NEW YORK STATE | Adirondack Park Agency

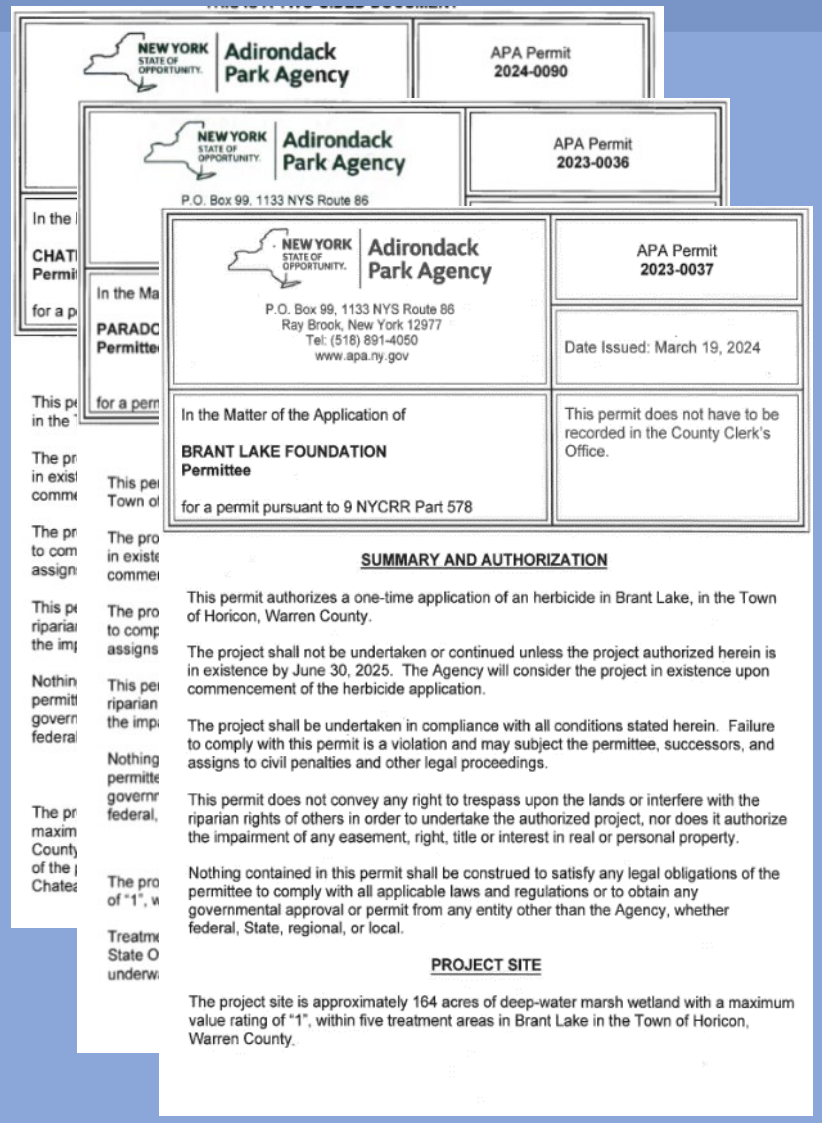
Herbicide Treatment of Invasive Milfoil in the Adirondack Park

Assessing Outcomes and Success Metrics

February 13, 2025

- P2023-36: Paradox Lake Association
- P2023-37: Brant Lake Foundation
- P2023-38: Horseshoe Pond / Deer River Flow Association
- P2024-40: Town of Caroga (East & West Caroga Lakes)
- P2024-83: Highland Forests, LLC (Highland Forge Lake)
- P2024-90: Chateaugay Lake Foundation (Chateaugay Narrows)
- P2023-17: Lake George Park Commission (Sheep Meadow Bay)
- P2023-18: Lake George Park Commission (Blair's Bay)

Post Treatment Permit Requirements



NEW YORK STATE OF OPPORTUNITY. Adirondack Park Agency

APA Permit 2024-0090

APA Permit 2023-0036

P.O. Box 99, 1133 NYS Route 86

APA Permit 2023-0037

P.O. Box 99, 1133 NYS Route 86
Ray Brook, New York 12977
Tel: (518) 891-4050
www.apa.ny.gov

Date Issued: March 19, 2024

In the Matter of the Application of

BRANT LAKE FOUNDATION
Permittee

for a permit pursuant to 9 NYCRR Part 578

This permit does not have to be recorded in the County Clerk's Office.

SUMMARY AND AUTHORIZATION

This permit authorizes a one-time application of an herbicide in Brant Lake, in the Town of Horicon, Warren County.

The project shall not be undertaken or continued unless the project authorized herein is in existence by June 30, 2025. The Agency will consider the project in existence upon commencement of the herbicide application.

The project shall be undertaken in compliance with all conditions stated herein. Failure to comply with this permit is a violation and may subject the permittee, successors, and assigns to civil penalties and other legal proceedings.

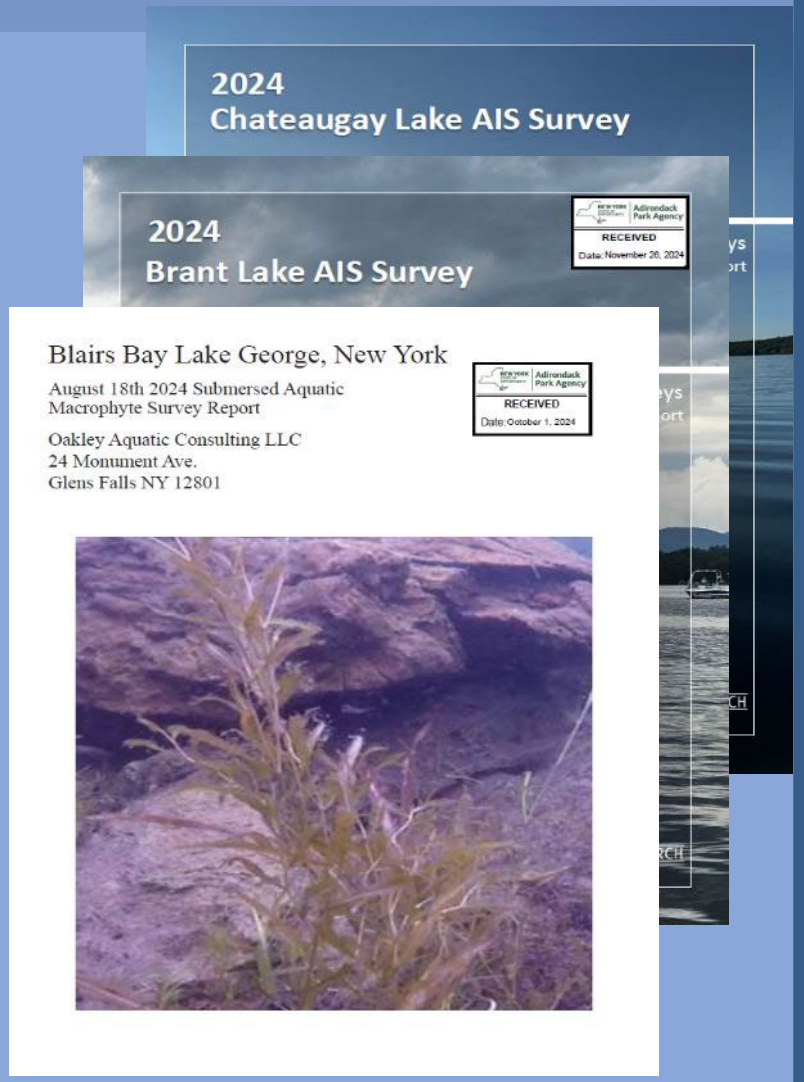
This permit does not convey any right to trespass upon the lands or interfere with the riparian rights of others in order to undertake the authorized project, nor does it authorize the impairment of any easement, right, title or interest in real or personal property.

Nothing contained in this permit shall be construed to satisfy any legal obligations of the permittee to comply with all applicable laws and regulations or to obtain any governmental approval or permit from any entity other than the Agency, whether federal, State, regional, or local.

PROJECT SITE

The project site is approximately 164 acres of deep-water marsh wetland with a maximum value rating of "1", within five treatment areas in Brant Lake in the Town of Horicon, Warren County.

- Post Treatment Herbicide Residue Monitoring Results
- Post-Treatment Aquatic Plant Survey
- Post-Treatment Status Report



