



New York State
Adirondack
Park Agency

Town of Lake Luzerne

P2023-0045

May 10, 2023

Presentation Overview

- Jurisdiction
- Conclusions of Law
- Project Location
- Eurasian Watermilfoil Overview
- Management History in Lake Luzerne
- ProcellaCor EC Overview
- Existing Conditions
- Proposed Project
- Public Comment & Review by Others
- Staff Recommendation
- Q & A



Jurisdiction

9 NYCRR Section 578.3(n)(2)(i)

- Regulated Wetland Activity
 - Application of Herbicides in Wetlands



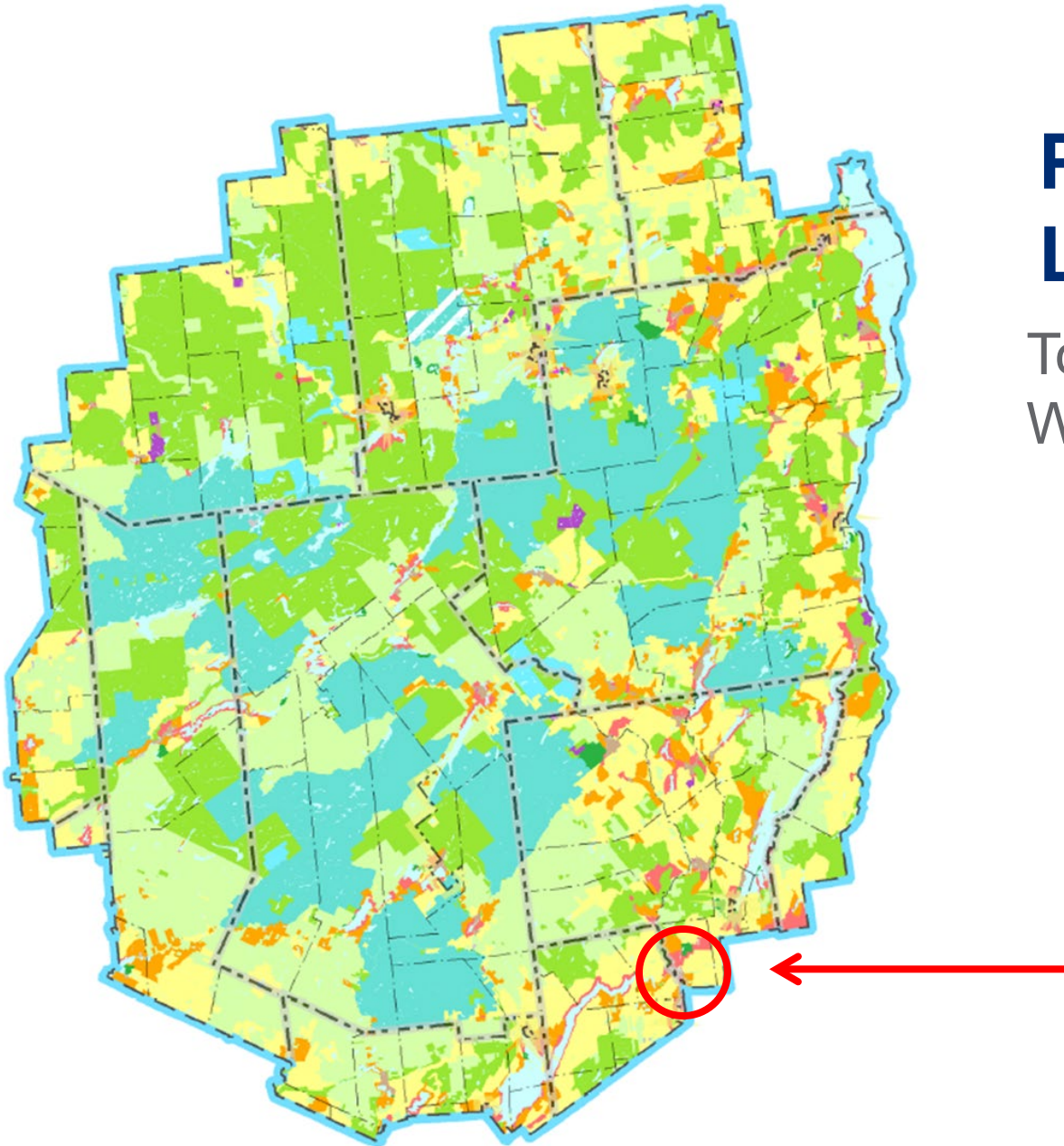
Conclusions of Law

- a. that the project authorized as conditioned herein will be consistent with the Adirondack Park land use and development plan; and
- b. that the project authorized as conditioned herein will not have an undue adverse impact upon the natural, scenic, aesthetic, ecological, wildlife, historic, recreational or open space resources of the Park, taking into account the economic and social or other benefits to be derived from the activity; and
- c. the economic, social and other benefits to be derived from the activity proposed and as conditioned herein compel a departure from the guidelines of 9 NYCRR Part 578.10(a)(1), in order to secure the natural benefits of wetlands associated with the project, consistent with the general welfare and beneficial economic, social, and agricultural development of the state



