

CAYUGA LAKE, AURORA AND ITHACA, NY HYDRILLA CONTROL DEMONSTRATION PROJECT

AQUATIC PLANT CONTROL RESEARCH
PROGRAM, RIVERS AND HARBORS ACT OF
1958 (P.L. 85-500), AS AMENDED

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& Aquatic Plant Control Research Programs

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Buffalo District

1 December 2022



US Army Corps
of Engineers®



Photo: Ithaca CVB



GOAL: PROTECT WHAT'S IMPORTANT



1. Public safety – responsible use of well understood herbicides
2. Protect and restore the Great Lakes/Finger Lakes and the associated ecological and economic benefits
3. Significantly reduce the risk of hydrilla spreading and potentially eradicate it in the project area



SELECTED HERBICIDES AND USE RESTRICTIONS



Product	Irrigation – Row crops, turf, trees or plants	Irrigation – Newly seeded areas, including overseeded golf course greens	Irrigation – Nursery, Greenhouse, Hydroponics	Drinking, culinary or food processing purposes
Harpoon (chelated copper)	None	None	None	< 200 ppb
Sonar H4C (fluridone pellet)	7 days	Fastest required	< 1ppb	< 50 ppb*
Sonar Genesis (fluridone liquid)	7 days	Fastest required	< 1ppb	< 50 ppb*

* Applications of these products will be below the listed thresholds.