2024
Chateaugay Lake AIS Survey

2024
Brant Lake AIS Survey

RECEIVED
Date: November 26, 2024

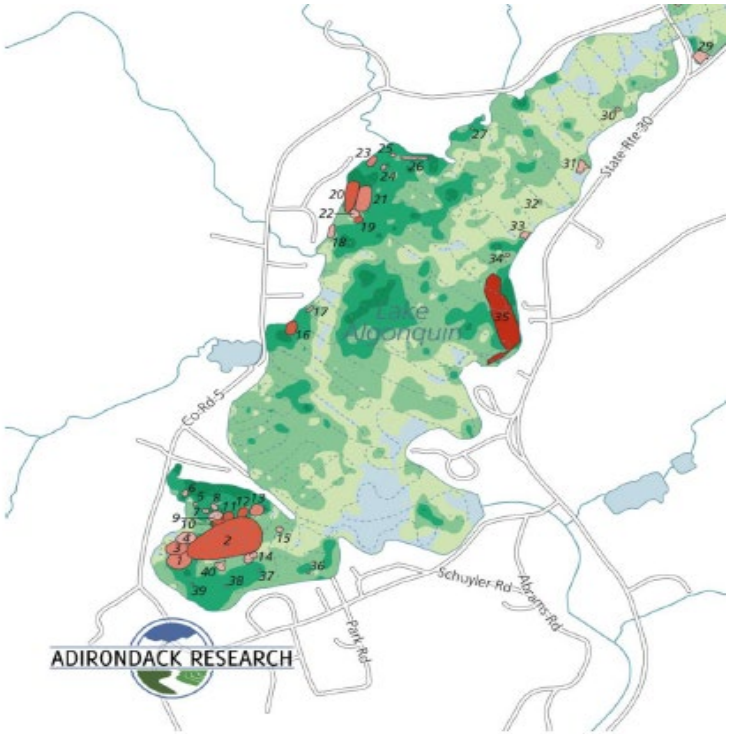
Blairs Bay Lake George, New York

August 18th 2024 Submersed Aquatic Macrophyte Survey Report

Oakley Aquatic Consulting LLC
24 Monument Ave.
Glens Falls NY 12801

RECEIVED
Date: October 1, 2024

Seasonal Variability

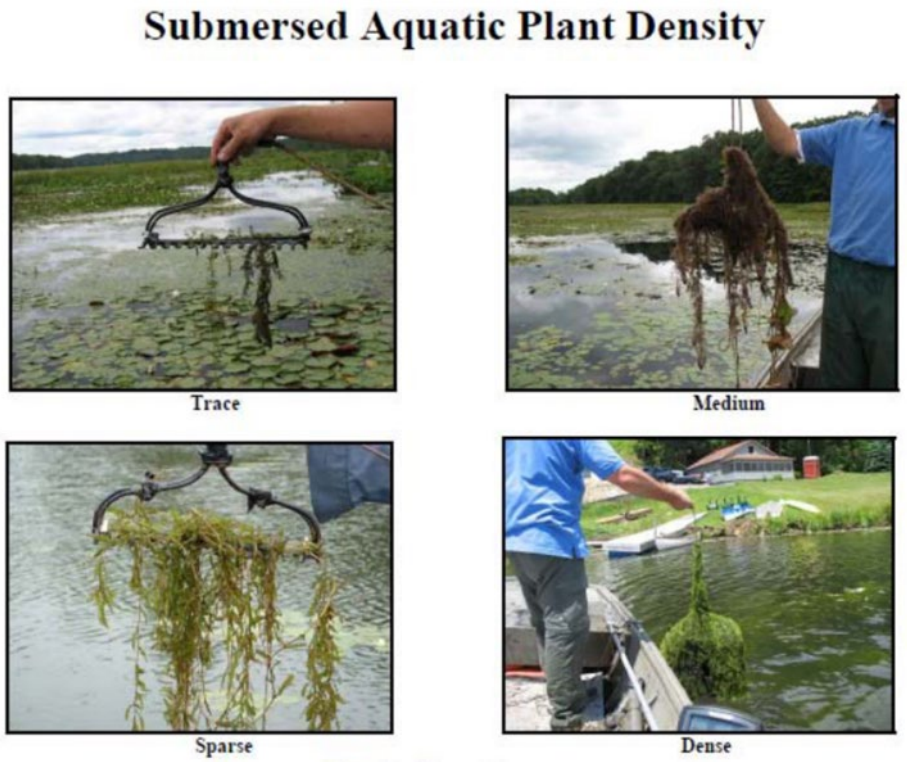


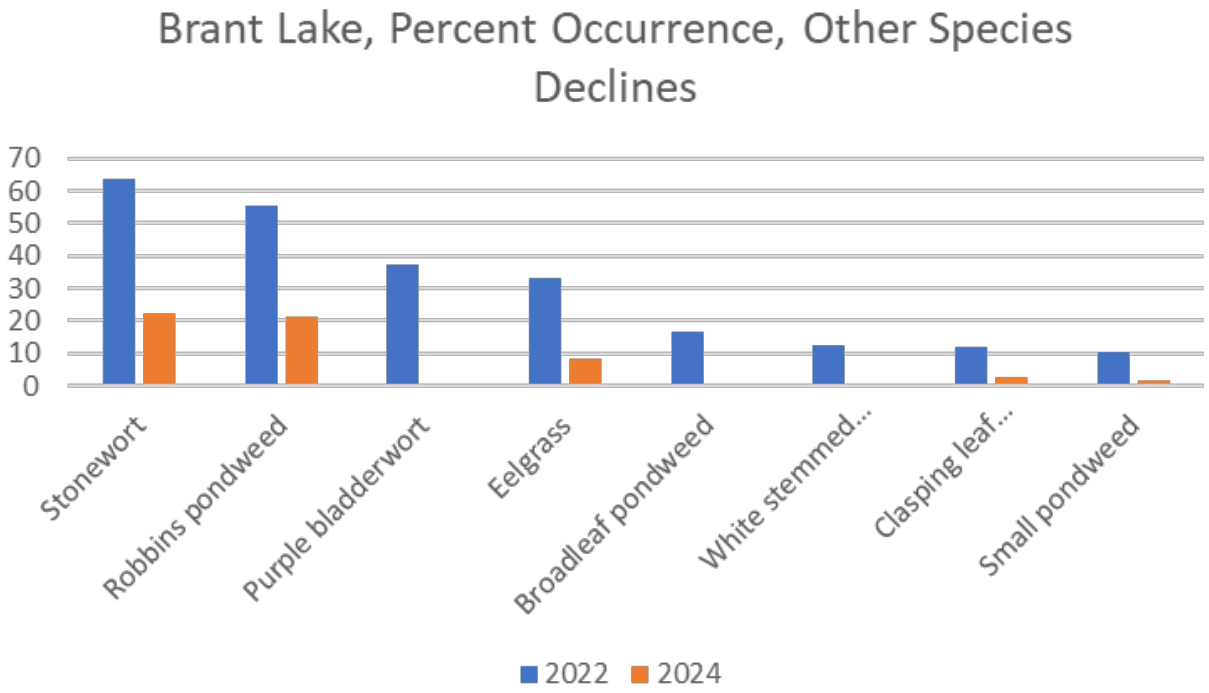
2021

2024

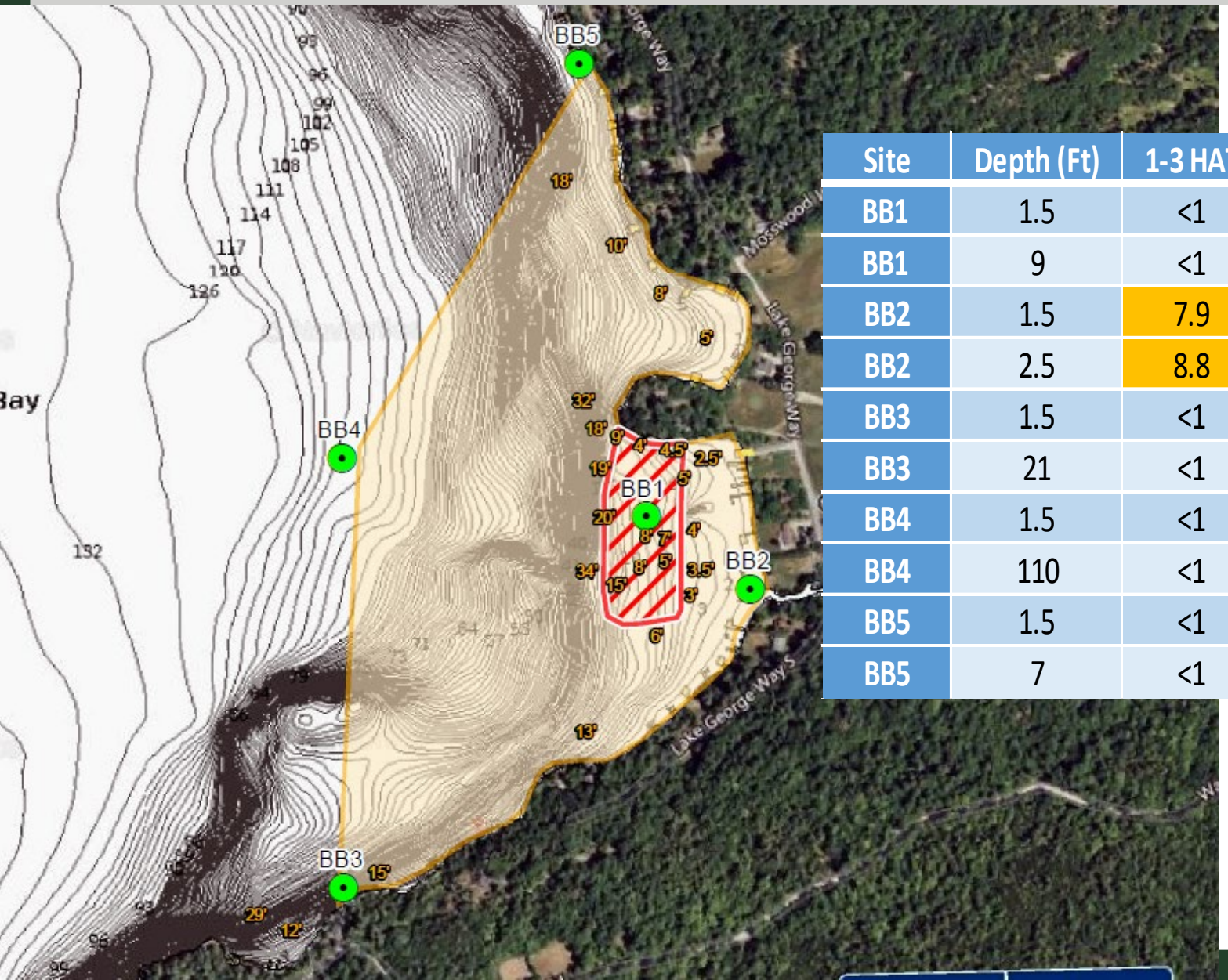
ADK Research: Lake Algonquin EWM Beds

Survey Variability



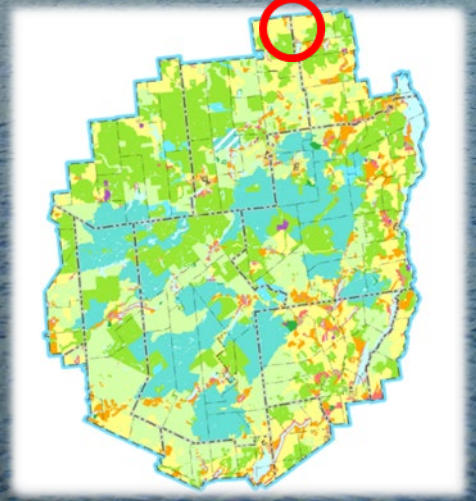


Residual Monitoring at Depth



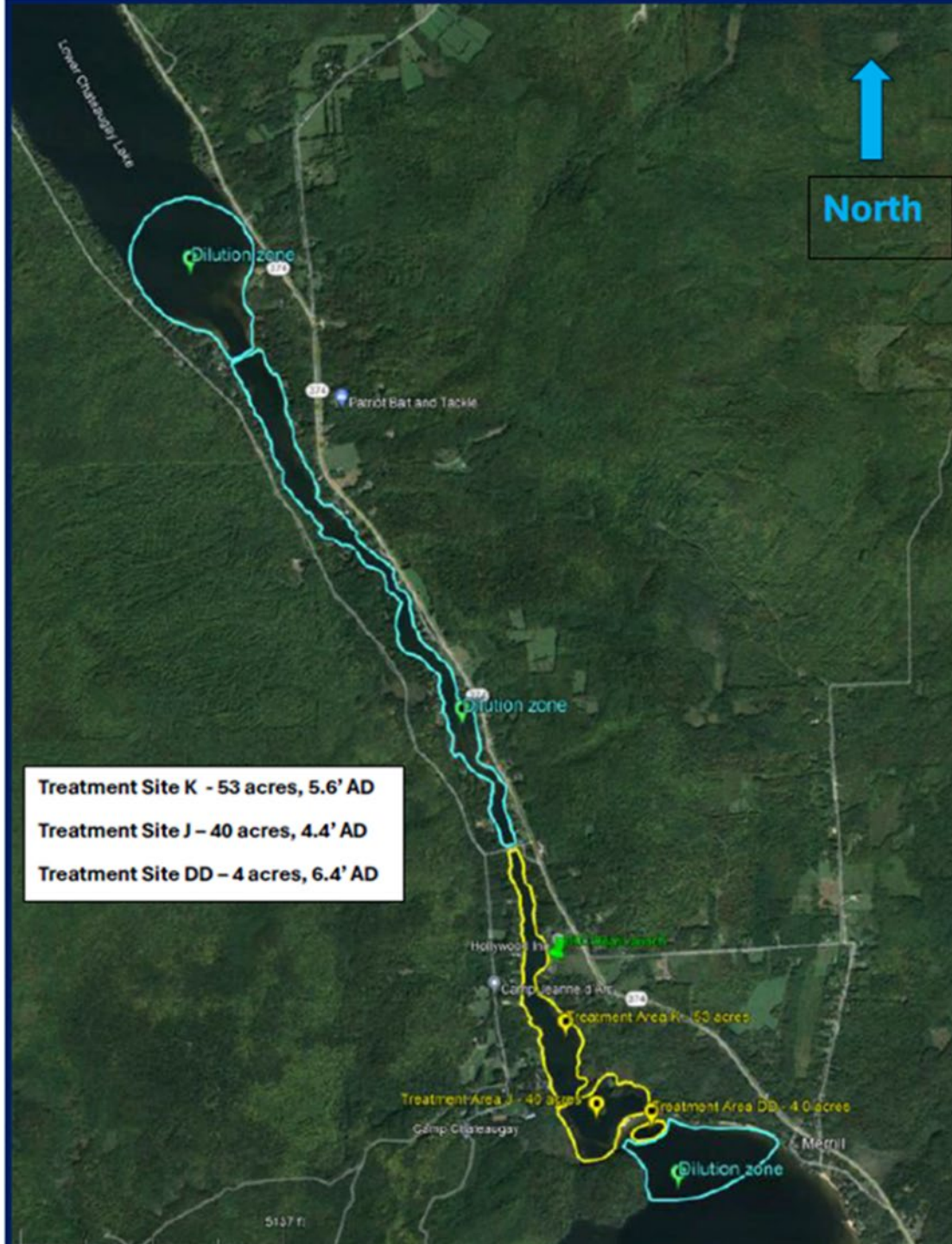
Site	Depth (Ft)	1-3 HAT	10-12 HAT	24 HAT	3 DAT	7 DAT	7 - 14 DAT
BB1	1.5	<1	<1	<1	<1		
BB1	9	<1	<1	<1	<1		
BB2	1.5	7.9	<1	<1	<1		
BB2	2.5	8.8	<1	<1	<1		
BB3	1.5	<1	<1	<1	<1		
BB3	21	<1	<1	<1	<1		
BB4	1.5	<1	<1	<1	<1		
BB4	110	<1	<1	<1	<1		
BB5	1.5	<1	<1	<1	<1		
BB5	7	<1	<1	<1	<1		

P2024-90: Chateaugay Lake Foundation



P2024-90; Chateaugay Lake

- Three treatment areas: 97 Acres
- Treatment: 6/28/2024
- Post-Observation: 8/29/2024
- Post-Survey: 9/3 – 9/5/2024



P2024-90; Chateaugay Lake Foundation Goals

[CLF] seeks to control invasive EWM growth to promote a diverse native plant community, to improve fish and wildlife habitat, and to support recreational use of the lake …. This adaptive management plan focuses on advancing these goals through financially sustainable long-term management.

Prevention: Outreach to promote clean, drain, dry procedures

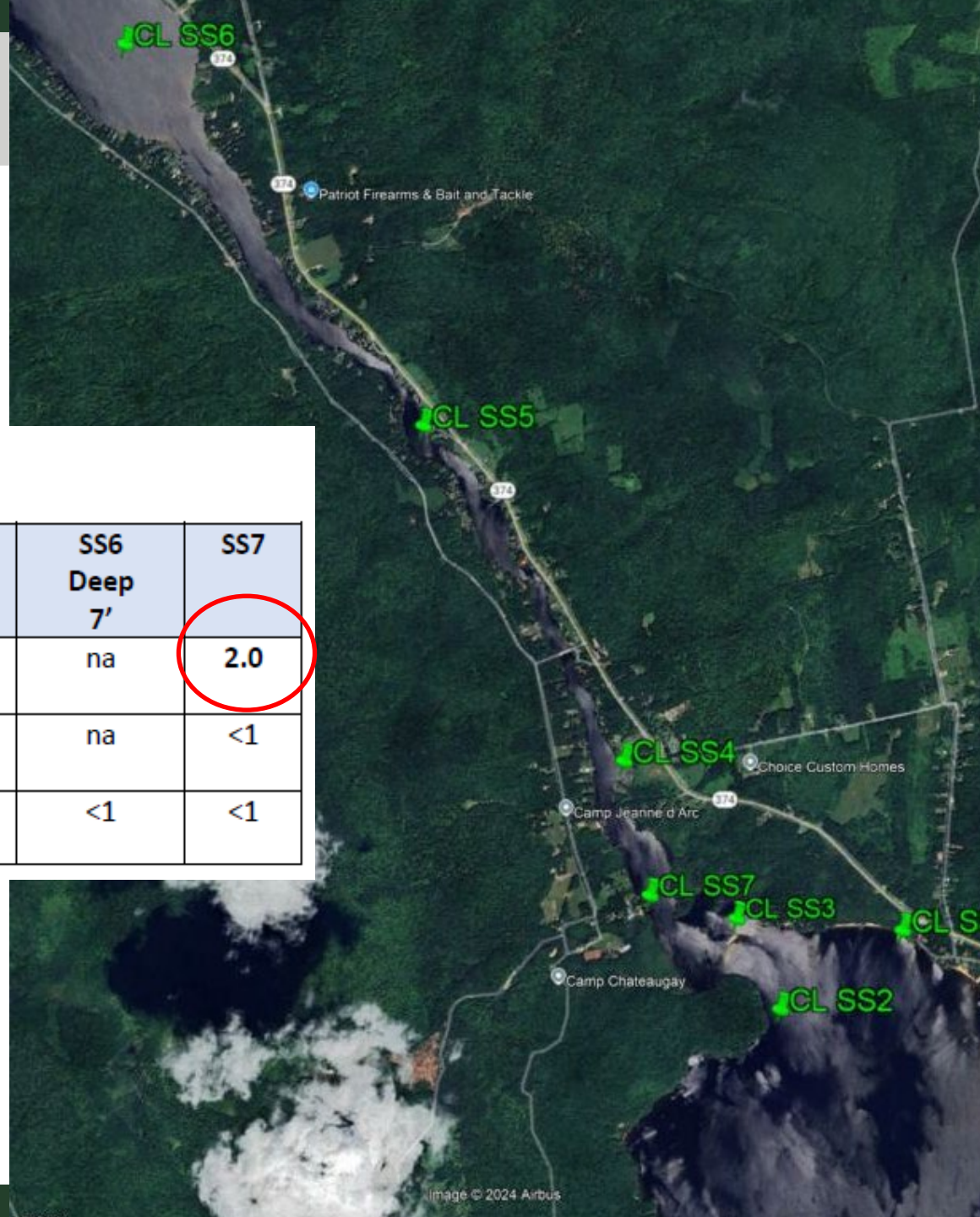
Monitoring: Volunteer (Lake Management Tracker Program) and Professional (Regular Survey Work)

Management: Integrated plant management approach that combines physical removal with chemical treatment to suppress EWM abundance to less than 10% EWM frequency in the treatment locations after a four-year period

P2024-90; Chateaugay Lake

ProcellaCOR EC Residual Sample results-(parts per billion)

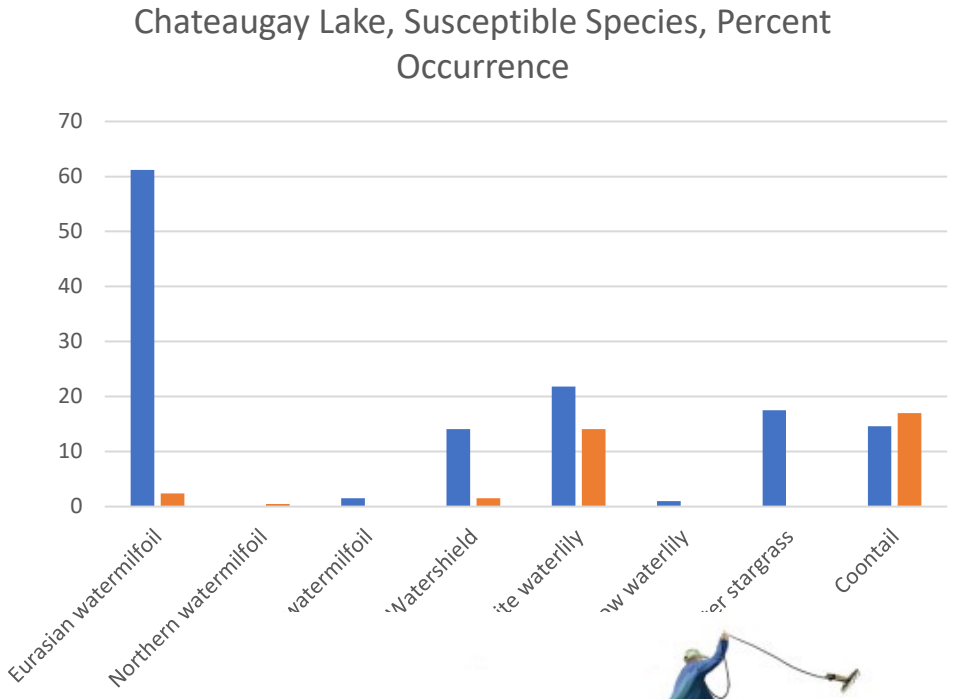
Sample date	SS1	SS2	SS2 Deep 9′	SS3	SS4	SS4 Deep 8′	SS5	SS6	SS6 Deep 7′	SS7
6/28	<1	<1	na	<1	2.8	na	<1	<1	na	2.0
6/29	<1	<1	na	<1	2.8	na	<1	<1	na	<1
7/1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1



P2024-90; Chateaugay Lake Plant Surveys

Table 3. Summary of Aquatic Vegetation Occurrences and Frequency – Chateaugay Lake 2021 and 2024

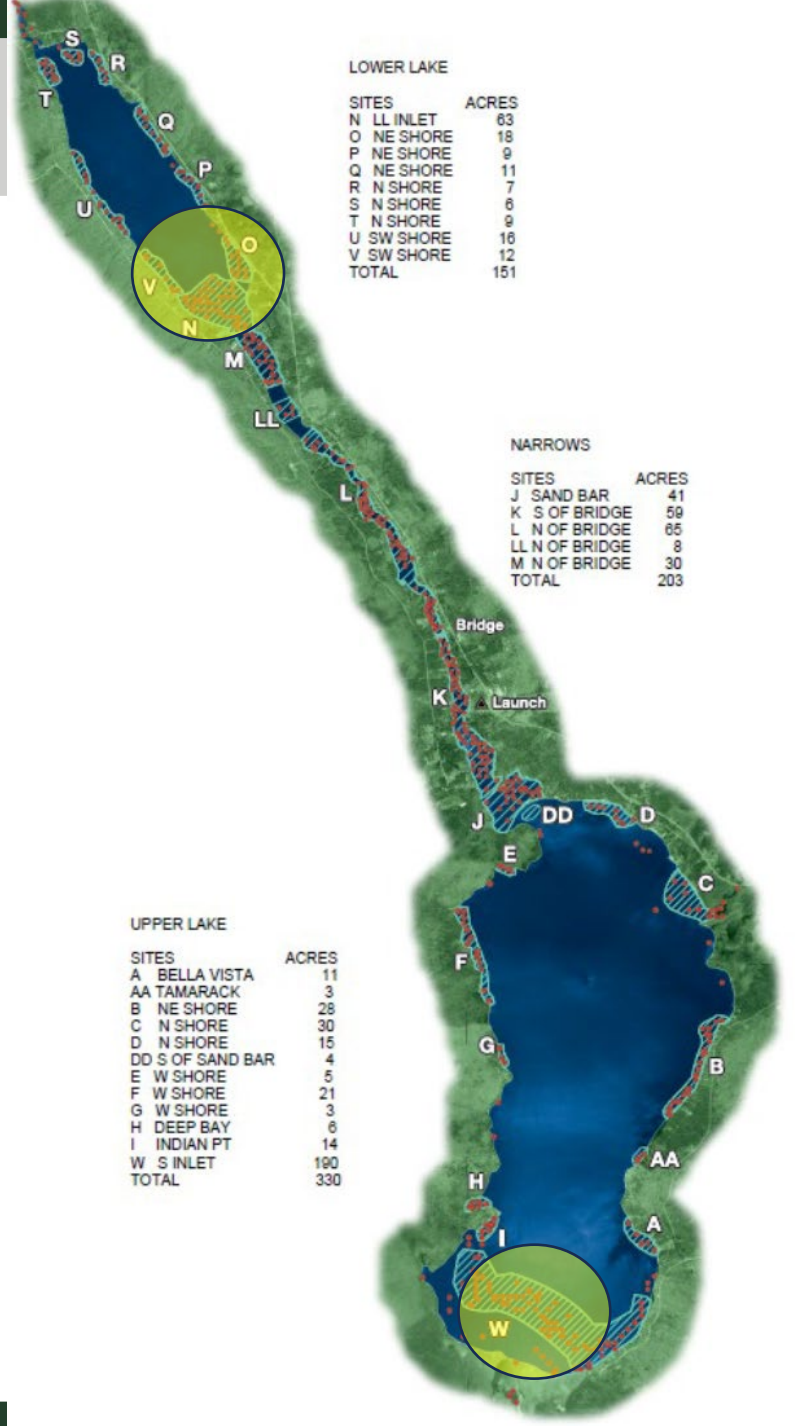
Common Name	Scientific Name	2021 Frequency	2021 % Occurrence (n=206)	2024 Frequency	2024 % Occurrence (n=206)
Watershield	*Brasenia schreberi*	29	14.1	3	1.5
Coontail	*Ceratophyllum demersum*	30	14.6	35	17.0
Muskgrass	*Chara sp.*	3	1.5	10	4.9
Hairgrass	*Eleocharis acicularis*	4	1.9		
Nuttall's waterweed	*Elodea nuttallii*	110	53.4	1	0.5
Water weed	*Elodea sp.*			98	47.6
Filamentous algae	*Filamentous algae*	15	7.3		
Fontinalis moss	*Fontinalis sp*	2	1.0		
Water lobelia	*Lobelia dortmanna*	2	1.0		
Northern watermilfoil	*Myriophyllum sibiricum*			1	0.5
Eurasian watermilfoil	*Myriophyllum spicatum*	126	61.2	5	2.4
Soft watermilfoil	*Myriophyllum tenellum*	3	1.5		
Common naiad	*Najas flexilis*	11	5.3	51	24.8
Southern naiad	*Najas guadalupensis*	6	2.9		
Stonewort	*Nitella sp.*	40	19.4	94	45.6
Variegated yellow pond-lily	*Nuphar variegata*	2	1.0		
Fragrant water lily	*Nymphaea odorata*	45	21.8	29	14.1
Amphibious bistort	*Persicaria amphibia*	2	1.0		
Large-leaved pondweed	*Potamogeton amplifolius*	41	19.9	15	7.3
Bog pondweed	*Potamogeton bicupulatus*	1	0.5		
Ribbon-leaf pondweed	*Potamogeton epihydrus*	1	0.5	5	2.4
Grass-leaved pondweed	*Potamogeton gramineus*	12	5.8		
Floating-leaf pondweed	*Potamogeton natans*	2	1.0	3	1.5
Blunt-leaved pondweed	*Potamogeton obtusifolius*	4	1.9		
Clasping leaf pondweed	*Potamogeton perfoliatus*	17	8.3	26	12.6
White stem pondweed	*Potamogeton praelongus*			1	0.5
Small pondweed	*Potamogeton pusillus*	8	3.9	14	6.8
Robbin's pondweed	*Potamogeton robbinsii*	16	7.8	27	13.1
Coiled pondweed	*Potamogeton spirillus*	6	2.9		
Thread-leaved crowfoot	*Ranunculus trichophyllus*	6	2.9		
Grass-leaved arrowhead	*Sagittaria graminea*	3	1.5		
Slender Bulrush	*Schoenoplectus skinny*	1	0.5		
Water bulrush	*Schoenoplectus subterminalis*			3	1.5
Softstem bulrush	*choenoplectus_tabernaemontai*	2	1.0		
Narrow-leaved bur-reed	*Sparganium angustifolium*	1	0.5		
Floating bur-reed	*Sparganium fluctuans*	10	4.9		
Greater duckweed	*Spirodela polyrhiza*	1	0.5		
Cattail	*Typha sp*	4	1.9		
Michigan bladderwort	*Utricularia geminiscapa*	3	1.5		
Common bladderwort	*Utricularia macrorhiza*	3	1.5	4	1.9
American eelgrass	*Vallisneria americana*	67	32.5	92	44.7
Water Stargrass	*Zosterella dubia*	36	17.5		



