



Combating Hydrilla in Cayuga Inlet August 2011 – 2020?

Angel Hinickle

Tompkins County Soil and Water
Conservation District

December 5, 2012

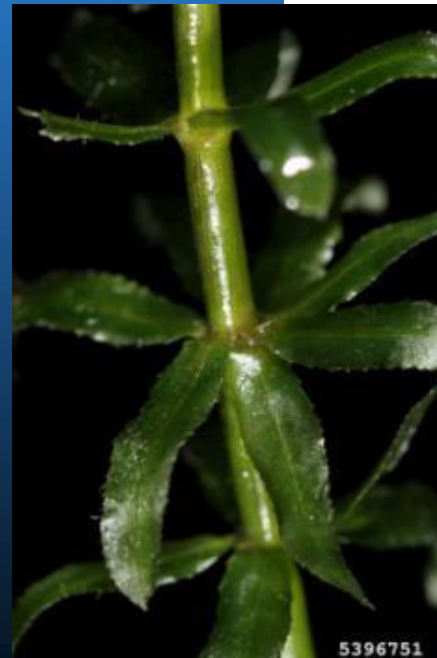
What is this plant?



Hydrilla or water thyme (*Hydrilla verticillatum*)

Similar to Native *Elodea canadensis*

- Up to 30 feet deep
- 5 leaves in whorls (rather than 3, like *Elodea*)
- Bright green, pointed ~5/8 inch leaves
- Margins serrated
- Has tubers



Two Key Features

Tubers



Turions



What's so bad about hydrilla?