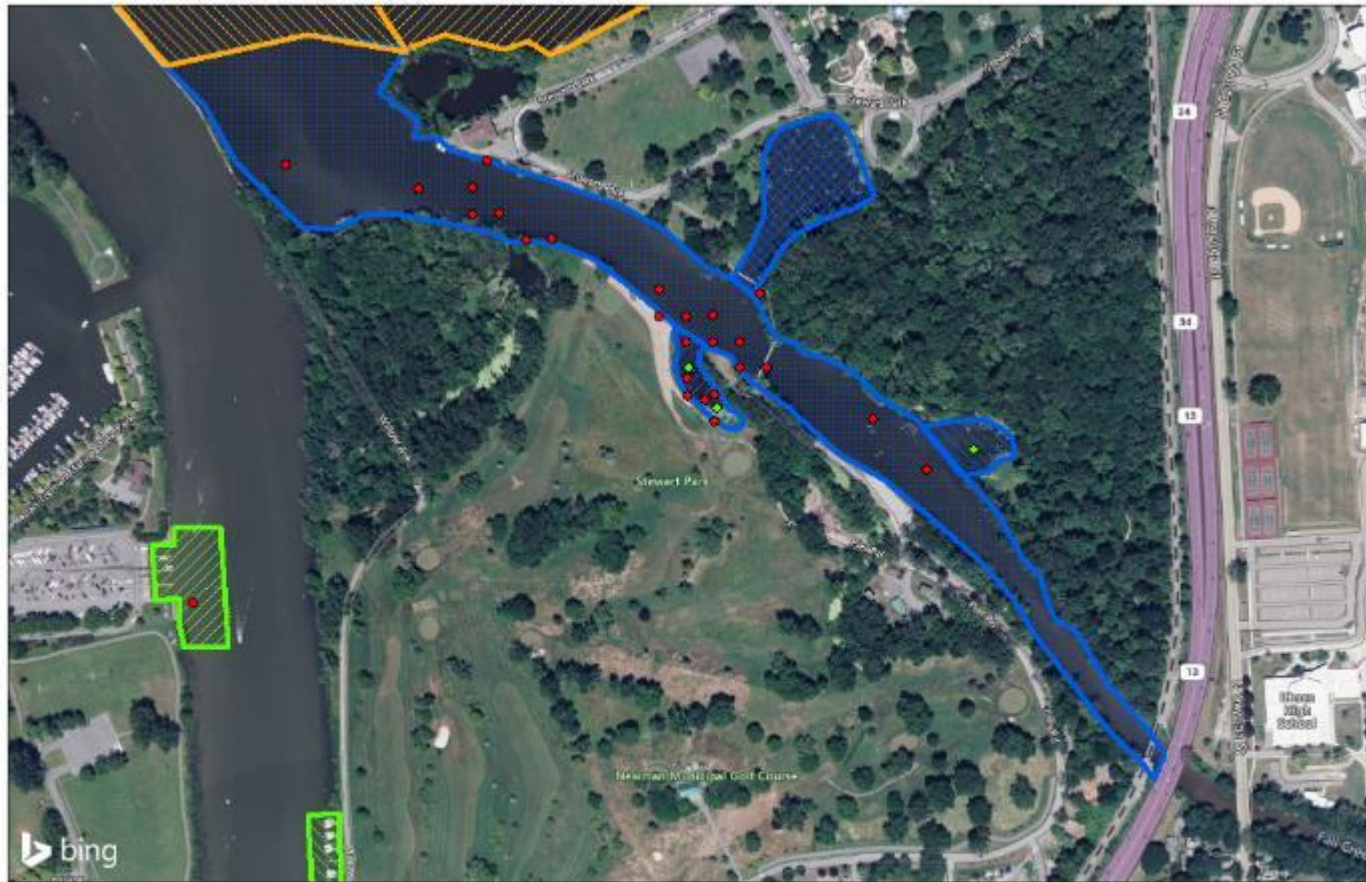
ITHACA



Photo: Ithaca CVB



FALL CREEK



- SDC Hydro Location
- SDC Hydro Location
- 10 - 100 ft wide 1st Area (12.3 acres)
- 100 - 200 ft wide 1st Area (12.3 acres)
- 200 - 300 ft wide 1st Area (12.3 acres)
- 300 - 400 ft wide 1st Area (12.3 acres)
- 400 - 500 ft wide 1st Area (12.3 acres)
- 500 - 600 ft wide 1st Area (12.3 acres)
- 600 - 700 ft wide 1st Area (12.3 acres)
- 700 - 800 ft wide 1st Area (12.3 acres)
- 800 - 900 ft wide 1st Area (12.3 acres)
- 900 - 1000 ft wide 1st Area (12.3 acres)
- 1000 - 1100 ft wide 1st Area (12.3 acres)
- 1100 - 1200 ft wide 1st Area (12.3 acres)
- 1200 - 1300 ft wide 1st Area (12.3 acres)
- 1300 - 1400 ft wide 1st Area (12.3 acres)
- 1400 - 1500 ft wide 1st Area (12.3 acres)
- 1500 - 1600 ft wide 1st Area (12.3 acres)
- 1600 - 1700 ft wide 1st Area (12.3 acres)
- 1700 - 1800 ft wide 1st Area (12.3 acres)
- 1800 - 1900 ft wide 1st Area (12.3 acres)
- 1900 - 2000 ft wide 1st Area (12.3 acres)
- 2000 - 2100 ft wide 1st Area (12.3 acres)
- 2100 - 2200 ft wide 1st Area (12.3 acres)
- 2200 - 2300 ft wide 1st Area (12.3 acres)
- 2300 - 2400 ft wide 1st Area (12.3 acres)
- 2400 - 2500 ft wide 1st Area (12.3 acres)
- 2500 - 2600 ft wide 1st Area (12.3 acres)
- 2600 - 2700 ft wide 1st Area (12.3 acres)
- 2700 - 2800 ft wide 1st Area (12.3 acres)
- 2800 - 2900 ft wide 1st Area (12.3 acres)
- 2900 - 3000 ft wide 1st Area (12.3 acres)
- 3000 - 3100 ft wide 1st Area (12.3 acres)
- 3100 - 3200 ft wide 1st Area (12.3 acres)
- 3200 - 3300 ft wide 1st Area (12.3 acres)
- 3300 - 3400 ft wide 1st Area (12.3 acres)
- 3400 - 3500 ft wide 1st Area (12.3 acres)
- 3500 - 3600 ft wide 1st Area (12.3 acres)
- 3600 - 3700 ft wide 1st Area (12.3 acres)
- 3700 - 3800 ft wide 1st Area (12.3 acres)
- 3800 - 3900 ft wide 1st Area (12.3 acres)
- 3900 - 4000 ft wide 1st Area (12.3 acres)
- 4000 - 4100 ft wide 1st Area (12.3 acres)
- 4100 - 4200 ft wide 1st Area (12.3 acres)
- 4200 - 4300 ft wide 1st Area (12.3 acres)
- 4300 - 4400 ft wide 1st Area (12.3 acres)
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- 5200 - 5300 ft wide 1st Area (12.3 acres)
- 5300 - 5400 ft wide 1st Area (12.3 acres)
- 5400 - 5500 ft wide 1st Area (12.3 acres)
- 5500 - 5600 ft wide 1st Area (12.3 acres)
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- 6000 - 6100 ft wide 1st Area (12.3 acres)
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- 6200 - 6300 ft wide 1st Area (12.3 acres)
- 6300 - 6400 ft wide 1st Area (12.3 acres)
- 6400 - 6500 ft wide 1st Area (12.3 acres)
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- 6800 - 6900 ft wide 1st Area (12.3 acres)
- 6900 - 7000 ft wide 1st Area (12.3 acres)
- 7000 - 7100 ft wide 1st Area (12.3 acres)
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- 7200 - 7300 ft wide 1st Area (12.3 acres)
- 7300 - 7400 ft wide 1st Area (12.3 acres)
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- 7500 - 7600 ft wide 1st Area (12.3 acres)
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- 7900 - 8000 ft wide 1st Area (12.3 acres)
- 8000 - 8100 ft wide 1st Area (12.3 acres)
- 8100 - 8200 ft wide 1st Area (12.3 acres)
- 8200 - 8300 ft wide 1st Area (12.3 acres)
- 8300 - 8400 ft wide 1st Area (12.3 acres)
- 8400 - 8500 ft wide 1st Area (12.3 acres)
- 8500 - 8600 ft wide 1st Area (12.3 acres)
- 8600 - 8700 ft wide 1st Area (12.3 acres)
- 8700 - 8800 ft wide 1st Area (12.3 acres)
- 8800 - 8900 ft wide 1st Area (12.3 acres)
- 8900 - 9000 ft wide 1st Area (12.3 acres)
- 9000 - 9100 ft wide 1st Area (12.3 acres)
- 9100 - 9200 ft wide 1st Area (12.3 acres)
- 9200 - 9300 ft wide 1st Area (12.3 acres)
- 9300 - 9400 ft wide 1st Area (12.3 acres)
- 9400 - 9500 ft wide 1st Area (12.3 acres)
- 9500 - 9600 ft wide 1st Area (12.3 acres)
- 9600 - 9700 ft wide 1st Area (12.3 acres)
- 9700 - 9800 ft wide 1st Area (12.3 acres)
- 9800 - 9900 ft wide 1st Area (12.3 acres)
- 9900 - 10000 ft wide 1st Area (12.3 acres)

Fall Creek Treatment Areas
Cayuga Lake at Ithaca, NY



Sonar H4C, 3.8 acres

- 2 applications @ 20 ppb
- 8 applications @ 9 ppb
- Weekly on Thursdays
- Jun 29 – Aug 31

Sonar Genesis, 18.7 acres (main channel)

