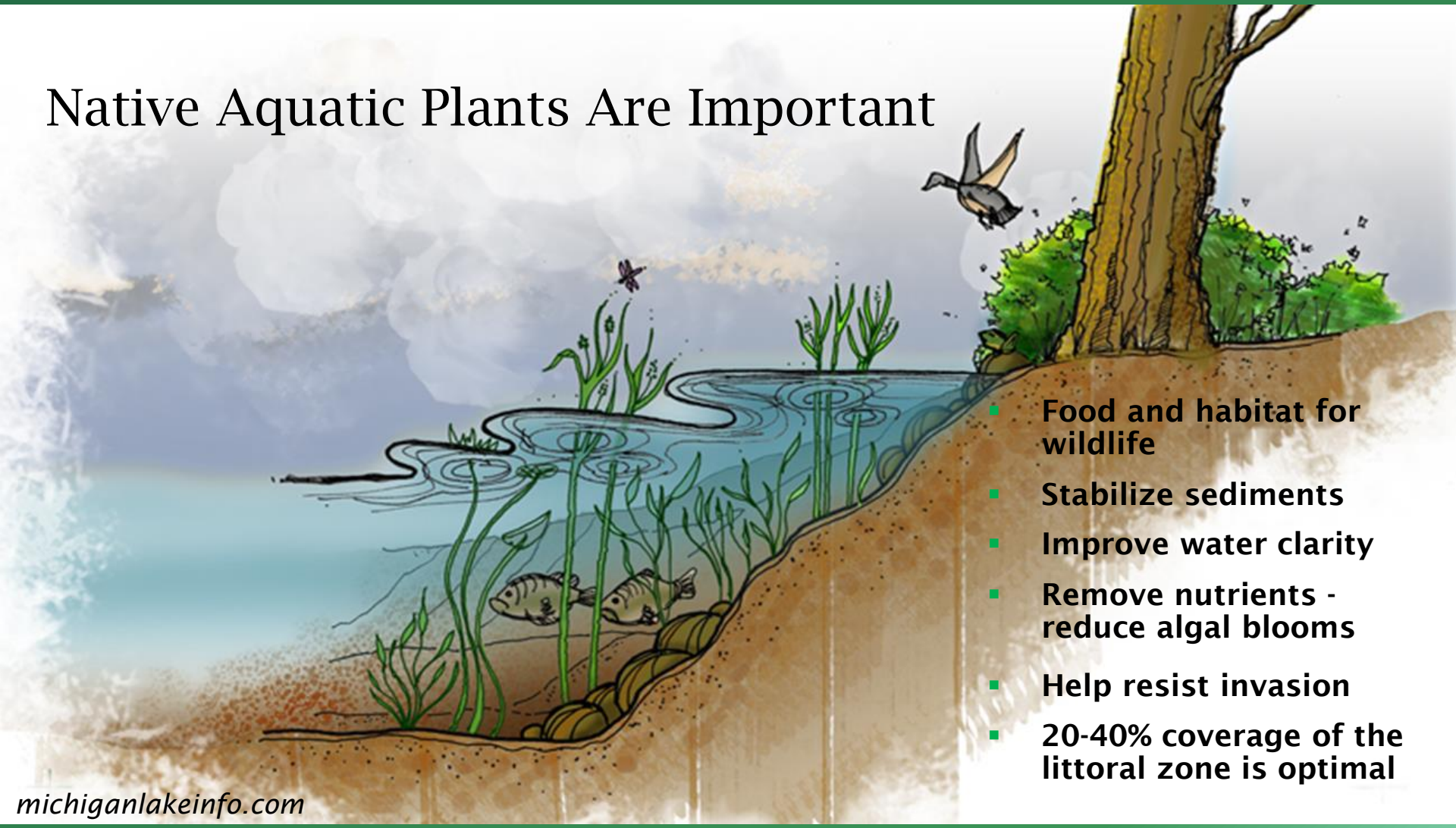
Rogers Lake Aquatic Plant Survey 2021

Gregory J. Bugbee and Summer E. Stebbins
Invasive Aquatic Plant Program
Connecticut Agricultural Experiment Station

CAES
The Connecticut Agricultural Experiment Station
Putting Science to Work for Society since 1875

Native Aquatic Plants Are Important

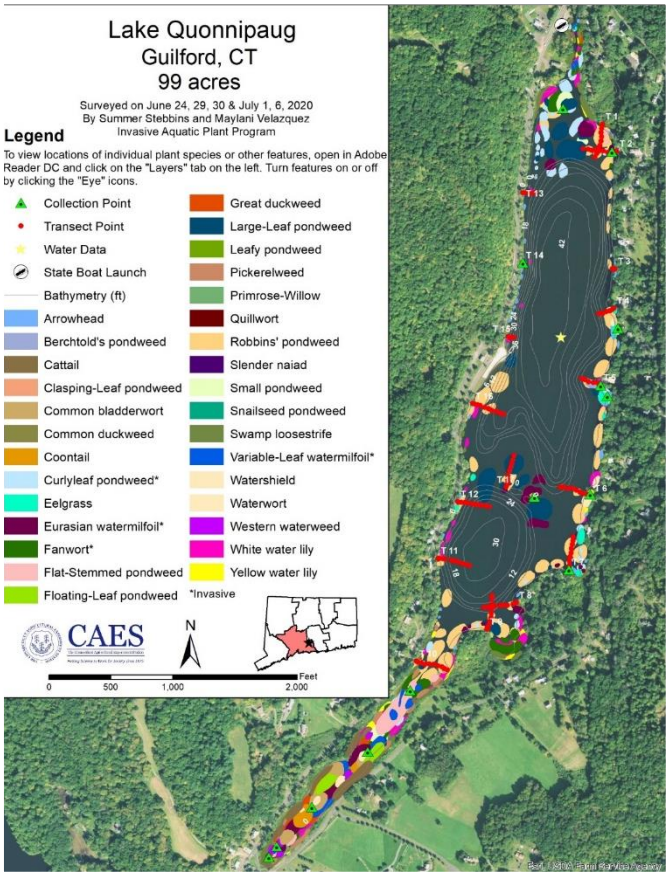


- Food and habitat for wildlife
- Stabilize sediments
- Improve water clarity
- Remove nutrients - reduce algal blooms
- Help resist invasion
- 20-40% coverage of the littoral zone is optimal

