

# Horseshoe Pond / Deer River Flow Association

P2023-0038

April 18, 2024

# Presentation Overview

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

# Jurisdiction

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

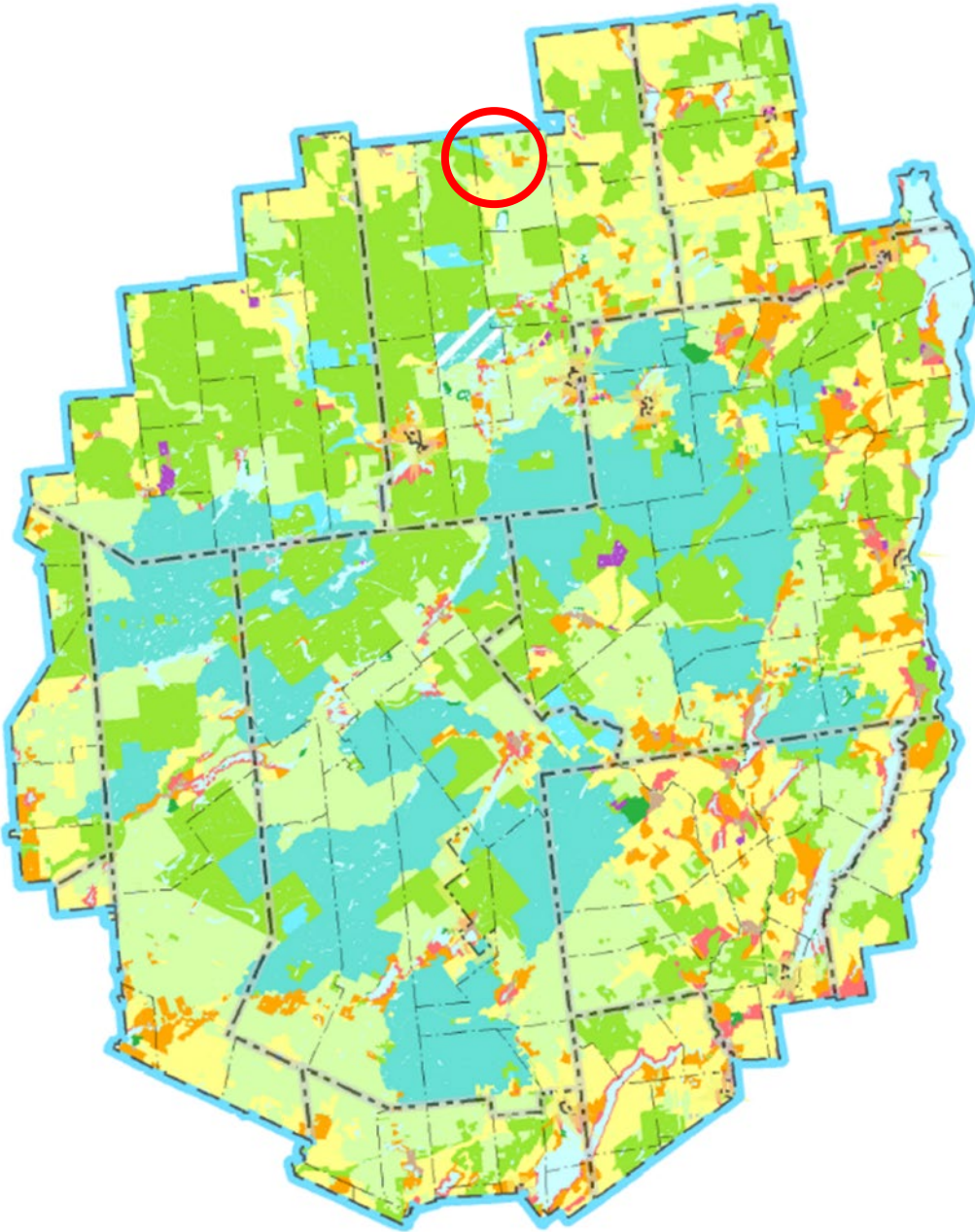
- Regulated Wetland Activity
  - Application of Herbicides in Wetlands