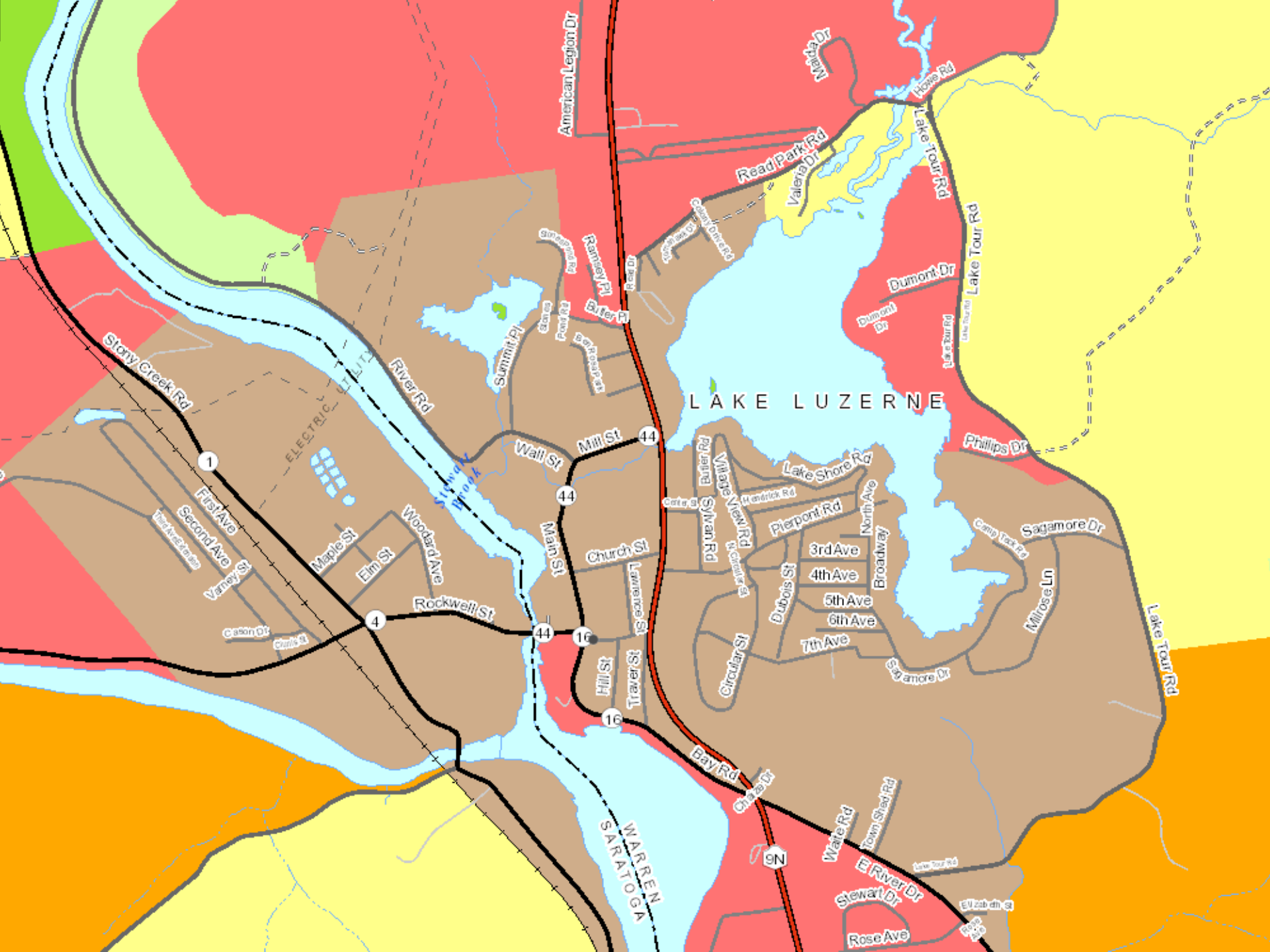
Project Location



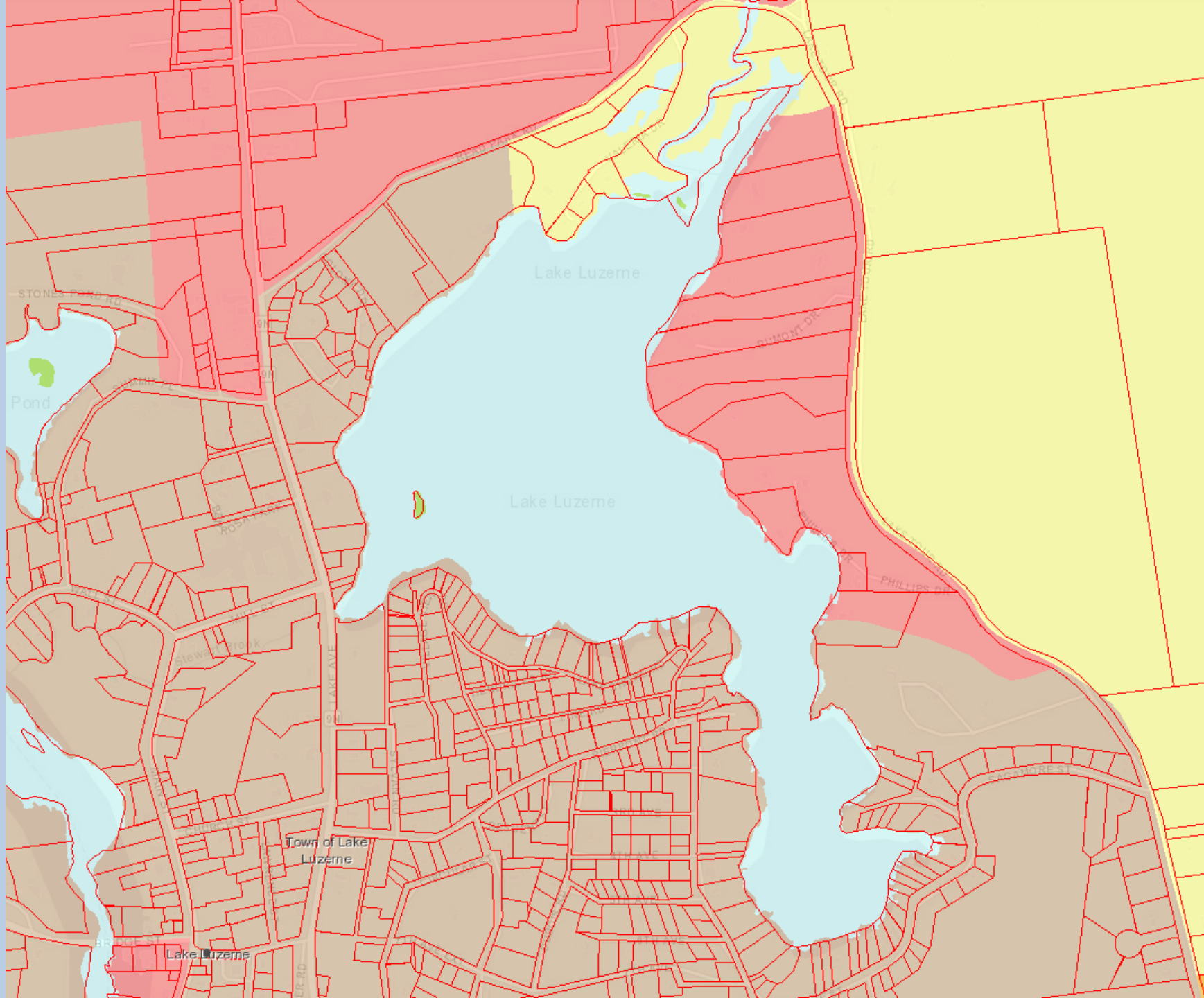


Project Location

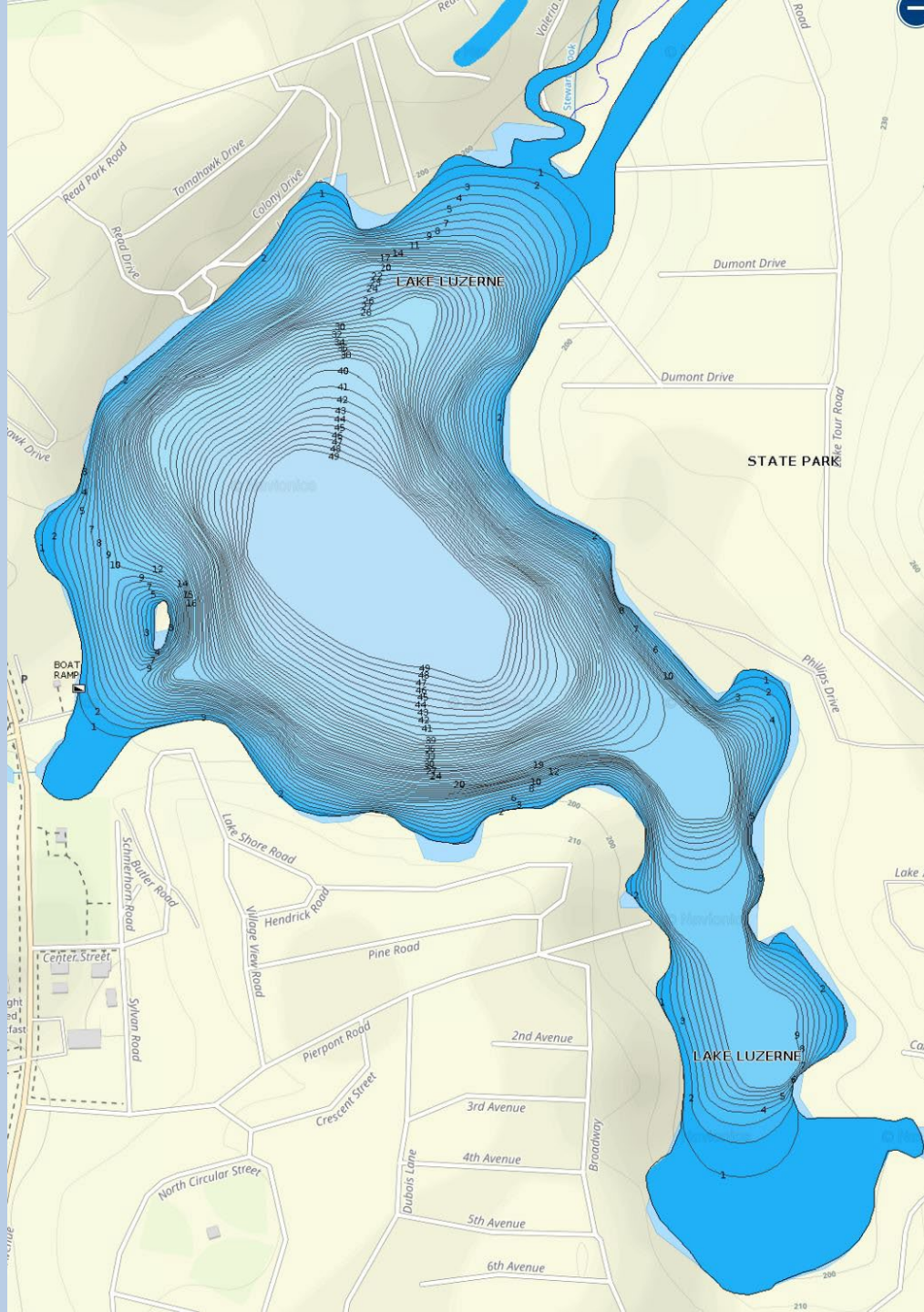
Town of Lake Luzerne,
Warren County











NEW YORK STATE
Adirondack
Park Agency
RECEIVED
Date: March 10, 2023

Aquatic Vegetation of Lake Luzerne, NY

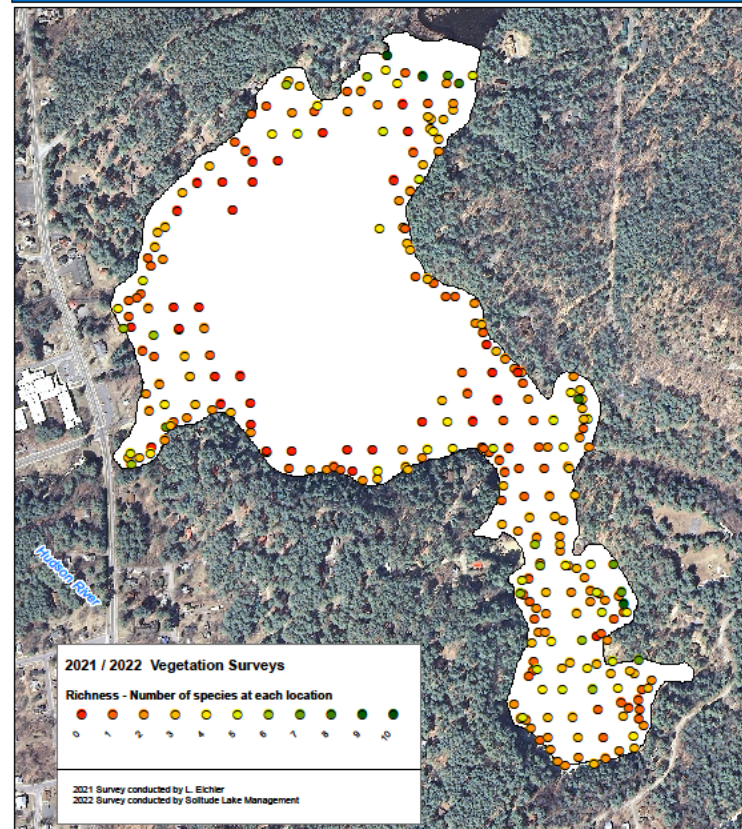
Prepared for
The Town of Lake Luzerne

Lawrence Eichler
Darrin Fresh Water Institute

October 22, 2021

2021 / 2022 AQUATIC VEGETATION RICHNESS

SOLITUDE
LAKE MANAGEMENT
888.480.5253
solitudelakemanagement.com



Lake Luzerne
Town of Lake Luzerne
[Warren County]
43.323048°, -73.633281°



LAKE LUZERNE

1:6,070

0 116 230 460
Feet



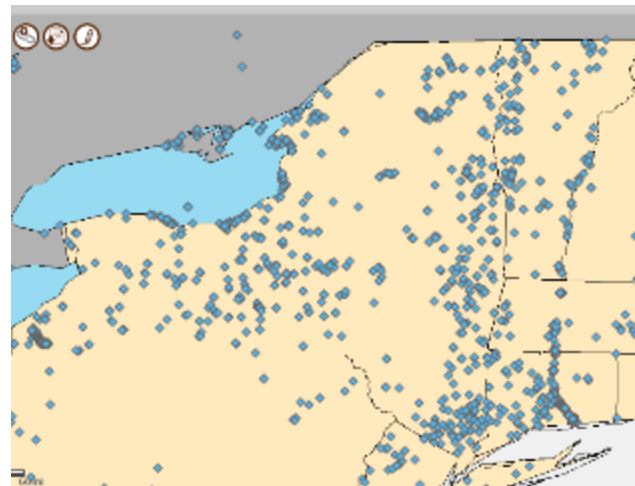
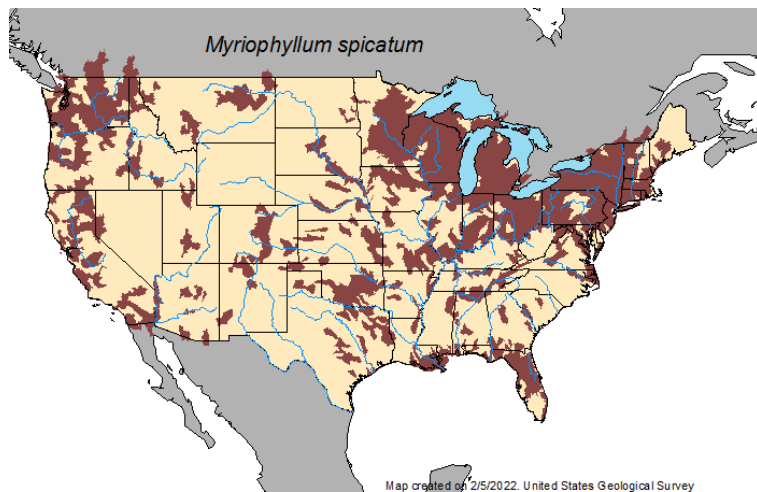
Date Saved: 4/25/2023
File: Luzerne23_Richness
Prepared by: KM
Office: Washington, NJ

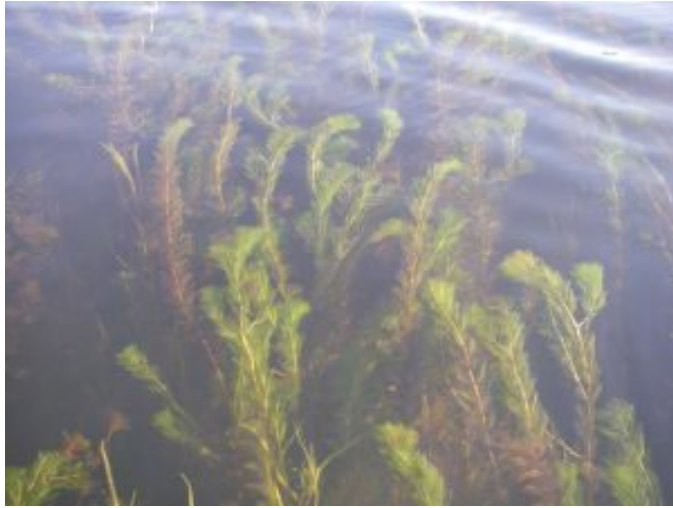
Eurasian Watermilfoil (EWM)



- Non native aquatic invasive plant
- Economic and environmental harm:
 - Impairs recreational use of waterways;
 - Degrades native habitat of fish and other wildlife.
- No native predators
- Can form dense beds

Once established, difficult if not impossible to eradicate.