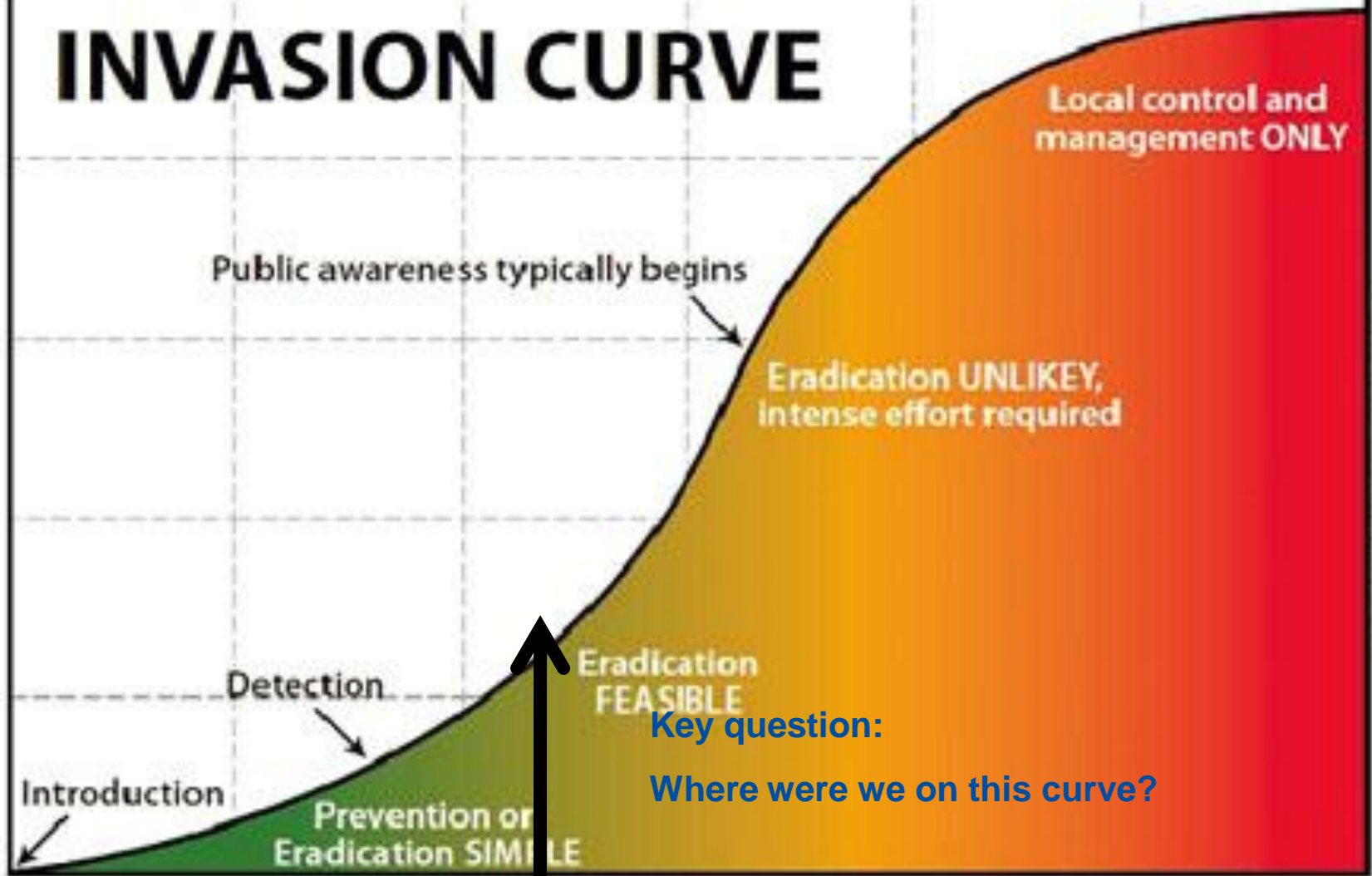


- Perennial plant (that regrows from tubers and turions), produces dense mats on surface and throughout lake
- Grows in wide variety of depths, bottom and water quality types, including 7% salinity, high and low nutrients, high and low acidity
- State of Florida spends \$18-30M annually to “manage” (not control) lakes and canals
- Listed as federally “noxious” weed
- Considered most aggressive invasive aquatic plant
- Ranked “highly invasive” in NYS (score of 91 out of 100)

INVASION CURVE

AREA INFESTED

CONTROL COSTS →



Key question:

Where were we on this curve?

