeking a Greater Future

## Weed Cutting/Harvesting – Impacts

- Intended to educate and relate to our lake
- Weed cutting/harvesting needed
- Must be effectively and fairly managed
- Need formal environmental review
- Impacts must be mitigated
- Regulation would force methods comparison

The following supporting excerpts (in quotation marks) are from...

NYSDEC Division of Water

**A Primer on Aquatic Plant Management in New York State**

(April, 2005 Draft)

and

New York State Federation of Lake Associations, Inc. in cooperation with

The New York State Department of Environmental Conservation

**Diet for a Small Lake**

**The Expanded Guide to New York State Lake and Watershed Management**

(Second Edition, 2009)

# Some Problems With Harvesting Weeds

2016 near shore/shoreline photos. Not the Partnership's idea of Environmental Conservation



Milfoil in Burtis Bay



Curly Leaf Pondweed at Stow



# Chautauqua Lake, A Great Lake Seeking a Greater Future

## Chautauqua Lake Partnership (CLP)

- Chautauqua County's recently completed Macrophyte Management Strategy (MMS) requirement "**All harvested plant material must be collected and removed from the lake**" not being met
- Weed cutting is "...**non-selective... (cannot) selectively remove target plant species within diverse beds, particularly near the lake shoreline...cutting nearly all of the plants contacting the cutting bar**"

## Chautauqua Lake Partnership (CLP)

**“Fragments of cut plants that are not picked up and removed can move from the treatment area by wind or currents, spreading the plant to other portions of the lake or to downstream water bodies.**

**This can result in enhanced propagation of those plants that spread primarily from fragmentation, such as milfoil.**

**Harvesters can spread invasive weeds to places not yet colonized and create problems where none previously existed.”**

**“The most significant side effect (of weed cutting)  
...is fragmentation...”**



## Chautauqua Lake Partnership (CLP)

**“Plant communities may be altered by harvesting.**

**If both native and fast-growing exotic plants are cut to the same degree, the exotic plants...may grow faster and dominate the community.**

**This is especially true for plants that propagate by fragmentation (such as Milfoil)...stressed plant communities often favor the selective growth of exotic plants...cut plants often rebound with more luxuriant growth.”**

# Chautauqua Lake, A Great Lake Seeking a Greater Future Chautauqua Lake Partnership (CLP)

**“Small, slow moving fish may be trapped in the cutting blades or removed by the conveyor.”**



Small fish, and nymphs of damselflies and dragonflies are trapped in cut weeds and die on the barges.

## Chautauqua Lake Partnership (CLP)

**“...the perpetual presence of the (weed cutting) machine is objectionable...and...an obstacle to jet skiers and water skiers...”**

**“If all cut vegetation is not removed, oxygen levels may temporarily fall and nutrient levels, such as phosphorus, may rise. Turbidity (also results) from the harvesting process.”**

# Chautauqua Lake, A Great Lake Seeking a Greater Future

## Chautauqua Lake Partnership (CLP)

090217 Rally



**“Weed cutting can’t operate in shallow areas near docks and shorelines...is not universally accepted ...is a cosmetic treatment ...and it will not prevent re-growth or even provide any significant long-term control.”**

**“...species of plants and their growth patterns should be identified before harvesting...lakeshore property owners should be informed of where and approximately when harvesting will take place...several criteria should be examined before establishing this schedule...”**