michiganlakeinfo.com

Invasive Aquatic Plants

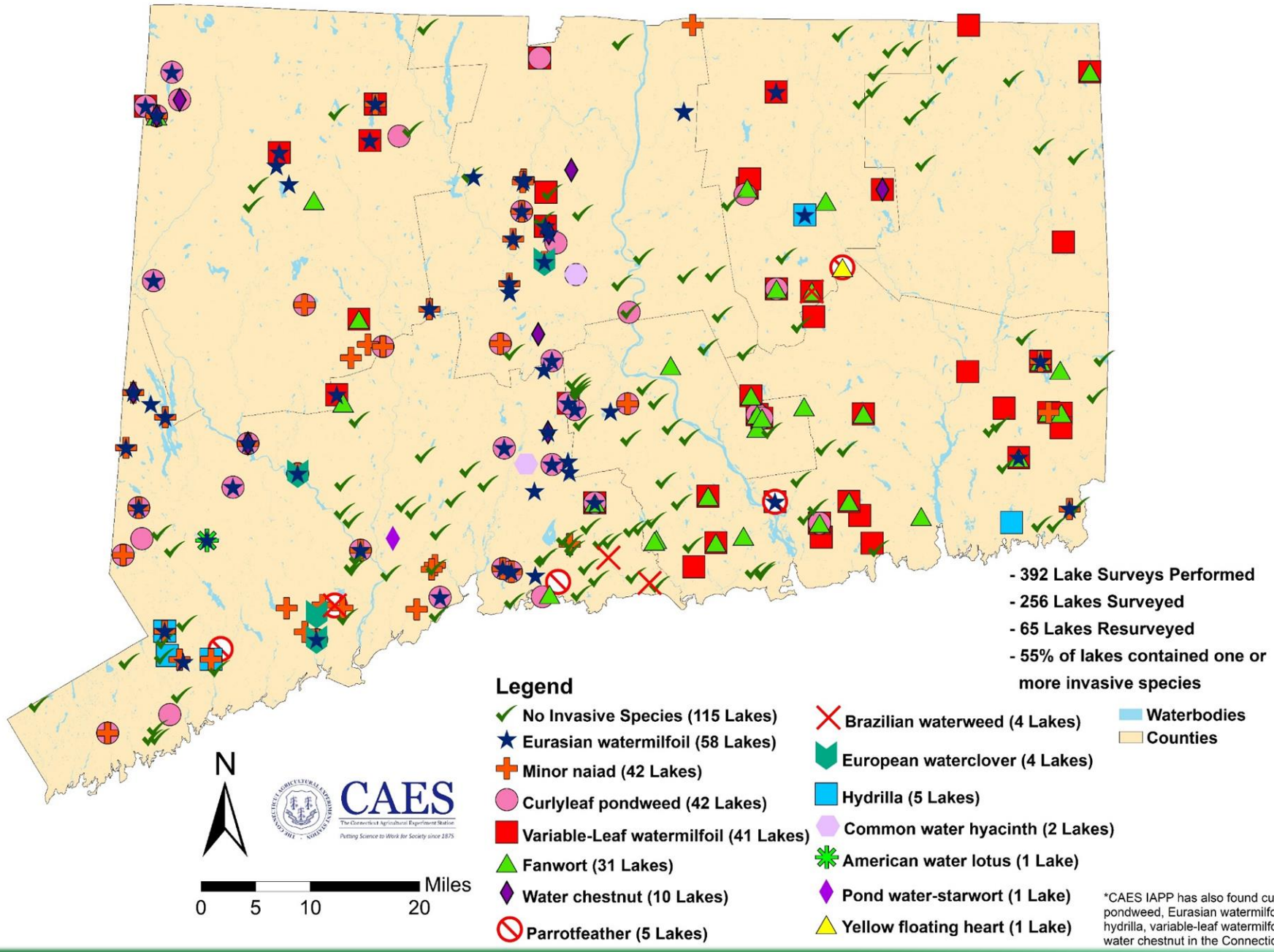
- Ecosystem Impacts
  - Native species crowded out
  - Monocultures
  - Degraded habitat
- Economic Impacts
  - Decreased recreational use
  - Decreased tourism
  - Decreased property values
  - Expensive management costs


Lake Quonnipaug
Guilford, CT
99 acres
Surveyed on June 24, 29, 30 & July 1, 6, 2020
By Summer Stebbins and Maylani Velazquez
Invasive Aquatic Plant Program
Legend
To view locations of individual plant species or other features, open in Adobe Reader DC and click on the "Layers" tab on the left. Turn features on or off by clicking the "Eye" icons.
Collection Point
Transect Point
Water Data
State Boat Launch
Bathymetry (ft)
Arrowhead
Berchtold's pondweed
Cattail
Clasping-Leaf pondweed
Common bladderwort
Common duckweed
Coontail
Curlyleaf pondweed*
Eelgrass
Eurasian watermilfoil*
Fanwort*
Flat-Stemmed pondweed
Floating-Leaf pondweed
Great duckweed
Large-Leaf pondweed
Leafy pondweed
Pickerelweed
Primrose-Willow
Quillwort
Robbins' pondweed
Slender naiad
Small pondweed
Snailseed pondweed
Swamp loosestrife
Variable-Leaf watermilfoil*
Watershield
Waterwort
Western waterweed
White water lily
Yellow water lily
*Invasive
CAES
N
0
500
1,000
2,000
Feet


Invasive Aquatic Plant Study
Connecticut Agricultural Experiment Station

What We Do

Locations of Invasive Plants Found by CAES IAPP 2004-2021



SWCA
ENVIRONMENTAL CONSULTANTS
Sound Science. Creative Solutions.®

Amherst Office
15 Research Drive
Amherst, Massachusetts 01002
Tel 413.256.0202 Fax 413.256.1092

July 29, 2020

Tim Griswold
First Selectman
52 Lyme Street
Old Lyme, CT 06371

Dennis Overfield
Co-Chairman
Rogers Lake Authority
119 Shore Drive
Lyme, CT 06371

Re: Rogers Lake 2020 Invasive Aquatic Plant Species Survey

Dear Mr. Griswold and Mr. Overfield:

SWCA Environmental Consultants (SWCA) is pleased to provide you with this report summarizing the results of our 2020 invasive plant survey of Rogers Lake in Lyme and Old Lyme, Connecticut. SWCA collected data in June and July of 2020. This report compares pre-treatment data collected during this study with data collected in 2014 and 2018. In general, we have observed a dramatic reduction in invasive species throughout Rogers Lake between 2014 and 2020. Because of the reduced distribution, SWCA is suggesting that future management may only require hand-pulling of invasive aquatic species.

If there are any questions regarding the data or the results of this assessment, please contact Scott Fisher at our office at 413-658-2056 or via email at sfisher@swca.com.

Sincerely,

Steve Johnson, Ph.D.
Senior Ecologist

Scott Fisher
Director

The Connecticut Agricultural Experiment Station

123 Huntington Street
New Haven, CT 06511

February 10, 2022

Rogers Lake

Old Lyme, CT

Aquatic Vegetation Survey
Water Chemistry
Aquatic Plant Management Options

2021

Gregory J. Bugbee

Summer E. Stebbins

Department of Environmental Sciences

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The Connecticut Agricultural Experiment Station
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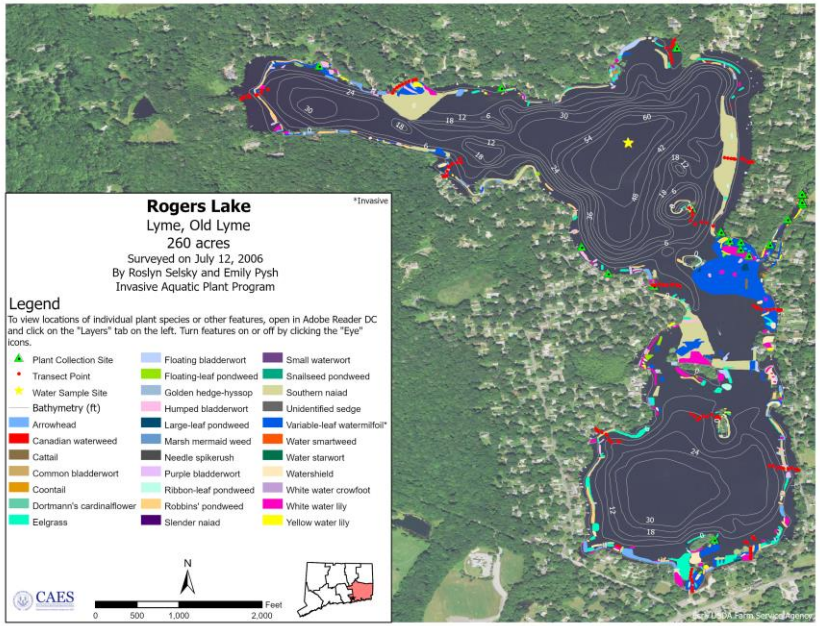
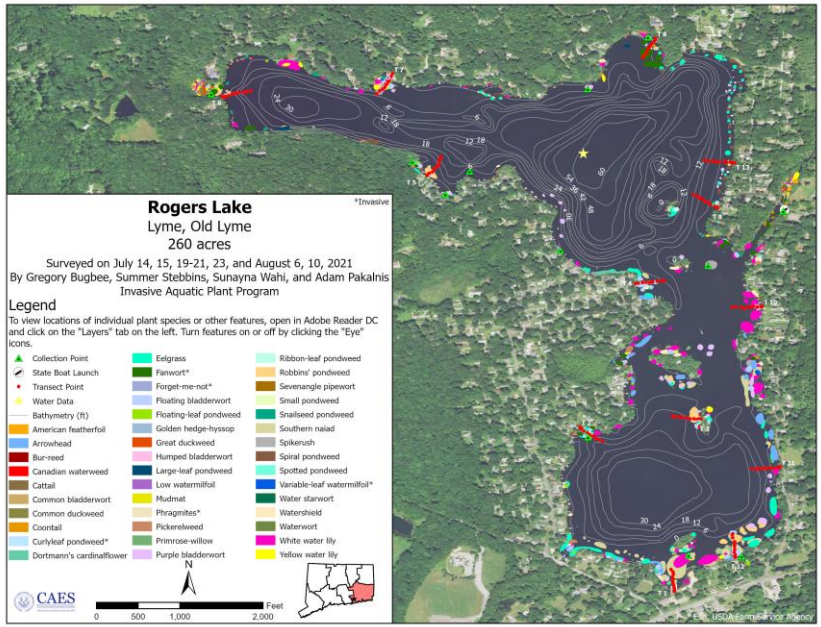
2006