Grows well in disturbed areas

Each plant can produce 100 seeds per season, but much more successful at vegetative reproduction via fragments and runners.

After flowering, this species can undergo auto-fragmentation; fragments are then transported via wind, waves, or human activity.

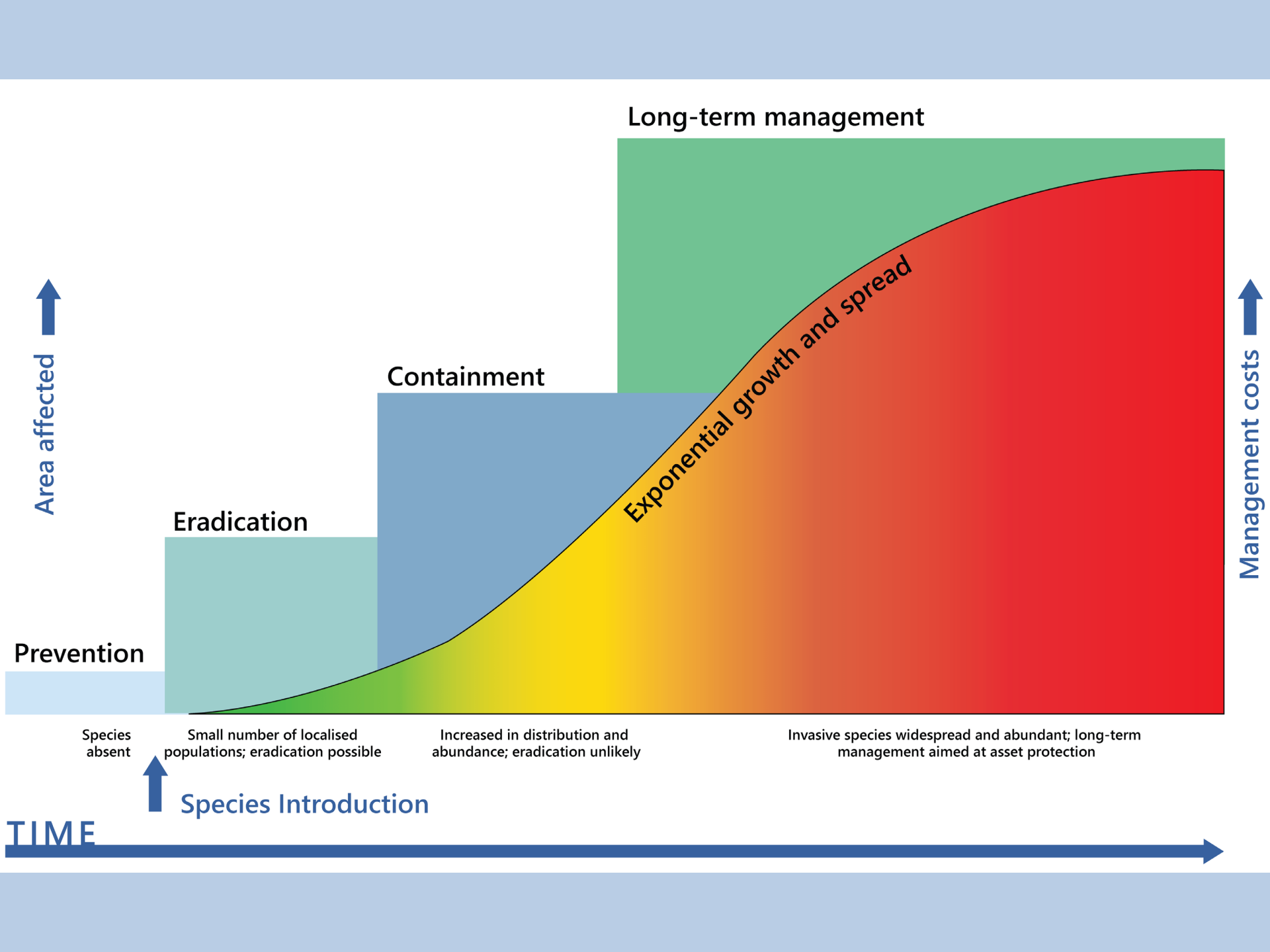






EWM Management in Lake Luzerne





First identified in 1989

Early efforts:

- Community volunteers
- Education, outreach, awareness
- Individual landowner hand harvesting



P1990-0427 → APA Permit for use of Hand Harvesting

P2007-0052 → APA Permit for use of Hand Harvesting and Benthic Mats

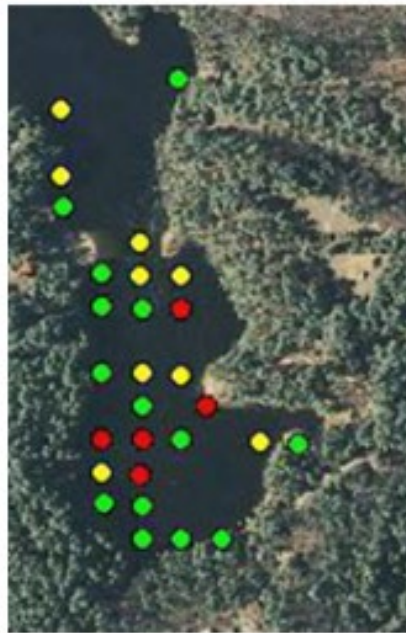
P2009-0256 → APA Permit for use of the aquatic herbicide Triclopyr to control Eurasian watermilfoil

P2016-0079 → General Permit for Hand Harvesting and Benthic Mats



P2009-0256 – Town of Lake Luzerne (Issued February 2010)

- 11 acres in South Bay treated May 17, 2010
- 1560 lbs of product applied
- Sequestration Curtain to maintain concentration of 0.50 ppm for 72 hours
- Required Commitment to Long Term Management (Hand Harvesting)



9/2009



9/2010



Recent Harvest Data and Expenditures

Year	2011	2012	2013	2014		2017	2018	2019	2020		2022
EWM Harvested	6 Bags	35 Bags	37,925 Pounds	18,050 Pounds		25,720 Pounds	15,760 Pounds	16,300 Pounds	10,205 Pounds		10,178 Pounds

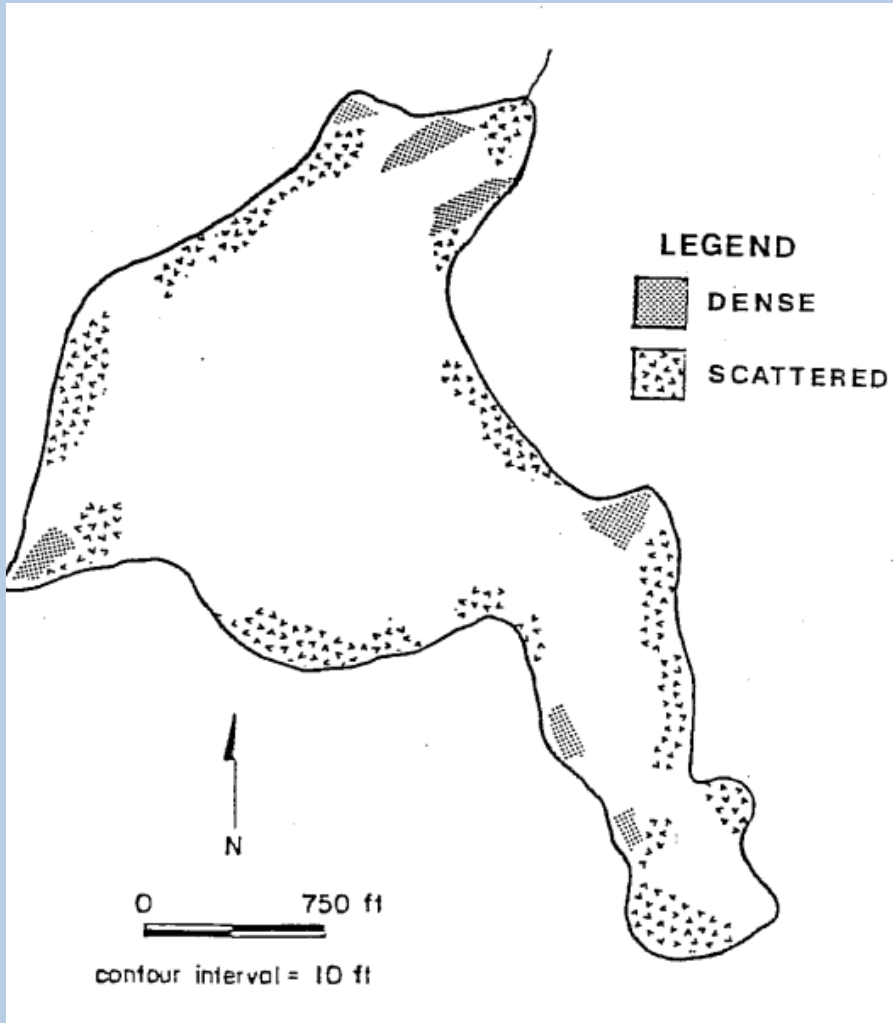
Lake Luzerne Annual Eurasian Watermilfoil Harvest Data

2017-2022 Had Harvesting: \$39,000 – \$42,000 Annually

Estimated ProcellaCor Treatment Cost: \$37,000 (3 Year Coverage)