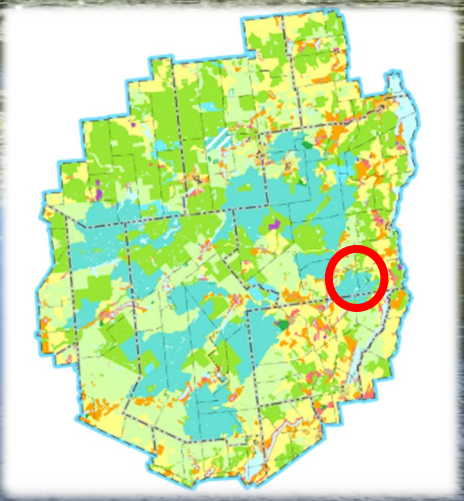
ADK Research

P2024-90; Chateaugay Lake Key Points

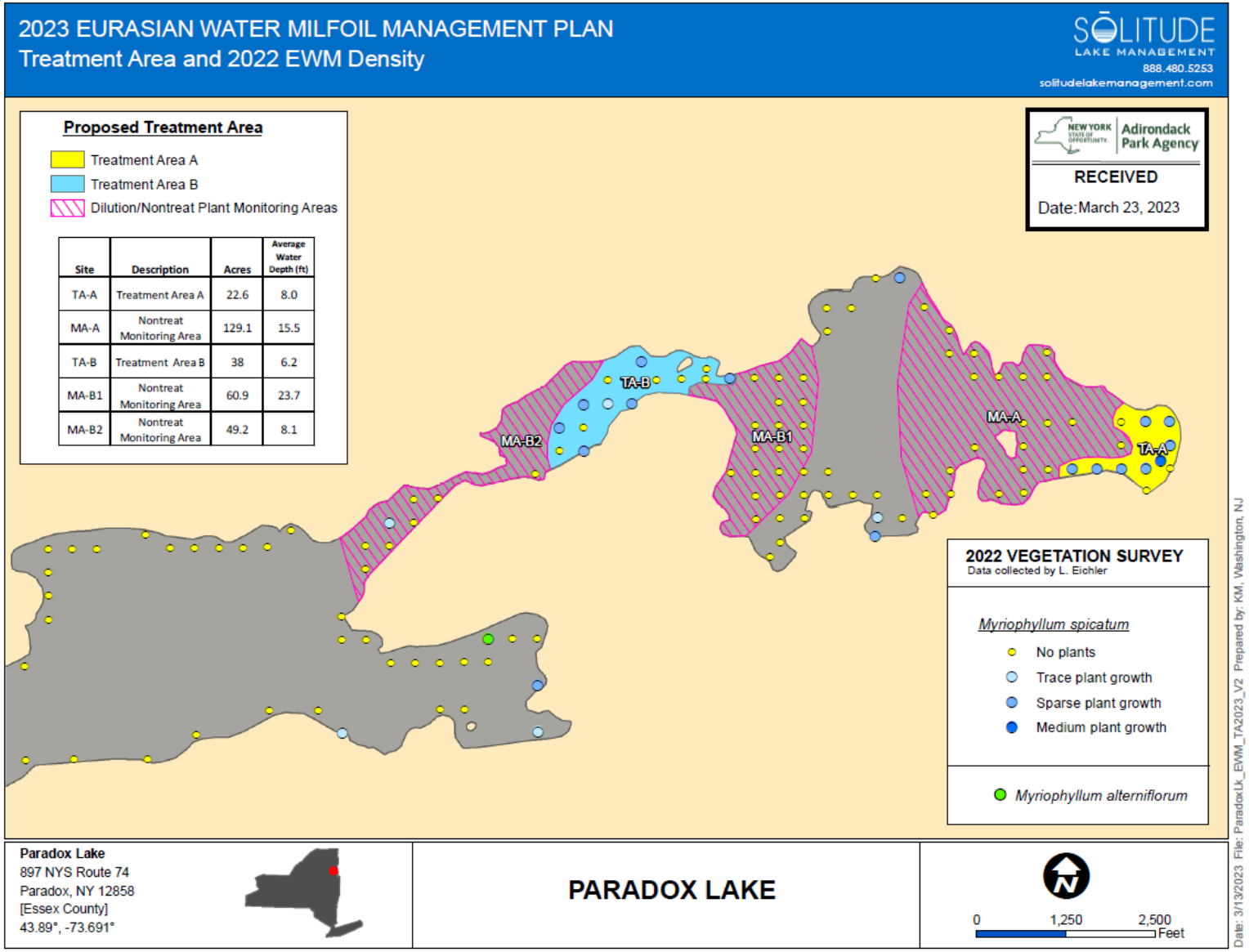
- EWM controlled in all three narrows treatment areas
- Residual product degraded as expected
- Non-target impacts as expected, but appeared to be limited
- Chateaugay boat launch stewards reported EWM on departing boats dropped from an average of 23% before the treatment to 1.7% after the treatment
- EWM control outside the treatment areas not attributed to herbicide
- Adaptive Management plan: Pivot in 2025 to treatment in other sites in Upper Lake
- 2025 plant surveys will include Lower Lake Inlet, to assess EWM bounceback



P2023-36; Paradox Lake Association



P2023-36; Paradox Lake Association



Two treatment areas: 60.6 Acres
Treatment: 6/5/2024
Post-Observation: 8/5/2024
Post-Survey: 8/27/2024

P2023-36; Paradox Lake Association Goals

"Hand harvesting … has proven ineffective … high density of EWM and mats of native vegetation create an entangled mat of roots…

"…regain control of the spread of EWM in the eastern basin of the lake…

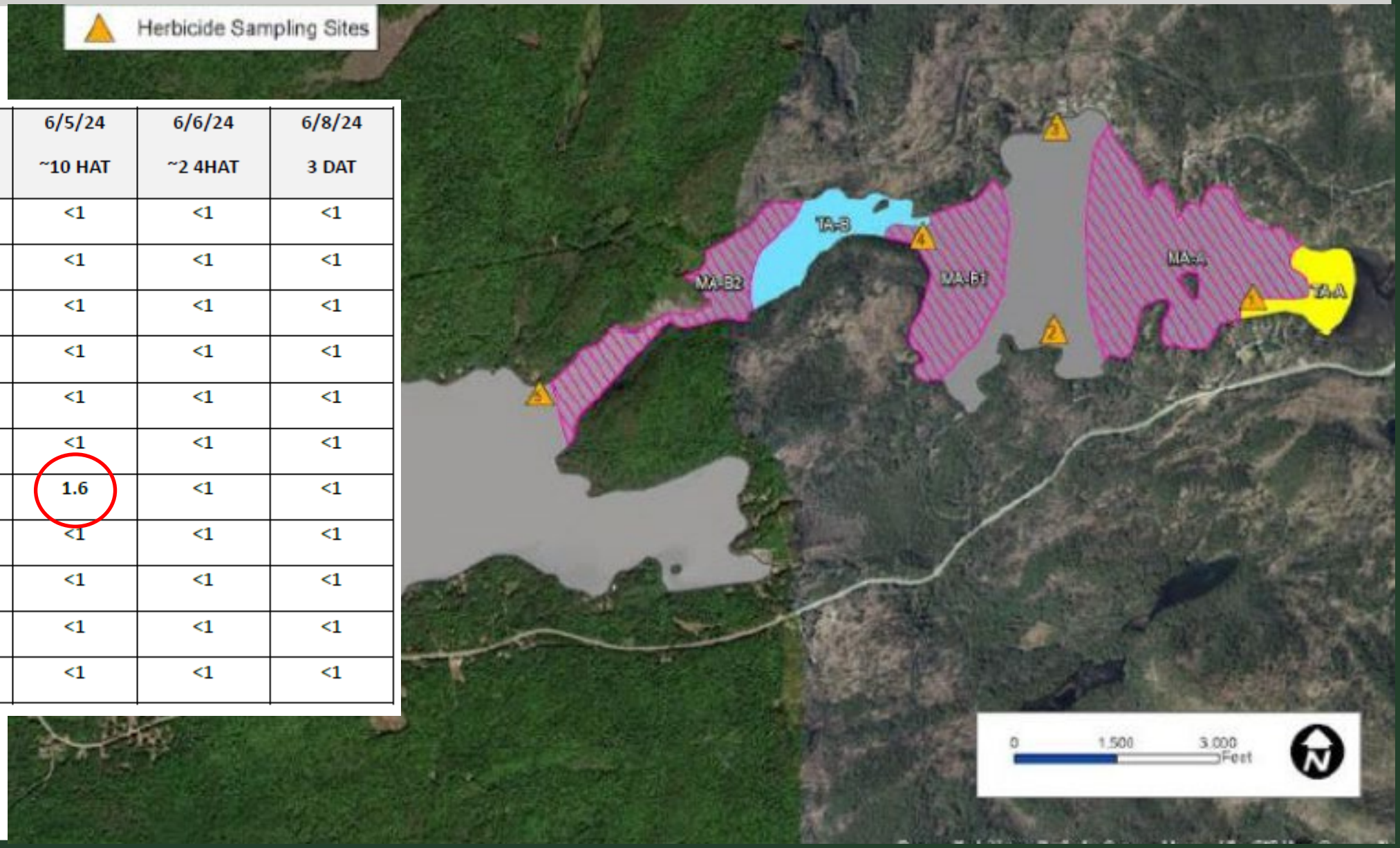
"…control….is expected to exceed 95% of the treatment area and last for at least two growing seasons…

"The primary, and long term, EWM control method will continue to be hand harvesting

Attempt to reset EWM spread and density with intensive hand harvesting and herbicide use in areas proven to be difficult to hand harvest

P2023-36; Paradox Lake Concentration Monitoring

Site	6/5/24 ~2 HAT	6/5/24 ~10 HAT	6/6/24 ~2 4HAT	6/8/24 3 DAT
1	<1	<1	<1	<1
1 Deep (14')	<1	<1	<1	<1
2	<1	<1	<1	<1
2 Deep (16')	<1	<1	<1	<1
3	<1	<1	<1	<1
3 Deep (12')	<1	<1	<1	<1
4	<1	1.6	<1	<1
4 Deep (9')	<1	<1	<1	<1
5	<1	<1	<1	<1
5 Deep (11')	<1	<1	<1	<1
6	<1	<1	<1	<1



P2023-36; Paradox Lake Assoc. Plant Surveys

Species	Common Name	Percent Frequency		
		2022	2023	2024
Brasenia schreberi	Watershield	7.6%	7.1%	3.5%
Ceratophyllum demersum	Coontail	2.1%	4.6%	1.4%
Chara species	Muskgrass	16.0%	9.6%	10.4%
Eleocharis acicularis	Spike rush	2.1%	1.5%	2.1%
Elodea canadensis	Waterweed	17.4%	16.8%	9.7%
Elodea nuttallii	Slender Waterweed			1.4%
Eriocaulon septangulare	Pipewort	5.6%	6.6%	9.0%
Fontinalis sp.	Moss	1.4%	2.0%	0.7%
Isoetes echinospora	Quillwort		1.0%	
Megalodonta beckii	Water marigold	2.1%	4.6%	2.1%
Myriophyllum alterniflorum	Little milfoil	0.7%	1.5%	1.4%
Myriophyllum spicatum	Eurasian watermilfoil	15.3%	25.4%	2.1%
Najas flexilis	Bushy pondweed	10.4%	7.1%	18.1%
Najas guadalupensis	Southern naiad	8.3%	12.7%	2.1%
Nuphar variegata	Yellow waterlily	4.9%	4.6%	2.1%
Nymphaea odorata	White waterlily	10.4%	11.7%	14.6%

Species	Common Name	Percent Frequency		
		2022	2023	2024
Pontederia cordata	Pickerelweed	3.5%	3.6%	4.9%
Potamogeton amplifolius	Broad leaf pondweed	6.9%	10.7%	14.6%
Potamogeton epihydrus	Ribbon leaf pondweed	0.7%	0.5%	2.8%
Potamogeton gramineus	Variable pondweed	0.7%	2.5%	2.8%
Potamogeton natans	Floating-leaf pondweed	2.1%	1.5%	0.7%
Potamogeton praelongus	White-stem pondweed	5.6%	7.6%	8.3%
Potamogeton pusillus	Narrow-leaf pondweed	6.3%	4.6%	4.9%
Potamogeton richardsonii	Richardsons pondweed	14.6%	19.8%	11.1%
Potamogeton robbinsii	Robbins pondweed	29.9%	34.5%	35.4%
Potamogeton zosteriformis	Flat stem pondweed		0.5%	0.7%
Scirpus sp.	Sedge	3.5%	4.1%	11.1%
Sparganium spp.	Bur reed	2.1%	4.6%	4.2%
Typha latifolia	Cattail	0.7%	0.5%	0.7%
Utricularia gibba	Humped bladderwort		1.5%	
Utricularia purpurea	Purple bladderwort	4.9%	8.1%	6.9%
Utricularia vulgaris	Great bladderwort	0.7%	4.1%	4.9%
Vallisneria americana	Duck celery	11.8%	19.8%	23.6%
Zosterella dubia	Water stargrass	13.9%	12.7%	9.7%

Eichler, 2024

P2023-36; Paradox Lake Assoc. Plant Surveys

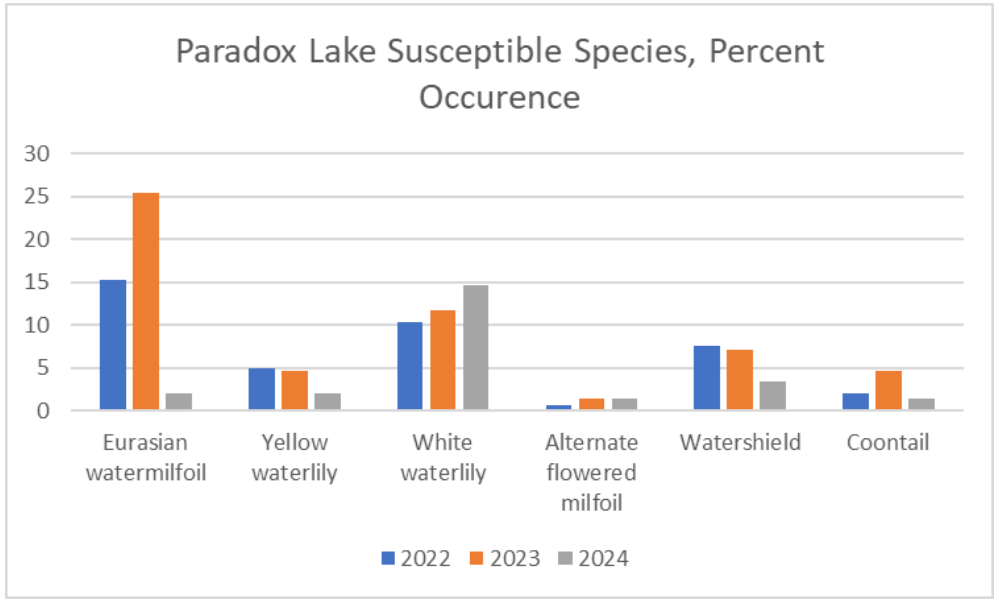
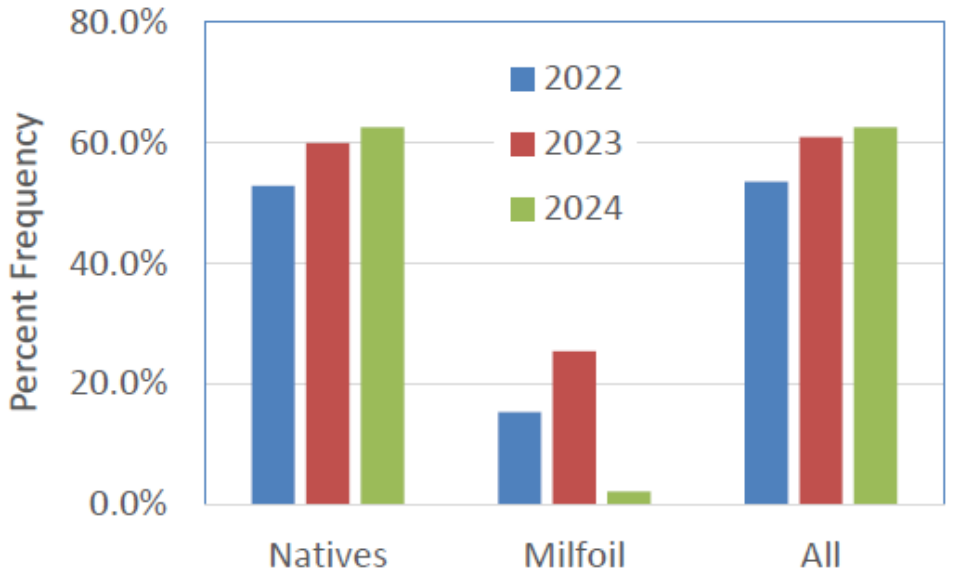
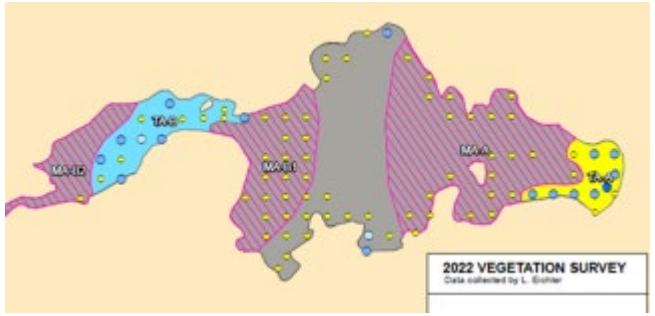


Figure 4. Paradox Lake frequency of occurrence summaries.