- Injection system treatments at 2.5 ppm daily rate based on creek flow
- Operation Pulsed if flow 80 cfs < Flow < 160 cfs
- Operation suspended if flow above 160 cfs
- Jun 29 – Sep 14

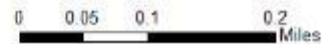


CAYUGA LAKE EAST



- 2011 Hydrilla Location
- 2018 Hydrilla Location*
- Fluridone Treatment Areas (72.3 acres)**
- Stewart Park 1 (14.9 acres)
- Stewart Park 2 (12.5 acres)
- Truman State Marine Park 1 (6.7 acres)
- Fall Creek (18.7 acres)
- Stewart Park Lagoon (2.5 acres)

Cayuga Lake East Treatment Areas
Cayuga Lake at Ithaca, NY



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Sonar H4C, 27.4 acres

- 2 applications @ 20 ppb
- 8 applications @ 9 ppb
- Weekly on Thursdays
- Jun 29 – Aug 31



CAYUGA LAKE WEST



Sonar H4C, 6.7 acres

- 2 applications @ 20 ppb
- 8 applications @ 13.75 ppb
- Weekly on Thursdays
- Jun 29 – Aug 31

- 2020 Hydrilla Locations*
- Fluridone Treatment Areas (72.3 acres)
 - Stewart Park 1 (14.9 acres)
 - Stewart Park 2 (12.5 acres)
 - Treman State Marine Park 1 (6.7 acres)
 - Fall Creek (18.7 acres)

Cayuga Lake West Treatment Areas Cayuga Lake at Ithaca, NY



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CAYUGA LAKE INLET



Sonar H4C, 15.7 acres

- 2 applications @ 20 ppb
- 8 application @ 13.75 ppb
- Weekly on Thursdays
- Jun 29– Aug 31

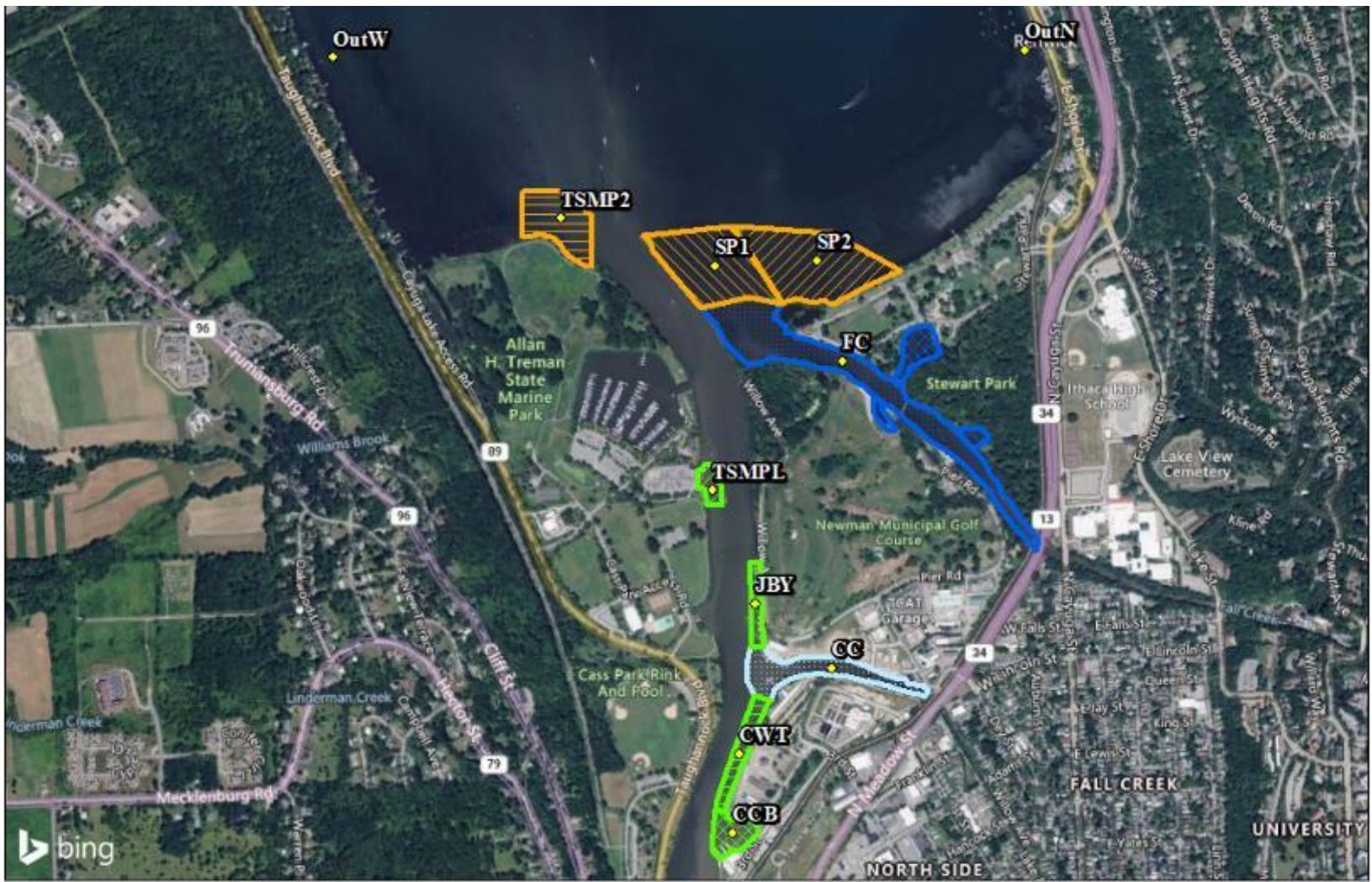
Cayuga Inlet Treatment Areas
Cayuga Lake at Ithaca, NY