Rogers Lake
Lyme, Old Lyme
260 acres
Surveyed on July 12, 2006
By Roslyn Selsky and Emily Pysh
Invasive Aquatic Plant Program
*Invasive
Legend
To view locations of individual plant species or other features, open in Adobe Reader DC and click on the "Layers" tab on the left. Turn features on or off by clicking the "Eye" icons.
Plant Collection Site
Transect Point
Water Sample Site
Bathymetry (ft)
Arrowhead
Canadian waterweed
Cattail
Common bladderwort
Coontail
Dortmann's cardinalflower
Eelgrass
Floating bladderwort
Floating-leaf pondweed
Golden hedge-hyssop
Humped bladderwort
Large-leaf pondweed
Marsh mermaid weed
Needle spikerush
Purple bladderwort
Ribbon-leaf pondweed
Robbins' pondweed
Slender naiad
Small waterwort
Snailseed pondweed
Southern naiad
Unidentified sedge
Variable-leaf watermilfoil*
Water smartweed
Water starwort
Watershield
White water crowfoot
White water lily
Yellow water lily
CAES
N
0 500 1,000 2,000 Feet
© U.S. Farm Service Agency

2021


Rogers Lake
Lyme, Old Lyme
260 acres
Surveyed on July 14, 15, 19-21, 23, and August 6, 10, 2021
By Gregory Bugbee, Summer Stebbins, Sunayna Wahi, and Adam Pakalnis
Invasive Aquatic Plant Program
*Invasive
Legend
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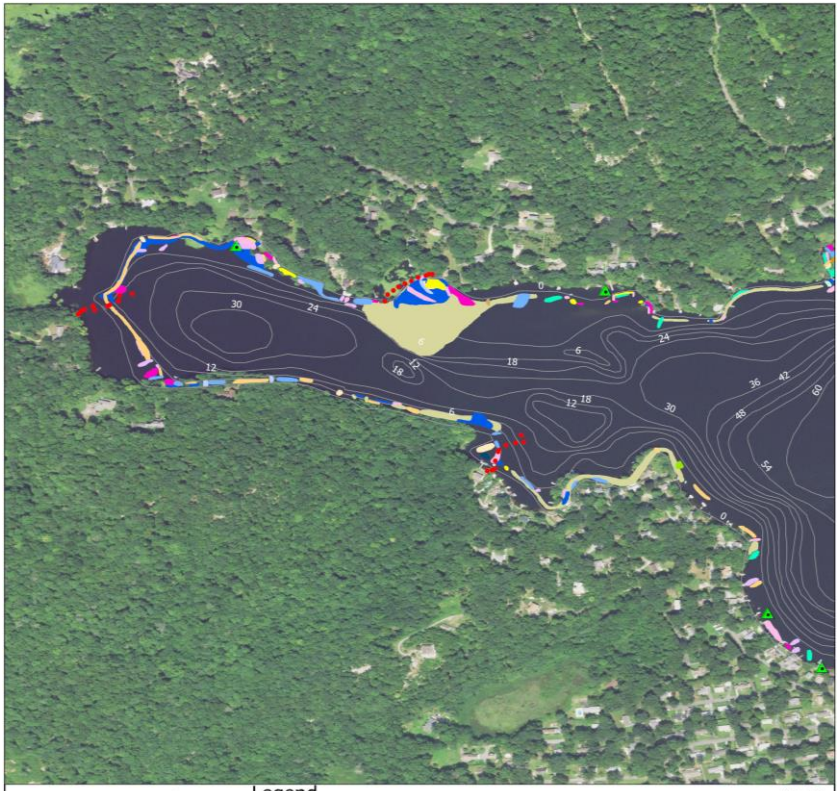
Collection Point
State Boat Launch
Transect Point
Water Data
Bathymetry (ft)
American featherfoil
Arrowhead
Bur-reed
Canadian waterweed
Cattail
Common bladderwort
Common duckweed
Coontail
Curlyleaf pondweed*
Dortmann's cardinalflower
Eelgrass
Fanwort*
Forget-me-not*
Floating bladderwort
Floating-leaf pondweed
Golden hedge-hyssop
Great duckweed
Humped bladderwort
Large-leaf pondweed
Low watermilfoil
Mudmat
Phragmites*
Pickerelweed
Primrose-willow
Purple bladderwort
Ribbon-leaf pondweed
Robbins' pondweed
Sevenangle pipewort
Small pondweed
Snailseed pondweed
Southern naiad
Spikerush
Spiral pondweed
Spotted pondweed
Variable-leaf watermilfoil*
Water starwort
Watershield
Waterwort
White water lily
Yellow water lily
CAES
N
0 500 1,000 2,000 Feet
© U.S. Farm Service Agency

2006



Rogers Lake
Lyme, Old Lyme
260 acres
Surveyed on July 14, 15, 19-21, 23, and August 6, 10, 2021
By Gregory Bugbee, Summer Stebbins, Sunayna Wahi, and Adam Pakalnis
Invasive Aquatic Plant Program

Map 1 of 3

N

0 200 400 800 Feet

Legend

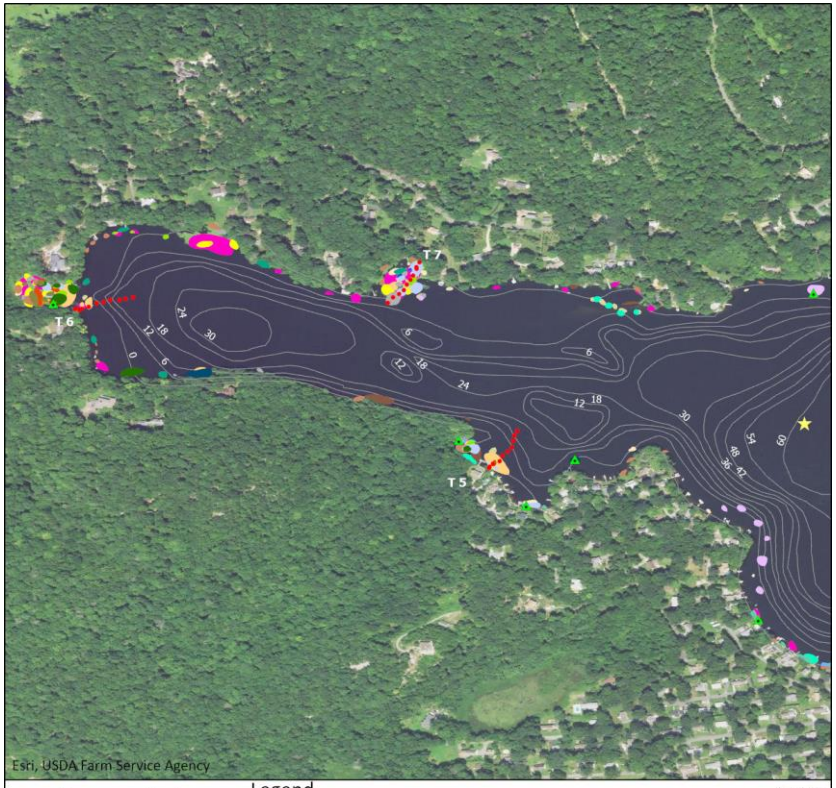
To view locations of individual plant species or other features, open in Adobe Reader DC and click on the "Layers" tab on the left. Turn features on or off by clicking the "Eye" icons.