# 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

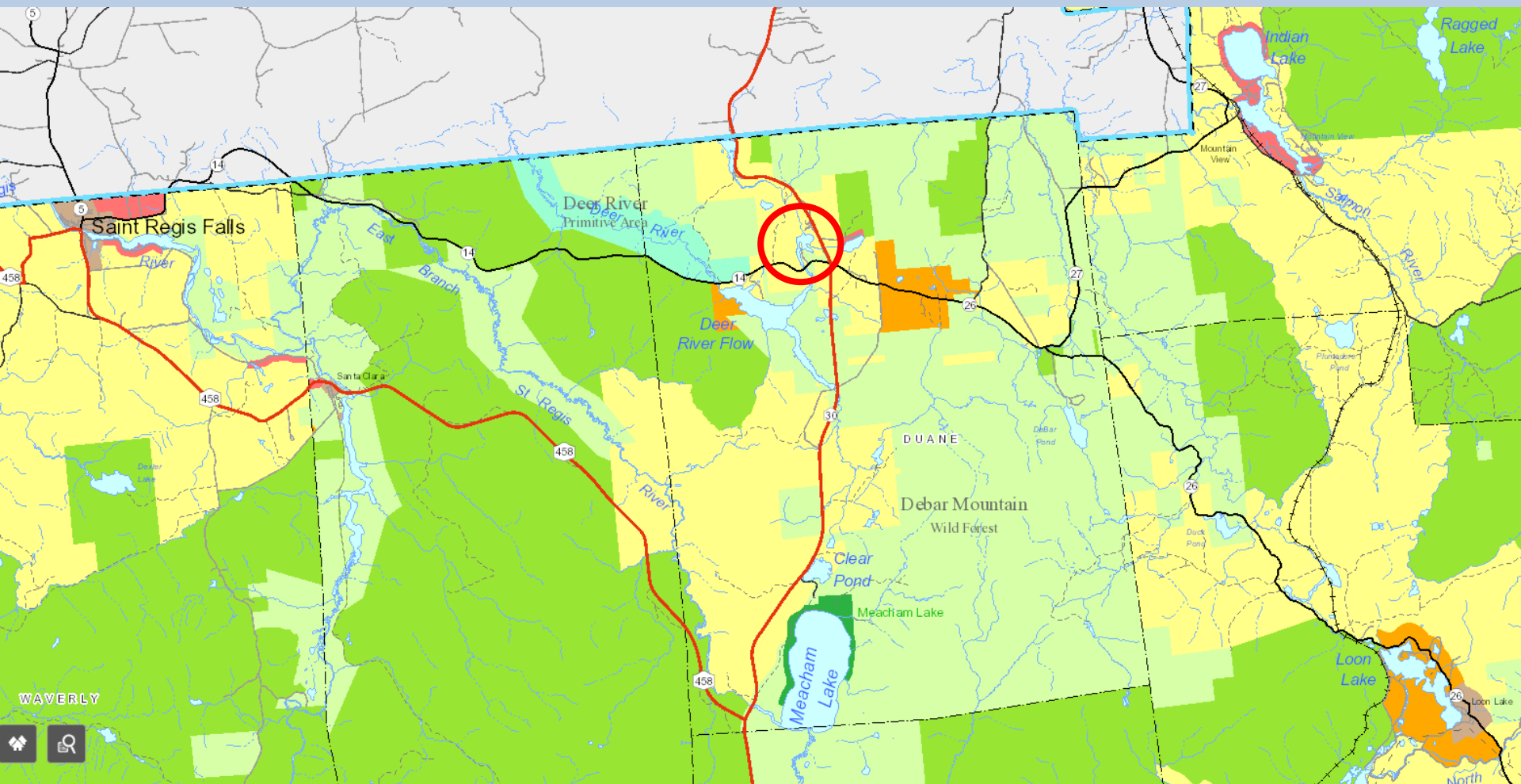


# Project Location

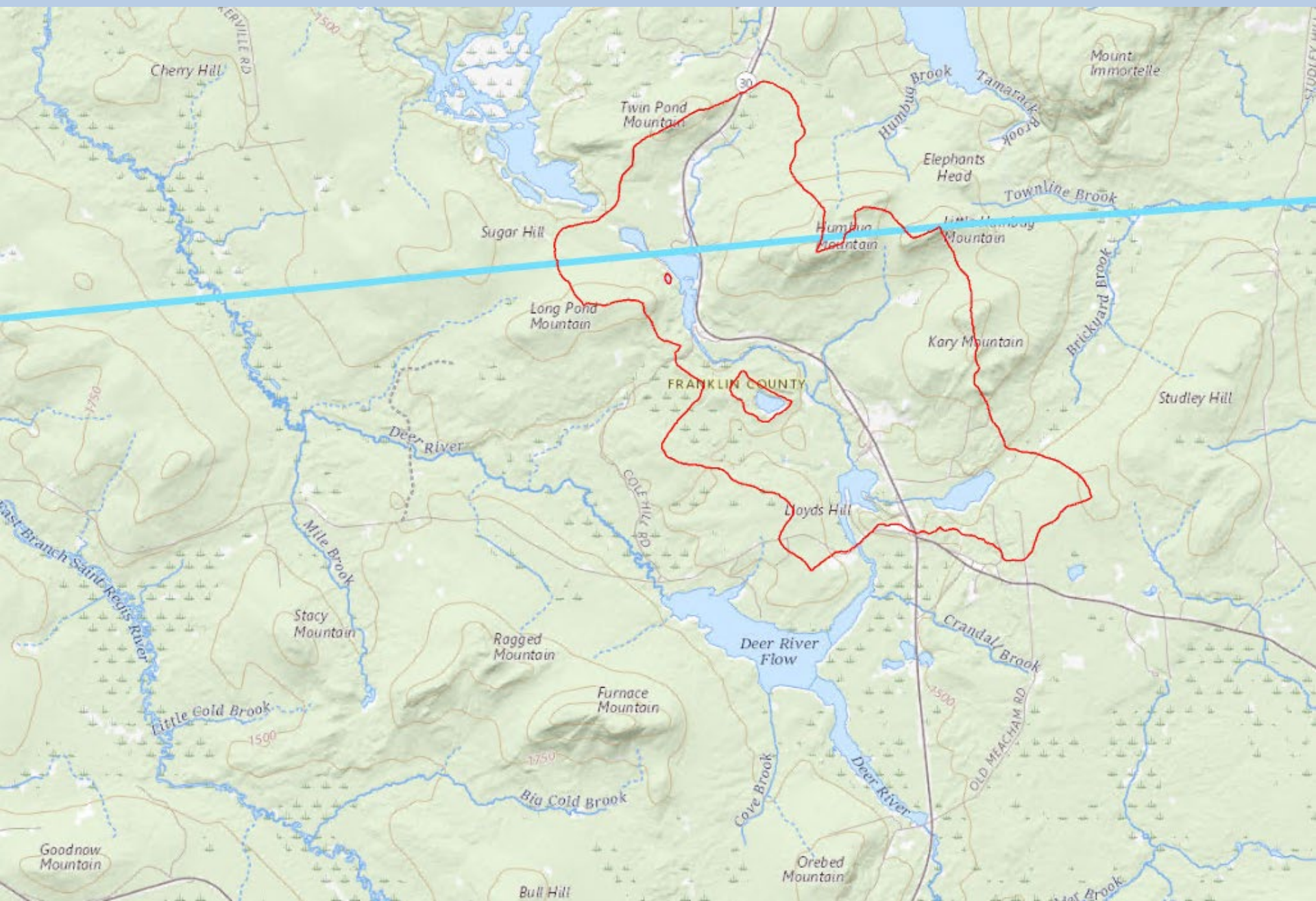


## Project Location

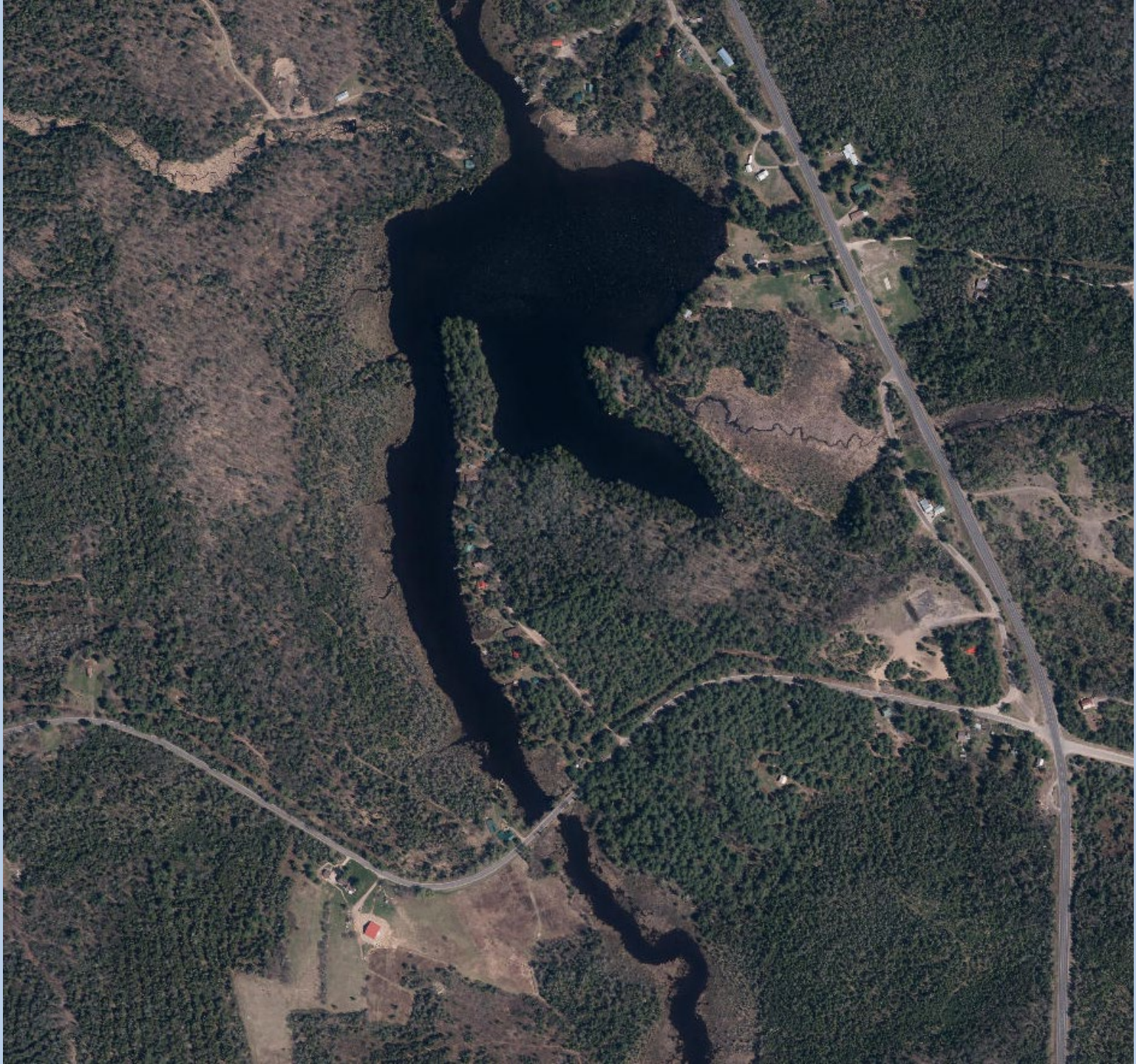
Town of Duane,  
Franklin County

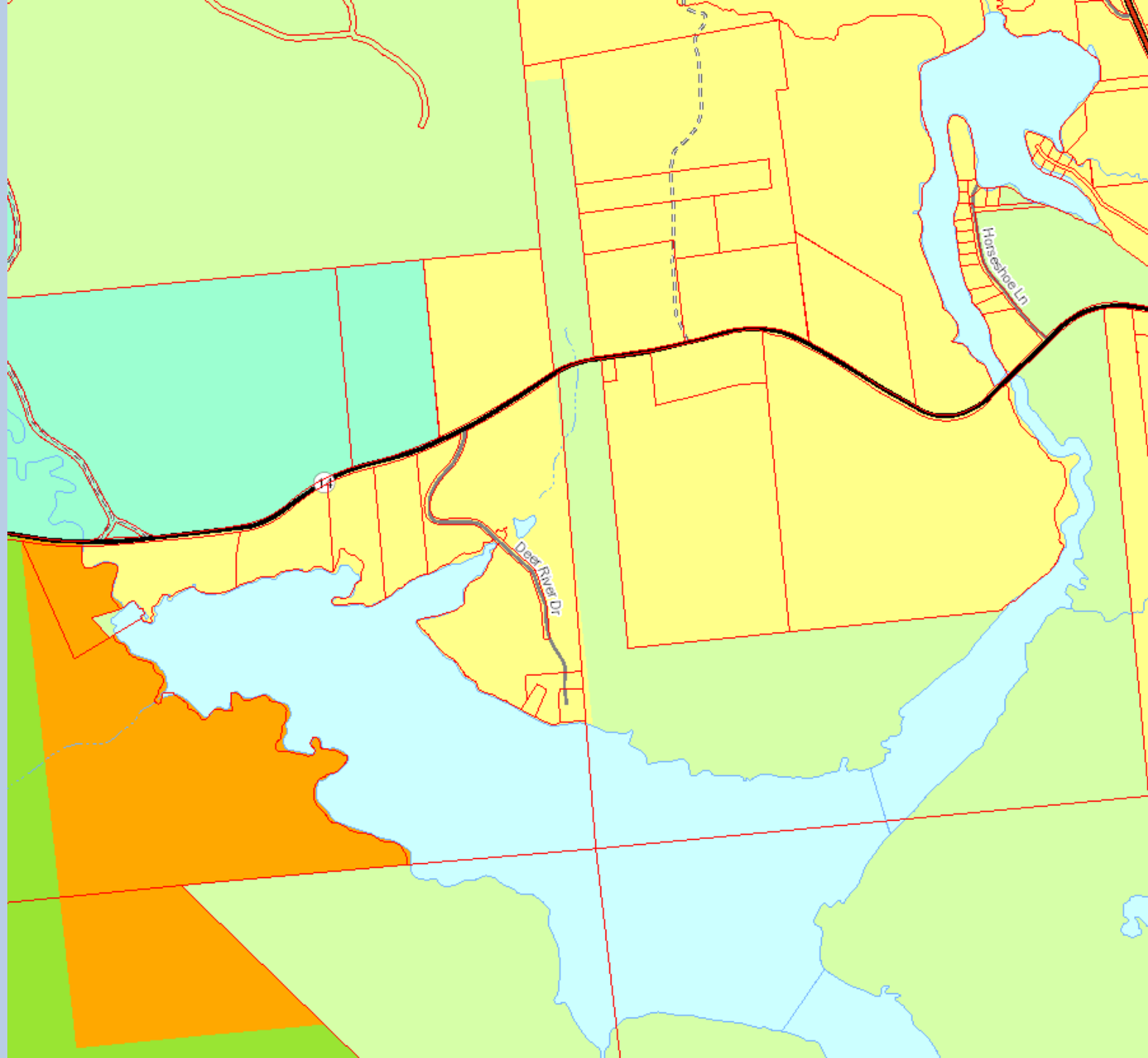














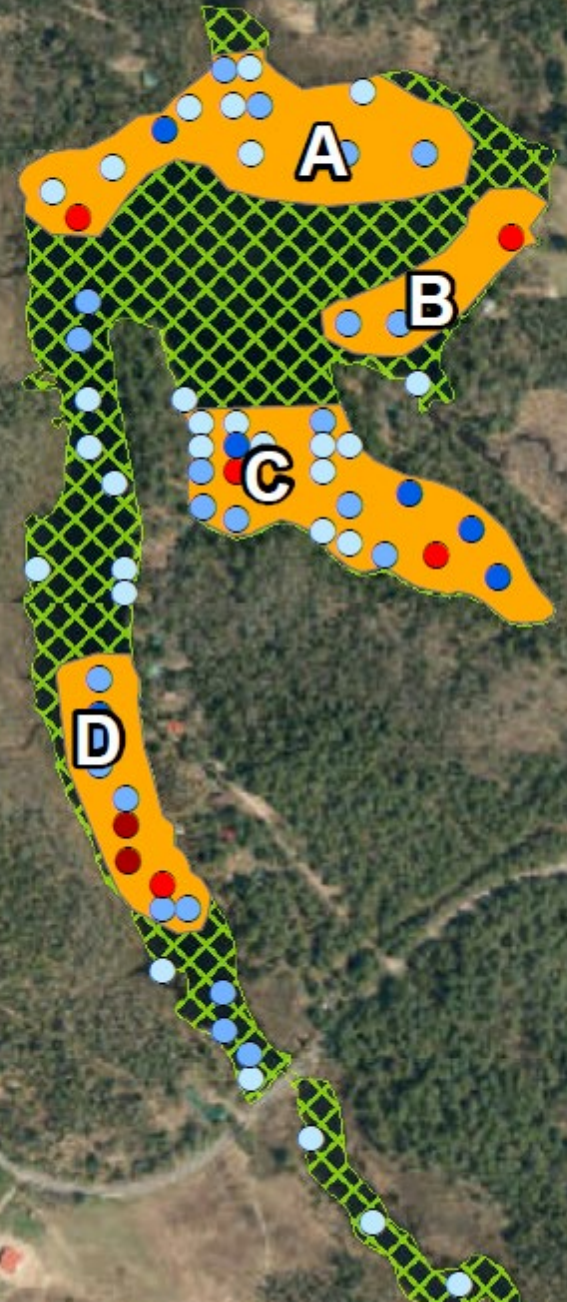