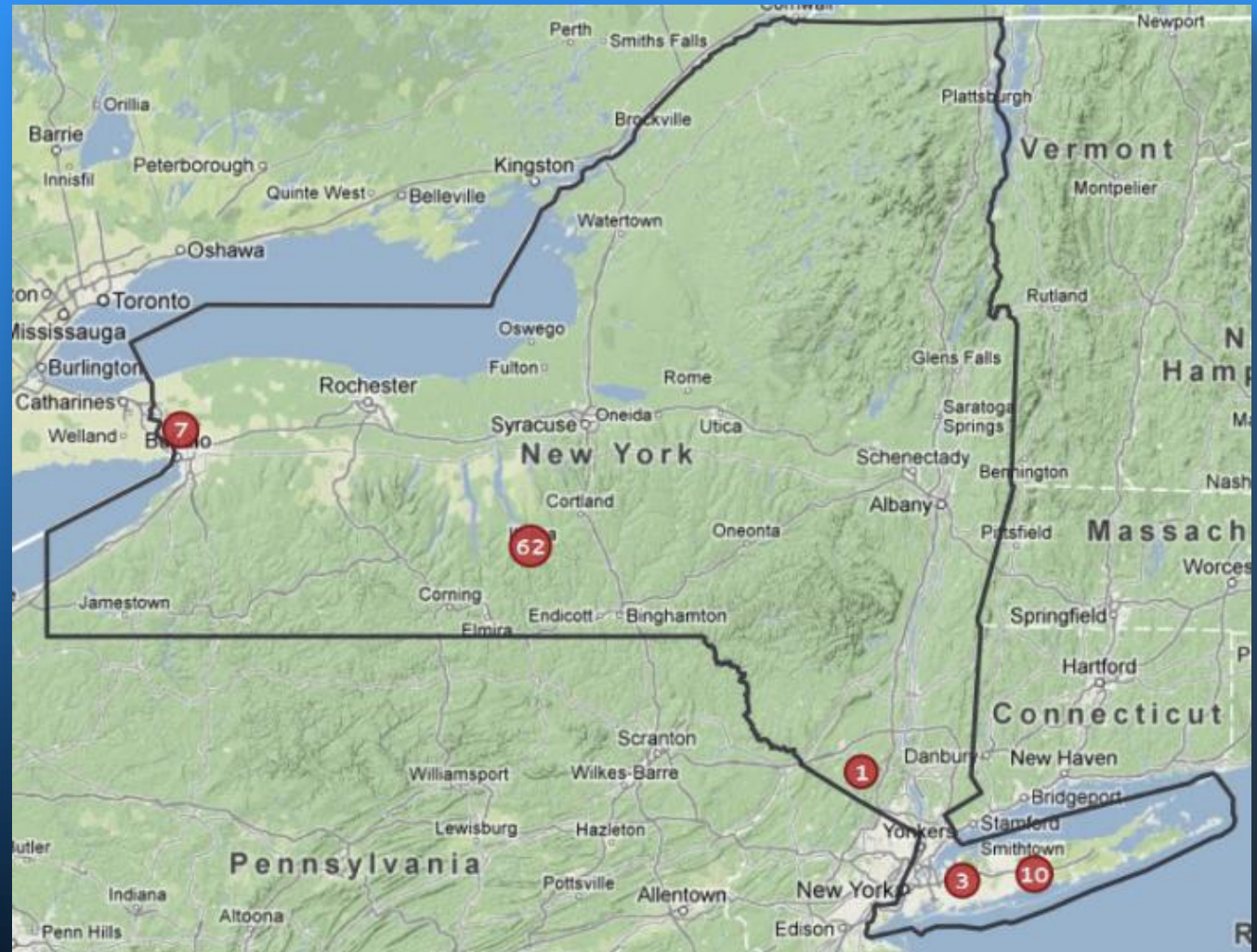
Known Distribution in NY as of 9/2012

Creamery Pond,
Orange County

6 ponds & lakes on
Long Island, including
Lake Ronkonkoma

Cayuga Inlet

Tonawanda Creek



The Cayuga Inlet Infestation

- Aug 4: Sample collected by floating classroom volunteer
- Aug 5: Local aquatic plant expert Bob Johnson makes positive ID after collecting tubers during Inlet survey



NEAR CORNELL ROWING BOATHOUSE



Photo credit: Holly Menninger

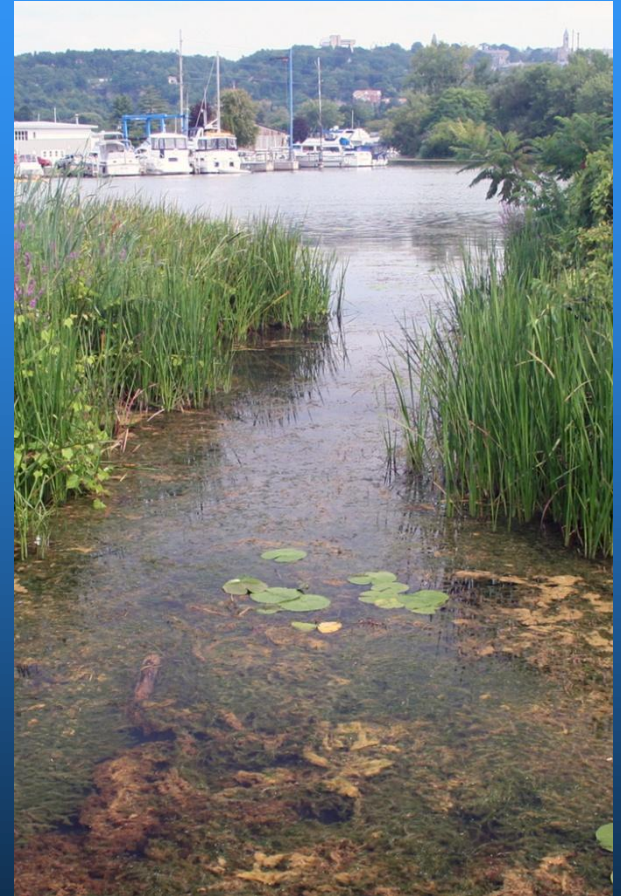
Hydrilla in Linderman Creek (Cass Park)- What a Difference Three Weeks Makes!