courtesy M Hassler, www.knoch1.de

Elodea  
Native ↑

Milfoil –  
Alien →



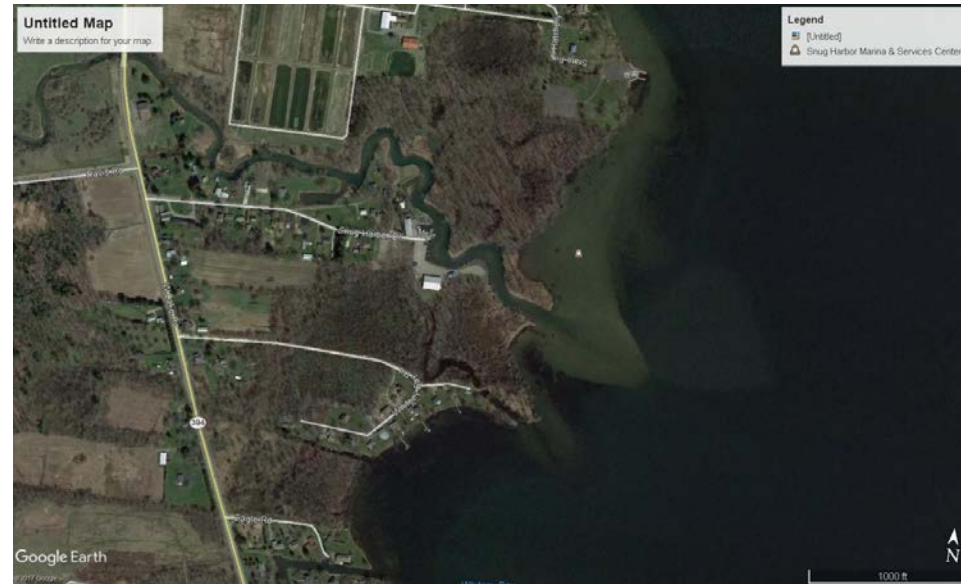
© Oliver Risteski



# Chautauqua Lake, A Great Lake Seeking a Greater Future

## Chautauqua Lake Partnership (CLP)

090217 Rally



**“(Weed cutting) inside the Adirondack Park...requires a permit...(but) outside (the) Park is not regulated except in cases where the harvesting is within or adjacent to classified wetlands...”**

**“...in recent years the use of herbicides has largely superseded harvesting as the most common for “whole lake” control of nuisance plants...”**