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WATER MONITORING



Water samples will be collected weekly during the treatment period, including finished drinking water

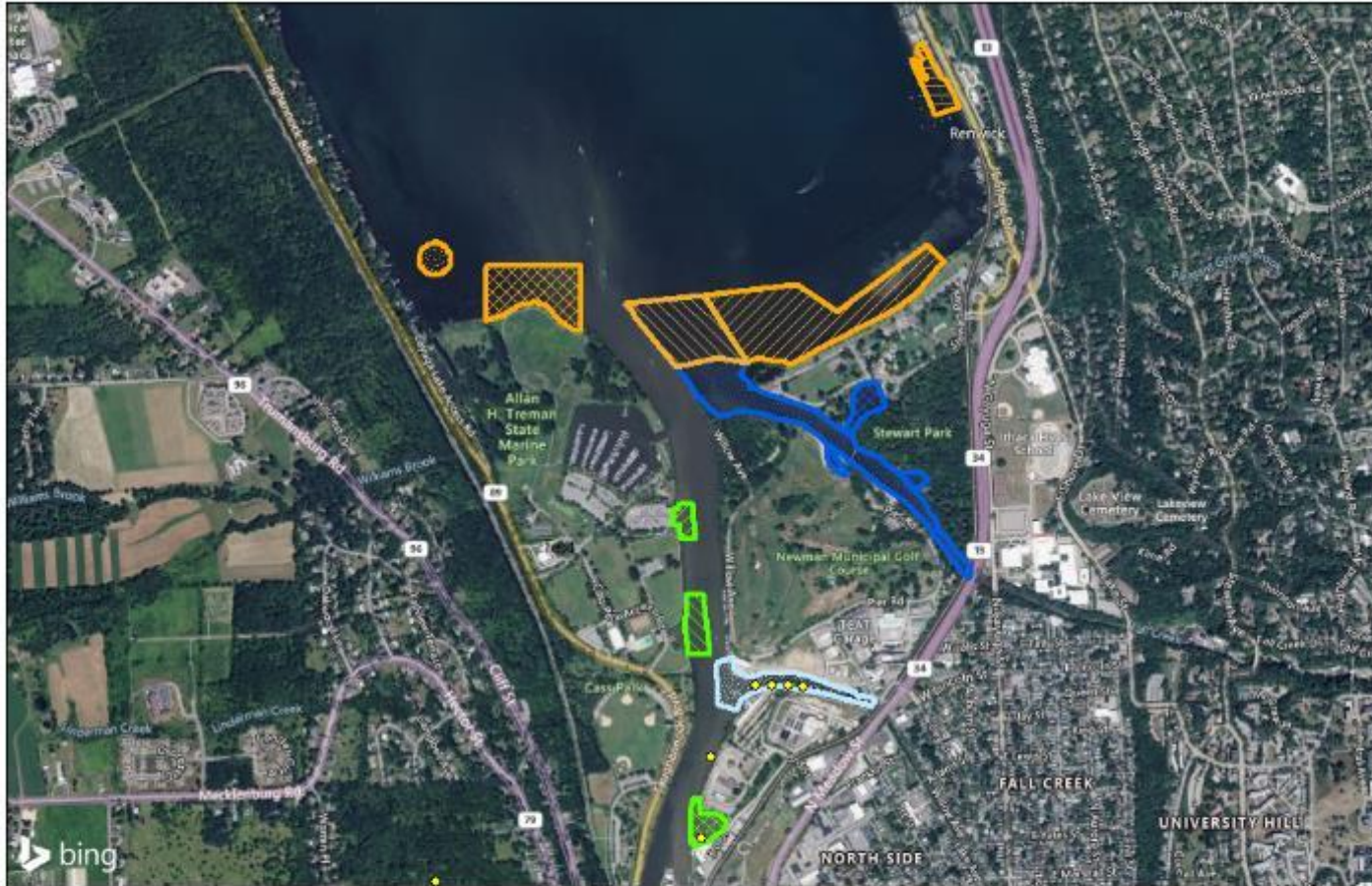
- Treatment Effluent Sample Sites
- The Village of Ithaca's Watershed (72.3 acres)
 - Stewart Park 1 (14.9 acres)
 - Stewart Park 2 (12.5 acres)
 - Stewart Park to Market Park 1 (6.7 acres)
- I-19 - Ithaca State Marine Park Launch (1.5 acres)
- I-19 - Johnson's Boat Launch (1.7 acres)
- I-19 - Cayuga Waterfront Trail East (0.8 acres)
- I-19 - Cornell Creek Bay (2.4 acres)
- Cornell Creek (7.8 acres)
- Fall Creek (10.7 acres)
- Fall Creek to S. approx (8.8 acres)
- Fall Creek to S. approx (18.7 acres)
- Stewart Park to S. approx (12.7 acres)

2023 Fluridone Water Sample Sites
Cayuga Lake at Ithaca, NY





POINT INTERCEPT SAMPLING



- Hydrilla %occurrence was < 1% for all dates sampled and 0.0% in October
- Frequency of other aquatic plants in the project area is high.
- Fall Creek and portions of the Cayuga Lake Inlet are areas of concern.