# 2022 Horseshoe Pond AIS Survey

Aquatic Invasive Species Surveys  
Survey Team Report



Map 6: Eurasian Watermilfoil *Myriophyllum*  
Survey Dates: August 8-9th, 2022  
Waterbody: Horseshoe Pond  
Location: Duane, New York

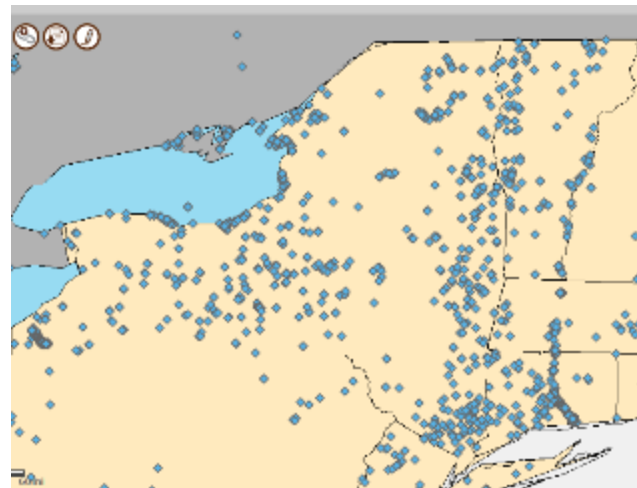
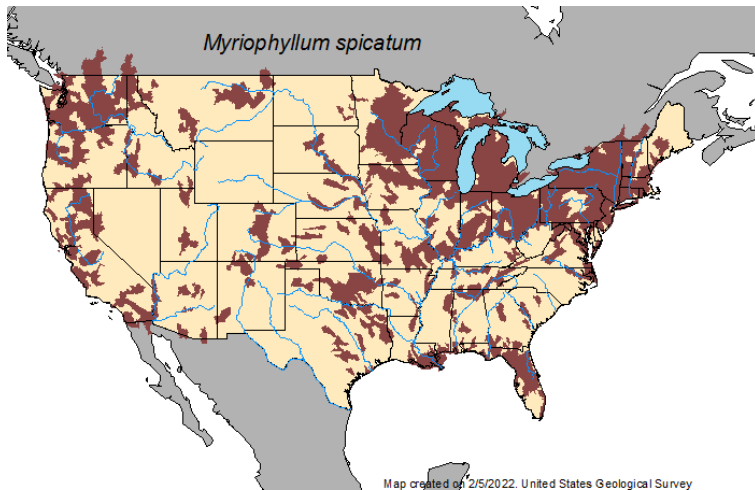


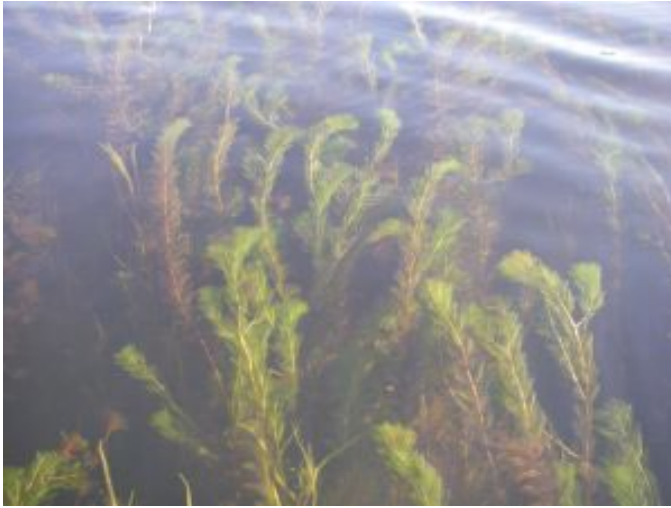
# Eurasian Watermilfoil (EWM)



- Nonnative 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 Horseshoe Pond**



# Timeline

- Identified in 2002
- 2005-2007 → Planning / Surveys / Permitting  
→ P2006-115, P2012-109, P2016-84
- 2007-2015 → Hand Harvesting / Benthic Mats  
→ Adirondack Watershed Institute
- 2016-Present → No Harvest
- 2020 → Resurgence observed;  
New management  
consultation