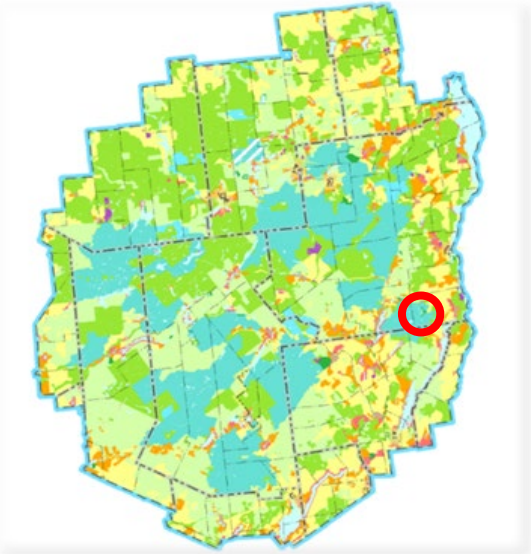


P2023-36; Paradox Lake Association Key Points

- EWM controlled within 2 treatment areas
- Measurable concentration more likely in interior of treatment area
- Non-target impacts as expected – no significant decline in overall native vegetation
- 2025 – Reset successful. Hand harvest, attention to upstream sources

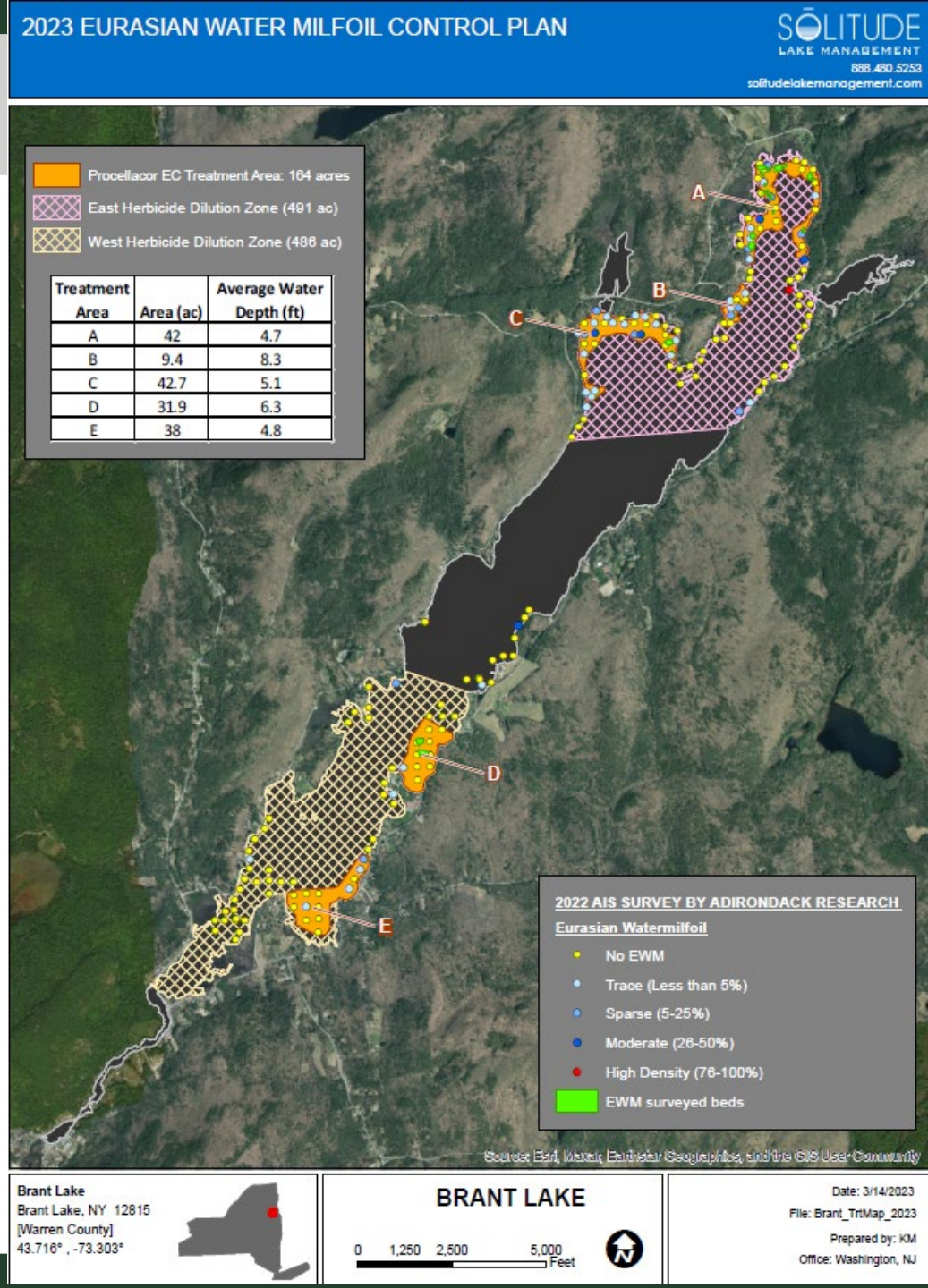


P2023-37; Brant Lake Foundation



P2023-37: Brant Lake Foundation

Five treatment areas: 164 Acres
Treatment: 6/4/2024
Post-Observation: 8/13/2024
Post-Survey: 8/5 – 8/7/2024



P2023-37; Brant Lake Foundation Goals

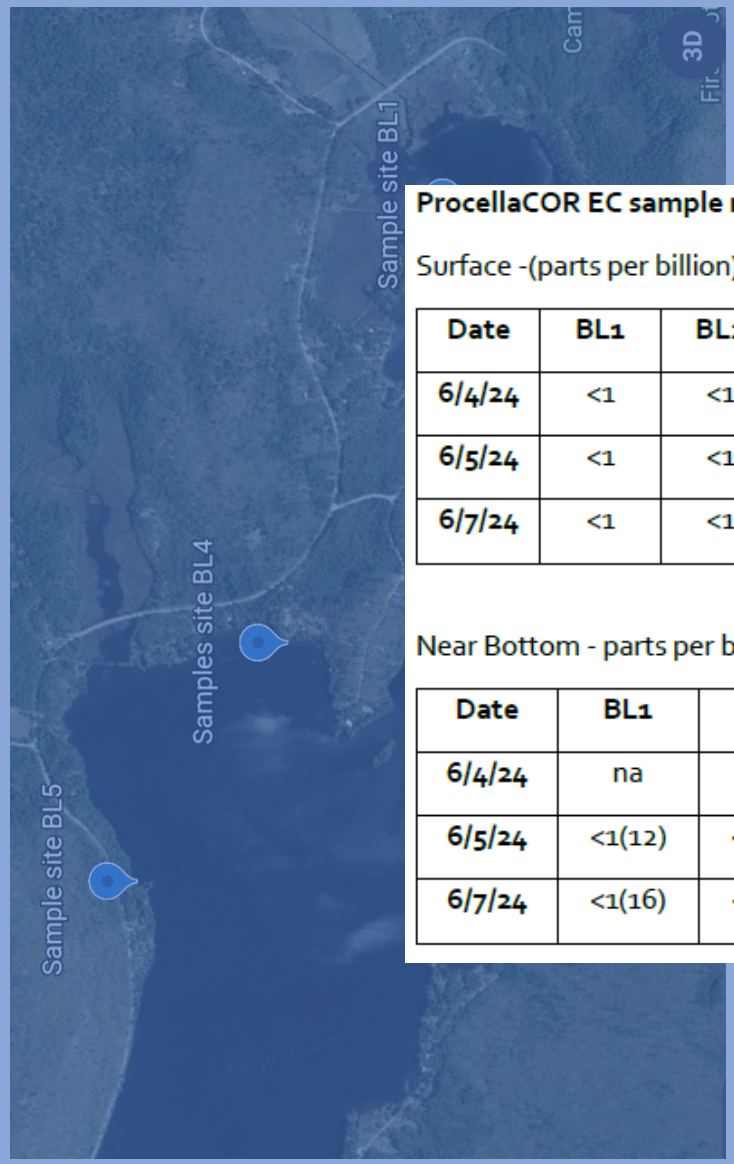
Long Term: Recognizing Brant Lake as the economic engine of the Town of Horicon, and in coordination with the Town of Horicon First Wilderness Plan; the long-term goal is to preserve and protect Brant Lake

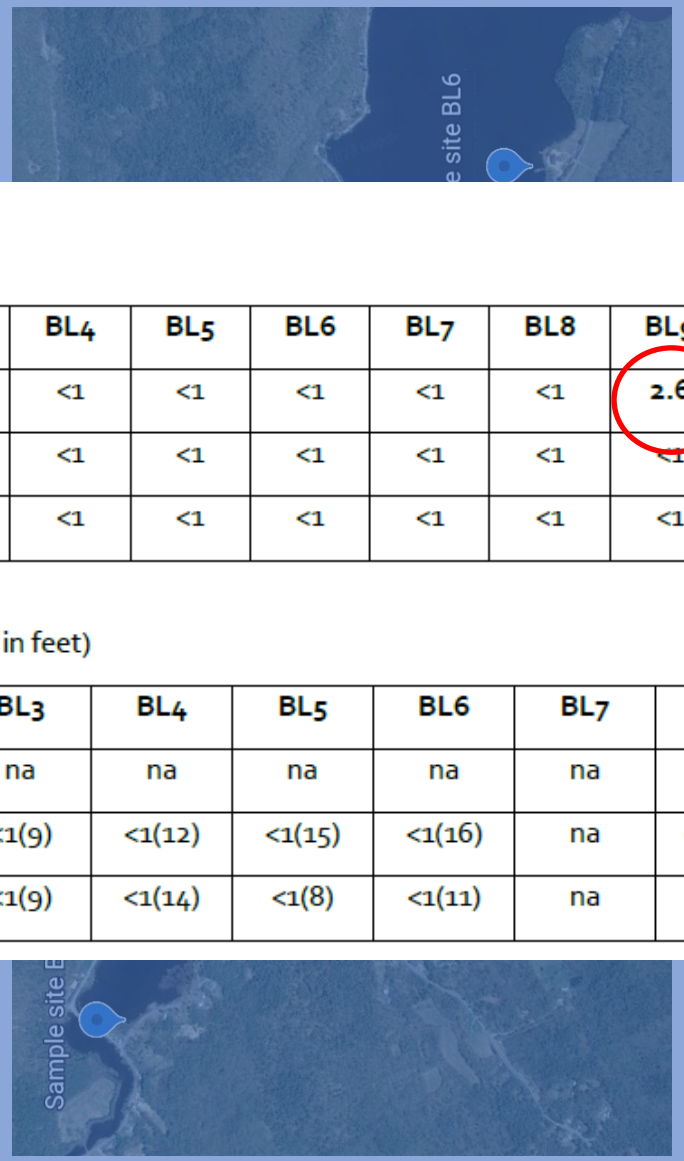
"…treatment is proposed for the five EWM beds that produce 75-80% of the annual milfoil harvest. By treating these beds, it will allow harvesting efforts to focus on identified areas that have been difficult to harvest, and areas needing harvesting.

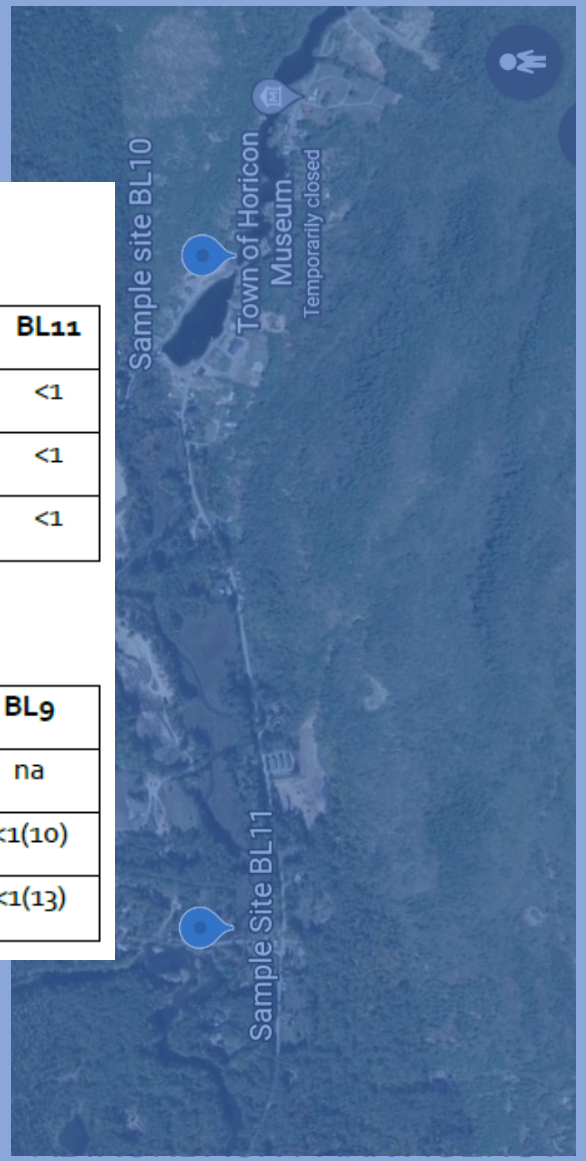
We will continue to spot [harvest] (volunteer and paid) the five beds throughout the harvesting seasons

Reduce the annual harvest period to 10-12 weeks

P2023-37; BLF Residual Concentration Monitoring







ProcellaCOR EC sample results

Surface -(parts per billion)

Date	BL1	BL2	BL3	BL4	BL5	BL6	BL7	BL8	BL9	BL10	BL11
6/4/24	<1	<1	<1	<1	<1	<1	<1	<1	2.6	<1	<1
6/5/24	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
6/7/24	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

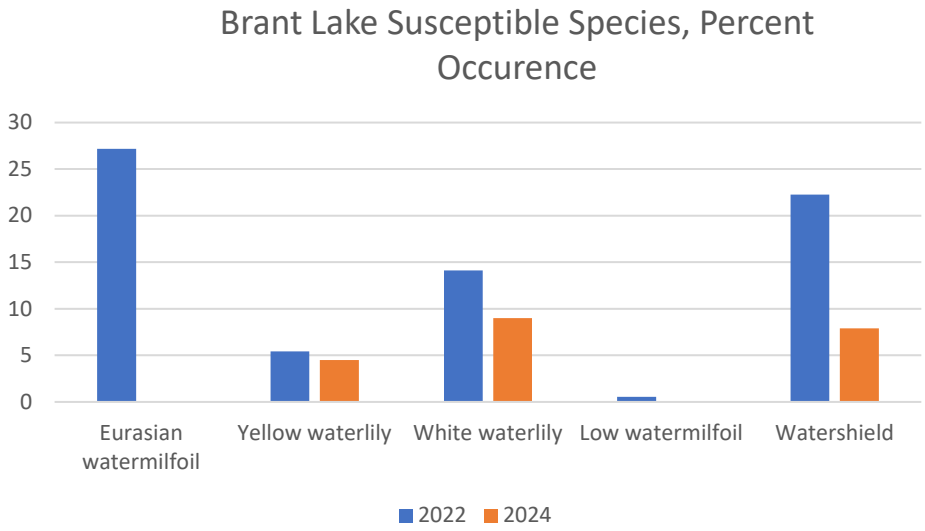
Near Bottom - parts per billion (depth in feet)