**2022 PIS Hydrilla Locations
Cayuga Lake at Ithaca, NY**

0 0.175 0.35 0.7 Miles





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Aurora



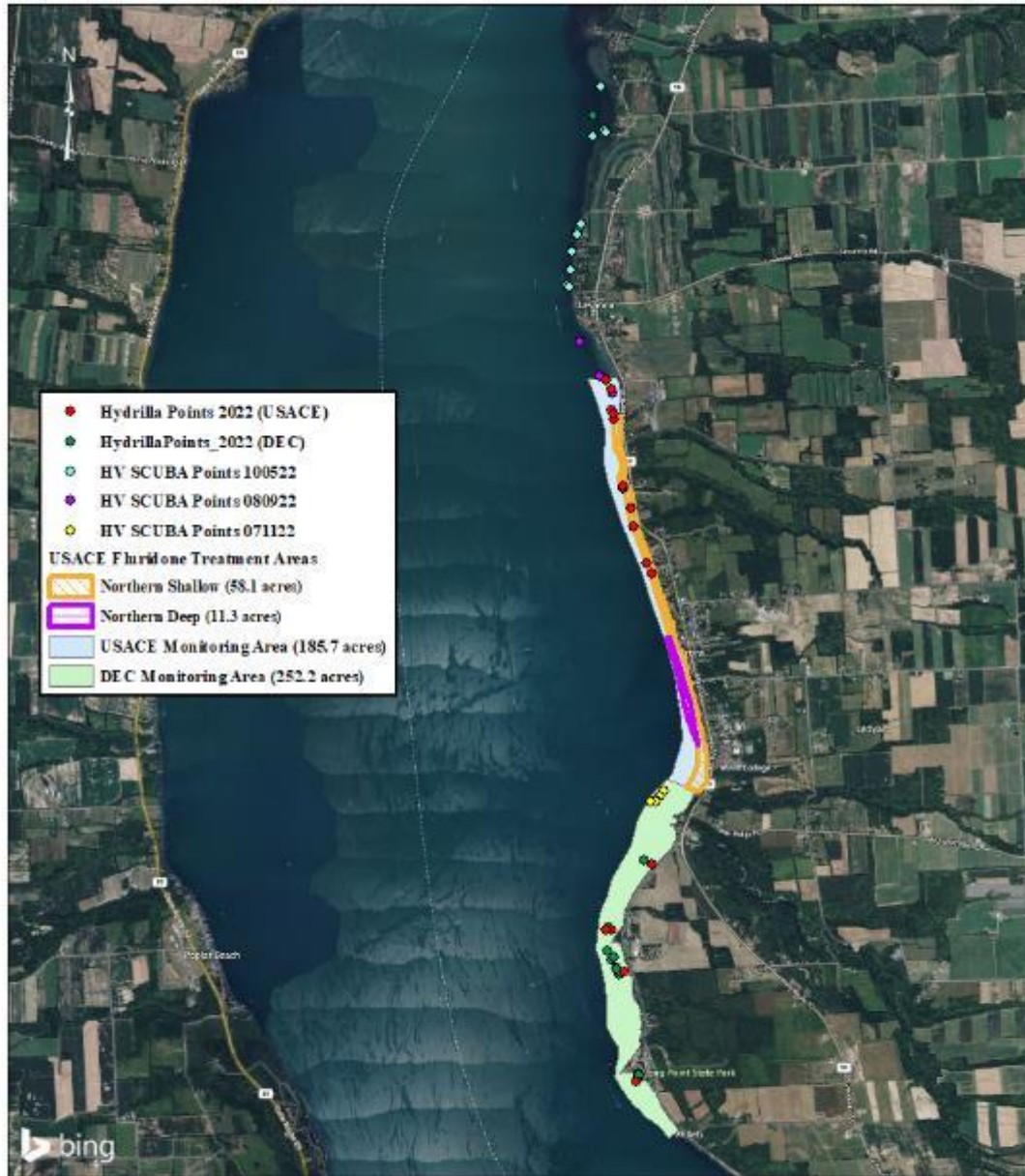


New Hydrilla Locations

Identified from mid-August through October 2022

- North of Gully Road to Great Gully Cove Road
- Long Point State Park near

Monitoring area increased from 438 acres in 2022 to 735 acres in 2023



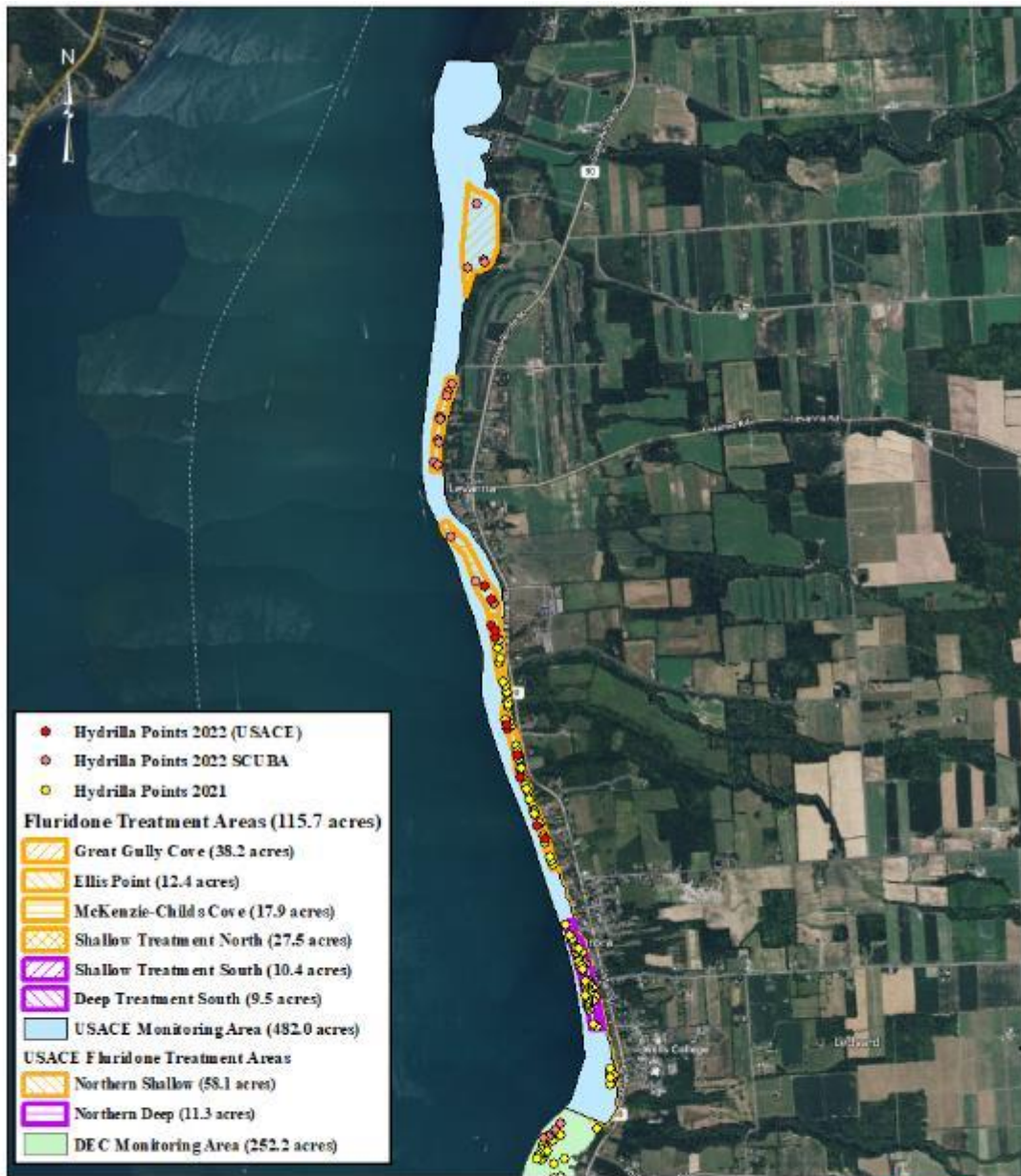
2022 Hydrilla Locations
Cayuga Lake at Aurora, NY



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Treatment



Northern Areas (95.9 acres):

Sonar H4C

2 applications @ 20 ppb

8 applications @ 13.75 ppb