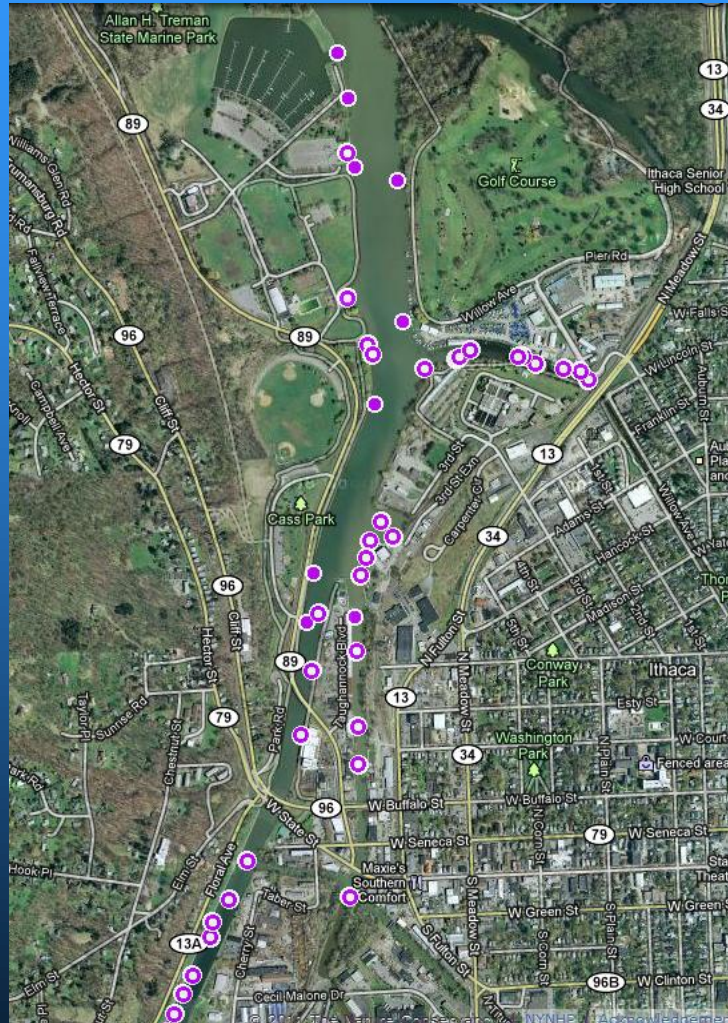
8/5/11



8/27/11



Hydrilla in Cayuga Inlet



Open circles = dense locations

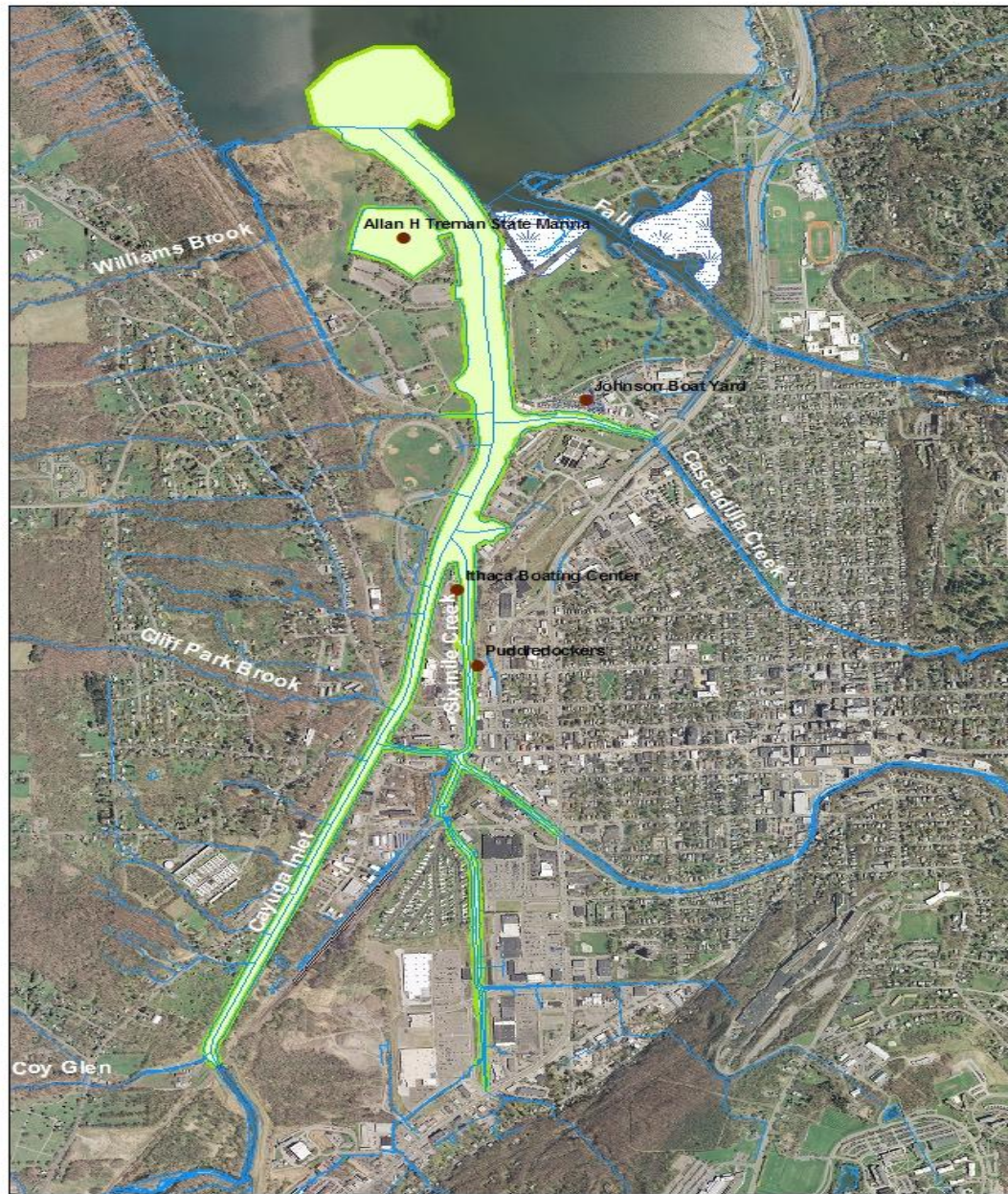
Closed circles = individual
rooted plants

It is likely that at least scattered
plants are found in additional
locations in Cayuga Inlet,
Cascadilla Creek, and perhaps
Six Mile Creek

2012 Treatment

- Use of two herbicides
 - Aquothal K (endothall)
 - Sonar Genesis (fluridone – liquid)
 - Sonar One (pellet)

Cayuga Inlet Treatment Area 2012



0 625 1,250 2,500 3,750 5,000 Feet

Legend

- Marinas
- TreatmentArea_2012
- NYS Wetlands

2012 Endothall Treatment

- Within 3 days most plants died and turned into mush
- 100% effectiveness
- Some plants still found at the fish ladder
- No new regrowth