Expected Savings: At least \$100,000 over at least 3 years

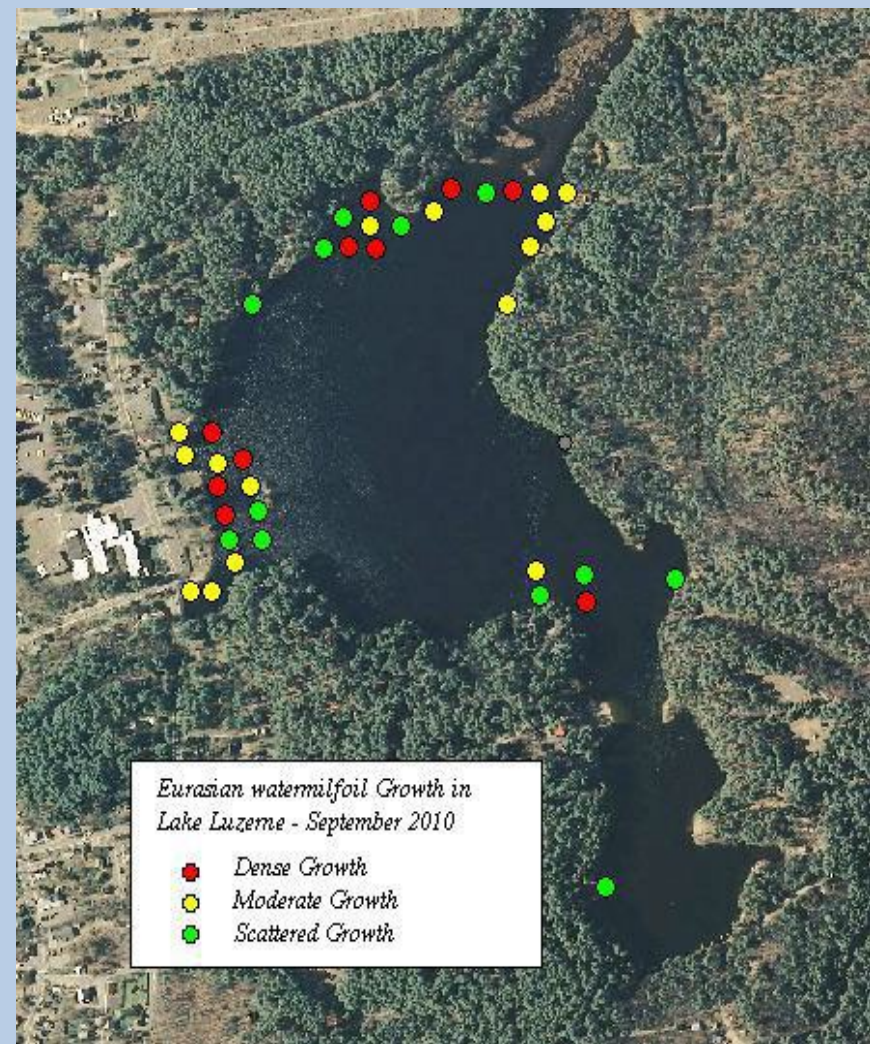




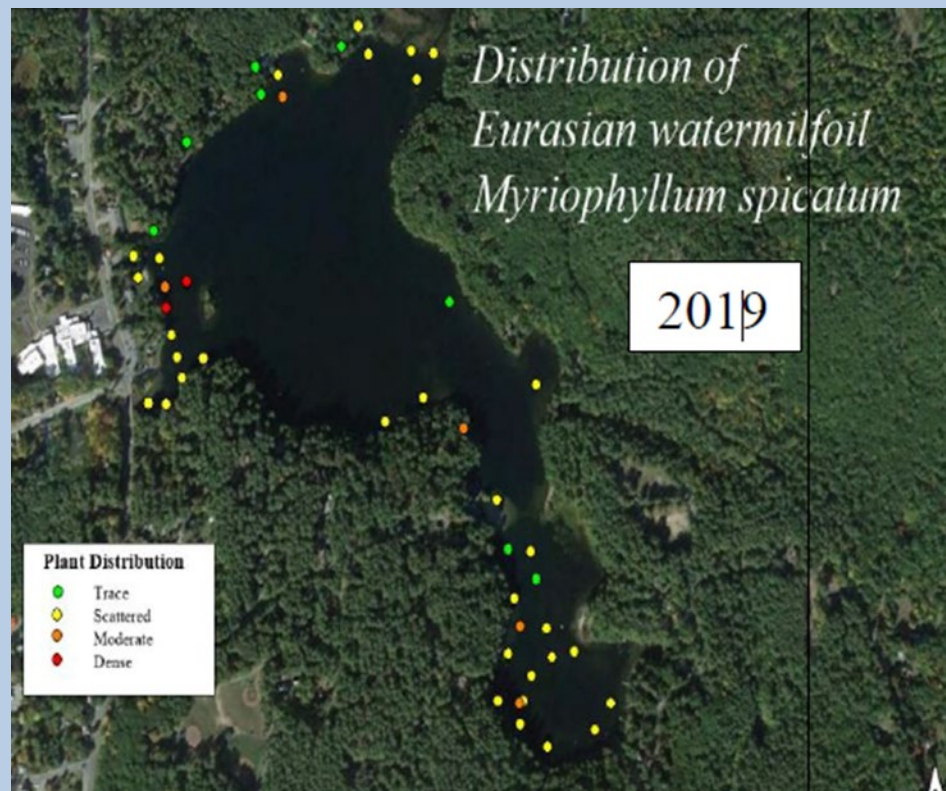
1990



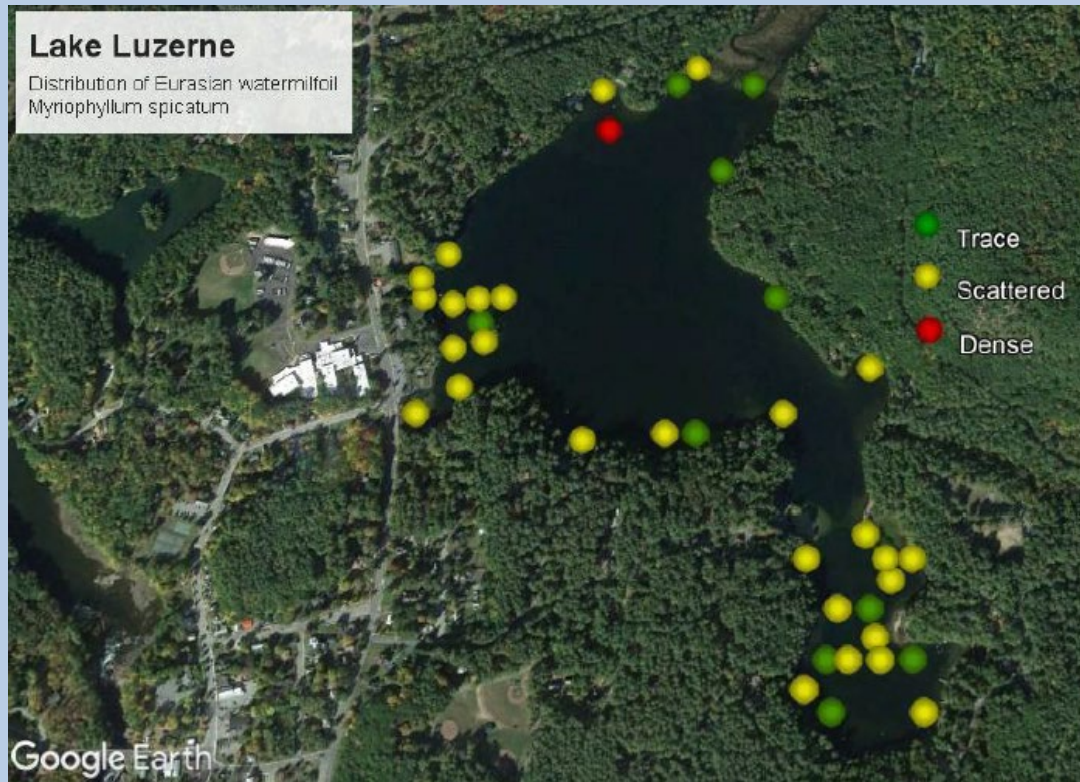
2004



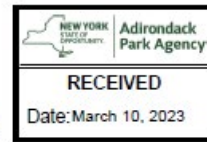
2010



2019



2021



Lake Luzerne Lake Management Plan

Town of Lake Luzerne, Warren County, New York



JANUARY 2020

This project was partially funded through a grant under the New York State Department of Environmental Conservation 2019 Invasive Species Grant Program.

Aquatic Herbicide ProcellaCOR EC



ProcellaCOR EC (*florpyrauxifen-benzyl*)

- **Registration approved by:**
 - **USEPA in 2018**
 - **NYSDEC in 2019 (NYSDOH, Division of Fish and Wildlife)**

“The product application was fully reviewed regarding human health as well as ecosystem health. There were no objections to the registration of this product in New York State”

- **Health Canada Pest Management Regulatory Agency in 2022**

“When used according to label directions, florpyrauxifen-benzyl and its transformation products do not pose a risk to wild mammals, birds, beneficial invertebrates, earthworms, bees, aquatic invertebrates, fish, amphibians, or algae.”



ProcellaCOR EC

A Selective Systemic Herbicide

- Limited non-target impacts
- Rapid plant uptake (2-6 hours)
- Low dosage (<8 parts per billion)
 - 1 ppb = 3 seconds in a century
 - = 1¢ in \$10,000,000
 - = 1 water drop in 10,000 gallon pool
- Fast degradation (Photolysis)



ProcellaCOR EC & Triclopyr Comparison

	2023 ProcellaCor EC	2010 Triclopyr (Renovate)
Treatment Acreage	32	11
Dosage Concentration	3.86 ppb	500 ppb
Total Product	10.4 gallons (2.2 lbs)	1560 lbs
Contact Period	2-6 hours	72 Hours
Persistence (Water Column)	2 Days	Still Detected 4 months later



Auxin Mimic

Active Ingredient Florpyrauxifen-benzyl

Mimics plant growth hormone - causes uncontrolled rapid growth that ultimately kills the plant

- Leaves grow larger and become twisted,
- Stems lengthen,
- Leaf and shoot tissue becomes fragile
- Initial symptoms in hours to days
- Plant death and decomposition within 2-3 weeks.

Plant fragments are not viable.

Applied while plants are growing for efficient product uptake.



Half Life of ProcellaCOR EC

Aquatic	Aerobic	4 to 6 Days
	Anaerobic	2 Days
Sediment	Aerobic	8 Days
	Anaerobic	3 Days
Metabolites in Sediment	Aerobic	21.5 Days
	Anaerobic	28.9 Days

Toxicity

Fish	Practically NonToxic (Lowest Value Assigned by EPA)
Invertebrates	Slightly Toxic (Second Lowest Value Assigned by EPA)
Birds, Mammals, Amphibians, Reptiles	Practically NonToxic (Lowest Value Assigned by EPA)



ProcellaCOR EC

Maximum Treatment Concentration Allowed by Label for Controlling EWM is 7.72 parts per billion (ppb)

NYSDEC Use Restrictions:

- **Drinking Water: No restrictions under 50 ppb. Can and has been used in public drinking supplies**
- **Swimming / Fishing : No restrictions**
- **Irrigation: Restriction until concentration is <1 ppb**



Overview of Regional ProCellaCor EC Treatments

	Number of Treatments	Total Treatment Area	Range of Treatment Area
New York	NYS: ≈ 30 5 in Region 5 1 in Adirondack Park	NYS: Undocumented ADK's: 41 ac	NYS: Undocumented ADK's: 41 ac
Vermont	18 Undertaken	480 ac	4 to 70 ac
New Hampshire	43 Undertaken	990 ac	0.75 to 78