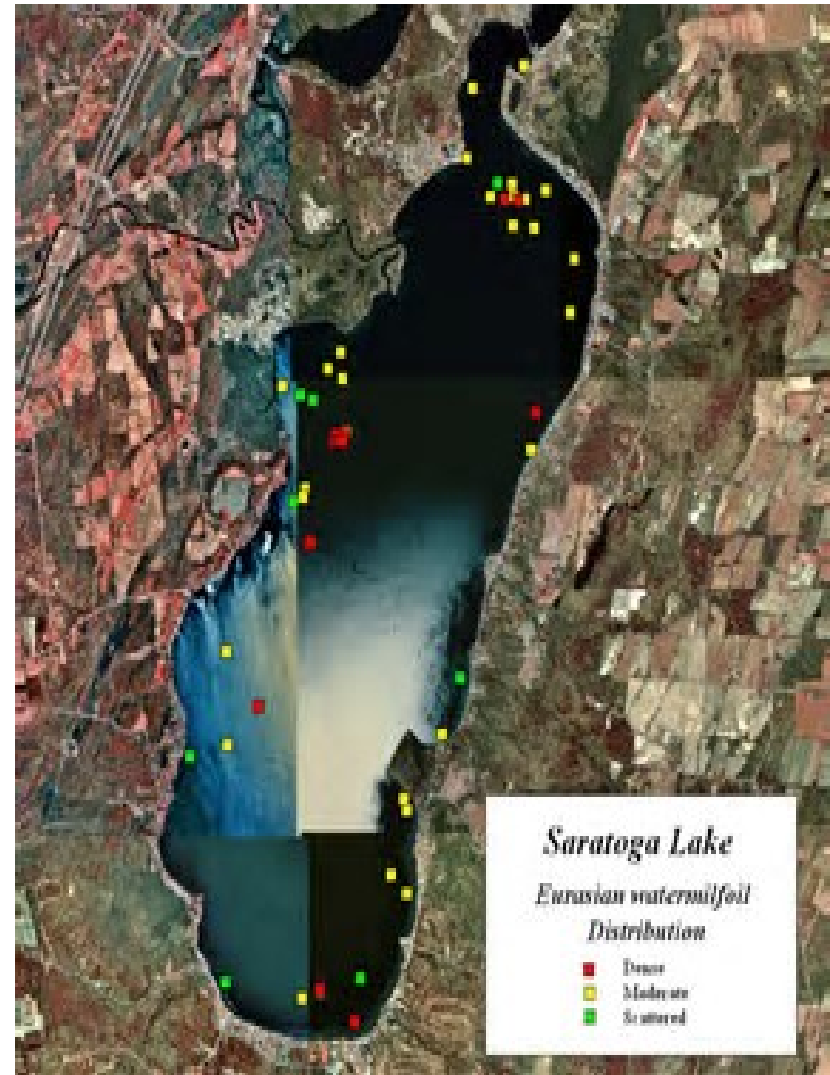


2017 Bemus Bay Herbicide Project



CLA Harvester

In 4,000 acre Saratoga Lake, “...mechanical weed harvesters were purchased in 1984...small scale experiments since 2000 on the use of aquatic herbicides...by 2007, large scale aquatic herbicide use was adopted as the management tool of choice...”



## Chautauqua Lake, A Great Lake Seeking a Greater Future

# Chautauqua Lake Partnership: 4Q2017-2018 Plan

- CLP-DEC permit-related activities clarified challenges
  - 1986 Chautauqua-specific decree (DEC/CLA) required EIS for herbicides
  - Initial EIS issued in 1990 but CLA discontinued herbicide use in 1992
  - High cost EIS/SEIS requirement effectively eliminated herbicide use
  - 25 year unintended one-size-fits-all “experiment” unsuccessful
- 2018 Plan scope
  - 1986 decree reversal
  - Supplemental Environmental Impact Statement (SEIS)
  - Community outreach/facilitation
  - Remediation of Bemus Bay
  - Optimization of shoreline/near shore cleanup equipment
  - Mitigation of negative weed cutting impacts

## Chautauqua Lake, A Great Lake Seeking a Greater Future

# Chautauqua Lake Partnership – 2018 Plan: Decree

- Reversal of 1986 decree
  - The original cause of Chautauqua lake-specific requirements
  - Result: 25 year “One Size Fits All” weed cutting experiment - failed
- Decree implications
  - Communities must spend \$200k+ for a SEIS to support a permit application...
  - ...in hope DEC will grant a herbicide permit for their portion of the lake...
  - ...if it's granted, it gives the community the right to spend more money...
  - ...to use EPA/DEC-proven and commonly-used herbicide technology...
  - ...to begin cleanup of a DEC-owned and stewarded lake...
  - ...deteriorating as a result of the 1986 decree and subsequent inaction
  - “What’s wrong with this picture?” – call/write your NYS representatives

## Chautauqua Lake, A Great Lake Seeking a Greater Future

# Chautauqua Lake Partnership – 2018 Plan: SEIS

- Supplements 1990 Environmental Impact Statement for herbicides
- Steps
  - Establish lead agency(s): County in 1990, likely Towns and Villages in 2017
  - Prepare permit application(s): after determining where to apply herbicides
  - Complete Environmental Assessment Form (EAF): “positive declaration”
  - Scope SEIS: narrow scope, public scoping meeting, gather comments
  - Prepare Draft SEIS: law firm lead, environmental and science consultants
  - Finalize SEIS scope: after hearing, gathering of comments and responses
  - Prepare Final SEIS: law firm lead, environmental and science consultants
  - Conduct SEQRA process and incorporate findings into SEIS
  - DEC permit decision: based on permit applications plus Final SEIS and SEQRA
- Challenges
  - Expensive and time consuming
  - Requires significant oversight
  - Will focus on only some areas of lake in 2018, more SEIS for other areas 2019+