2012 Fluridone

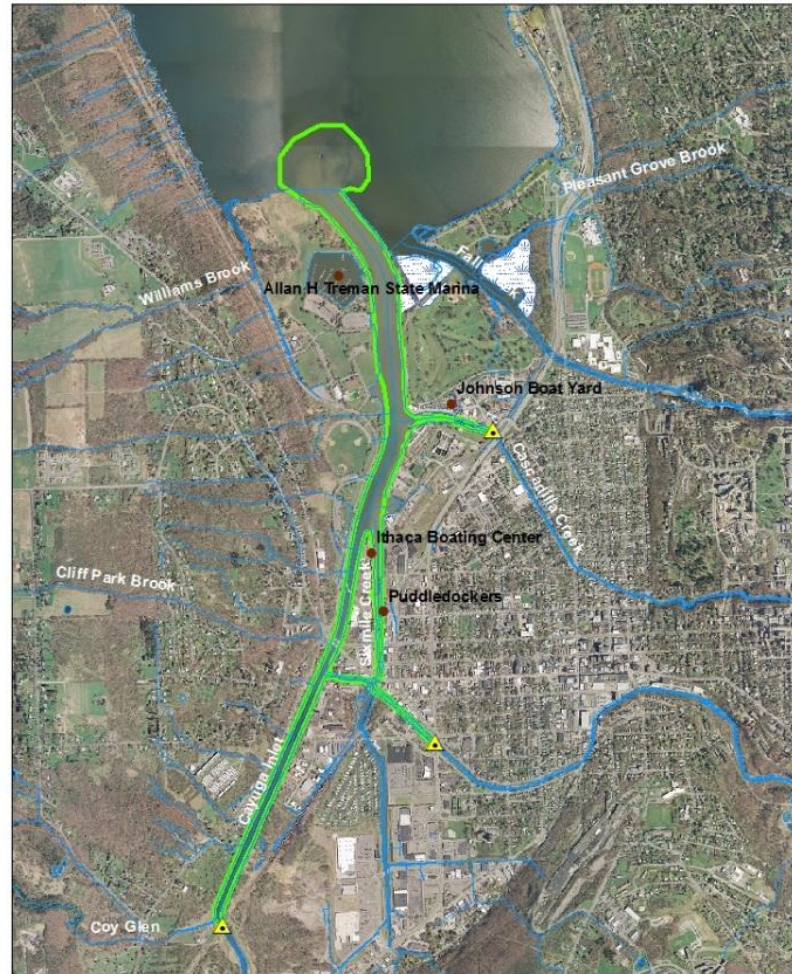
- Sonar Genesis applied via boat and automatic injection units
- Pellets applied in areas with low flow
- 90-day contact period required
- Treatment started on July 12, 2012 and continued through October 31, 2012