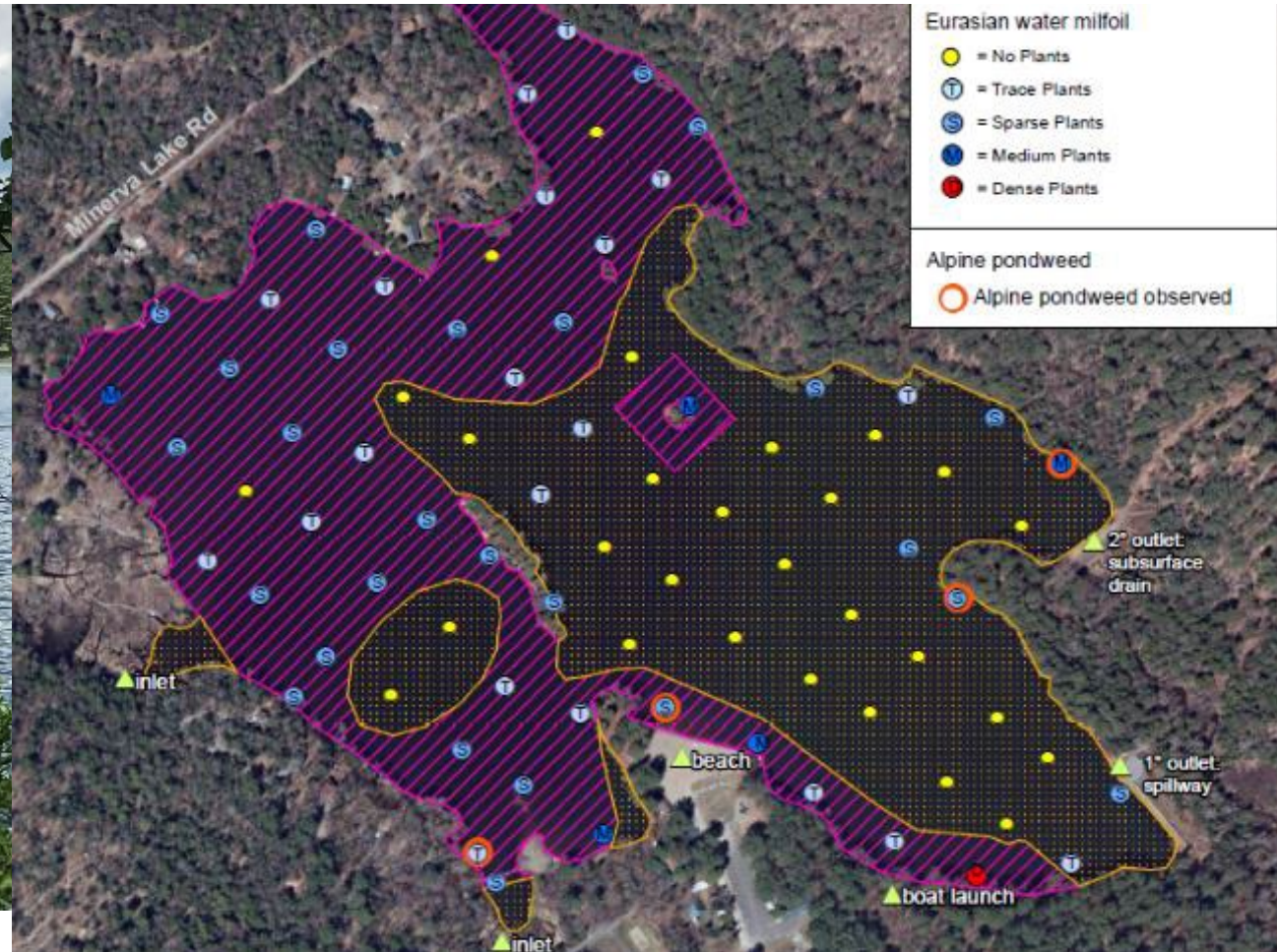


P2020-0044: ProcellaCOR EC to Control EWM

APA Board Approval May, 2020 - Treatment June 5, 2020

41 Acre Treatment Area in Minerva Lake

8.73 gallons, application Rate of 3.82 ppb



June 5, 2020 Treatment of Minerva Lake.

Treatment Concentration 3.82 ppb, non-detectable in 3 Days

Minerva Lake ProcellaCOR EC Treatment Concentrations by Location and Date

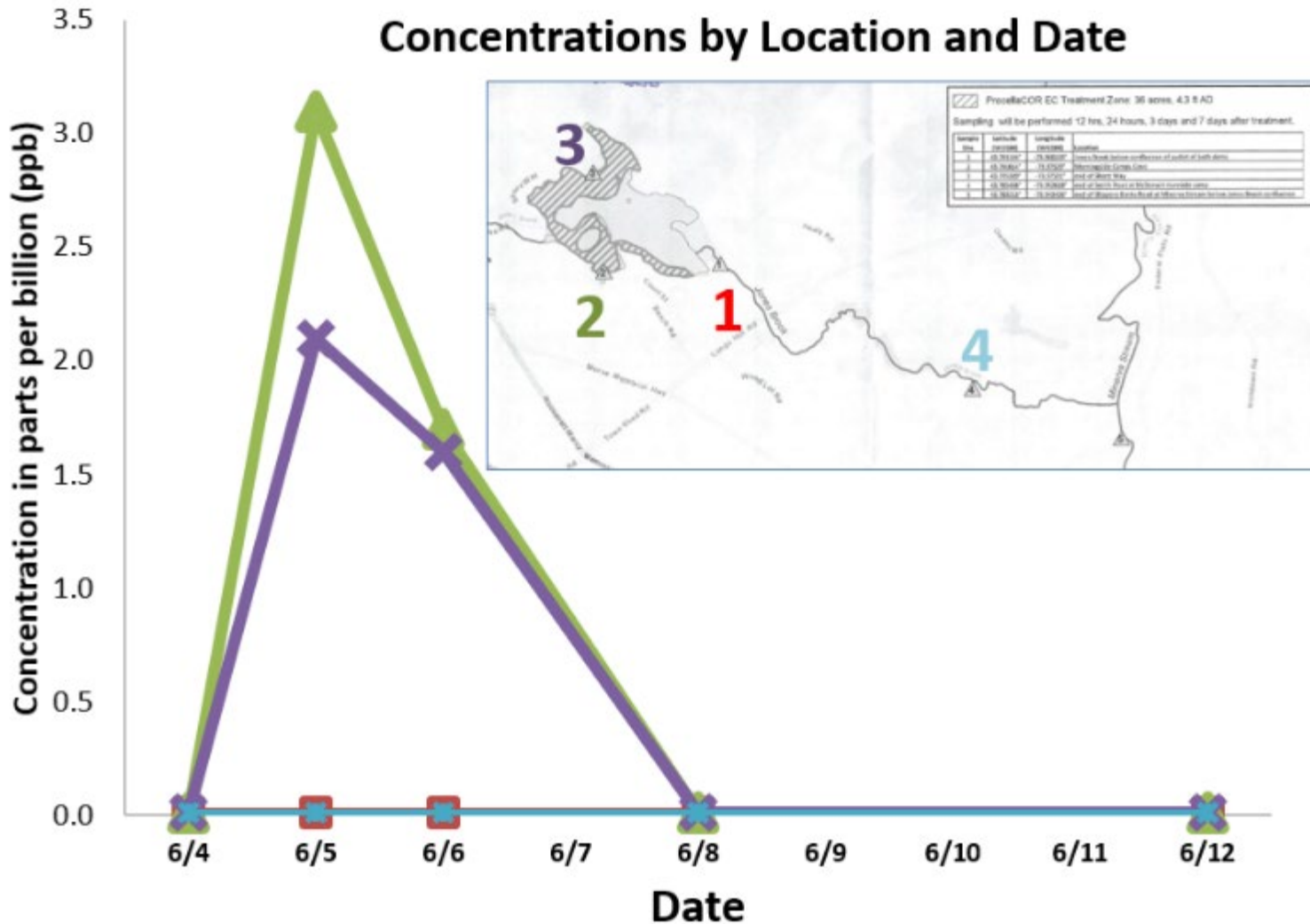


Table 2: 4 Year Change in common species abundance from 2019-2022.

COMMON NAME	SCIENTIFIC NAME	2019	2020	2021	2022	CHANGE
Eurasian watermilfoil	<i>Myriophyllum spicatum</i>	66%	0%	0%	2%	Decrease
Common waterweed	<i>Elodea spp.</i>	60%	63%	74%	71%	Increase
Flat-stem pondweed	<i>Potamogeton zosteriformis</i>	50%	54%	59%	65%	Increase
Southern naiad	<i>Najas guadalupensis</i>	41%	60%	10%	68%	Increase
Macro-algae	<i>Chara/Nitella spp.</i>	38%	48%	23%	24%	Negligible
Thin-leaf pondweed	<i>Potamogeton pusillus</i>	44%	21%	33%	16%	Decrease
Watershield	<i>Brasenia schreberi</i>	37%	26%	20%	21%	Decrease
Bassweed/Large-leaf pondweed	<i>Potamogeton amplifolius</i>	30%	37%	52%	43%	Increase
Ribbon-leaf pondweed	<i>Potamogeton epihydrus</i>	18%	34%	28%	7%	Decrease
Northern naiad (2019) Slender naiad (2020, 2021)	<i>Najas gracillima</i>	17%	9%	2%	0%	Decrease
Slender naiad (2019) Nodding naiad (2020, 2021)	<i>Najas flexilis</i>	16%	35%	82%	43%	Increase




Existing Conditions




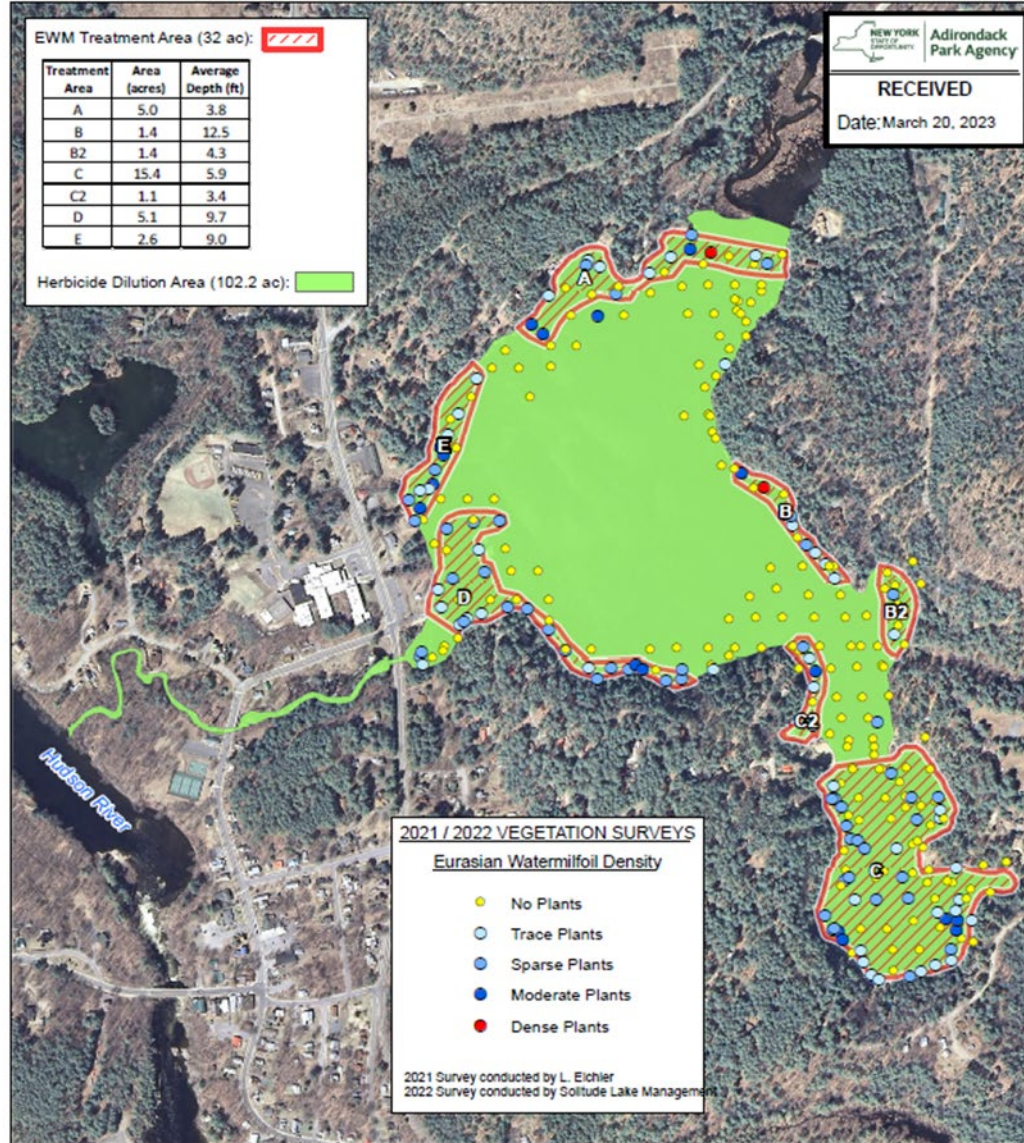
2023 EURASIAN WATERMILFOIL TREATMENT AREAS