*Invasive

- Plant Collection Site
- Transect Point
- Water Sample Site
- Bathymetry (ft)
- Arrowhead
- Canadian waterweed
- Cattail
- Common bladderwort
- Coontail
- Dortmann's cardinalflower
- Eelgrass
- Floating bladderwort
- Floating-leaf pondweed
- Golden hedge-hyssop
- Humped bladderwort
- Large-leaf pondweed
- Marsh mermaid weed
- Needle spikerush
- Purple bladderwort
- Ribbon-leaf pondweed
- Robbins' pondweed
- Slender naiad
- Small waterwort
- Snailseed pondweed
- Southern naiad
- Unidentified sedge
- Variable-leaf watermilfoil*
- Water smartweed
- Water starwort
- Watershield
- White water crowfoot
- White water lily
- Yellow water lily

CAES

2021



Rogers Lake
Lyme, Old Lyme
260 acres
Surveyed on July 14, 15, 19-21, 23, and August 6, 10, 2021
By Gregory Bugbee, Summer Stebbins, Sunayna Wahi, and Adam Pakalnis
Invasive Aquatic Plant Program

Map 1 of 3

N

0 200 400 800 Feet

Legend

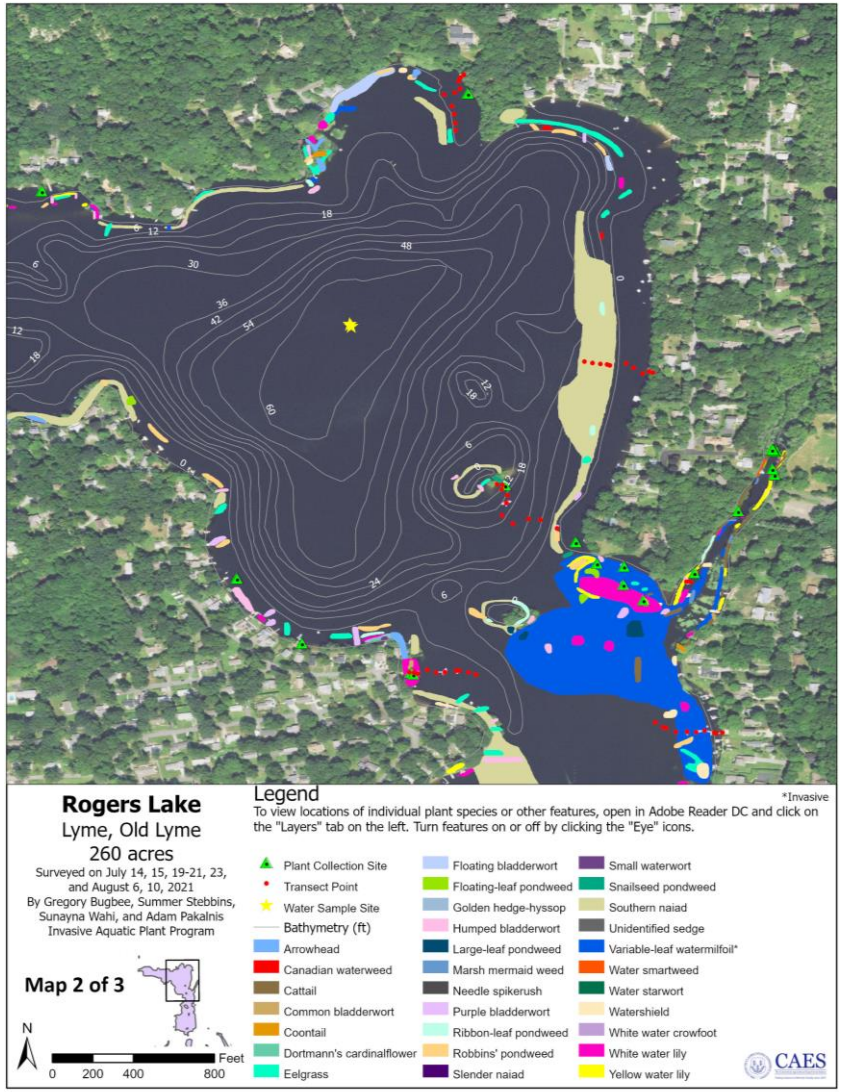
*Invasive

- Collection Point
- Transect Point
- Water Data
- State Boat Launch
- Bathymetry (ft)
- American featherfoil
- Arrowhead
- Bur-reed
- Canadian waterweed
- Cattail
- Common bladderwort
- Common duckweed
- Coontail
- Curlyleaf pondweed*
- Dortmann's cardinalflower
- Eelgrass
- Fanwort*
- Forget-me-not*
- Floating bladderwort
- Floating-leaf pondweed
- Golden hedge-hyssop
- Great duckweed
- Humped bladderwort
- Large-leaf pondweed
- Low watermilfoil
- Mudmat
- Phragmites*
- Pickerelweed
- Primrose-willow
- Purple bladderwort
- Ribbon-leaf pondweed
- Robbins' pondweed
- Sevenangle pipewort
- Small pondweed
- Snailseed pondweed
- Southern naiad
- Spikerush
- Spotted pondweed
- Spiral pondweed
- Variable-leaf watermilfoil*
- Water starwort
- Watershield
- Waterwort
- White water lily
- Yellow water lily