Injection Units



Maps

Cayuga Inlet Treatment Area 2012



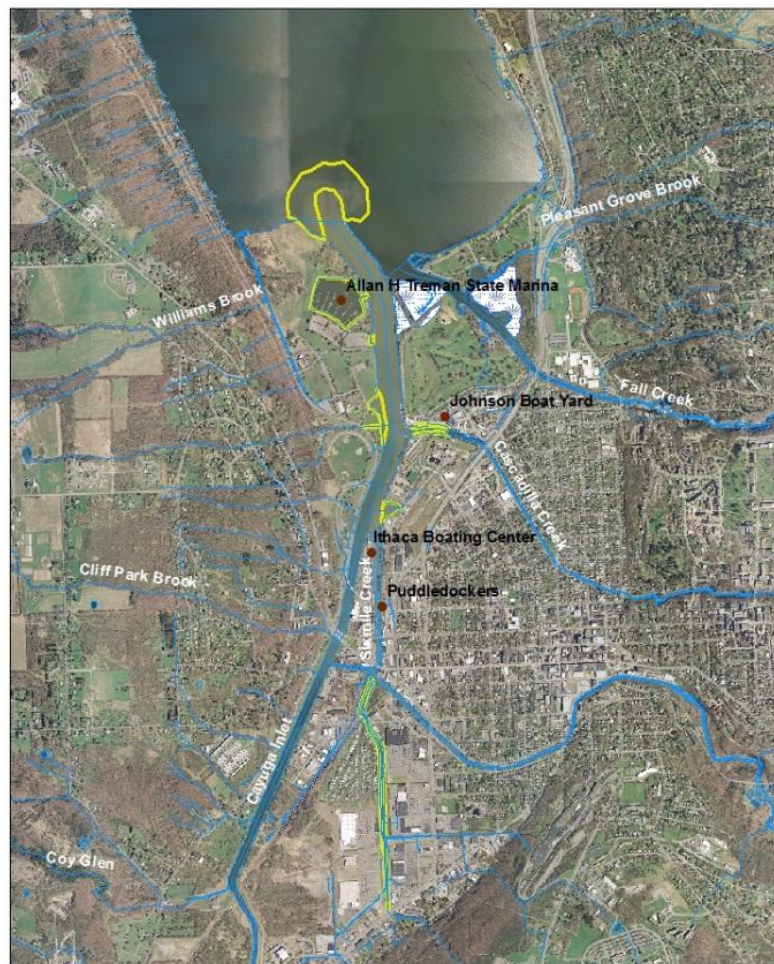
0 875 1,750 3,500 5,250 7,000
Feet

Legend

- Marinas
- Sonar_Genesis_TA
- NYS Wetlands

Sonar One Map

Cayuga Inlet Treatment Area 2012



0 950 1,900 3,800 5,700 7,600 Feet

Legend

- Marinas
- Sonar_One_TA
- NYS Wetlands

2012 Endothall Results

Little evidence of re-growth, some tuber death/decay – timing of application?

2012 Fluridone Results

- Final results pending
- Dosing stable throughout space/time – except donut
- No plant emergence noted above sediment
- One plant piece found at red lighthouse wall



Treatment Monitoring

Fluridone Water Quality Monitoring Schedule and Results - Summer 2012

Cayuga Lake and inlet, Ithaca NY

New York State Department of Health (NYSDOH) Maximum Contaminant Level (MCL) for fluridone in drinking water: MCL = 50 ppb. Results below are in ppb. Fluridone application initiated 7/12/12

Site	Location	7/12/2012	24 hrs	48hrs	72 hrs	Day 4	Day 11	Week 3	Week 4	Week 5	Week 6
NYSDOH Required Sampling - bottom of water column											
S12-GD	Shoreline - 0.5 mile upstream on Cascadilla Creek	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
S12-I	Shoreline - 0.5 mile upstream on East Side of Inlet	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
S12-SB	Shoreline - 0.5 mile upstream on West Side of Inlet	12.2	13	13	13	3.77	1.51	<0.5	<0.5	<0.5	<0.5
S12-SW	Shoreline - 0.5 mile on west lakeshore close to Rt 89	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
S12-SM	Shoreline - 0.5 mile upstream on Skaneateles Creek	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
S12-SP	Shoreline - 0.5 mile on east lakeshore at Stewart Park	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SePRO Fas Test Samples											
BP-J ¹	Bolton Point intake ~70' below lake surface	<1.0				<1.0			<1.0		
BP-ID*	Bolton Point intake - CSI duplicate	<0.5				<0.5			<0.5		
Within the application area											
CI-1						5.3	3.4	3.5	5.8	5.7	4.3
CI-2						5.3	3.9	4.1	4.5	4.5	4.5
CI-3	Fairgrounds Memorial Parkway					17.4	9.5	5.2	4.2	1.4	2.4
CI-3D	CSI duplicate					9.37	4.3		1.59		
CI-4						5.4	4.2	4.4	5	4.3	10.9
CI-5						6.3	3.8	3.7	3.6	4.1	5
CI-6						10.2	8.3	6.7	6.6	4.8	10.9
CI-7						3.9	3.9	3.4	2.7	3.4	5.6
CI-8						1.9	2.7	2.8	3.3	2.3	4.6
CI-9						3.5	1.9	1.1	0.5	1.5	2.5
CI-9D	CSI duplicate, replicates CI-11D								1.59		
CI-10	Inlet mouth - West					2.3	<1.00	0.5	0.5	1.1	0.5
CI-10D	CSI duplicate						0.97	<0.5		1.07	
CI-11	Inlet mouth - East					0.5	<1.00	0.9	0.5		
CI-11D	CSI duplicate						0.84	<0.5			
CI-12	New Sampling Point								2.6	1.6	5.7
CI-13											
CI-14	New Sampling Points to acquire more information on fluridone concentrations at the entry to the lake										
CI-15											
CI-16											