Weekly on Wednesdays;

Jun 28 – Aug 30

Southern Shallow Area (10.4 acres):

Sonar H4C

4 applications @ 20 ppb

4 applications @ 10 ppb

Weekly on Wednesdays;

Jun 28– Aug 16

Southern Deep Area (9.5 acres):

Sonar H4C

4 applications @ 10 ppb

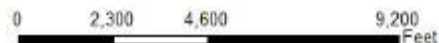
4 applications @ 8.75 ppb

Weekly on Wednesdays;

Jun 28– Aug 16



2023 Fluridone Treatment Areas
Cayuga Lake at Aurora, NY





Treatment

Northern Areas (95.9 acres):

Sonar H4C

2 applications @ 20 ppb

8 applications @ 13.75 ppb

Weekly on Wednesdays;

Jun 28 – Aug 30



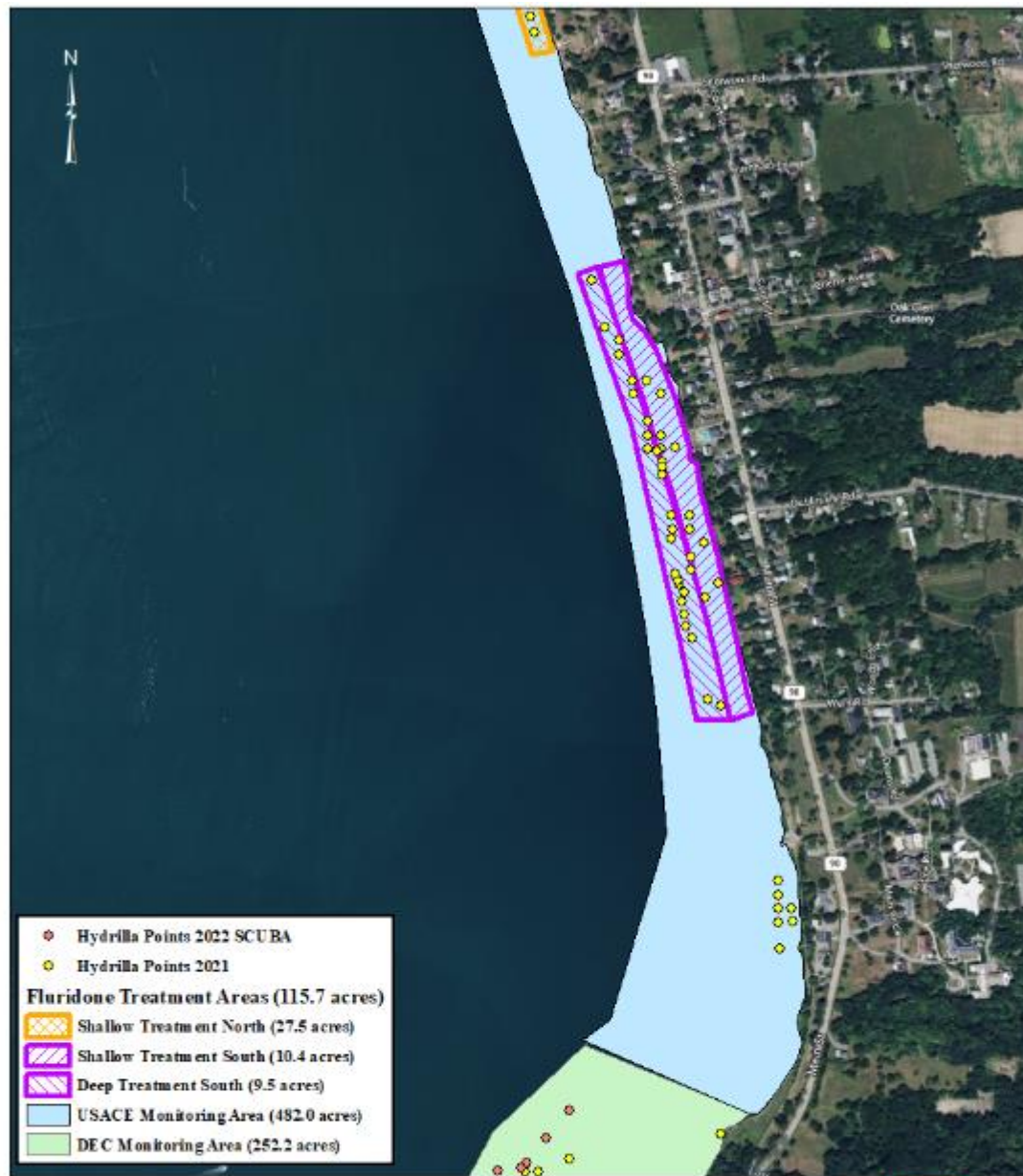
2023 Northern Treatment Areas
Cayuga Lake at Aurora, NY