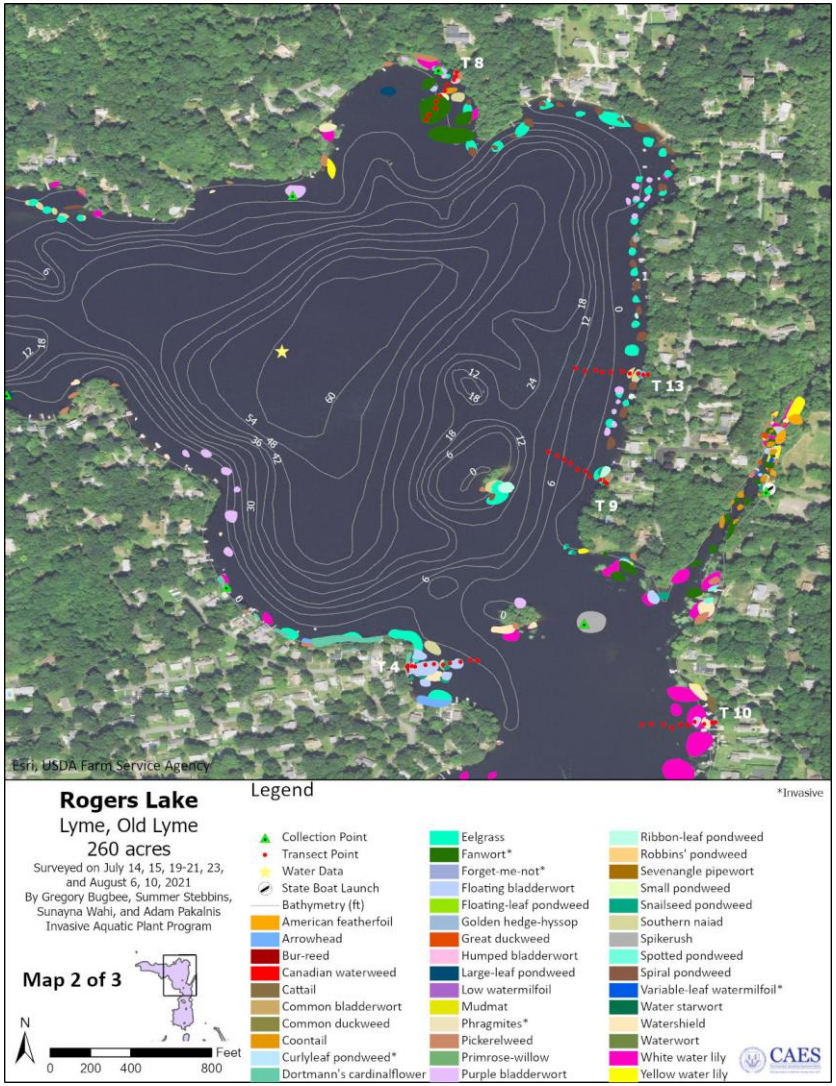
CAES

CAES

2006

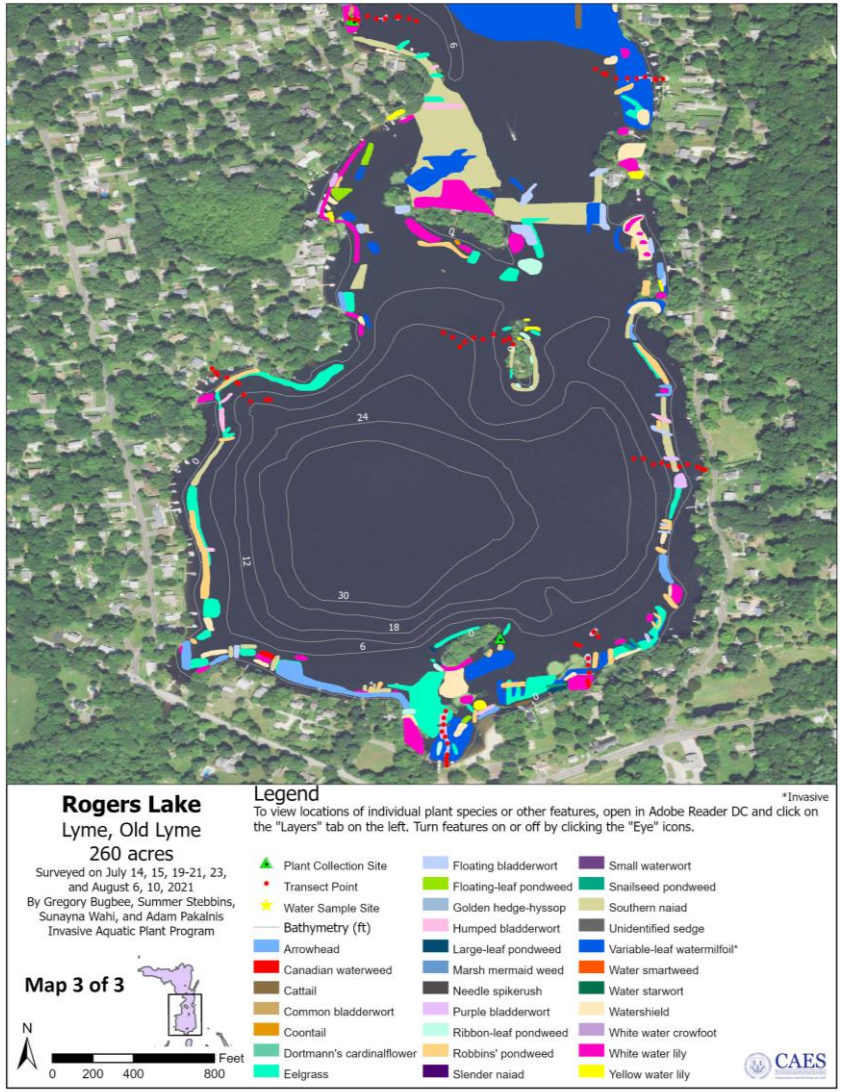


2021

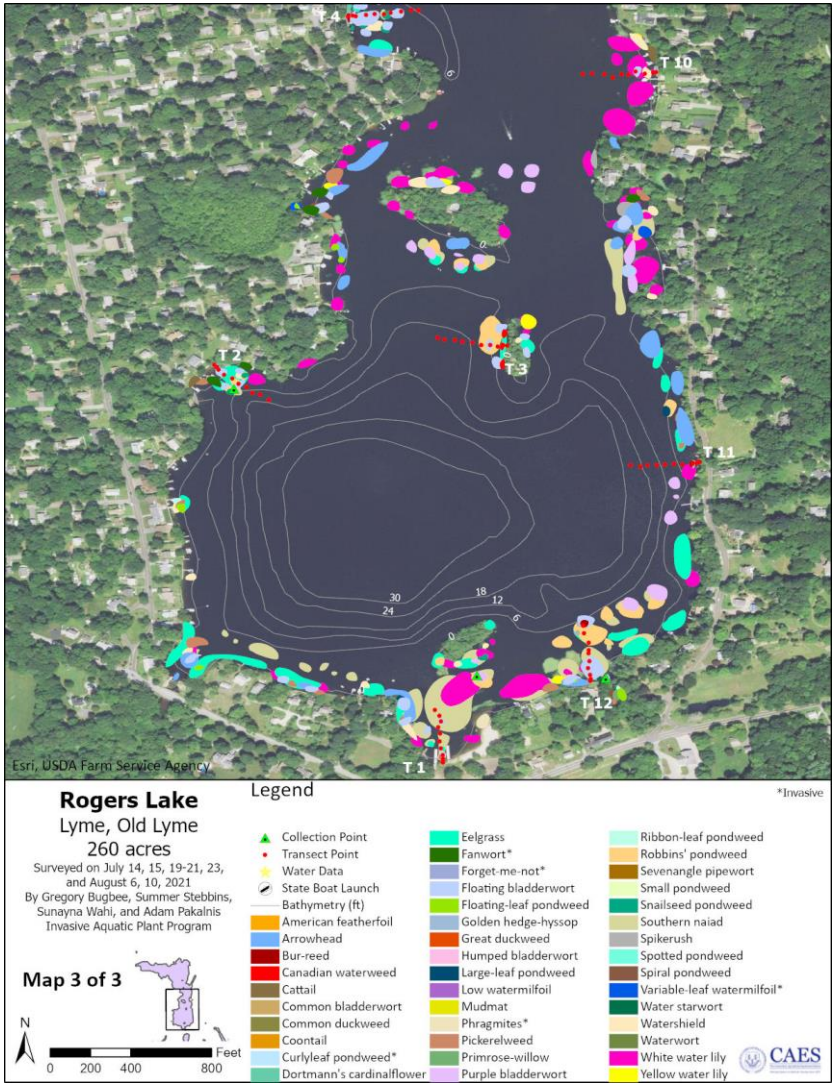


CAES

2006



2021



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Species (invasives in bold)		2006		2021	
Common Name	**Scientitic Name**	**Present**	**FOQ** (%/point)	**Present**	**FOQ** (%/point)
American featherfoil	*Hottonia inflata*			X	0
Arrowhead	*Sagittaria* species	X	6	X	2
Bur-reed	*Sparganium* species	X	0.8	X	3
Canadian waterweed	*Elodea canadensis*	X	5	X	0.8
Common bladderwort	*Utricularia macrorhiza*	X	3	X	
Coontail	*Ceratophyllum demersum*	X	0	X	0.8
Curlyleaf pondweed	***Potamogeton crispus***			**X**	**0**
Dortmann's cardinalflower	*Lobelia dortmanna*	X	0	X	0
Eelgrass	*Vallisneria americana*	X	16	X	12
Fanwort	***Cabomba caroliniana***			**X**	**4**
Floating bladderwort	*Utricularia radiata*	X	18	X	21
Floating-leaf pondweed	*Potamogeton natans*	X	0	X	4
Golden hedge-hyssop	*Gratiola aurea*	X	0	X	0
Great duckweed	*Spirodela polyrhiza*			X	0
Humpled bladderwort	*Utricularia gibba*	X	21	X	2
Large-leaf pondweed	*Potamogeton amplifolius*	X	2	X	0
Low watermilfoil	*Myriophyllum humile*			X	0
Marsh mermaid-weed	*Proserpinaca palustris*	X	3		
Mudmat	*Glossostigma cleistanthum*	X	2	X	0
Pickerelweed	*Pontederia cordata*			X	5
Primrose-willow	*Ludwigia* species			X	0.8
Purple bladderwort	*Utricularia purpurea*	X	8	X	
Quillwort	*Isoetes* species	X	0.8		
Ribbon-leaf pondweed	*Potamogeton epihydrus*	X	2	X	0.8
Robbins' pondweed	*Potamogeton robbinsii*	X	17	X	17
Sevenangle pipewort	*Eriocaulon aquaticum*			X	0.8
Slender naiad	*Najas flexilis*	X	0		
Small pondweed	*Potamogeton pusillus*	X	0	X	0.8
Snailseed pondweed	*Potamogeton bicupulatus*	X	0	X	8
Southern naiad	*Najas guadalupensis*	X	31	X	21
Spikerush	*Eleocharis* species	X	0	X	8
Spiral pondweed	*Potamogeton spirillus*			X	0
Variable-leaf watermilfoil	***Myriophyllum heterophyllum***	**X**	**14**	**X**	**2**
Water smartweed	*Polygonum amphibium*	X	0		
Water starwort	*Callitriche* species	X	0	X	0
Watershield	*Brasenia schreberi*	X	8	X	4
Waterwort	*Elatine* species	X	2	X	0.8
White water crowfoot	*Ranunculus longirostris*	X	0		
White water lily	*Nymphaea odorata*	X	8	X	11
Yellow water lily	*Nuphar variegata*	X	5	X	2
Total Species Richness	40	31	20	35	23
Total Native Species Richnesss	37	30	19	32	21
Total Invasive Species Richness	**3**	**1**	**1**	**3**	**2**