Adirondack Watershed Institute Report # AWT2010-04

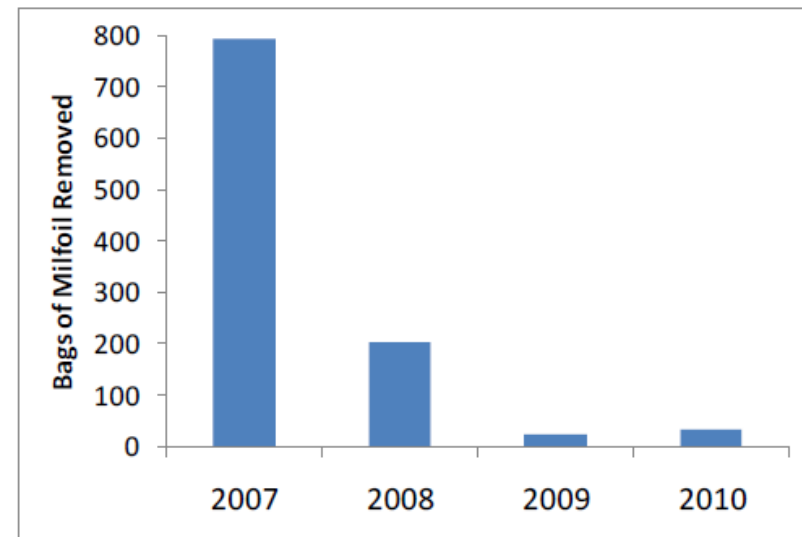


Figure 2. Annual total bags of Eurasian watermilfoil removed from Horseshoe Pond from 2007 through 2010.