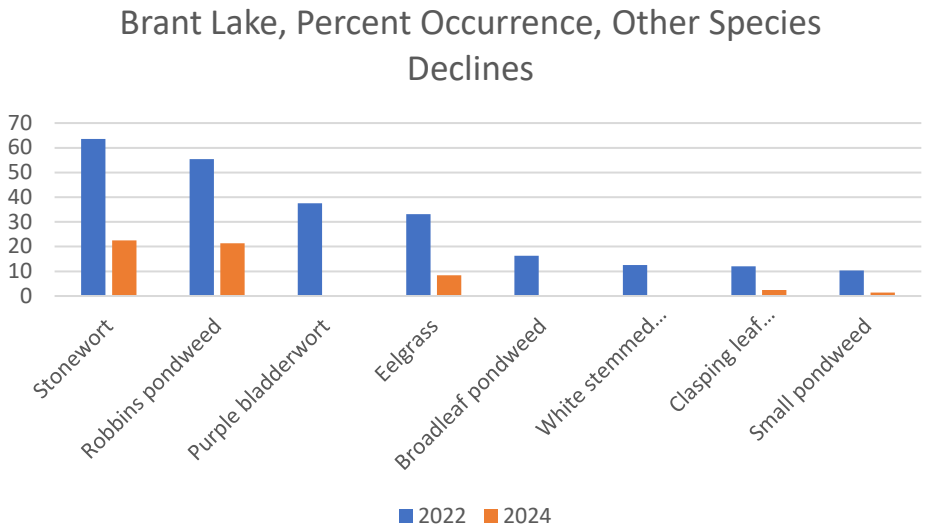
Date	BL1	BL2	BL3	BL4	BL5	BL6	BL7	BL8	BL9
6/4/24	na	na	na	na	na	na	na	na	na
6/5/24	<1(12)	<1(14)	<1(9)	<1(12)	<1(15)	<1(16)	na	<1(8.5)	<1(10)
6/7/24	<1(16)	<1(12)	<1(9)	<1(14)	<1(8)	<1(11)	na	<1(11)	<1(13)

P2023-37; Brant Lake Foundation Plant Surveys

Table 2. Species recorded during 2024 Brant Lake Post ProcellaCOR survey

Common Name	Scientific Name	2022 Frequency	2022 % Occurance	2024 Freaquency	2024 % Occurance
American eelgrass	*Vallisneria americana*	61	33.15	15	8.4
Annual hairgrass	*Deschampsia danthonioides*	33	17.93	15	8.4
Arrowhead	*Syngonium podophyllum*			2	1.1
Bur-reed	*Sparganium sp.*	5	2.72		
Cattails	*Typha latifolia*	1	0.54		
Clasping leaf pondweed	*Potamogeton perfoliatus*	22	11.96	9	5.1
Common bladderwort	*Utricularia macrorhiza*	63	34.24	66	37.1
Common naiad	*Najas flexilis*	47	25.54	44	24.7
Coontail	*Ceratophyllum demersum*	1	0.54		
Eurasian watermilfoil	*Myriophyllum spicatum*	50	27.17		
Floating leaf pondweed	*Potamogeton natans*	30	16.3		
Fragrant water lily	*Nymphaea odorata*	26	14.13	16	9.0
Large-leaved pondweed	*Potamogeton amplifolius*			23	12.9
Low watermilfoil	*Myriophyllum humile*	1	0.54		
Muskgrass	*Chara sp.*			5	2.8
Narrow leaf bur-reed	*Sparganium natans*	3	1.63		
Pickerelweed	*Pontederia cordata*	13	7.07	8	4.5
Pipewort	*Eriocaulon aquaticum*	24	13.04		
Purple bladderwort	*Utriculaaria purpurea*	69	37.5		
Quillwort	*Isoetes spp.*	1	0.54	12	6.7
Ribbon leaf pondweed	*Potamogeton epihydrus*	12	6.52		
Robbin's pondweed	*Potamogeton robbinsii*	102	55.43	38	21.3
Small pondweed	*Potamogeton pusillus*	19	10.33	5	2.8
Spiny hornwort	*Ceratophyllum echinatum*			1	0.6
Stonewort	*Nitella sp.*	117	63.59	40	22.5
Swamp loosestrife	*Decodon verticillatus*			2	1.1
Variable leaf pondweed	*Potamogeton gramineus*	13	7.07		
Variegated yellow pond-lily	*Nuphar variegata*	10	5.43	8	4.5
Water bulrush	*Schoenoplectus subterminalis*			1	0.6
Water Lobelia	*Lobelia dortmanna*	2	1.09		
Water marigold	*Bidens beckii*	2	1.09		
Water weed	*Elodea sp.*	67	36.41	15	8.4
Watershield	*Brasenia schreberi*	41	22.28	14	7.9
White stem pondweed	*Potamogeton praelongus*	23	12.5		
White water-crowfoot	*Ranunculus aquatilis*			1	0.6
Whorled watermilfoil	*Myriophyllum verticillatum*			1	0.6



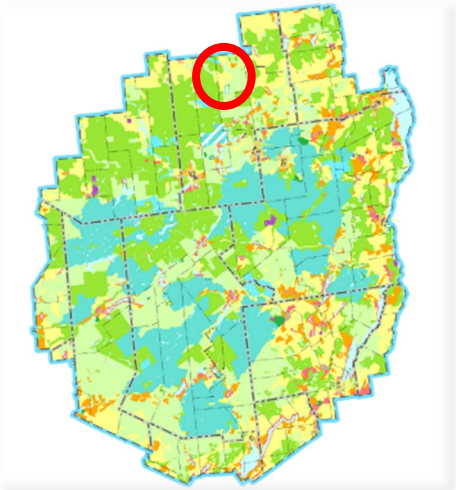


P2023-37; Brant Lake Foundation Key Points

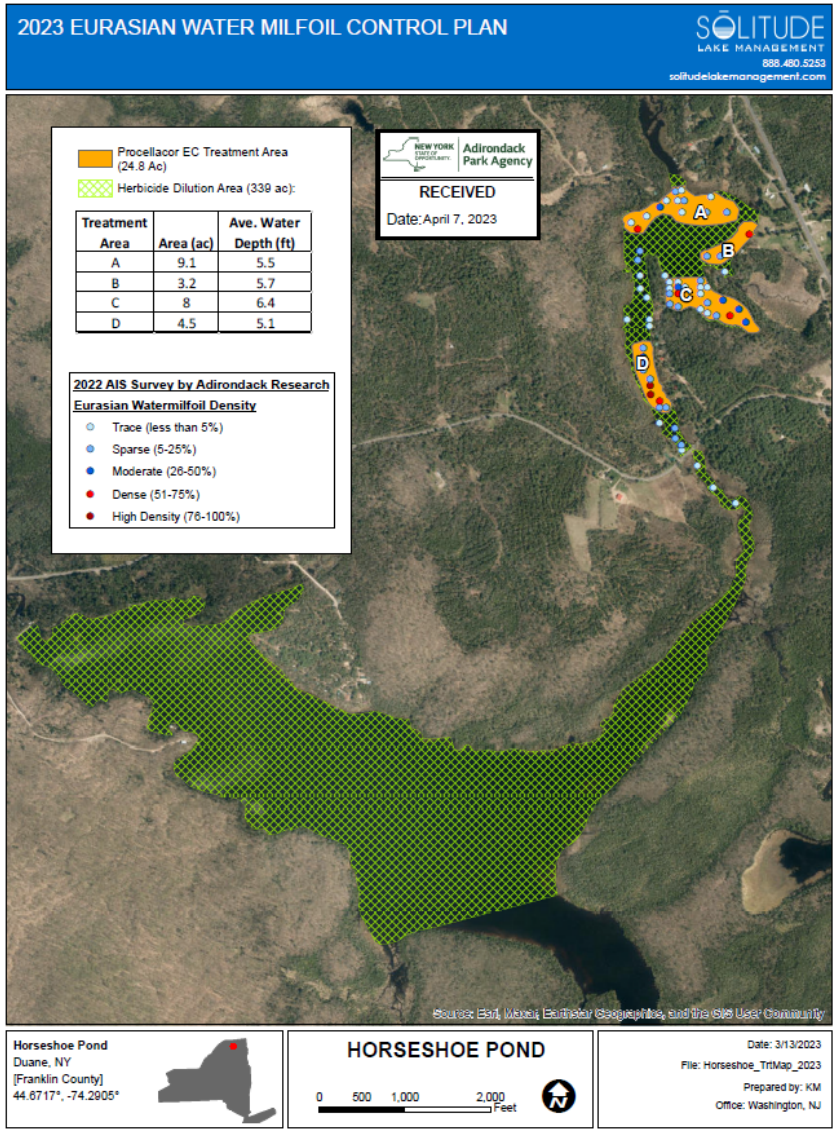
- EWM controlled within all 5 treatment areas
- Non-target impacts appear to be limited
- Product degraded as anticipated
- Reduction in other species not attributed to herbicide treatment
- 2024 – 2025+ Treatment successful. Harvest teams focusing attention on other management locations

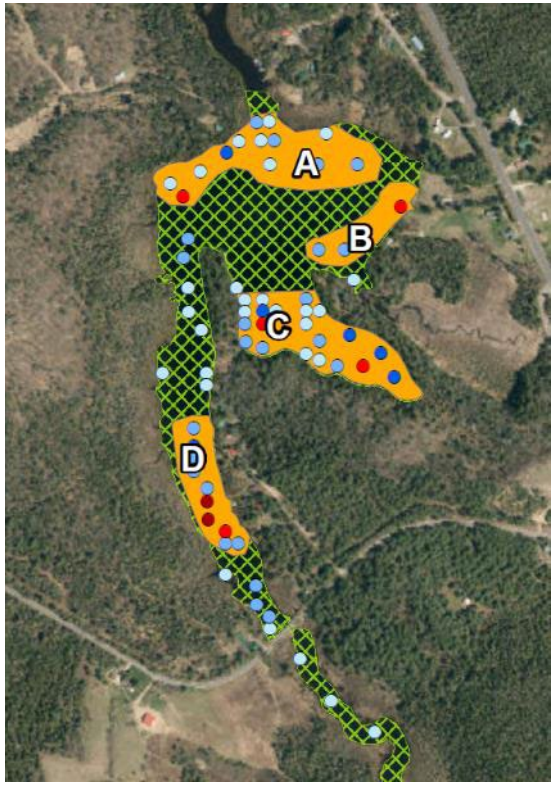
Brant Lake aerial view from west end in April

P2023-38; Horseshoe Pond/Deer River Flow Association



P2023-38: Horseshoe Pond/Deer River Flow Association





Four treatment areas: 24.8 acres
Treatment: 6/18/2024
Post-Observation: 8/14/2024
Post-Survey: 7/30 – 7/31/2024

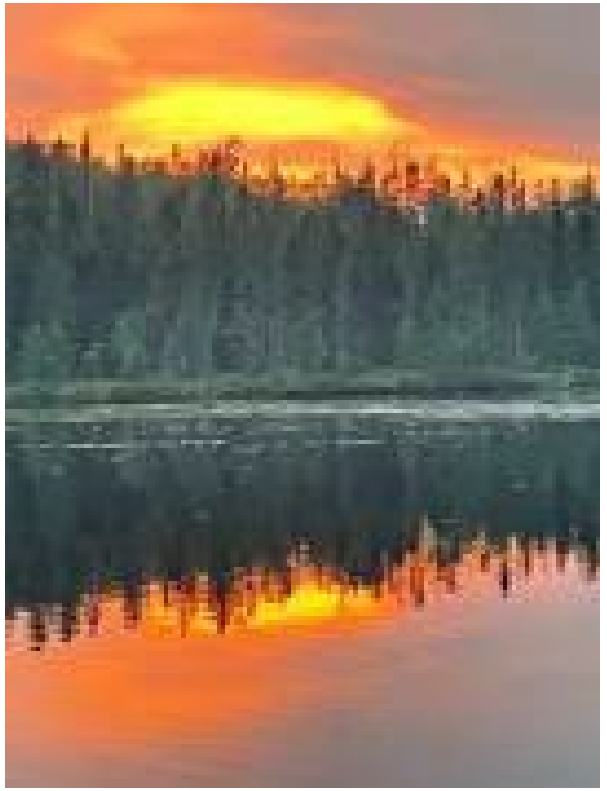
P2023-38; Horseshoe Pond Goals

"…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.

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."

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."

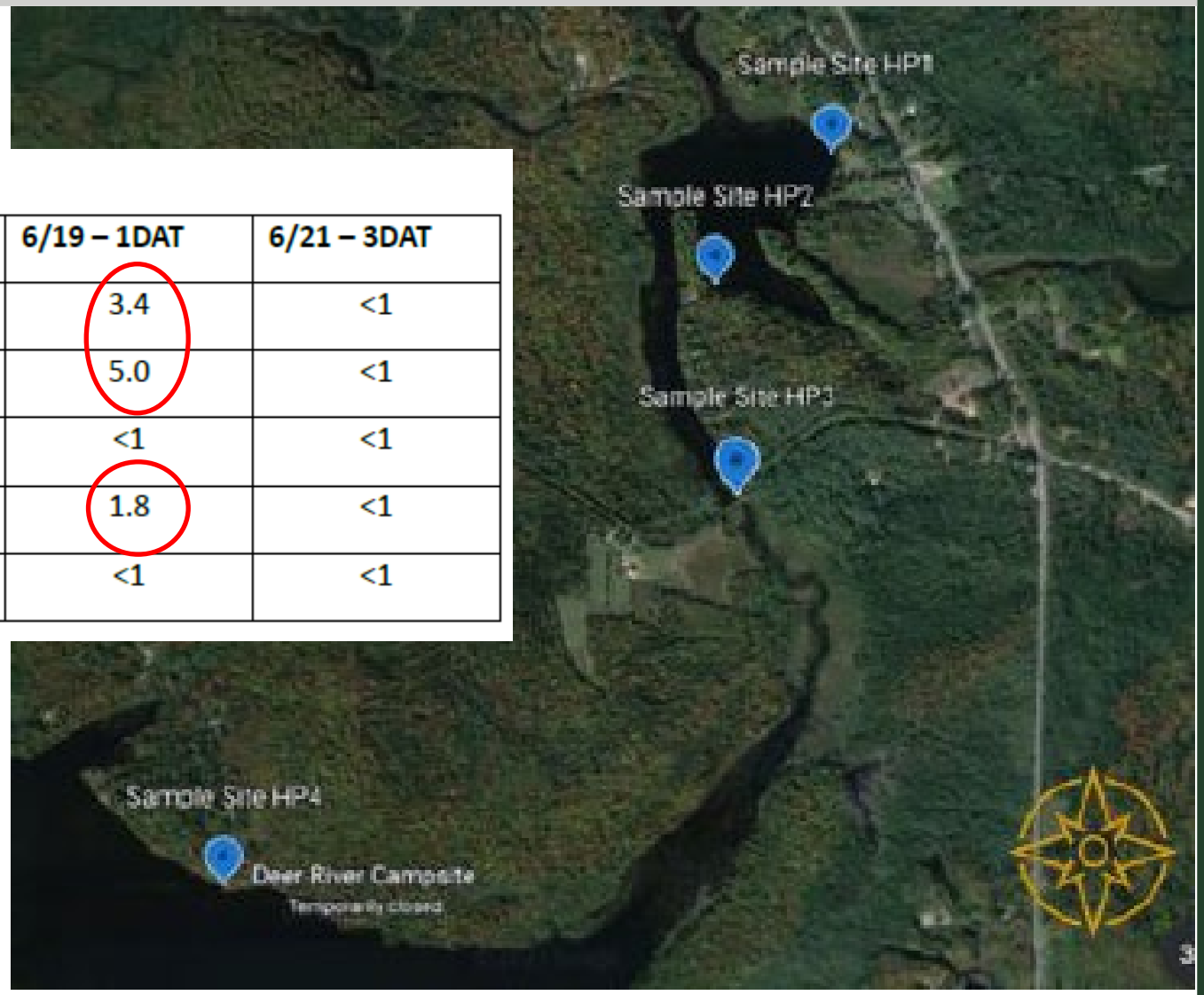
P2023-38; Horseshoe Pond Treatment Photos



P2023-38; Horseshoe Pond Residual Concentrations

ProcellaCOR EC sample results (parts per billion)

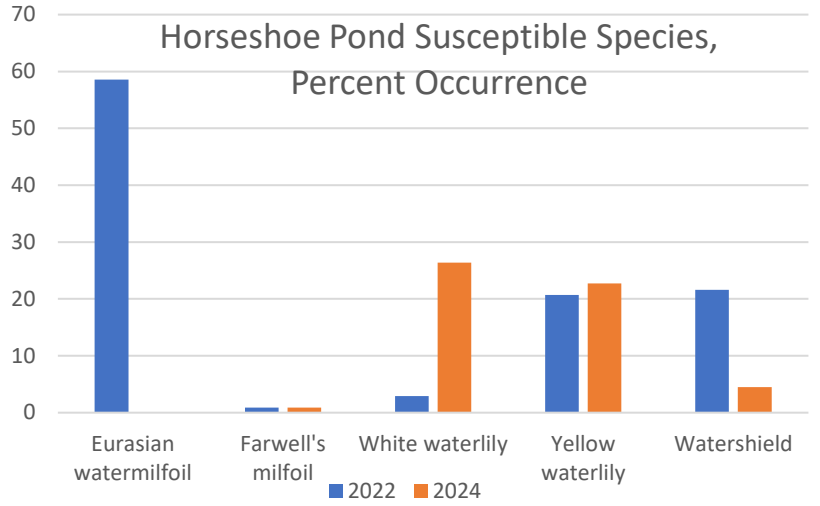
Site	6/18 1-3 HAT	6/18 10-12 HAT	6/19 – 1DAT	6/21 – 3DAT
HP1 – near boat launch	2.1	2.1	3.4	<1
HP2 – outer edge SE cove	<1	2.2	5.0	<1
HP2 Deep (5')	<1	1.2	<1	<1
HP3 – south side of bridge	<1	<1	1.8	<1
HP4 – Deer River Campsites	<1	<1	<1	<1



P2023-38; Horseshoe Pond Plant Surveys

Table 2. Summary of Aquatic Vegetation Occurrences and Frequency – Horseshoe Pond 2024