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Fanwort
Cabomba caroliniana

Curlyleaf pondweed
Potamogeton crispus

Variable-leaf watermilfoil
Myriophyllum heterophyllum

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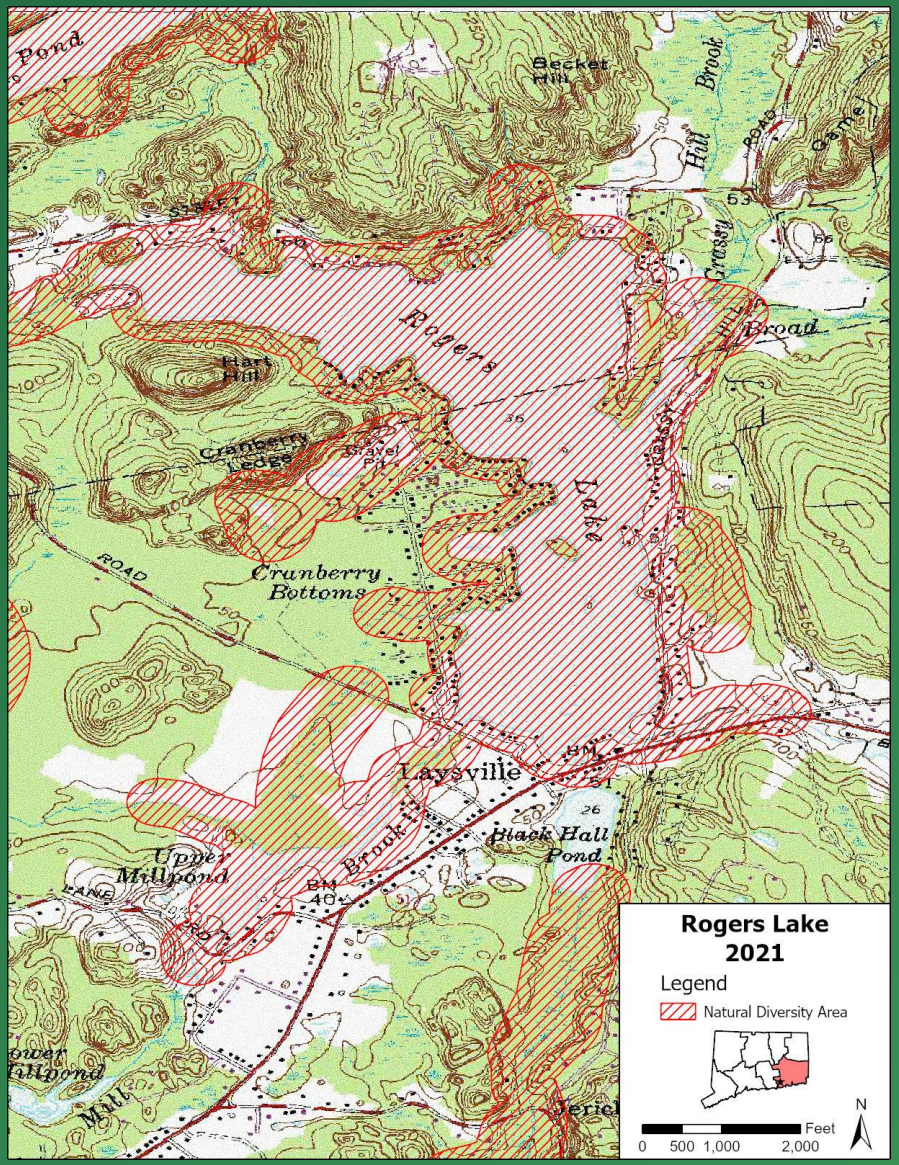