# AQUALOGIC

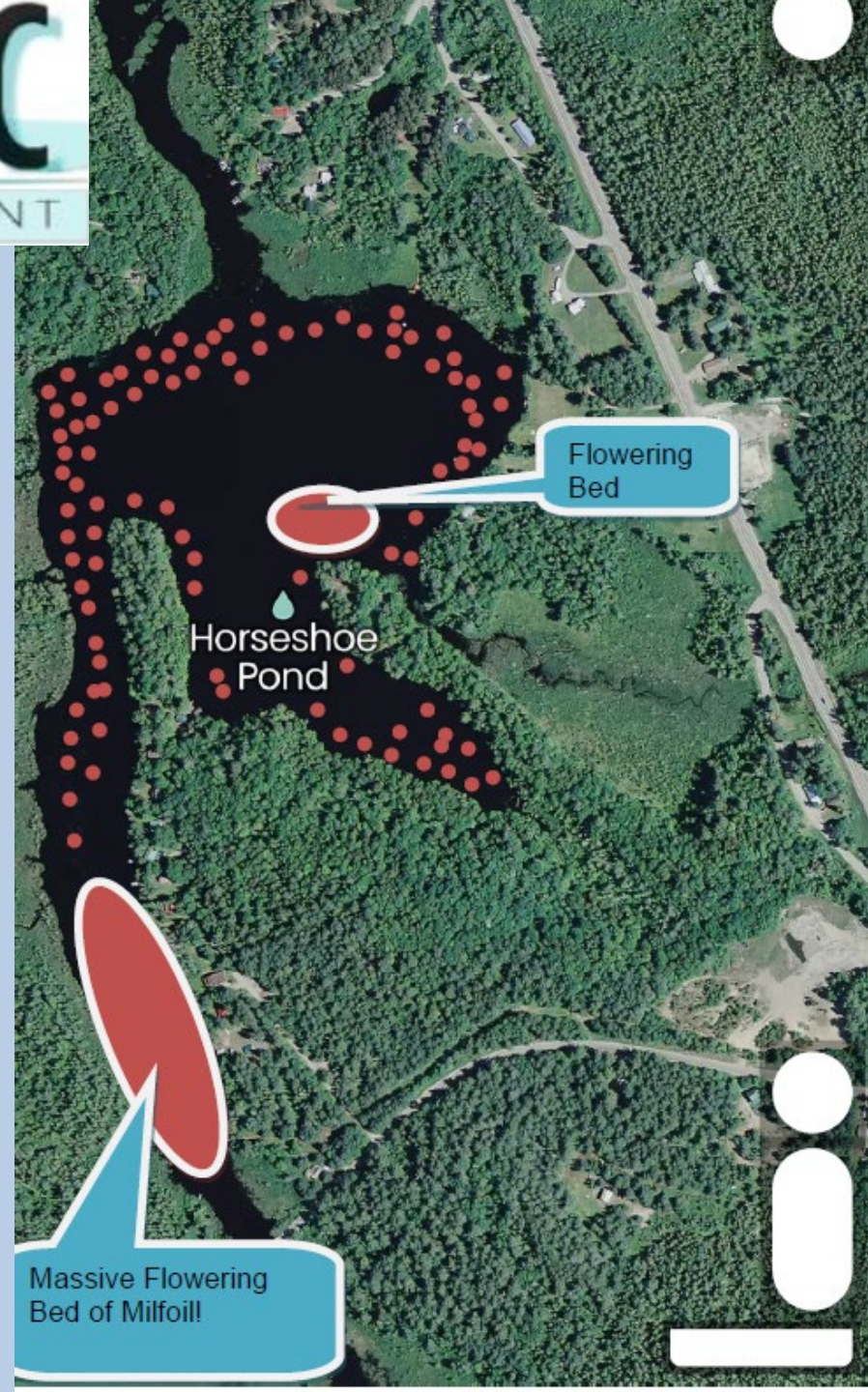
INTELLIGENT AQUATIC MANAGEMENT

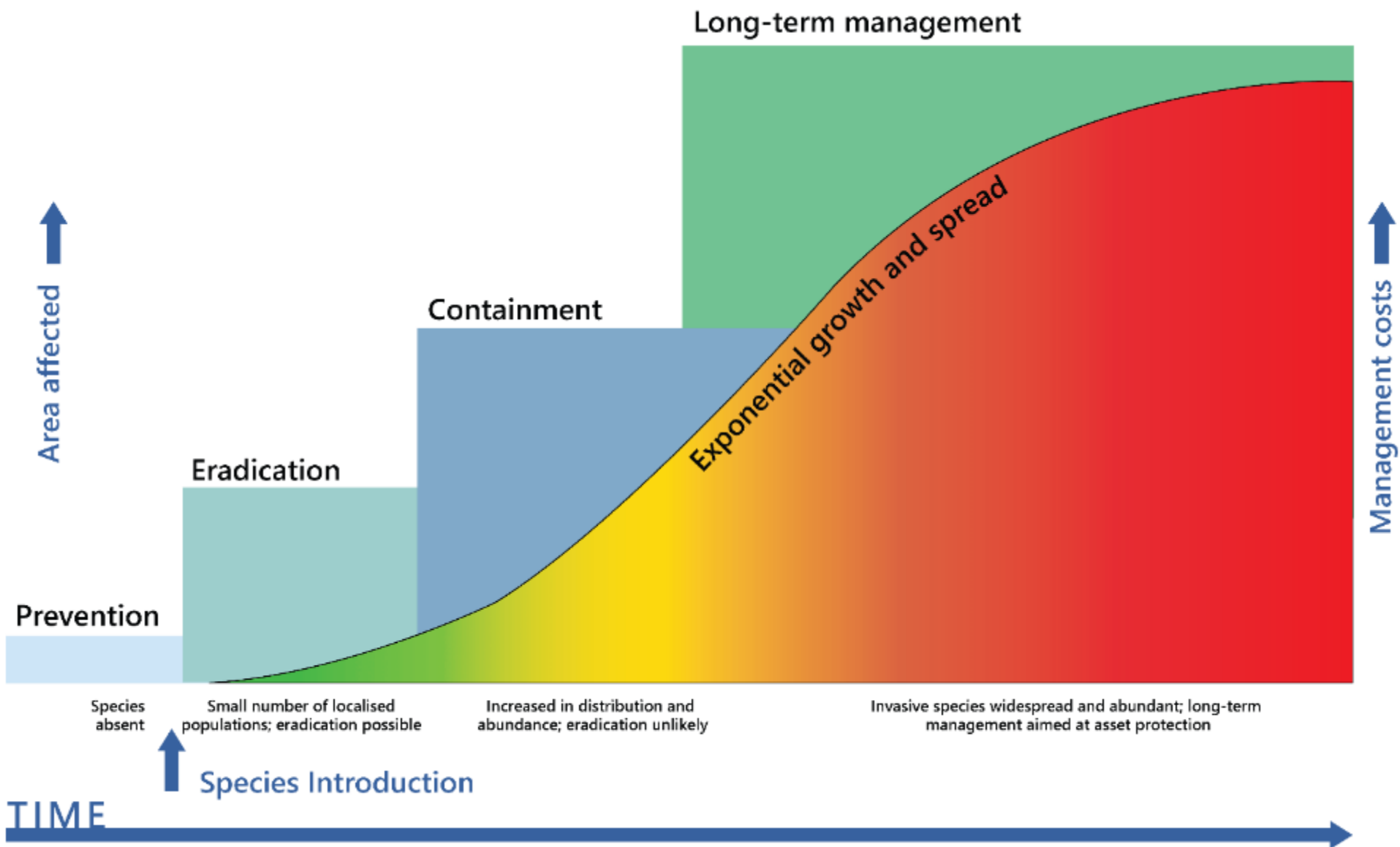
1: 70 Days annual hand and suction harvesting for up to 10 years = \$700,000

\$10,000 annual maintenance (hand harvesting) thereafter

2: Chemical Treatment = \$30,000

\$10,000 annual maintenance (hand harvesting) thereafter





# 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)

# 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

<b>Aquatic</b>	<b>Aerobic</b>	<b>4 to 6 Days</b>
	<b>Anaerobic</b>	<b>2 Days</b>
<b>Sediment</b>	<b>Aerobic</b>	<b>8 Days</b>
	<b>Anaerobic</b>	<b>3 Days</b>
<b>Metabolites in Sediment</b>	<b>Aerobic</b>	<b>21.5 Days</b>
	<b>Anaerobic</b>	<b>28.9 Days</b>

## Toxicity

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



# 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 & Livestock Watering: Restriction until concentration is <1 ppb

# Overview of Regional ProCellaCor EC Treatments

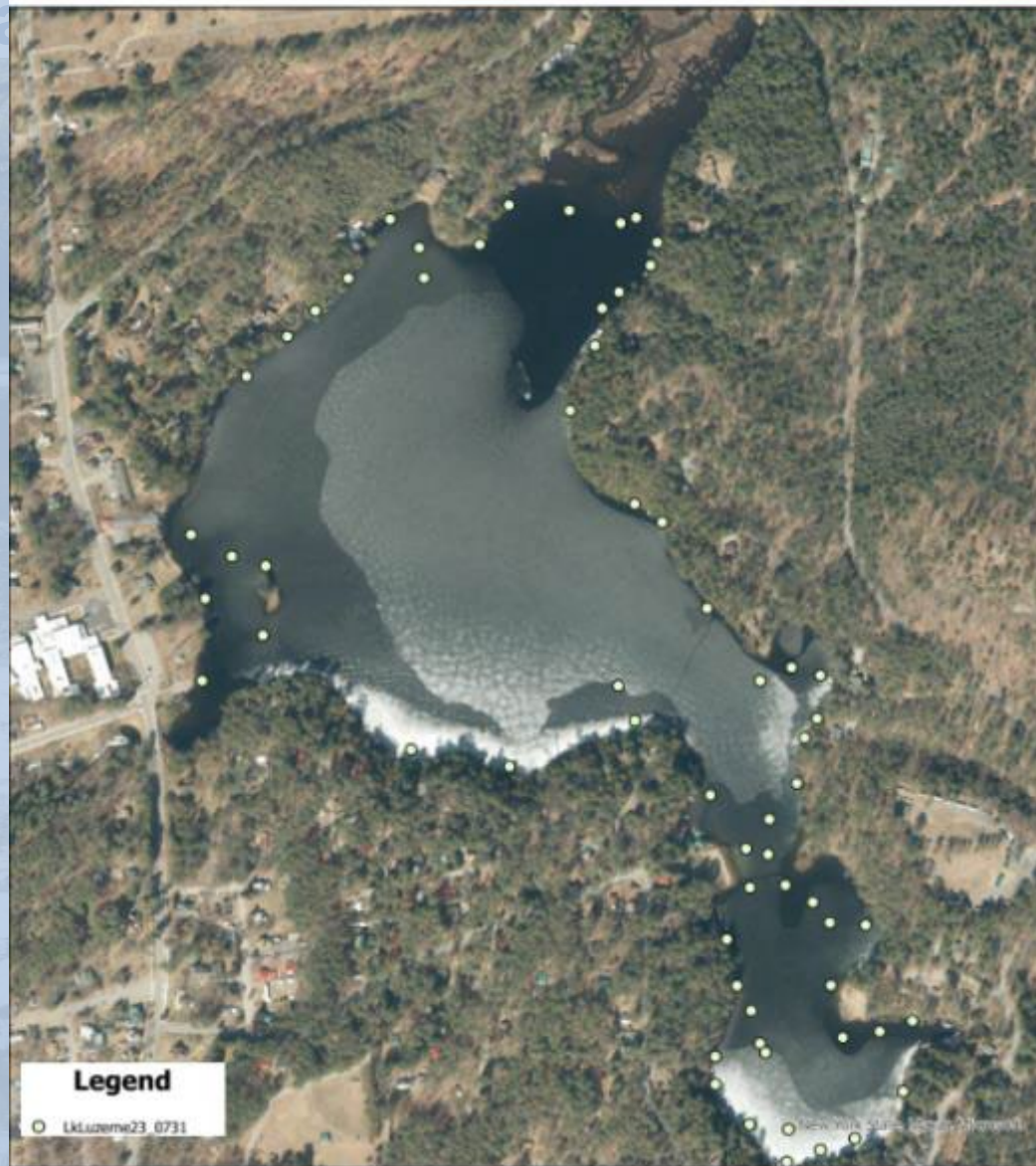
	Number of Treatments	Total Treatment Area	Range of Treatment Area
New York	NYS: $\approx 30$ 5' in Region 5 2 in Adirondack Park	NYS: Undocumented ADK's: 41 ac	NYS: Undocumented ADK's: 41 ac
Vermont	18 Undertaken	480 ac	4 to 70 ac
New Hampshire	43 Undertaken	990 ac	0.75 to 78