## Chautauqua Lake, A Great Lake Seeking a Greater Future

# Chautauqua Lake Partnership – 2018 Plan: Outreach

- Began 2Q2017 identifying contacts in areas of Chautauqua Lake with troublesome weed problems
  - Warner Bay, Stow, Greenhurst, Sunrise Cove and Burtis Bay
- Breakout sessions after September 2 End of Season Rally to educate citizen groups and facilitate action plans
- Potential 3Q17 Weed Surveys IF funds are available
- 3-4Q17 visit lakeside towns, villages and service clubs to promote 2018 Plan and development of citizen action plans
- Identification of optimal weed management methods (herbicides or harvesting or both) and facilitation of permitting

# Chautauqua Lake Partnership – 2018 Plan: Bemus Bay

- Serious issues identified in 2017
  - Proliferation of invasive weeds (EWM and CLP) “choking out” natives
  - Deep sediment/decomposing weed accumulation “smothering” lake-bottom ecosystem (no natural lake bottom environmental baseline)
- Remediation objectives
  - Restore lake bottom
  - Encourage native weed re-establishment
  - “Deepen” Bay
- Remediation focus
  - Early-season herbicide treatment to eliminate EWM and CLP
  - Removal of on-bottom decomposing weed mass in littoral zone (~120 acres)
- Potential for special consideration by DEC and NYS/Federal funding
- If successful, could lead the way for restoration in other areas



## Chautauqua Lake, A Great Lake Seeking a Greater Future

# Chautauqua Lake Partnership – 2018 Plan: Shoreline

- Improvement of equipment and begin expansion lake-wide
- HydroRake redesign/fabrication based on 2017 Demonstration Project
  - Aluminum hull/arm
  - Additional flotation/ballast system
  - Longer pickup arm with 90 degree swing and improved hydraulics
  - “Spud” anchoring system
  - Redesigned rake specifically for weeds/sludge
- Minor change to “bare bones” transport barge design (add “spuds”)
- “MobiTrac” evaluation
  - Amphibious/tracked vehicle to run along shoreline and near shore
  - Permit requirement to be tested (environmental cost worth the benefit)
  - Transport from shore by water (barge) or land (truck)
- CLP efforts continuing to drive new CLA near shore/shoreline focus

# Chautauqua Lake Partnership – 2018 Plan: Weed Cutting

- Education and mitigation of negative weed cutting impacts
  - Public unaware of DEC-documented negative environmental impacts
  - Fragment propagation and non-selective cutting favors invasives
  - Resulting “weed farming” contributes to on-bottom decomposing mass
  - MMS: “All harvested material to be collected and removed from lake”
  - Costs don’t but must included multiple passes and fragment recovery
  - Regulated/requires permits in Adirondacks and at least 7 states
  - DEC is unaware of any prior DEC environmental review
- Complete: Poster session at August 19 “Celebrate the Lake Breakfast”
- Ongoing: Informal meetings with selected CLA Board members
- Complete: Presentation at September 2 CLP “End of Season Rally”
- Next: Meeting with CLA Board to advise them of CLP plans
- Next: Meeting with DEC to request environmental review

## Chautauqua Lake, A Great Lake Seeking a Greater Future

# Chautauqua Lake Partnership – 2018 Plan: Execution

- Funding
  - Seeking \$500k (OPEX and CAPEX) for 2018 work program
  - Federal/state/local governments, foundations, individuals/businesses/groups
  - **Exceeded \$150k goal for 2017 – THANK YOU!**
    - + \$2k from Town of Ellery, awaiting promised \$10k from County Executive
    - + \$55k from individual and business donations
    - + \$90k from local foundations (Lenna and CRCF)
- Management
  - Significant increase in level and complexity of activities
  - County/Alliance ineffective seeking collaboration with other organizations
  - Will supplement 2017 Officers/Board with additional and special skills
  - Needs being identified: seeking volunteers, contracted staff considered