Notes:

- Additional samples may be required depending on concentrations detected.
- Concentrations must be below 1 ppb for irrigation and hydroponic use.

Required by TCHD

C:\DOCUME~1MHEDE~1\LOCALS~1\Temp\Fluridone Monitoring Schedule and results-1

WARNING

This water body has been treated with the pesticide *Eguathol K* for aquatic weed control.

WATER USE RESTRICTIONS ARE AS FOLLOWS:

NO SWIMMING/BATHING for _____

NO FISHING for _____

NO HUMAN CONSUMPTION for 14 days

NO IRRIGATION OR SPRAYING OF FOOD CROP for 14 days

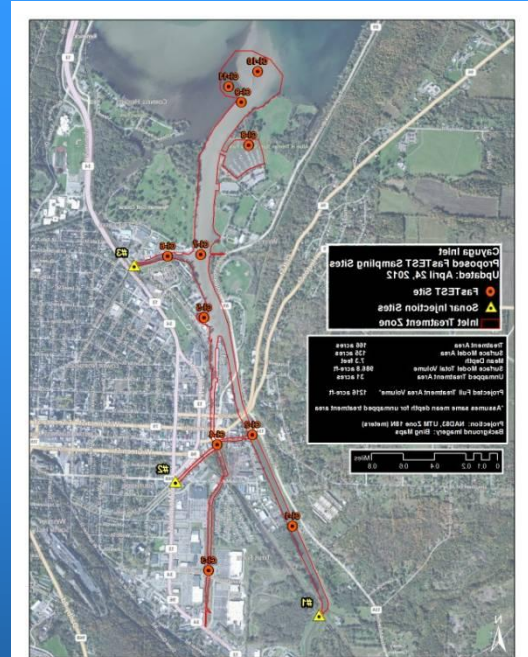
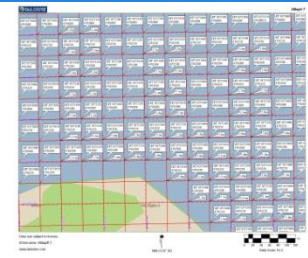
NO LAKE OUTFLOW for _____

FROM DATE/TIME TREATED: 8/18/11 5:00pm

DATE TIME

For more information contact: Allied Biological Inc. 800-850-0303

DO NOT REMOVE THIS NOTICE UNTIL ALL RESTRICTIONS HAVE EXPIRED



If you think you found hydrilla....

- Collect a specimen- preferably with tubers, rhizomes, and intact whorls
- Place specimen in a labeled baggie with a moist paper towel (plant should be separate, not wrapped in towel)
- Document the location- GPS coordinates, site description (closest address, distance from shore, depth), date
- Record whether it is a single plant or part of a bed and the relative abundance
- If possible, take and email a digital photograph of the plant and site
Contact local and/or state Hydrilla Task Force at:

www.stophydrilla.org