Common Name	Scientific Name	2022 Frequency	2022 % Occurance	2024 Frequency	2024 % Occurance
Alpine pondweed	*Potamogeton alpinus*			13	11.8
American eelgrass	*Vallisneria americana*	25	22.52	58	52.7
Annual hairgrass	*Deschampsia danthonioides*			10	9.1
Arrowhead	*Syngonium podophyllum*			1	0.9
Bur-reed spp.	*Sparganium sp.*	28	25.23	1	0.9
Common bladderwort	*Utricularia macrorhiza*	47	42.34	29	26.4
Common naiad	*Najas flexilis*	31	27.93	30	27.3
Eurasian watermilfoil	*Myriophyllum spicatum*	65	58.56		
Farwell's watermilfoil	*Myriophyllum farwellii*	1	0.9	1	0.9
Fragrant water lily	*Nymphaea odorata*	31	2.93	29	26.4
Grass-leaved pondweed	*Potamogeton gramineus*			1	0.9
Large-leaved pondweed	*Potamogeton amplifolius*	6	5.41	16	14.5
Muskgrass	*Chara sp.*	34	30.63	39	35.5
Needle spikerush	*Eleocharis acicularis*			1	0.9
Pickerelweed	*Pontederia cordata*			5	4.5
Ribbon leaf pondweed	*Potamogeton epihydrus*	10	9.01		
Robbin's pondweed	*Potamogeton robbinsii*	1	0.9	23	20.9
Small pondweed	*Potamogeton pusillus*			7	6.4
Southern naiad	*Najas guadalupensis*			1	0.9
Stonewort	*Nitella sp.*	57	51.35	14	12.7
Variegated yellow pond-lily	*Nuphar variegata*	23	20.72	25	22.7
Water bulrush	*Schoenoplectus subterminalis*			4	3.6
Water weed	*Elodea sp.*	42	37.84	14	12.7
Watershield	*Brasenia schreberi*	24	21.62	5	4.5



P2023-38; Horseshoe Pond Key Points

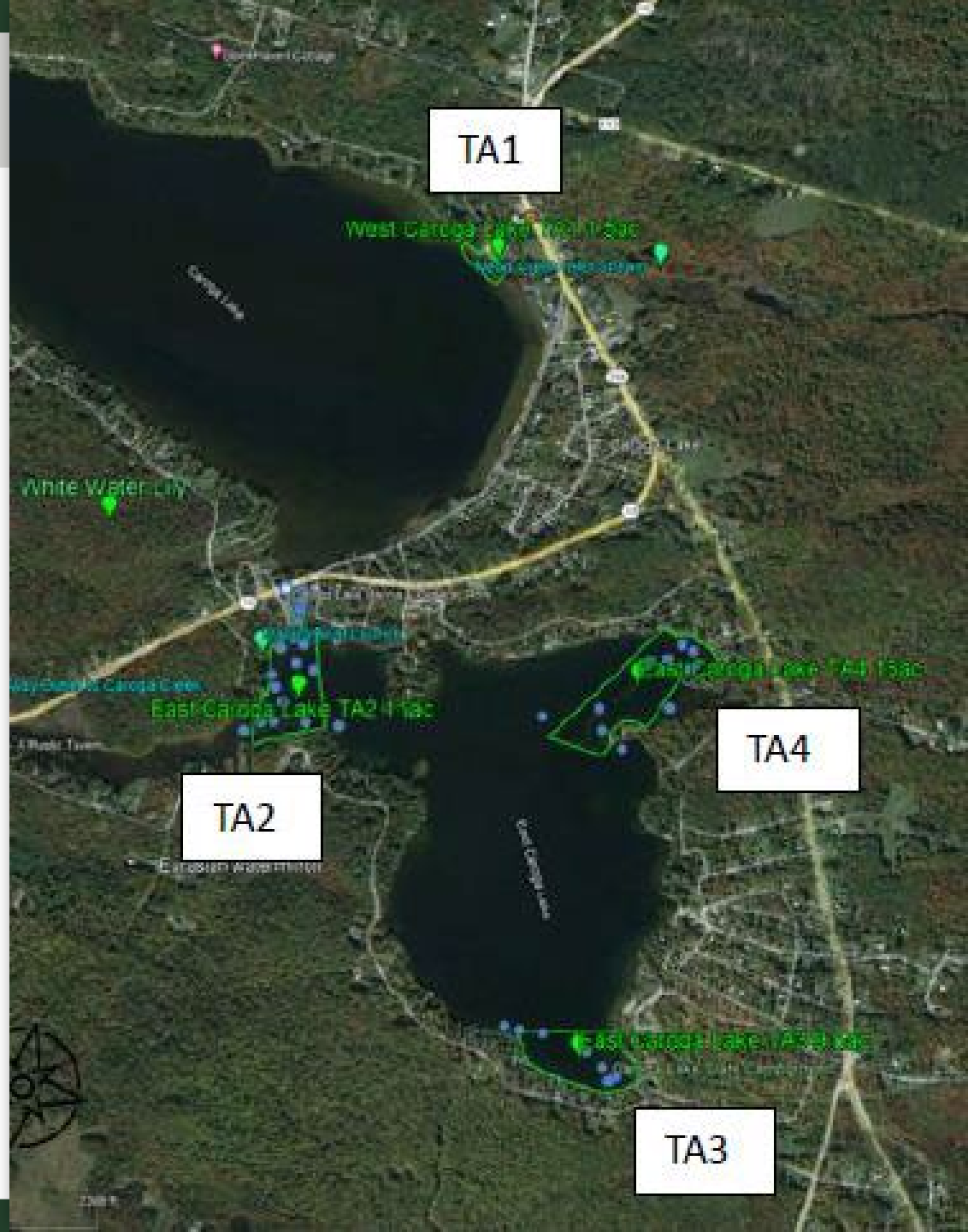
- EWM controlled in all 4 Treatment Areas
- Residual herbicide detected within 24-48 hours; undetected at 72 hours
- Non-target impacts as expected – no significant decline in overall native vegetation
- 2025 – Reset successful. Monitoring and hand harvest to maintain control. Public notice to combat reinfestation.

Adirondack Explorer

P2024-40: Town of Caroga (East & West Caroga Lakes)

P2024-40: Town of Caroga

- Four treatment areas: 37 Acres
- Treatment: 6/17/2024
- Post-Observation: 8/6/2024
- Post-Survey: 8/13 – 8/14/2024



P2023-40; Town of Caroga Goals

…Major concentrations [of EWM] were in East Caroga Lake, and 80% of the DASH program was directed there

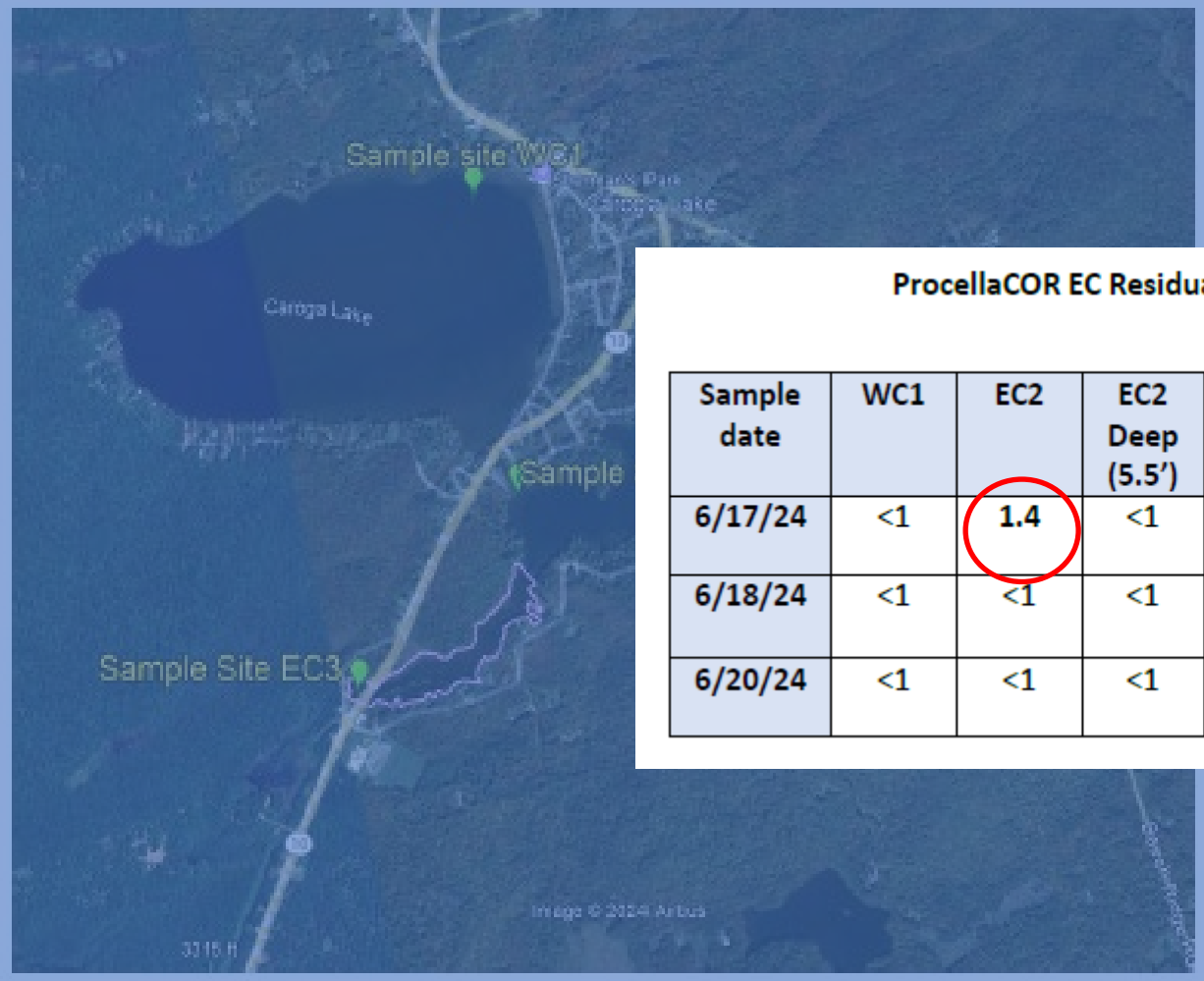
In 2020 we began to see changes and at the end of 2021 several new and large areas of Milfoil were appearing along the east shore [of West Caroga Lake].

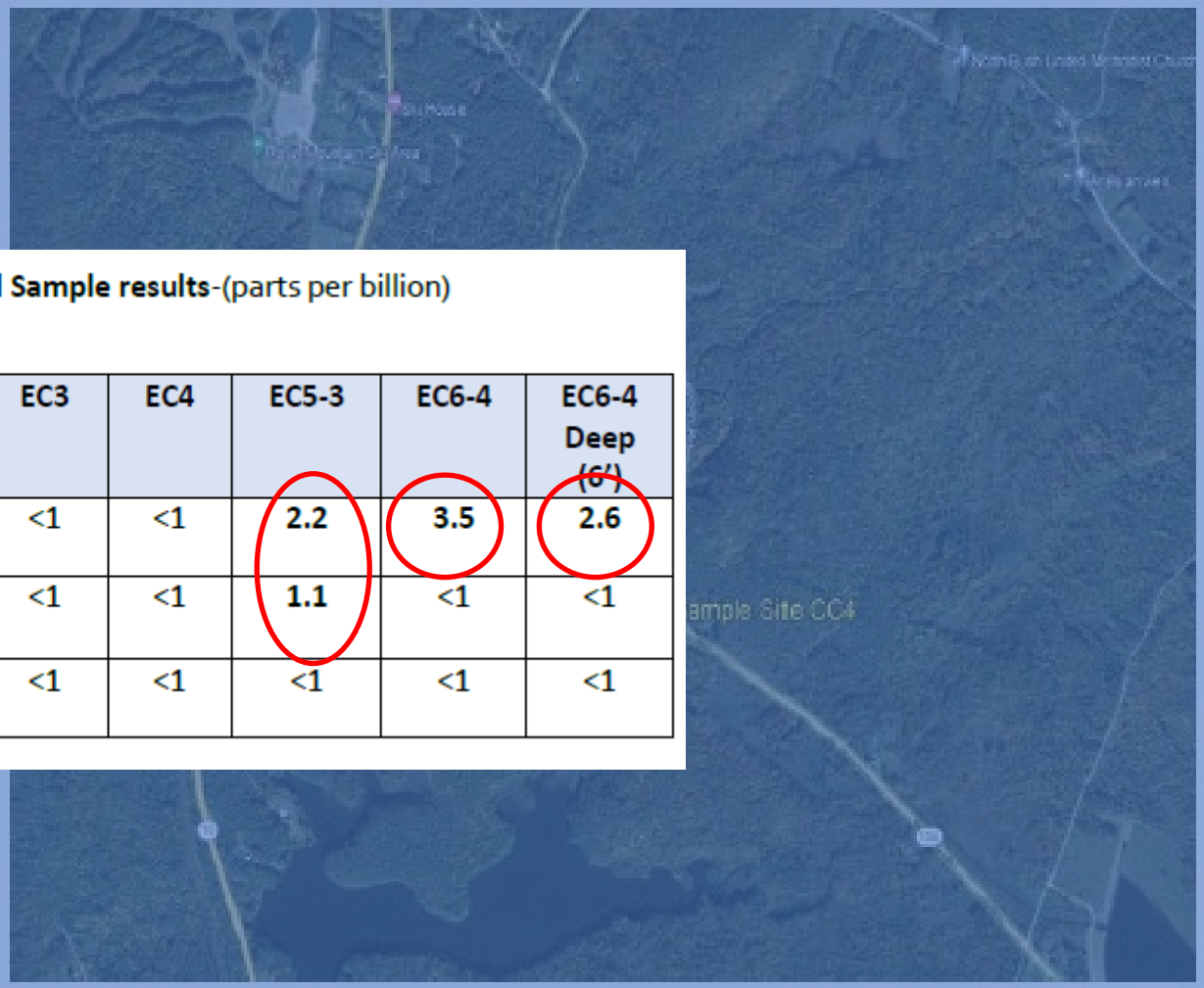
Covering both lakes with our existing team [has become] problematic and the Lake Management Team felt the need to look for a process to supplement the DASH program.

Search led to ProcellaCOR because of its success … we felt a Pilot program in several heavy infested areas of both lakes would be the best approach.

…we plan to expand its use while at the same time continuing the DASH program in the hope we can reduce manpower and associated costs which are approaching $100,000 per year, and finally [make] a substantial reduction in Milfoil growth.

P2024-40; Town of Caroga Residual Concentrations





ProcellaCOR EC Residual Sample results-(parts per billion)

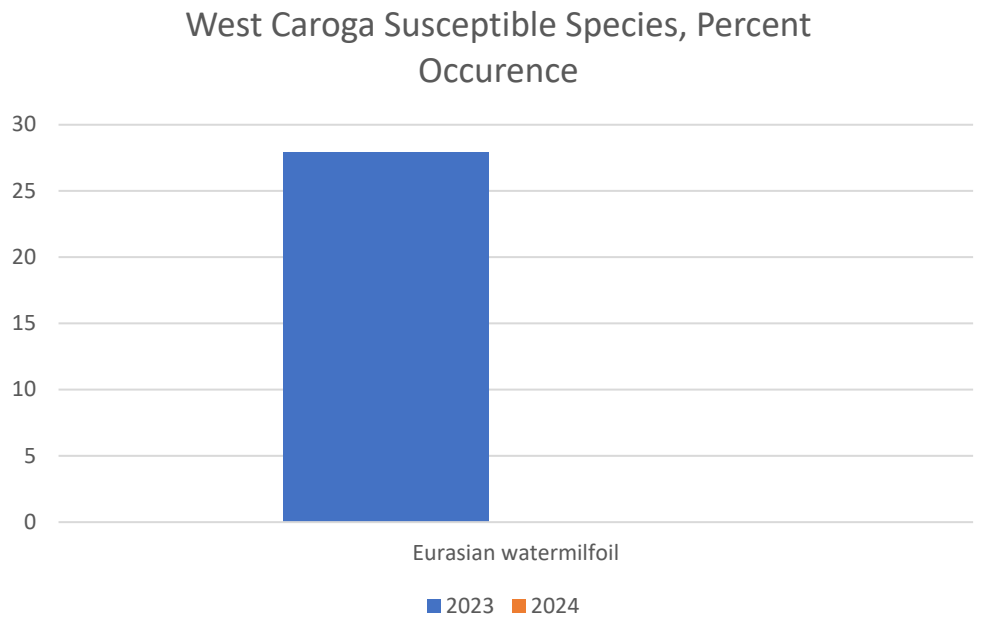
Sample date	WC1	EC2	EC2 Deep (5.5')	EC3	EC4	EC5-3	EC6-4	EC6-4 Deep (6')
6/17/24	<1	1.4	<1	<1	<1	2.2	3.5	2.6
6/18/24	<1	<1	<1	<1	<1	1.1	<1	<1
6/20/24	<1	<1	<1	<1	<1	<1	<1	<1

P2024-40; Town of Caroga Plant Surveys

Summary of Aquatic Vegetation Occurrences and Frequency – West Caroga Lake 2023 & 2024

(from Adirondack Research 2024 Plant Survey Report)

Common Name	Scientific Name	2023 Freaquency	2023 % Occurance	2024 Freaquency	2024 % Occurance
American eelgrass	*Vallisneria americana*	10	23.26	4	8.3
Ccommon bladderwort	*Utricularia macrorhiza*			4	8.3
Clasping leaf pondweed	*Potamogeton perfoliatus*			1	2.1
Common naiad	*Najas flexilis*	6	13.96	11	22.9
Eurasian watermilfoil	*Myriophyllum spicatum*	12	27.91		
Floating heart	*Nymphoides cordata*	5	11.63		
Floating-leaf pondweed	*Potamogeton natans*			1	2.1
Grass-leaved pondweed	*Potamogeton gramineus*			6	12.5
Large-leaved pondweed	*Potamogeton amplifolius*	14	32.56	5	10.4
Muskgrass	*Chara sp.*	1	2.33		
Quillwort	*Isoetes spp.*			10	20.8
Small pondweed	*Potamogeton pusillus*	1	2.33	2	4.2
Stonewort	*Nitella sp.*	7	16.28		
Varirable leaf pondweed	*Potamogeton gramineus*	4	9.3		
Water weed	*Elodea sp.*	1	2.33	2	4.2
White stem pondweed	*Potamogeton praelongus*	8	18.6	2	4.2