**Table 2: 4 Year Change in common species abundance from 2019-2023.**

COMMON NAME	SCIENTIFIC NAME	2019	2020	2021	2022	2023	CHANGE
Eurasian watermilfoil	<i>Myriophyllum spicatum</i>	66%	0%	0%	2%	1%	Decrease
Common waterweed	<i>Elodea spp.</i>	60%	63%	74%	71%	24%	Decrease
Flat-stem pondweed	<i>Potamogeton zosteriformis</i>	50%	54%	59%	65%	48%	Decrease
Southern naiad	<i>Najas guadalupensis</i>	41%	60%	10%	68%	46%	Decrease
Macroalgae	<i>Chara/Nitella spp.</i>	38%	48%	23%	24%	16%	Decrease
Thin-leaf pondweed	<i>Potamogeton pusillus</i>	44%	21%	33%	16%	13%	Decrease
Watershield	<i>Brasenia schreberi</i>	37%	26%	20%	21%	11%	Decrease
Bassweed/Large-leaf pondweed	<i>Potamogeton amplifolius</i>	30%	37%	52%	43%	34%	Decrease
Ribbon-leaf pondweed	<i>Potamogeton epihydrus</i>	18%	34%	28%	7%	16%	Increase
Northern naiad (2019) Slender naiad (2020, 2021)	<i>Najas gracilima</i>	17%	9%	2%	0%	0%	No change
Slender naiad (2019) Nodding naiad (2020, 2021)	<i>Najas flexilis</i>	16%	35%	82%	43%	16%	Decrease

Approved

1, 2023



Lake Luzerne  
Luzerne, NY

Lake Luzerne

0 160 320 640  
Feet



Map Date: 8/10/2023  
File: LkLuzerne23\_0731  
Prepared by: KV  
Office: Shrewsbury, MA

# Proposed Project



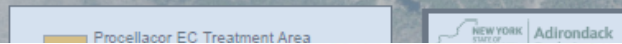
# Stated Goals

*“...with only a limited number of families with limited means, it is not possible for the Horseshoe Pond landowners to afford hundreds of thousands of dollars.*

*We are confident, however, that if the levels of milfoil can be brought back under control by chemical means, the landowners will be capable of raising funds to pay for annual work to keep it under control.*

*It has become abundantly clear to all residents on Horseshoe Pond that without everyone's support and effort, we are in danger of losing the Pond for recreational use and the pond's aesthetic qualities.”*