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Treatment



Southern Shallow Area (10.4 acres):

Sonar H4C

4 applications @ 20 ppb

4 applications @ 10 ppb

Weekly on Wednesdays;

Jun 28– Aug 16

Southern Deep Area (9.5 acres):

Sonar H4C

4 applications @ 10 ppb

4 applications @ 8.75 ppb

Weekly on Wednesdays;

Jun 28– Aug 16

2023 Southern Treatment Areas
Cayuga Lake at Aurora, NY

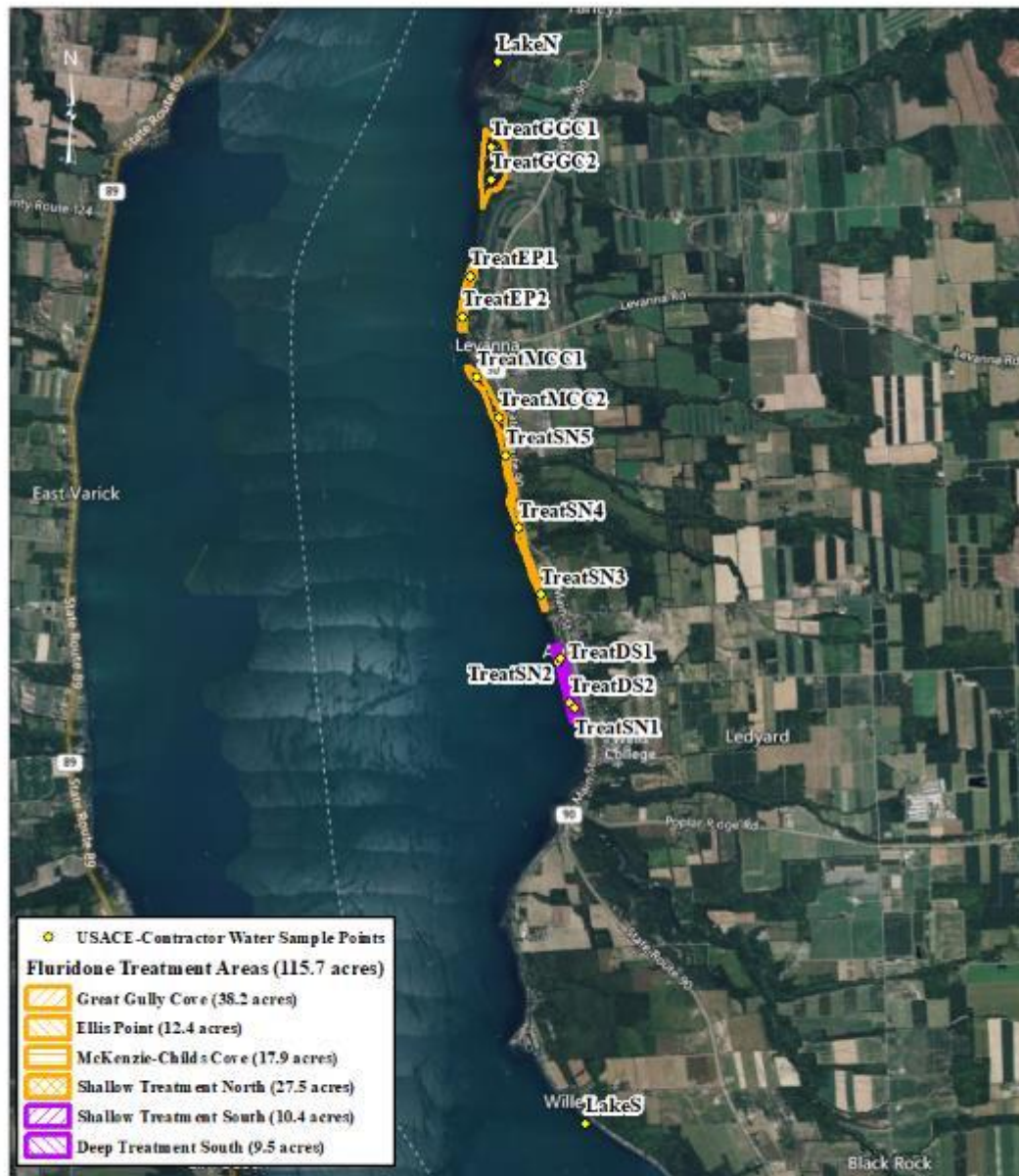


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Water Monitoring

Water samples will be collected weekly during the treatment period, including finished drinking water