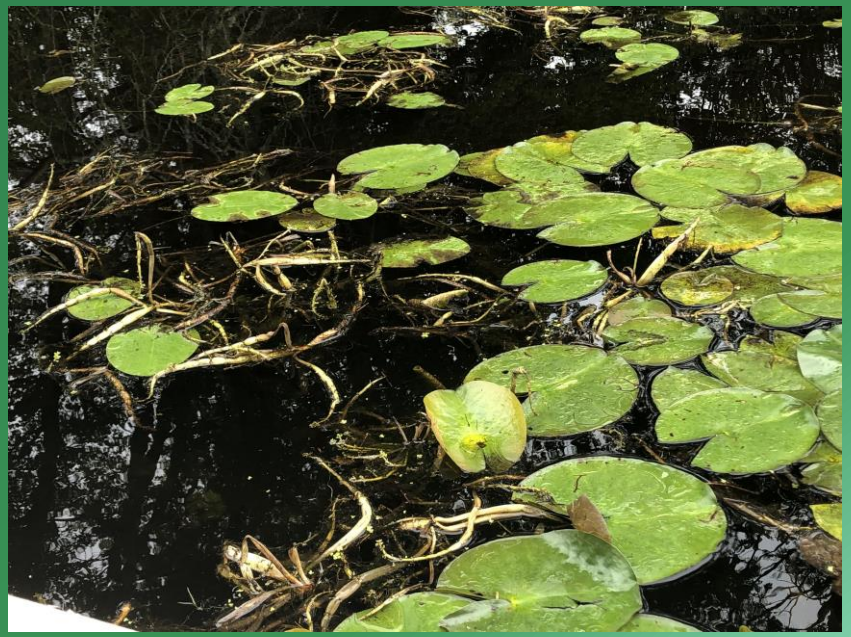
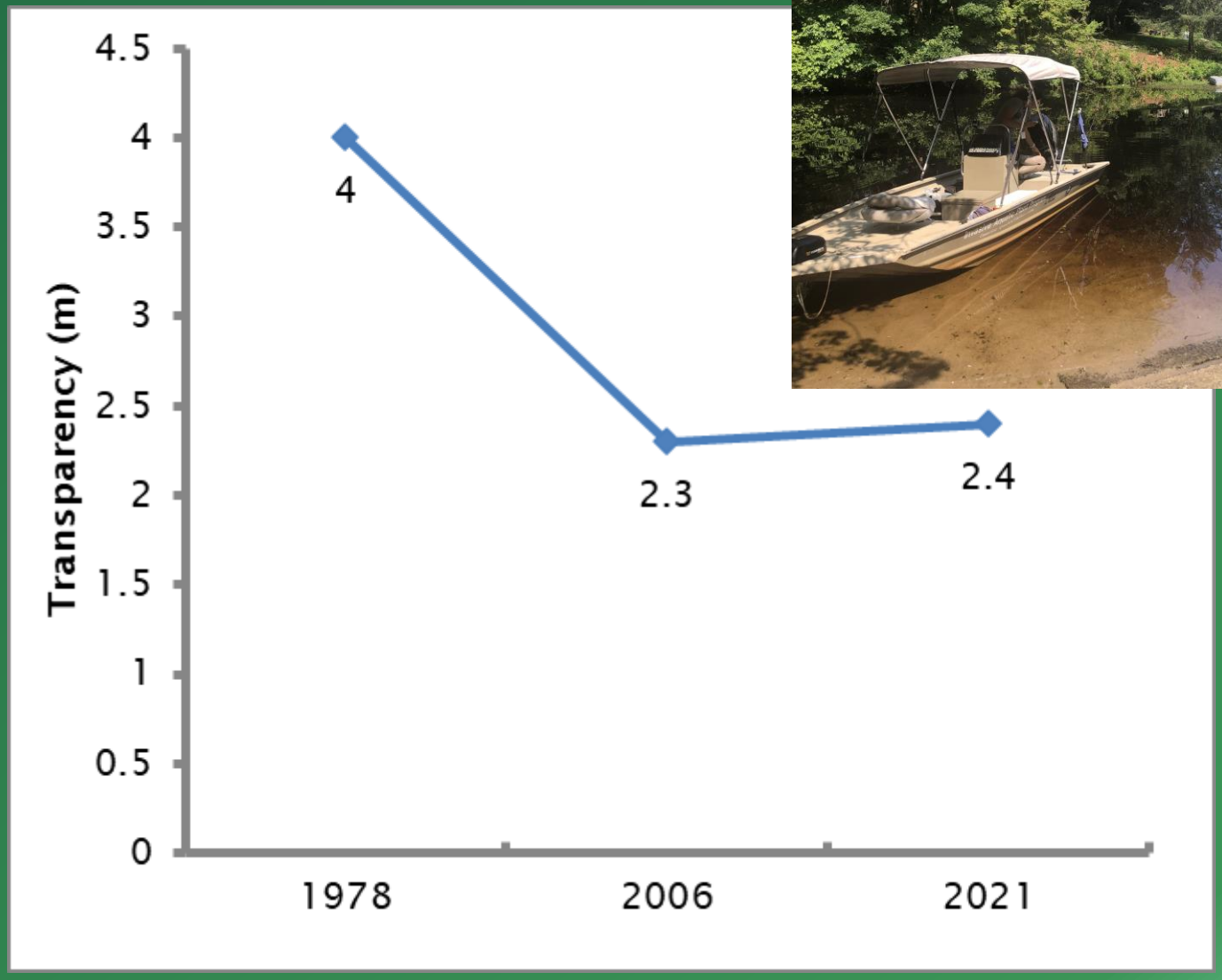
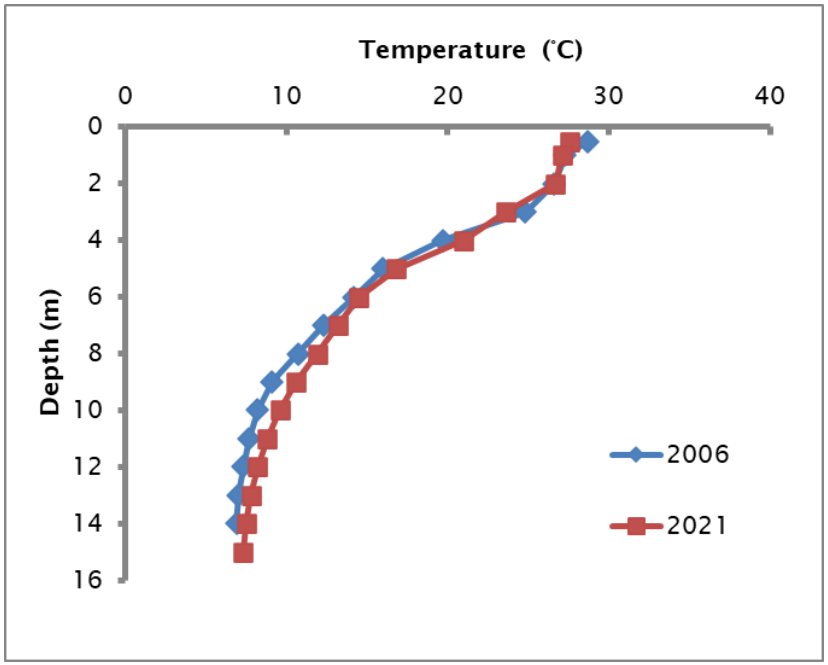
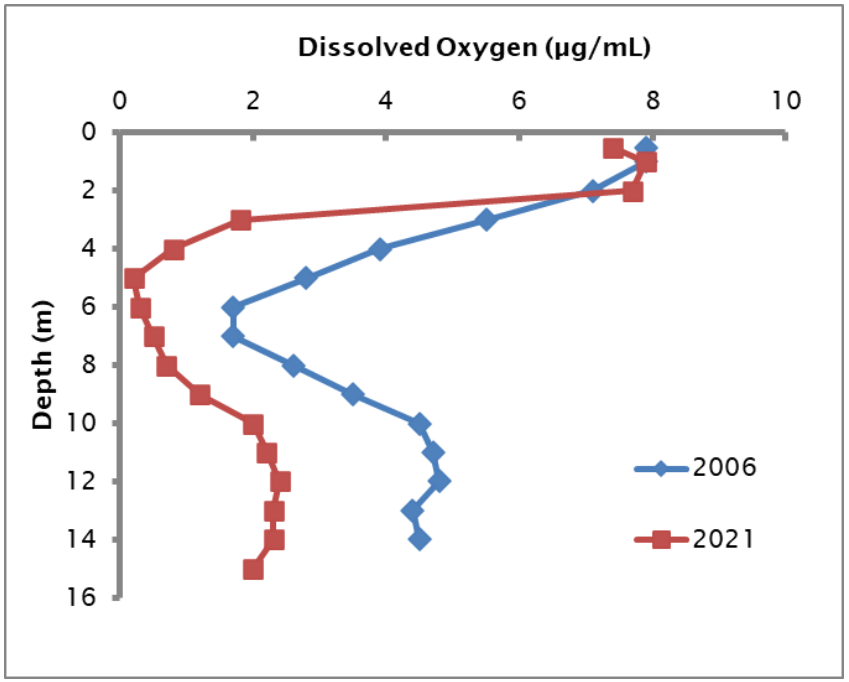
American featherfoil
Hottonia inflata