## Submersed Aquatic Plant Density



**Trace**



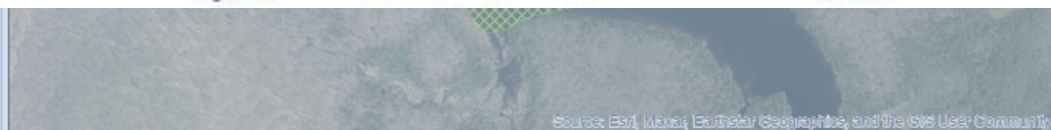
**Medium**



**Sparse**



**Dense**



Horseshoe Pond  
Duane, NY  
[Franklin County]  
44.6717°, -74.2905°



### HORSESHOE POND

0 500 1,000 2,000  
Feet



Date: 3/13/2023

File: Horseshoe\_TrtMap\_2023

Prepared by: KM

Office: Washington, NJ

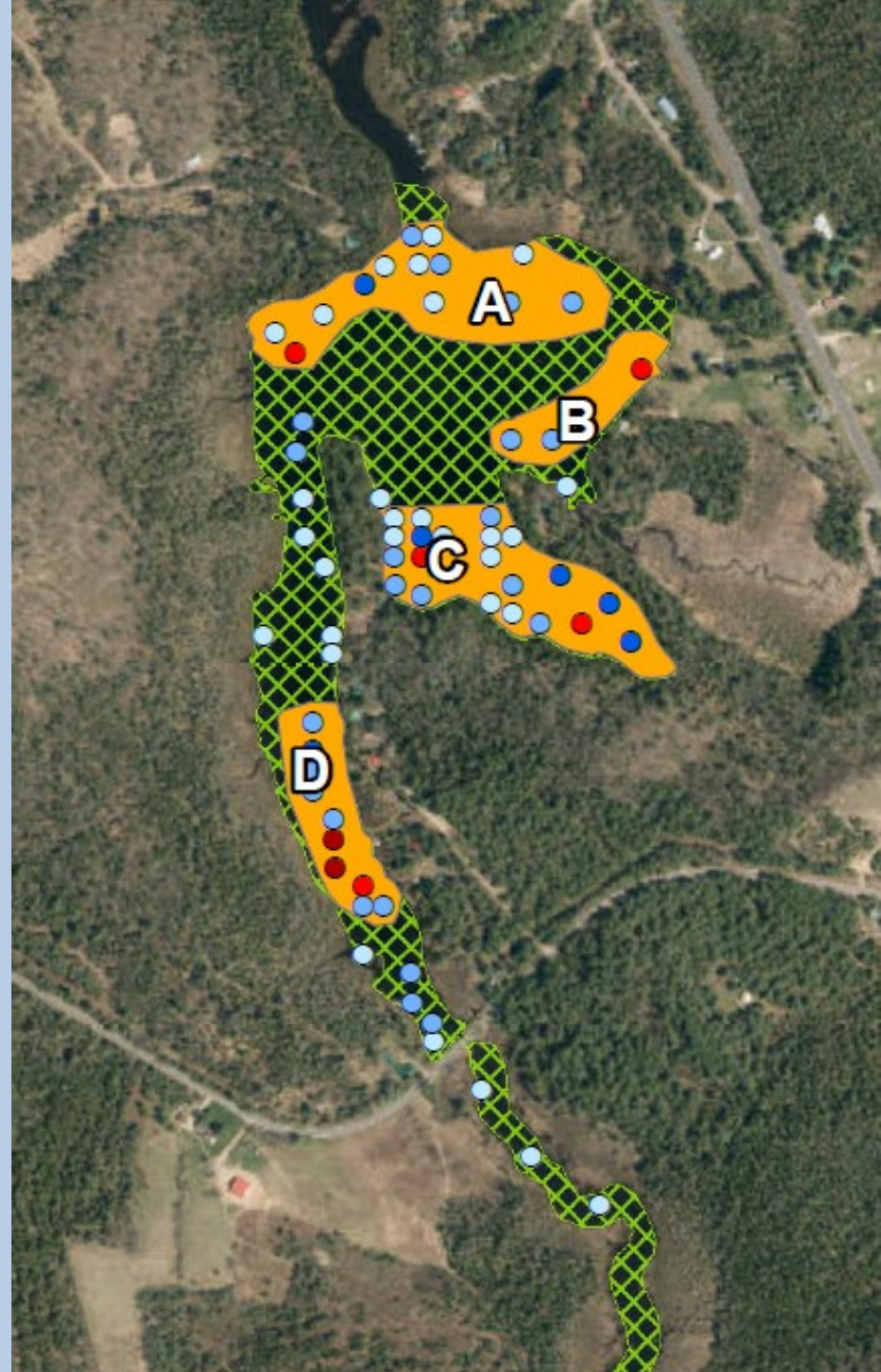
# Treatment

Treat 24.8 acres within four treatment areas in Horseshoe Pond with ProcellaCor EC.

Concentration: 3.86 ppb;  
7 Total Gallons of Product

Water Quality Measurements  
Collected at Treatment Sites

- Secchi Depth (Measure of Photic Zone)
- Temperature





# Residual Concentration Monitoring

Post Treatment  
Samples collected  
until herbicide  
concentration is  
below 1 ppb in all  
samples.

1 to 3 Hours  
10 to 12 Hours  
24 Hours  
3 Days  
7 Days  
7-14 Days thereafter

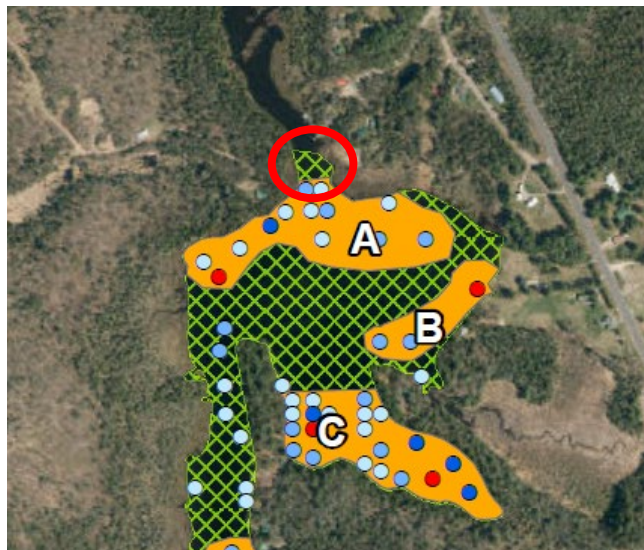


Table 2. Summary of Aquatic Vegetation Occurrences and Frequency – Horseshoe Pond 2022

Common Name	Scientific Name	# Stations	% Occurrence
Eurasian watermilfoil	<i>Myriophyllum spicatum</i>	65	58.56%
Stonewort	<i>Nitella sp.</i>	57	51.35%
Bladderwort	<i>Utricularia intermedia</i>	47	42.34%
Canadian water weed	<i>Elodea sp.</i>	42	37.84%
Muskgrass	<i>Chara sp.</i>	34	30.63%
Slender Naiad	<i>Najas sp.</i>	31	27.93%
White water lily	<i>Nymphaea odorata</i>	31	27.93%
Narrow-leaf bur-reed	<i>Sparganium angustifolium</i>	28	25.23%
Eelgrass	<i>Vallisneria americana</i>	25	22.52%
Watershield	<i>Brasenia schreberi</i>	24	21.62%
Spatterdock	<i>Nuphar advena</i>	23	20.72%
Ribbon leaf pondweed	<i>Potamogeton epihydrus</i>	10	9.01%
Big-leaved pondweed	<i>Potamogeton amplifolius</i>	6	5.41%
Grassy pondweed	<i>Potamogeton gramineus</i>	11	9.91%
Pickerelweed	<i>Pontederia cordata</i>	6	5.41%
Floating leaf pondweed	<i>Potamogeton natans</i>	5	4.50%
Robbins pondweed	<i>Potamogeton robbinsii</i>	1	0.90%
Farwell's watermilfoil	<i>Myriophyllum farwellii</i>	1	0.90%

# Milfoil Species in Horseshoe Pond

Plant Species	Native	Protected
Eurasian watermilfoil <i>Myriophyllum spicatum</i>	No (Target Species)	No
Farwell's watermilfoil <i>Myriophyllum farwellii</i>	Yes	Yes



# Susceptibility: Other Species in Horseshoe Pond

Plant Species	Susceptibility
Watershield	Moderate - High
White waterlily	Moderate
Yellow waterlily	Low - Moderate
Pickerelweed	Low - Moderate
All others (N= 11)	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

# Public Comment and Review by Others

# Public Comment

- Public Notice
  - Shoreline owners notified when application was received, also when application was completed (43 Recipients)
  - Environmental Notice Bulletin: Comment Period Ended March 14, 2024
  - 6 comment letters received, representing 8 individuals
  - All comments in support of the proposal



# Public Comment

*...invasive species [are] quickly destroying habitat diversity as well as the simple pleasures of kayaking and swimming on the pond for humans.*

*...over the past 2 years, the growth of the milfoil in Horseshoe Pond has been exponential*

*Horseshoe Pond is at imminent risk of being forever lost as a navigable body of water*

# Review by Others

- NYS Department of Environmental Conservation
  - Pesticides Permit



# 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

# 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

# Staff Recommendation: Approve with Conditions