RECEIVED
Date: March 20, 2023

EWM Treatment Area (32 ac): 

Treatment Area	Area (acres)	Average Depth (ft)
A	5.0	3.8
B	1.4	12.5
B2	1.4	4.3
C	15.4	5.9
C2	1.1	3.4
D	5.1	9.7
E	2.6	9.0

Herbicide Dilution Area (102.2 ac): 



2021 / 2022 VEGETATION SURVEYS

Eurasian Watermilfoil Density

-  No Plants
-  Trace Plants
-  Sparse Plants
-  Moderate Plants
-  Dense Plants

2021 Survey conducted by L. Eichler
2022 Survey conducted by Solitude Lake Management

Lake Luzerne
Town of Lake Luzerne
[Warren County]
43.323048°, -73.833281°



LAKE LUZERNE

1:8,000

0 155 310 620 Feet



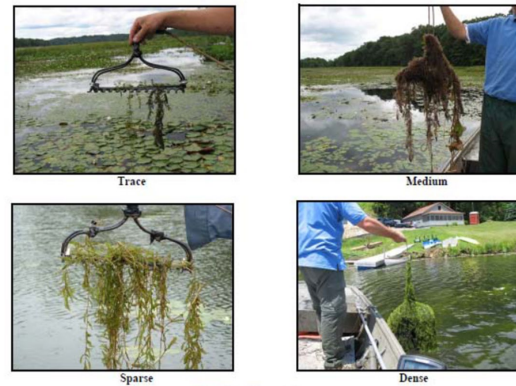
Date Saved: 3/13/2023
File: Luzerne23_TA
Prepared by: KM
Office: Washington, NJ

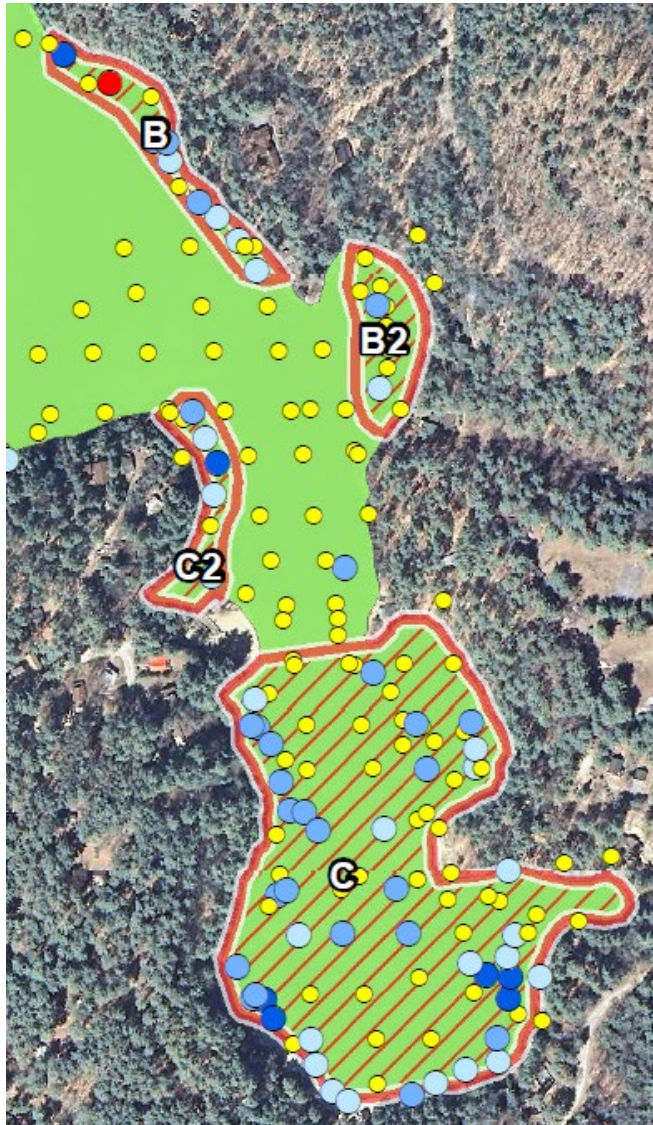


Eurasian Watermilfoil Density

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Submersed Aquatic Plant Density





Eurasian Watermilfoil Density

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Submersed Aquatic Plant Density



Trace



Medium

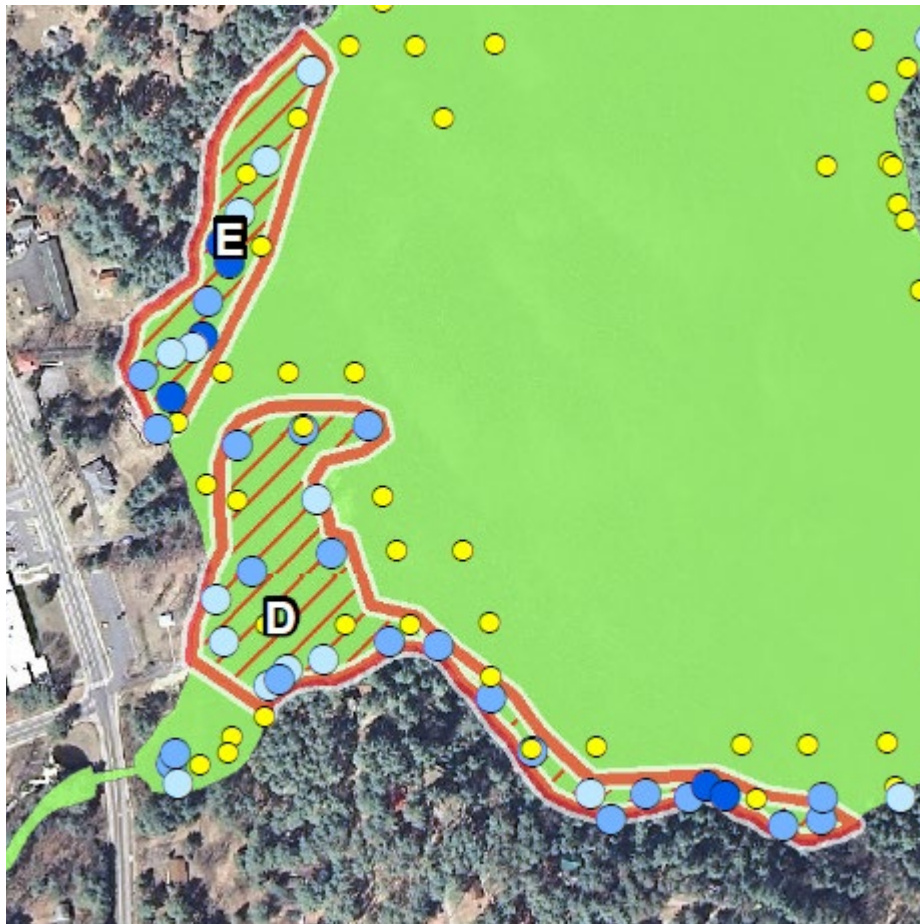


Sparse



Dense





Eurasian Watermilfoil Density

- No Plants
- Trace Plants
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Submersed Aquatic Plant Density



Trace



Medium



Sparse



Dense



Proposed Project



Management Goals

“The expected level of control from the ProcellaCor treatment is to completely control the milfoil in the highest density areas that have traditionally been difficult to control. It is anticipated that the herbicide treatment will dramatically reduce the amount of suction harvesting for a period of 3 or more years.

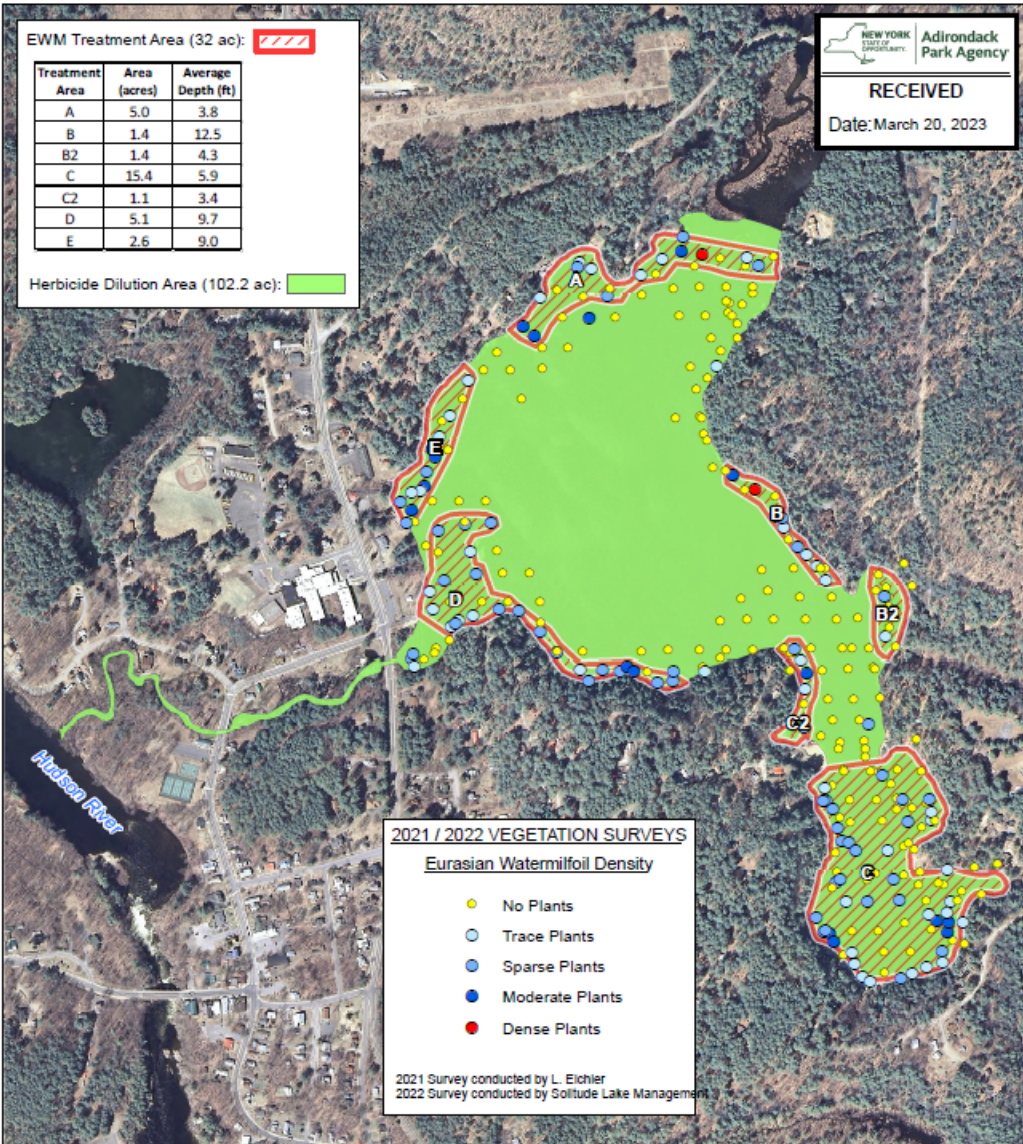
This will not eliminate the need for spot suction harvesting around the lake but it will reduce the overall costs of the entire AIS management program.”