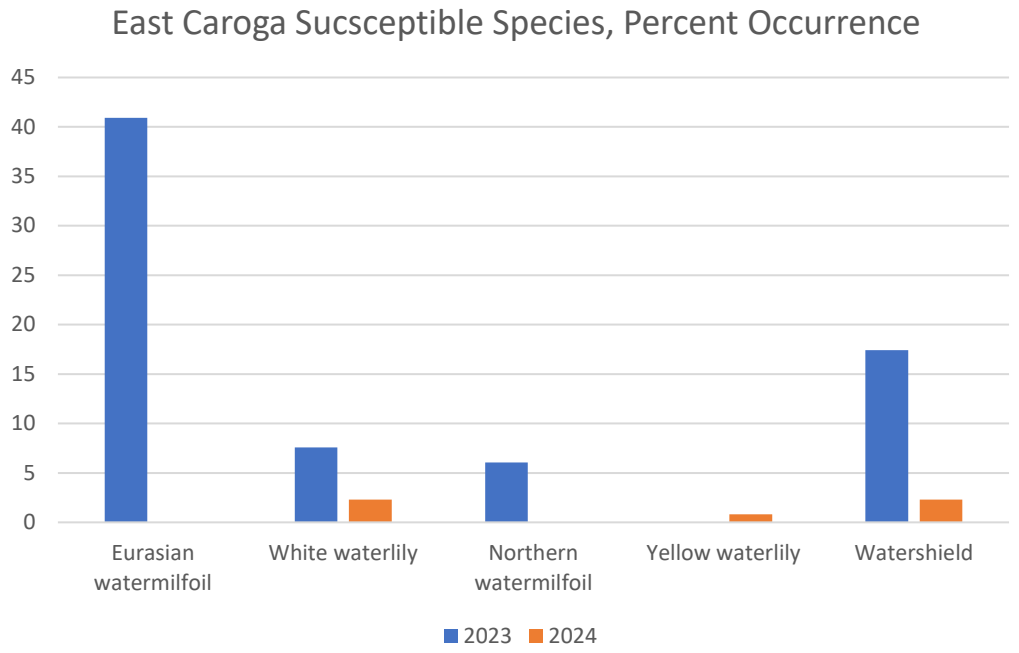
20 native species observed over 2 seasons

P2024-40; Town of Caroga Plant Surveys

Summary of Aquatic Vegetation Occurrences and Frequency – East Caroga Lake 2023 & 2024

(from Adirondack Research 2024 Plant Survey Report)

Common Name	Scientific Name	2023 Freaquency	2023 % Occurance	2024 Freaquency	2024 % Occurance
American eelgrass	*Vallisneria americana*	8	6.06	10	7.7
Annual hairgrass	*Deschampsia danthonioides*			2	1.5
Bur-reed spp.	*Sparganium sp.*			1	0.8
Clasping leaf pondeed	*Potamogeton perfoliatus*	1	0.76		
Common bladderwort	*Utricularia macrorhiza*	22	16.67	8	6.2
Common naiad	*Najas flexilis*	15	11.36	73	56.2
Eurasian watermilfoil	*Myriophyllum spicatum*	54	40.91		
Floating heart	*Nymphoides cordata*	11	8.33	3	2.3
Floating leaf pondweed	*Potamogeton natans*	4	3.03	2	1.5
Fragrant water lily	*Nymphaea odorata*	10	7.58	3	2.3
Grass-leaved pondweed	*Potamogeton gramineus*			1	0.8
Horsetail	*Equisetum fluviatile*	1	0.76		
Large-leaved pondweed	*Potamogeton amplifolius*	21	15.91	26	20.0
Muskgrass	*Chara sp.*	2	1.52	3	2.3
Naiad sp	*Najas sp.*	2	1.52		
Needle spikerush	*Eleocharis acicularis*			1	0.8
Northern watermilfoil	*Myriophyllum sibiricum*	8	6.06		
Pickerelweed	*Pontederia cordata*	5	3.79	2	1.5
Pipewort	*Eriocaulon aquaticum*	1	0.76		
Quillwort	*Isoetes spp.*	1	0.76	2	1.5
Ribbon-leaf pondweed	*Potamogeton epihydrus*			3	2.3
Robbin's pondweed	*Potamogeton robbinsii*	35	26.52	27	20.8
Small Pondweed	*Potamogeton pusillus*	27	20.45		
Stonewort	*Nitella sp.*	23	17.42	34	26.2
Variable leaf pondweed	*Potamogeton gramineus*	41	31.06		
Variegated yellow pond-lily	*Nuphar variegata*			1	0.8
Water bulrush	*Schoenoplectus subterminalis*	14	10.61		
Watershield	*Brasenia schreberi*	23	17.42	3	2.3
White stem pondweed	*Potamogeton praelongus*	22	16.67		



28 Native Species Observed Over 2 Seasons

P2024-40; Town of Caroga Key Points

- EWM controlled in all 4 treatment areas
- Residual product degraded as expected
- Non-target impacts as expected
- Annual variation in species composition observed
- DASH Team operated in 2024 with minimal harvest
- 2025 – Treatment successful. Anticipate 2025 ProcellaCor proposal for Bennett Cove, and continued DASH harvesting

P2024-83: Highland Forests, LLC (Highland Forge Lake)

P2024-83: Highland Forge Lake

- 2024 (North, 4 areas): 10.4 acres
- Treatment: 6/30/2024
- Post-Observation and Survey: 8/15/2024

Southern portion will be undertaken in 2025

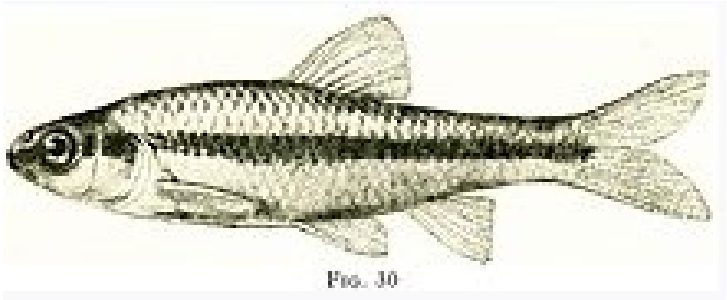
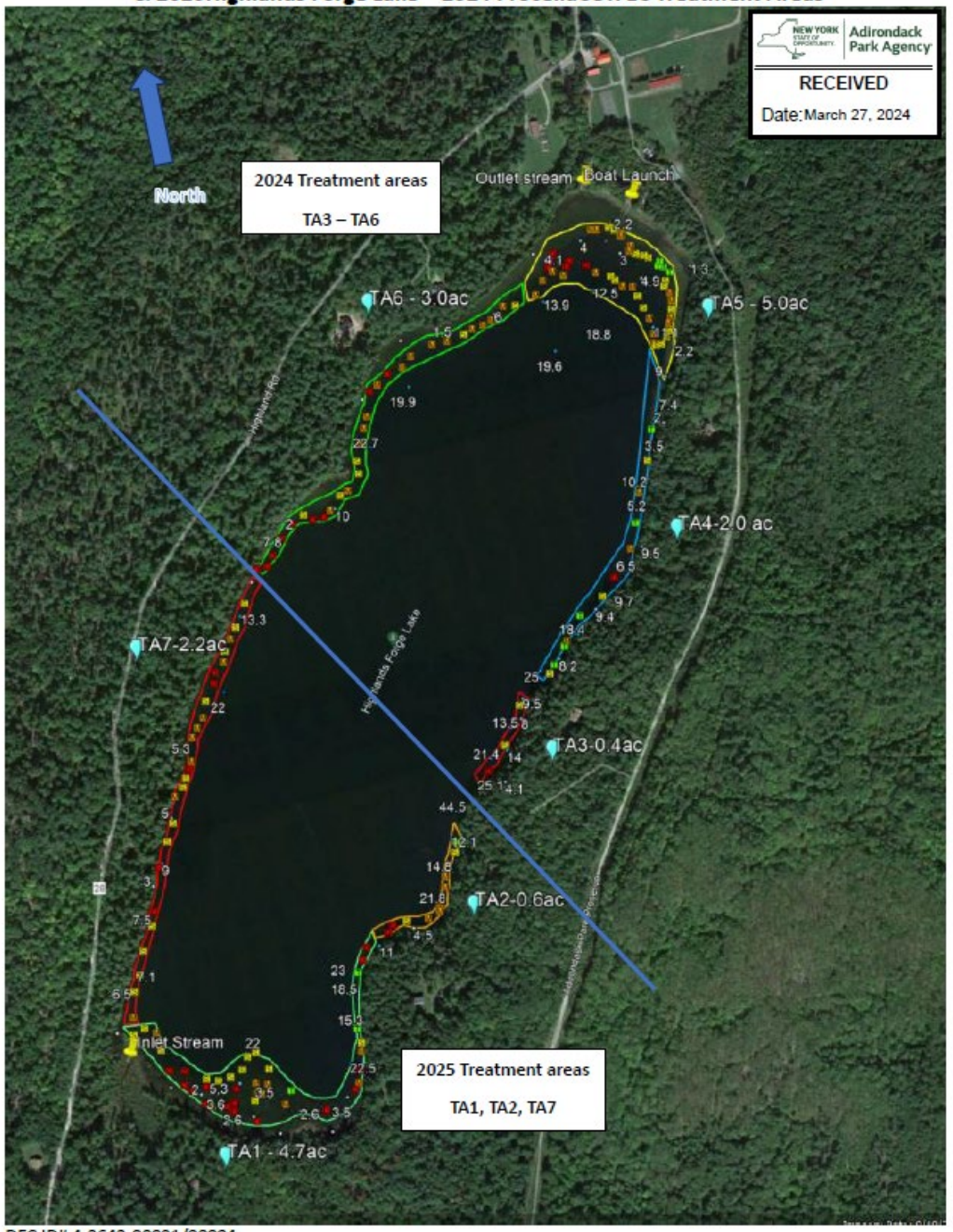


FIG. 30

& 2025Highlands Forge Lake – 2024 ProcellaCOR EC Treatment Areas



DEC ID# 4-3642-00021/00004

P2024-83: Highland Forge Lake Goals

By 2015 there was a serious infestation of Eurasian milfoil in the lake. Hand harvesting companies were called in …

… it became apparent that hand harvesting would not effectively control the issue. DASH methods were explored – but given the quick drop offs and large areas of milfoil living at its maximum depths – that proved to be difficult

Two family members live [Downstate] where the reservoirs have serious Eurasian milfoil infestations. ProcellaCOR was used in those bodies of water to great effect and by 2022, Highland Forests was reaching out to vendors to explain the product and explore its potential use.

P2024-83: Highland Forge Lake Residual Concentration

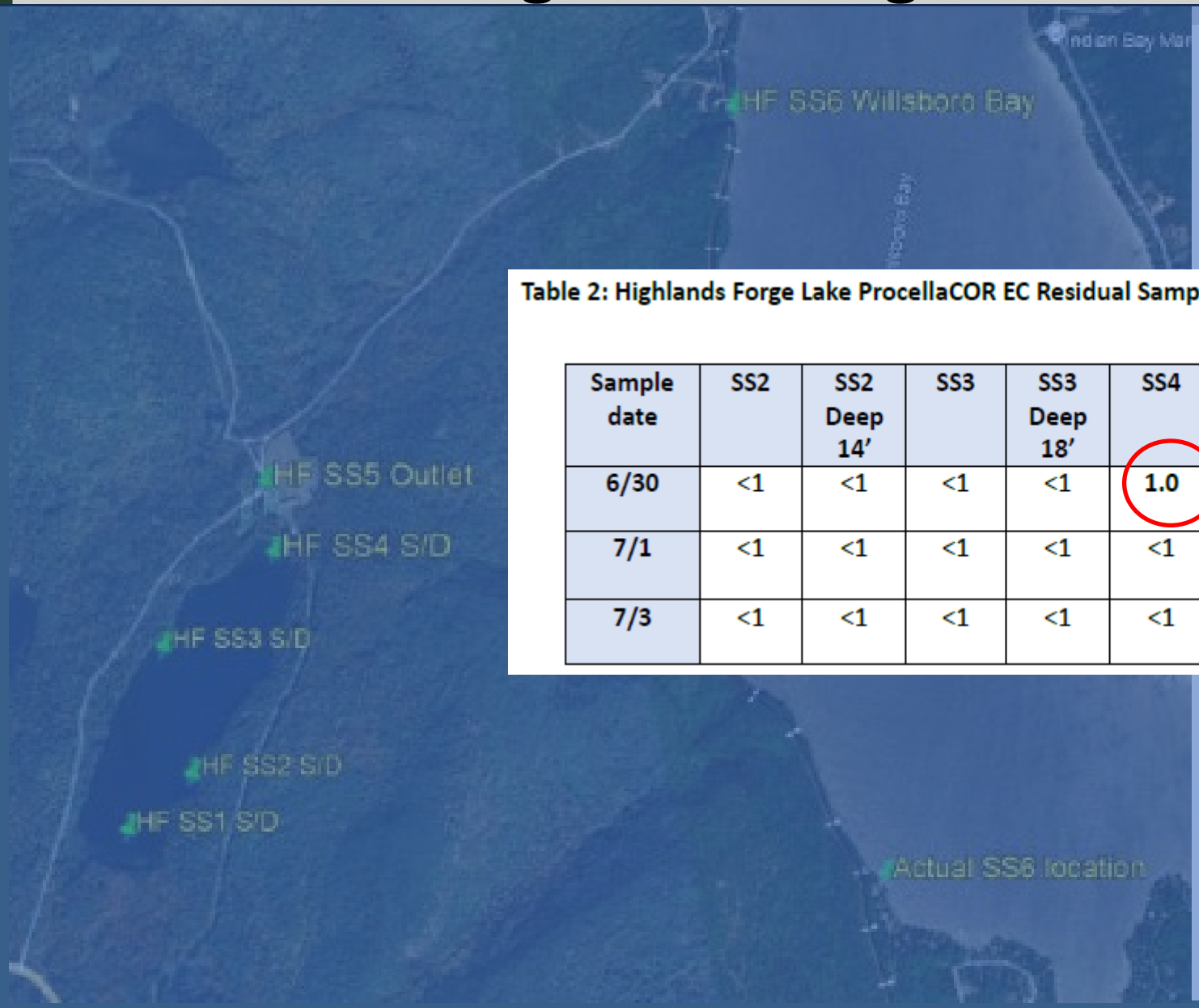


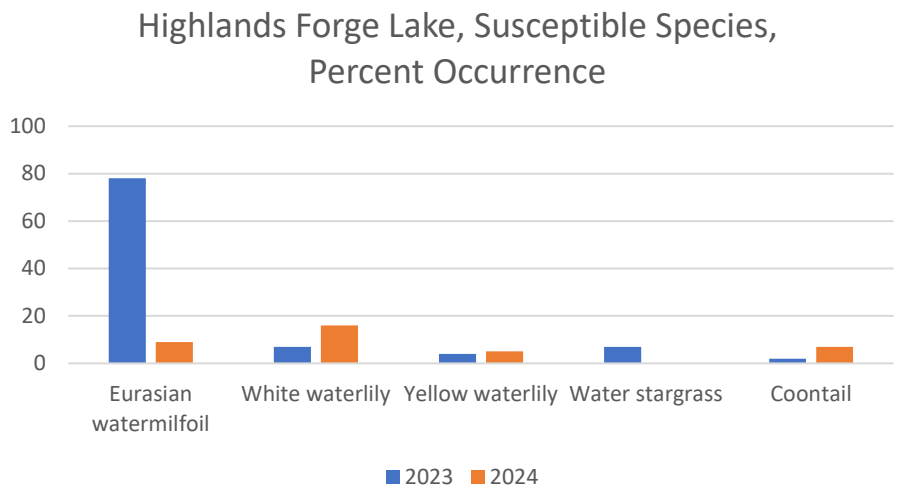
Table 2: Highlands Forge Lake ProcellaCOR EC Residual Sample results-(parts per billion)

Sample date	SS2	SS2 Deep 14'	SS3	SS3 Deep 18'	SS4	SS5	SS6
6/30	<1	<1	<1	<1	1.0	<1	n/a
7/1	<1	<1	<1	<1	<1	<1	n/a
7/3	<1	<1	<1	<1	<1	<1	<1

P2024-83: Highland Forge Lake Plant Surveys

Highlands Forge Lake 2023 & 2024 Aquatic Plant Species – Frequency of Occurrence

Aquatic Macrophyte	Total	
	2023	2024
Total Sites	54	57
Overall Abundance	91%	86%
Eurasian Watermilfoil	78%	9%
Common Waterweed	7%	21%
Flat-stem Pondweed	2%	2%
Muskgrass	11%	19%
Clasping Leaf Pondweed	15%	11%
White Waterlily	7%	16%
Robbins Pondweed	0%	9%
Southern Naiad	33%	54%
Leafy Pondweed	0%	2%
Variable-leaf Pondweed	22%	21%
Eelgrass	6%	18%
Largeleaf Pondweed	39%	19%
Yellow Water Lily	4%	5%
Ribbonleaf Pondweed	2%	2%
Bushy Naiad	0%	4%
Western Waterweed	0%	2%
Coontail	2%	7%
Pipewort	0%	4%
Bur-reed	2%	4%
Cattail	6%	4%
Illinois Pondweed	17%	0%
Sago Pondweed	2%	0%
Water Stargrass	7%	0%
Arrowhead	4%	0%
Spike Sedge	4%	0%
Common Reed	2%	0%



P2024-83: Highland Forge Lake Key Points

- Post Treatment EWM occurrence was 9%, but all EWM plants were dying
- Residual product degraded as expected
- Non-target impacts appeared to be limited
- Continued discussions with upstream neighbors (Long Pond) about EWM Management
- Will install a filtration device on inlet stream to Highlands Forge Pond
- Have retained Ready Scout for lake management consultations and future surveys
- In communication with vendors for future hand harvest control if/when needed