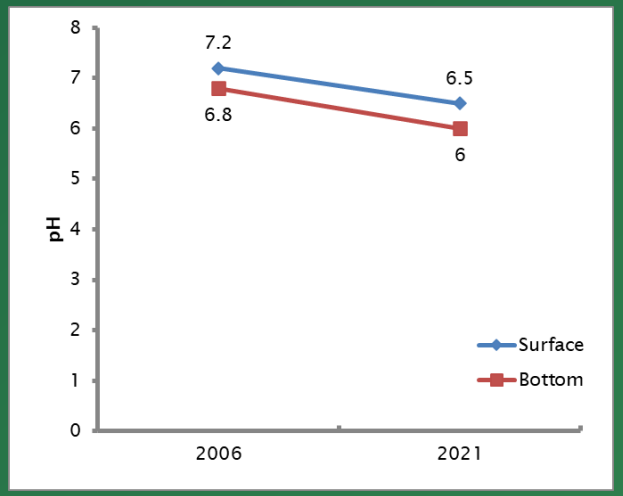


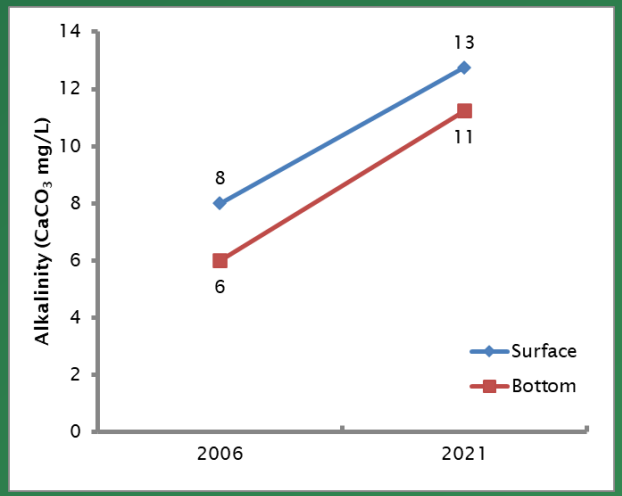


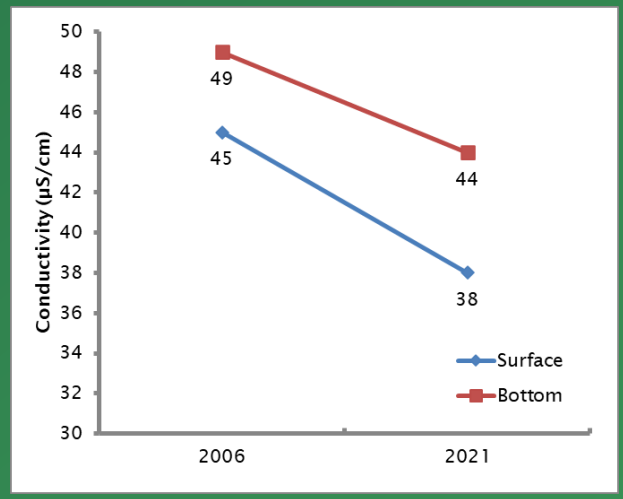

Transparency (m)
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
4
2.3
2.4
1978
2006
2021

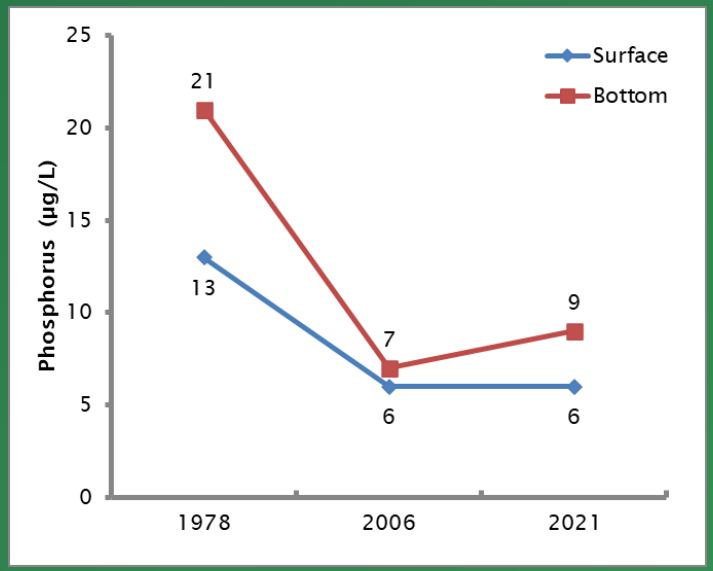

Temperature (˚C)
0
10
20
30
40
Depth (m)
0
2
4
6
8
10
12
14
16
2006
2021

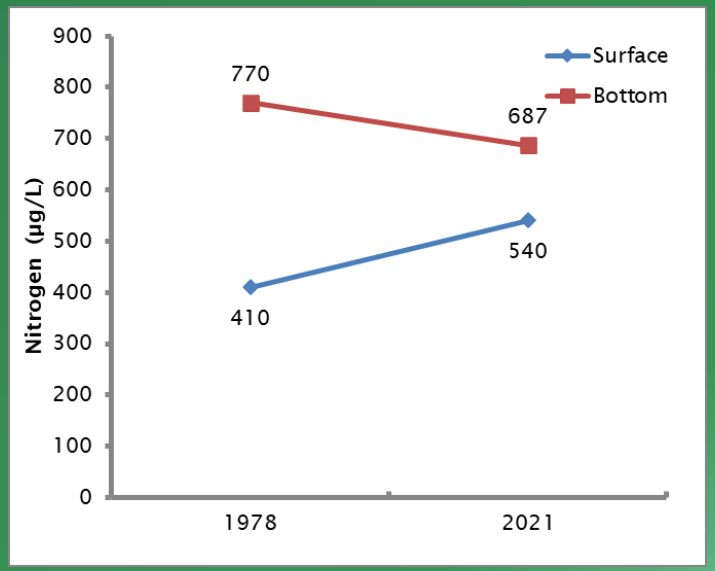

Dissolved Oxygen (µg/mL)
0
2
4
6
8
10
Depth (m)
0
2
4
6
8
10
12
14
16
2006
2021


pH
8
7
6
5
4
3
2
1
0
7.2
6.5
6.8
6
2006
2021
Surface
Bottom


Alkalinity ($CaCO_3$ mg/L)
14
12
10
8
6
4
2
0
13
11
8
6
2006
2021
Surface
Bottom


Conductivity (µS/cm)
50
48
46
44
42
40
38
36
34
32
30
49
44
45
38
2006
2021
Surface
Bottom


Phosphorus (µg/L)
25
20
15
10
5
0
21
13
7
9
6
6
1978
2006
2021
Surface
Bottom


Nitrogen (µg/L)
900
800
700
600
500
400
300
200
100
0
770
687
540
410
1978
2021
Surface
Bottom

Introduction and Dispersal

Benthic Barriers

Aquatic Herbicides

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Grass Carp

Ctenopharyngoden idella

Biological Control

CAES

Questions?

Invasive Aquatic Plant Program
The Connecticut Agricultural Experiment Station

Greg Bugbee
gregory.bugbee@ct.gov
203-974-8512

Summer Stebbins
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203-974-8545

https://www.portal.ct.gov/caes-iapp