Treatment Plan

Treat 32 acres within seven treatment areas with ProcellaCor EC, at a concentration of 3.86 ppb.

Total volume of herbicide will be 10.4 gallons, to be mixed in a tank on the boat, and injected below the surface within the designated treatment areas.



NEW YORK STATE OF ENVIRONMENTAL CONSERVATION
Adirondack Park Agency
RECEIVED
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Lake Luzerne
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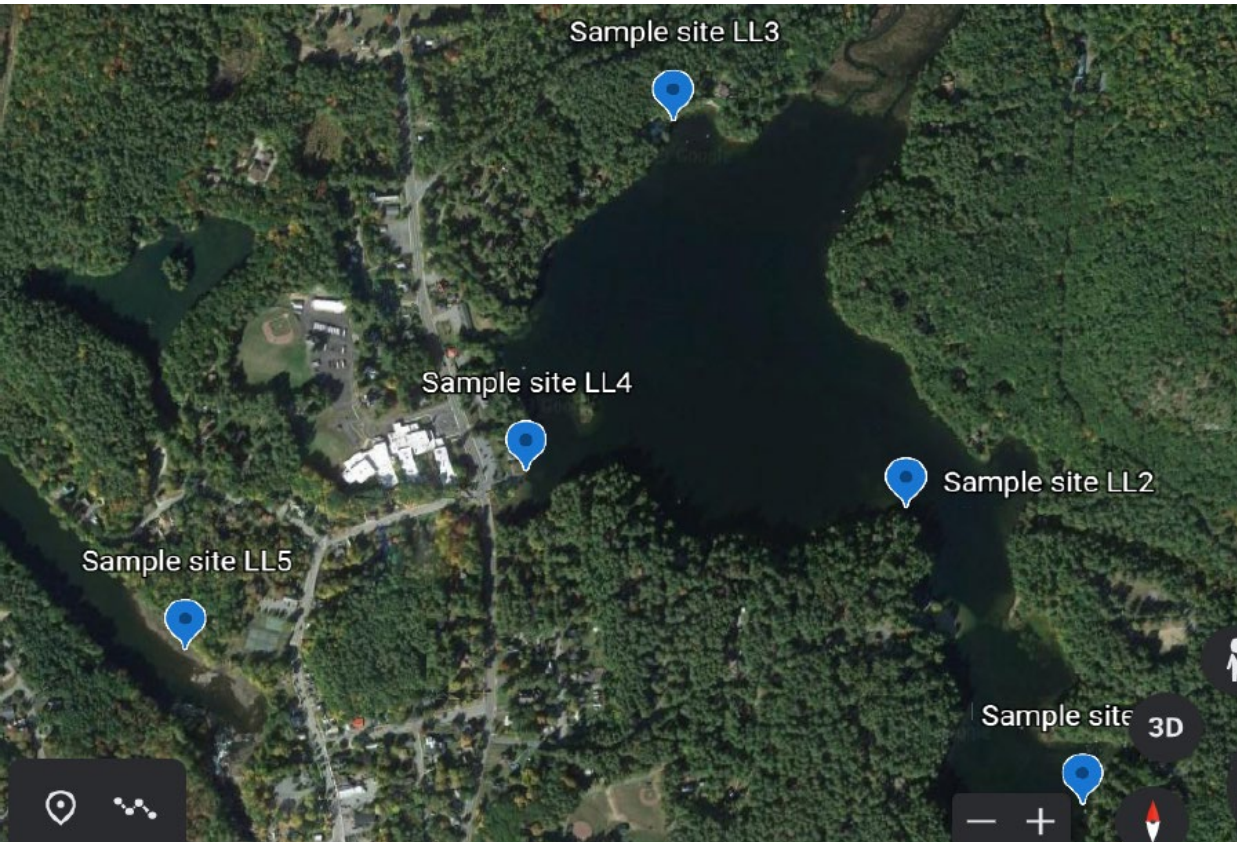


LAKE LUZERNE
1:8,000
0 155 310 620 Feet



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Post Treatment Concentration Monitoring



Samples collected and analyzed from five locations until herbicide concentration is below 1 ppb in all samples.

Post Treatment Collection Schedule:

1 to 3 Hours

10 to 12 Hours

24 Hours

3 Days

7 Days

7-14 Days thereafter




Milfoil Species in Lake Luzerne

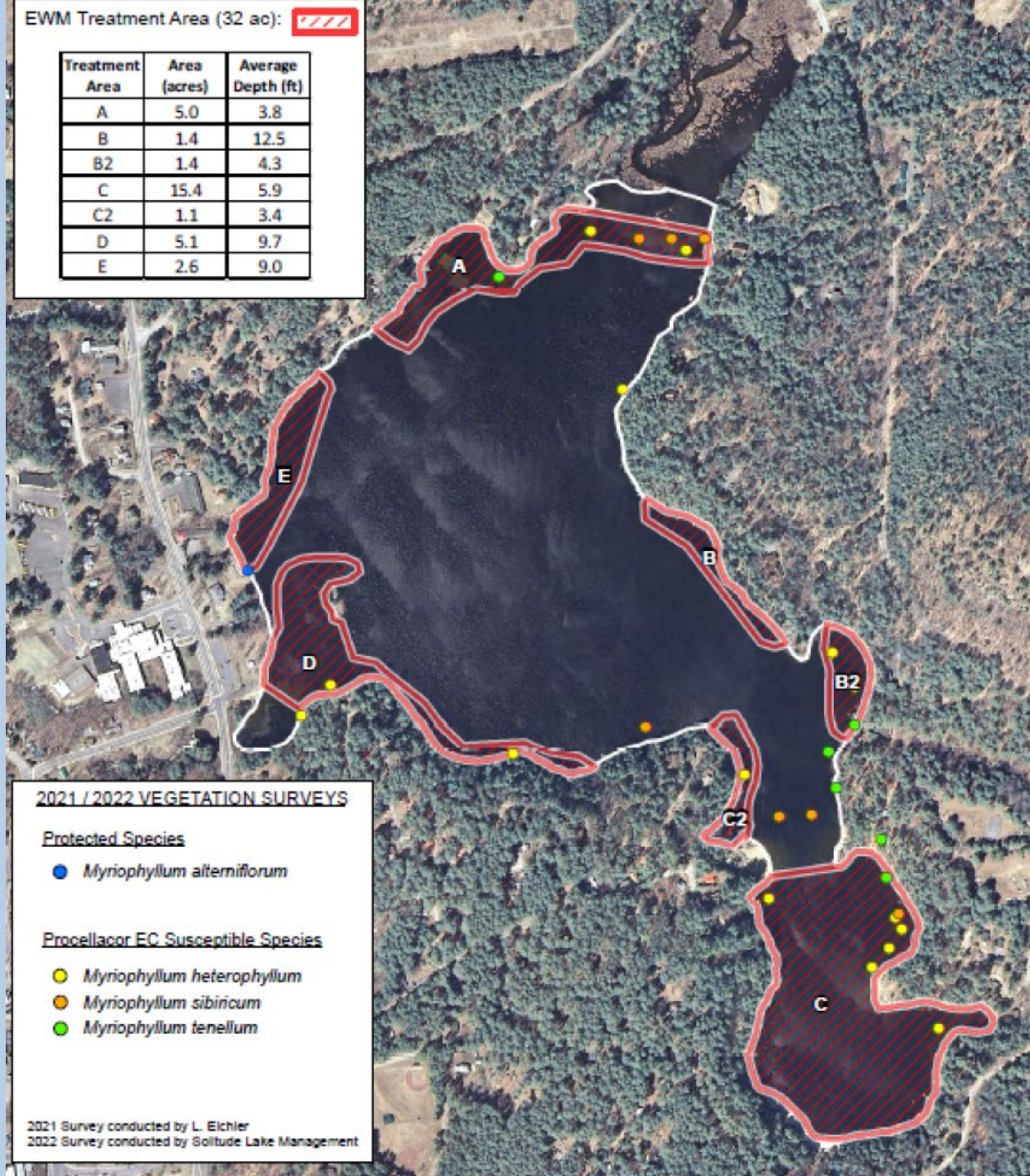
Plant Species	Native	Protected?
Eurasian watermilfoil	No	No (Invasive)
Variable watermilfoil	No	No (Invasive)
Little watermilfoil (Alternate flowered)	Yes	Yes (Threatened)
Northern watermilfoil	Yes	No
Leafless watermilfoil	Yes	No

Sources: Selective Control of Invasive Watermilfoils with ProcellaCOR® Aquatic Herbicide and Response of Native Aquatic Plants. January 28, 2019 Mark Heilman, Ph.D., Jon Gosselin, SePRO Technical Specialist, Pers.Communication



EWM Treatment Area (32 ac): 

Treatment Area	Area (acres)	Average Depth (ft)
A	5.0	3.8
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2021 / 2022 VEGETATION SURVEYS

Protected Species

-  *Myriophyllum alterniflorum*

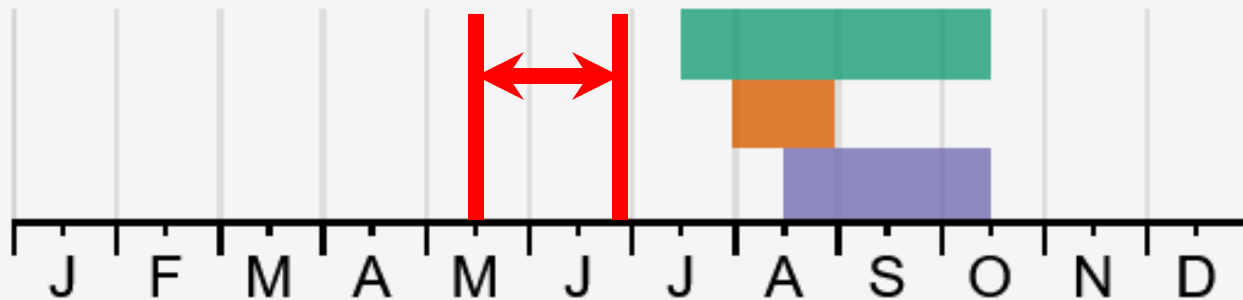
Procellacor EC Susceptible Species

-  *Myriophyllum heterophyllum*
-  *Myriophyllum sibiricum*
-  *Myriophyllum tenellum*

2021 Survey conducted by L. Eichler
2022 Survey conducted by Solitude Lake Management

Myriophyllum alterniflorum: Growth in New York in Relation to Proposed Herbicide Treatment Timeframe

Proposed
Treatment
Window



■ Vegetative ■ Flowering ■ Fruiting

The time of year you would expect to find Alternate-flowered Water Milfoil vegetative, flowering, and fruiting in New York.