P2023-17: LGPC, Sheep Meadow (Jelliffe-Knight Bay)

P2023-17; Sheep Meadow Bay

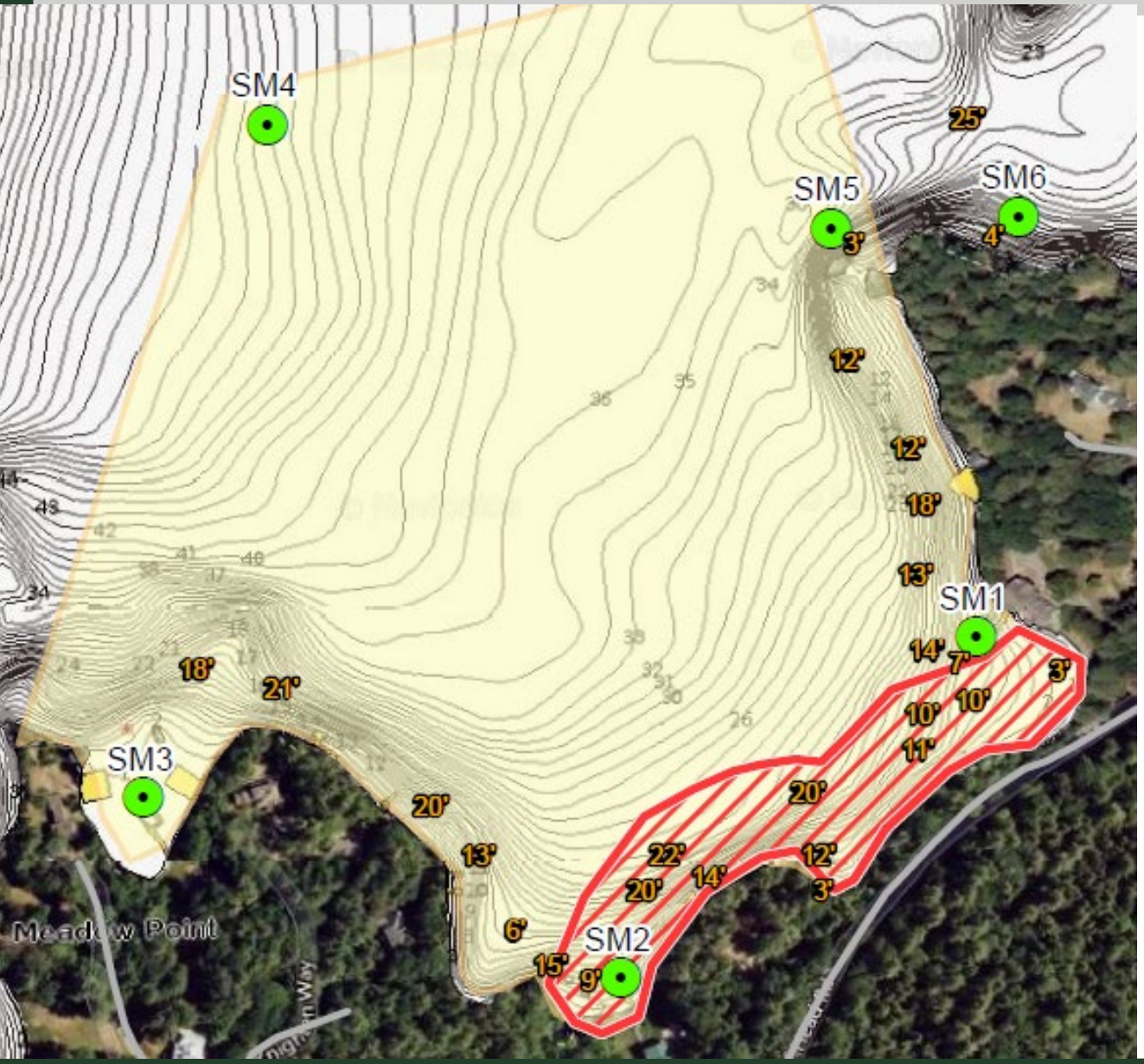
- One treatment area: 3.6 Acres
- Treatment: 6/28/2024
- Post-Survey: 8/19/2024

P2023-17; LGPC Sheep Meadow Bay Goals

"The short-term goal is to eliminate the vast majority of milfoil in the two treatment areas, allowing for a much more cost-efficient and minimally impacting system to control milfoil growth and expansion

"The longer-term goal is to show that this treatment methodology could cost-effectively be applied to other affected areas of Lake George that have shown resistance to traditional milfoil removal methods, while having no impact to public health, recreation or the environment."

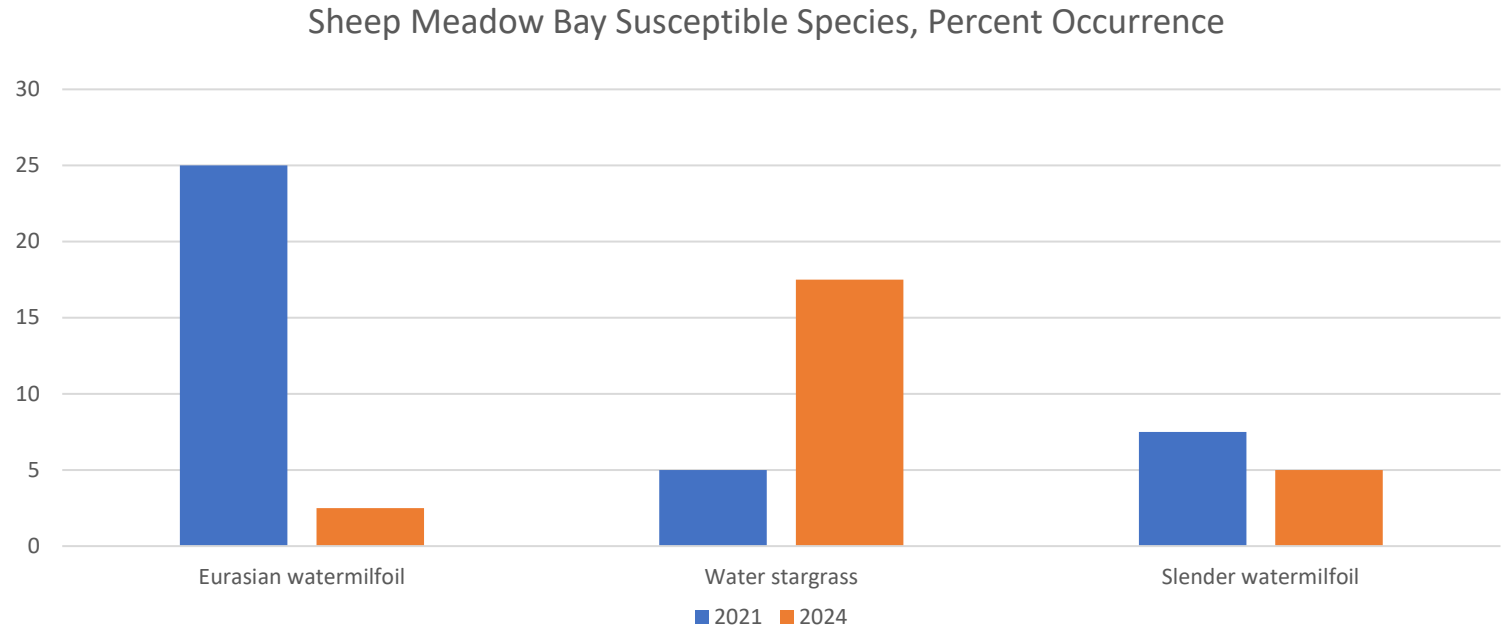
P2023-17; Sheep Meadow Concentration Monitoring



Site	Depth (Ft)	1-3 HAT	10-12 HAT	24 HAT	3 DAT
SM1	1.5	<1	<1	<1	<1
SM1	9	<1	1	<1	<1
SM2	1.5	3	<1	<1	<1
SM2	9	12	<1	<1	<1
SM3	1.5	<1	<1	<1	<1
SM3	6	<1	2.1	<1	<1
SM4	1.5	<1	<1	<1	<1
SM4	51	<1	<1	<1	<1
SM5	1.5	<1	<1	<1	<1
SM5	34	<1	<1	<1	<1
SM6	1.5	<1	<1	<1	<1
SM6	10	<1	<1	<1	<1

P2023-17; Sheep Meadow Bay Plant Survey

Common Name	2021	2024
Slender naiad	52.5	70
Grassy pondweed	25	35
Robbins pondweed	27.5	32.5
Eelgrass	22.5	27.5
Stonewort	20	22.5
Narrowleaf pondweed	2.5	22.5
Canadian waterweed	12.5	17.5
Northeastern bladderwort	12.5	17.5
Water stargrass	5	17.5
Southern naiad		15
Narrowleaf pondweed	10	15
Flatstem pondweed	15	15
Spikerush	12.5	12.5
Largeleaf pondweed	5	12.5
Narrowleaf pondweed	10	12.5
Pipewort	5	10
Narrowleaf pondweed	5	10
Clasping leaf pondweed	12.5	10
Longbeak buttercup	7.5	10
Muskgrass	15	7.5
Brown fruit rush	10	5
Water marigold	12.5	5
Slender watermilfoil	7.5	5
White stem pondweed	2.5	5
Lake Quillwort	7.5	2.5
Eurasian watermilfoil	25	2.5
Spiny Quillwort	5	

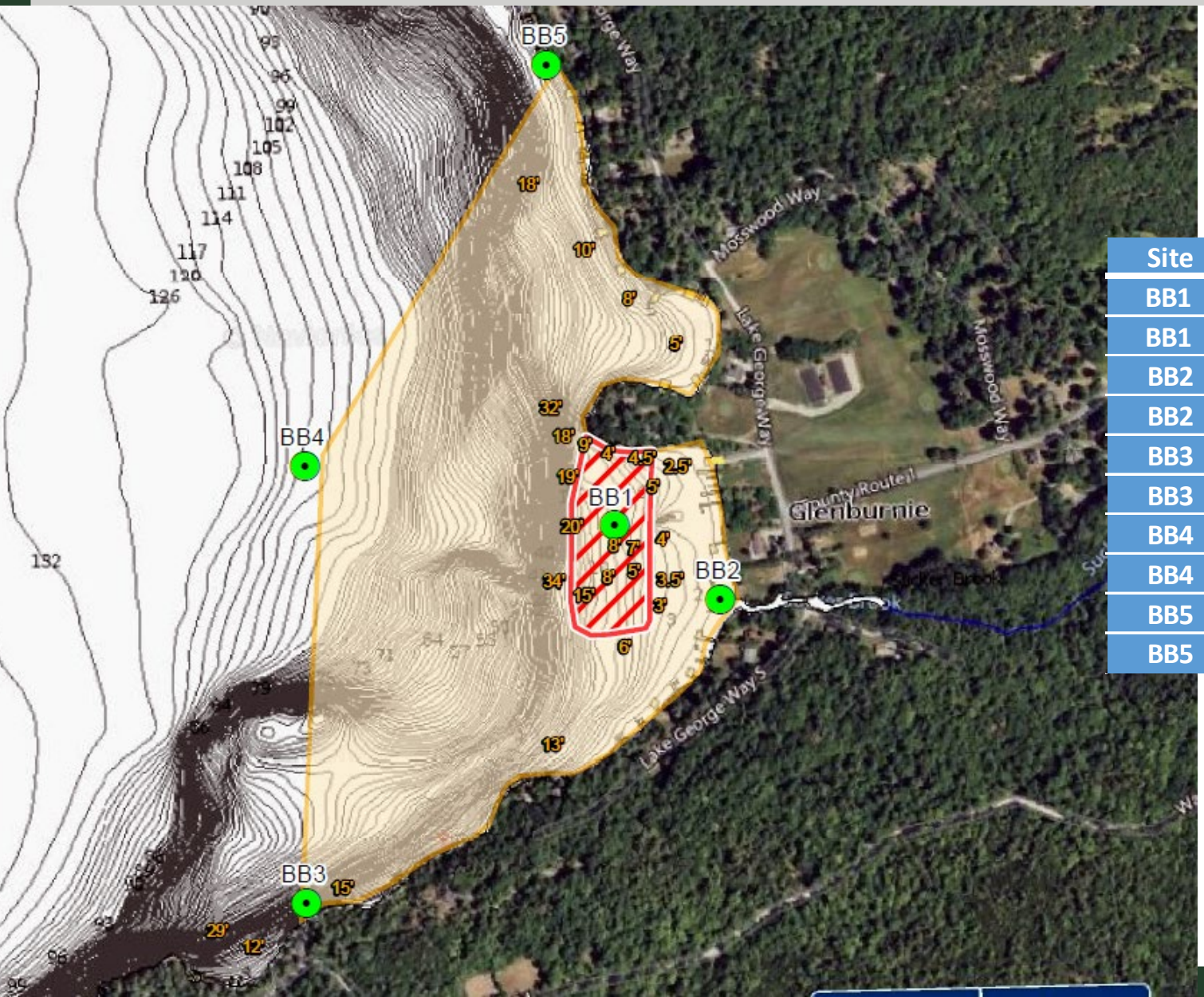


P2023-17; LGPC Sheep Meadow Bay Key Points

- Post Treatment EWM occurrence of 2.5%, entirely outside the treatment area
- Residual product degraded as expected
- Non-target impacts appear to be limited
- 2025 – Continued Monitoring

P2023-18: LGPC, Blair's Bay

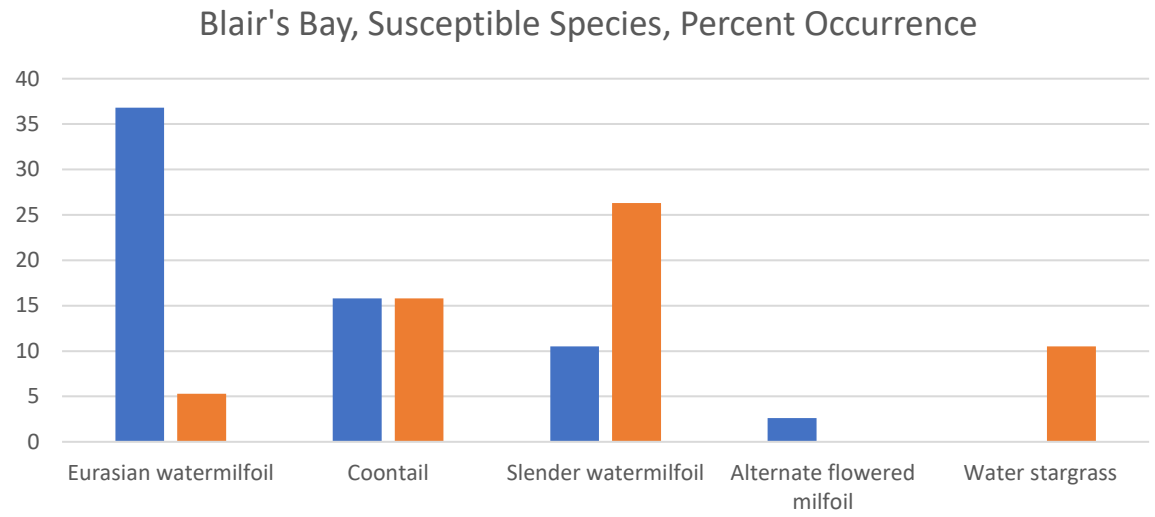
P2023-0018; LGPC Blair's Bay Concentration Monitoring



Site	Depth (Ft)	1-3 HAT	10-12 HAT	24 HAT	3 DAT
BB1	1.5	<1	<1	<1	<1
BB1	9	<1	<1	<1	<1
BB2	1.5	7.9	<1	<1	<1
BB2	2.5	8.8	<1	<1	<1
BB3	1.5	<1	<1	<1	<1
BB3	21	<1	<1	<1	<1
BB4	1.5	<1	<1	<1	<1
BB4	110	<1	<1	<1	<1
BB5	1.5	<1	<1	<1	<1
BB5	7	<1	<1	<1	<1

P2023-18: LGPC, Blair's Bay Plant Surveys

Common Name	2021	2024
Eurasian watermilfoil	36.8	5.3
Slender naiad	36.8	50
Robbins pondweed	34.2	47.4
Muskgrass	21.1	21.1
Stonewort	18.4	29
Eelgrass	18.4	47.4
Coontail	15.8	15.8
Longbeak buttercup	15.8	18.4
Northeastern bladderwort	15.8	18.4
Grassy Pondweed	15.8	65.8
Brown fruit rush	13.2	7.9
Largeleaf pondweed	13.2	29
Narrowleaf pondweed 3	10.5	5.3
Narrowleaf pondweed 4	10.5	5.3
Slender watermilfoil	10.5	26.3
Canadian waterweed	7.9	5.3
Clasping leaf pondweed	7.9	10.5
Narrowleaf pondweed 2	5.3	15.8
Quillwort	5.3	10.5
White stemmed pondweed	5.3	5.3
Narrowleaf pondweed 1	5.3	26.3
Flatstem pondweed	5.3	2.6
Spikerush	2.6	26.3
Pipewort	2.6	5.3
Alternate flowered milfoil	2.6	
Southern naiad	2.6	10.5
Water marigold	2.6	2.6
Water stargrass		10.5
Water moss		2.6
Spiny quillwort		2.6
Grass leaved arrowhead		2.6



P2023-18; LGPC Blair's Bay Key Points

- Post Treatment EWM occurrence of 5.3%, mostly outside the treatment area
- Residual product degraded as expected
- Non-target impacts appear to be limited
- 2025 – Continued Monitoring

Lake George Dive Videos

Conclusions/Takeaways

- ProcellaCor is effective against Eurasian watermilfoil
- Lake systems are dynamic: Plant populations respond to many variables
- Residual concentration monitoring shows degradation as anticipated. Depth samples are unnecessary
- Non-target impacts are generally consistent with expectations.
- Species richness is generally high, with native species present to fill gaps left by EWM
- People are dynamic: Standardized methods are important, but survey work may vary
- Licensed professional applicators are vital, to strategically apply the product with treatment day conditions in mind

NEW YORK STATE

Adirondack Park Agency