2023 Contractor Water Sample Sites
Cayuga Lake at Aurora, NY



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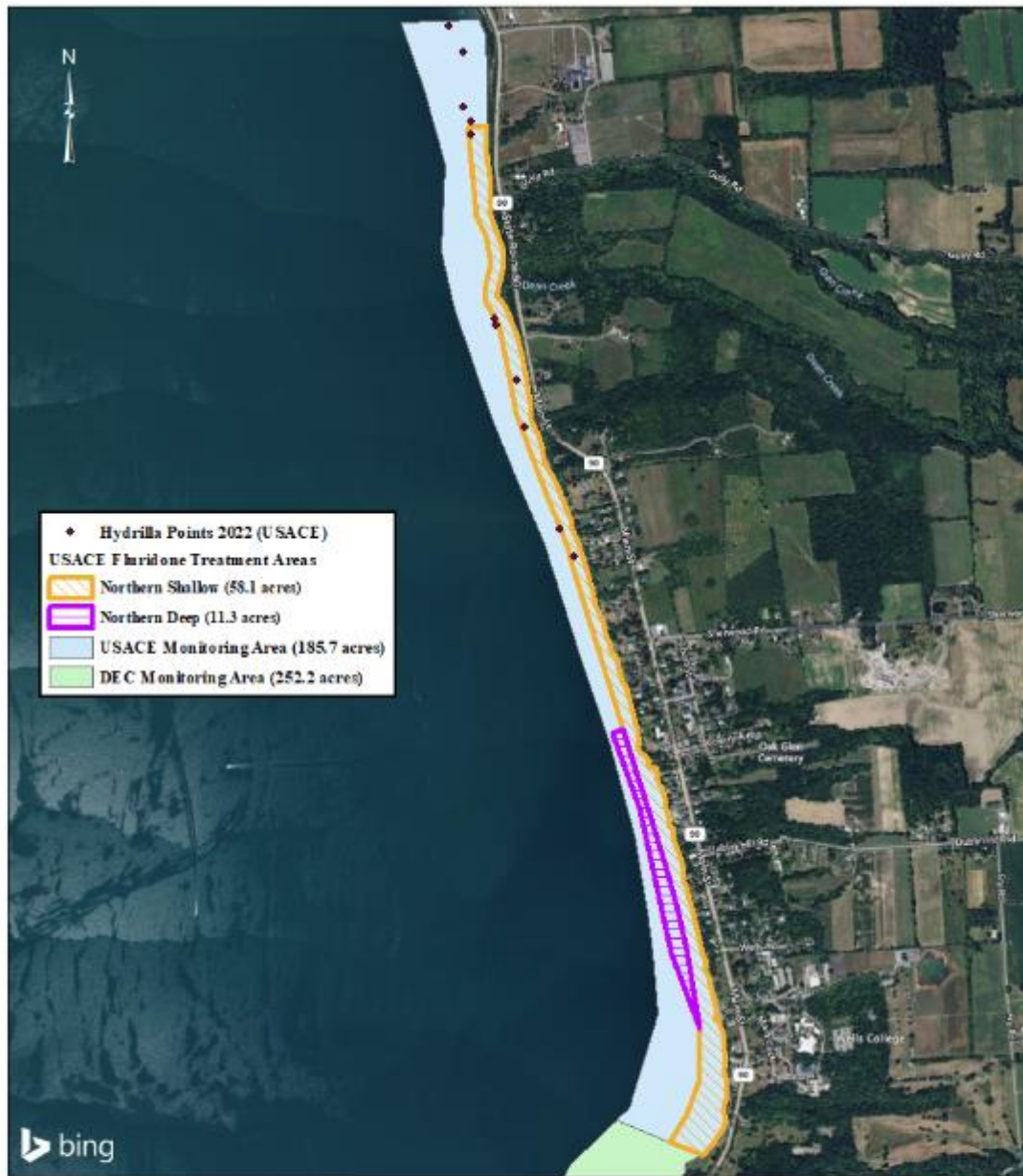


Cumulative Point Intercept Sampling

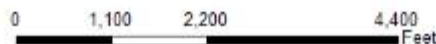
The percent occurrence of hydrilla was $<0.6\%$ throughout the year

Had effective control within treatment areas

Still have good frequency of occurrence of other SAV



2022 PIS Hydrilla Locations
Cayuga Lake at Aurora, NY



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ADDITIONAL RESOURCES



- New York Invasive Species Information: <http://www.nyis.info/>, select hydrilla from the aquatic plants tab
- Cornell Cooperative Extension/Tompkins County: www.stophydrilla.org, includes FAQs regarding fluridone
- Finger Lakes PRISM: <http://fingerlakesinvasives.org/>
- Cayuga Lake Watershed Network: <http://www.cayugalake.org/>
- Center for Aquatic and Invasive Plants: <http://plants.ifas.ufl.edu/node/183>
- SOLitude Lake Management:
<http://www.solitudelakemanagement.com/product-labels-new-york-2017>
- Great Lakes Hydrilla Collaborative: <http://hydrillacollaborative.com/>