FROM NYSNHP:

***Myriophyllum alterniflorum* State Ranking Justification**

There are only **13 verified occurrences**, and 11 historical records in the state. Only two of the existing populations have 100 or more plants. **Most occurrences lack accurate counts or estimates of population size. Only 3 of the sites have been visited since 1993.**

Conservation and Management Threats

The use of chemical herbicides to eliminate *Myriophyllum spicatum* (EWM) and other submerged aquatic plants is an ongoing threat to this species.

Conservation Strategies and Management Practices

Care should be taken to survey for this species before using herbicides to control aquatic invasives (including *M. spicatum*).

Susceptibility of Other Native Species

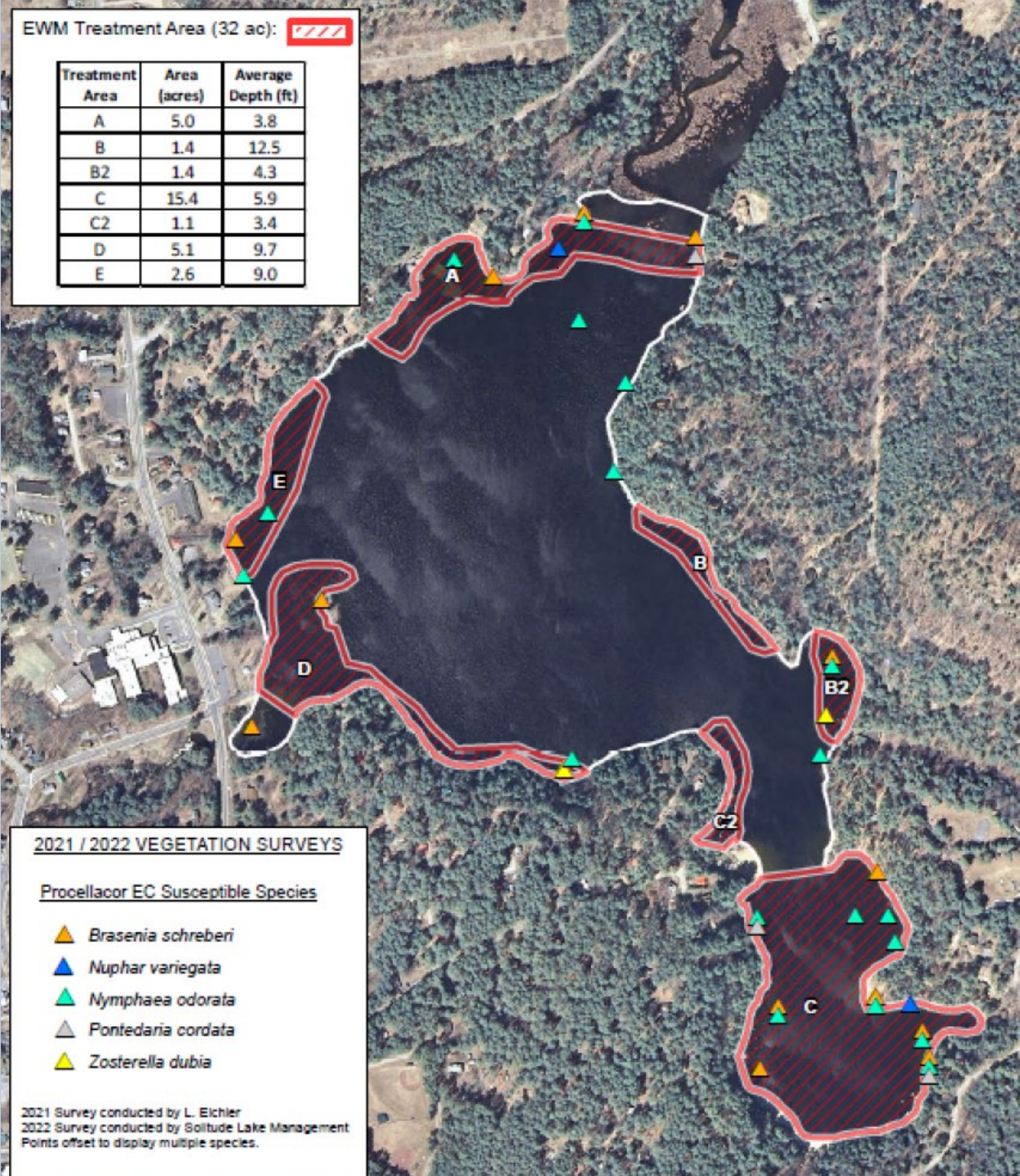
Plant Species	Susceptibility
Watershield	Moderate - High
Yellow waterlily	Low - Moderate
White waterlily	Moderate
Pickerelweed	Low - Moderate
Water stargrass	Low - Moderate
All others (N= 33)	Low

Sources: Selective Control of Invasive Watermilfoils with ProcellaCOR® Aquatic Herbicide and Response of Native Aquatic Plants. January 28, 2019 Mark Heilman, Ph.D., Jon Gosselin, SePRO Technical Specialist, Pers.Communication



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2021 / 2022 VEGETATION SURVEYS

Procellacor EC Susceptible Species

-  *Brasenia schreberi*
-  *Nuphar variegata*
-  *Nymphaea odorata*
-  *Pontedaria cordata*
-  *Zosterella dubia*

2021 Survey conducted by L. Eichler
 2022 Survey conducted by Solitude Lake Management
 Points offset to display multiple species.

Public Comment and Review by Others



Public Comment

- Public Notice
 - All lakefront landowners received notification; Notification list identical to DEC notification (≈100 letters)
 - Environmental Notice Bulletin: Comment Period Ended April 20, 2023

- Comment Letters
 - 12 received, 9 Supportive, 3 Opposed



Public Comment: Opposed (3 letters)

- Lack of long term monitoring given recent Federal (2018) and NY State (2019) registrations



Public Comment: Opposed (3 letters)

- Impacts to Protected and Non Target Species



Public Comment: Opposed (3 letters)

- Product Degradation Considerations / Persistence in Sediment



Public Comment: Opposed (3 letters)

- Suggestion that latest hand harvesting report indicates hand harvesting is working



Public Comment: Supportive (9 letters)

- Comments:
 - Reasonable and cost effective
 - Limited success of hand harvesting
 - Environmentally sound, fiscally responsible and will protect the resources of the Adirondack Park by increasing the level of control of an invasive aquatic plant
 - An affordable, integrated EWM control strategy, which includes judicious use of herbicide, is essential to keep Lake Luzerne a valuable natural resource for the present and future generations.



Review by Others

- Department of Environmental Conservation
 - Issued Permit on April 20

- Town of Lake Luzerne
 - Town Board approval is required



Staff Recommendation: Approve with Conditions



Conclusions of Law

- a. that the project authorized as conditioned herein will be consistent with the Adirondack Park land use and development plan; and
- b. that the project authorized as conditioned herein will not have an undue adverse impact upon the natural, scenic, aesthetic, ecological, wildlife, historic, recreational or open space resources of the Park, taking into account the economic and social or other benefits to be derived from the activity; and
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Draft Permit Conditions

- Undertake project as proposed
- Adherence to Clean Drain Dry Standards for all equipment used
- Post-treatment concentration monitoring report
- Post treatment aquatic plant survey





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Park Agency

Town of Lake Luzerne

P2023-0045

May 10, 2023

**Slides that follow are
EXTRA SLIDES**





2023 EURASIAN WATERMILFOIL TREATMENT AREAS

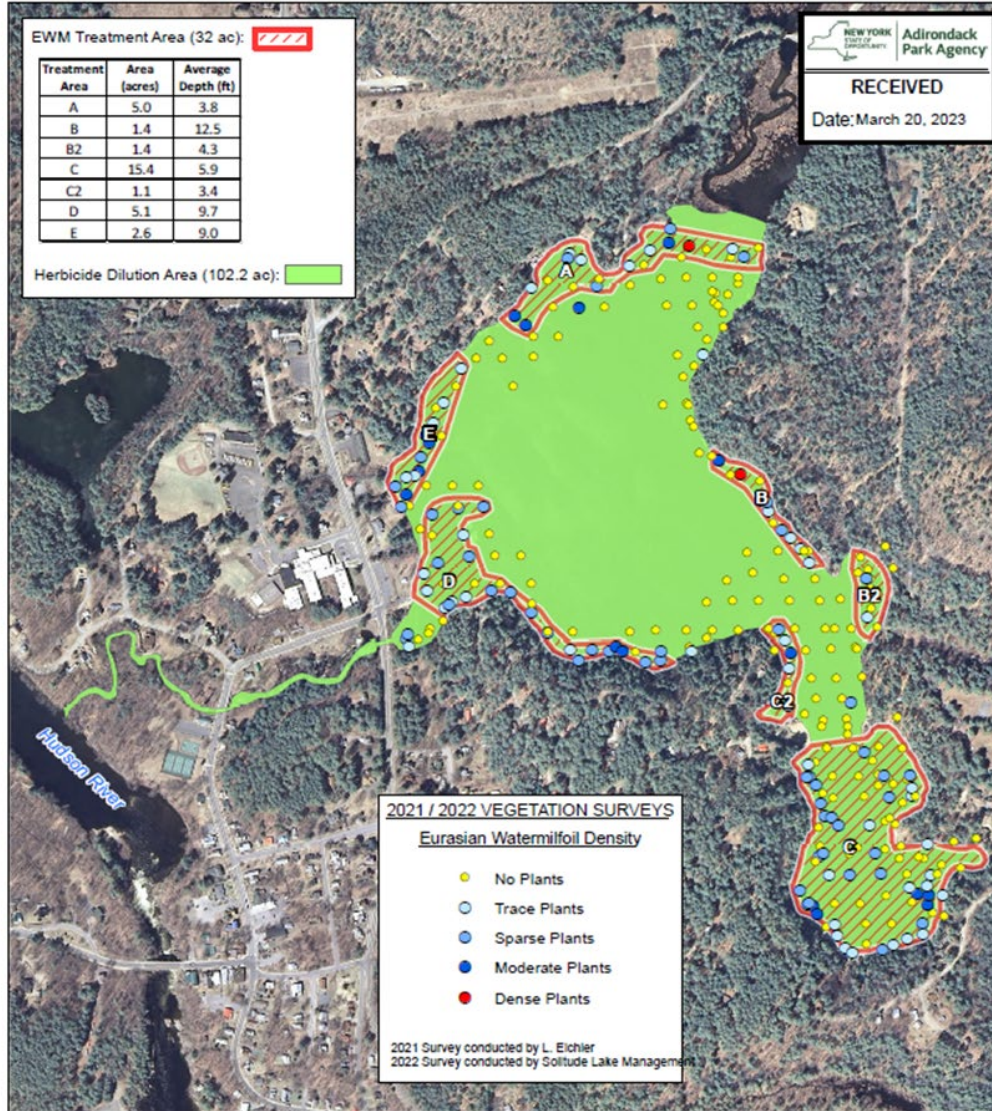
SOLITUDE
LAKE MANAGEMENT
888.460.5253
solitudelakemanagement.com

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2022 Survey conducted by Solitude Lake Management

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