SŌLITUDE
LAKE MANAGEMENT

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
LAKES & PONDS PROGRAM

Aquatic Nuisance Control Permitting Approved
2024.06.17 12:37:46 -04'00'

Date: June 14, 2024

To: Olin Reed, VT DEC Lakes and Ponds

From: Marc Bellaud, Director of Technical Services

Cc: Pat Suozzi – Lake Iroquois Association

Re: Notification of Treatment – Lake Iroquois (ANC Permit No. 3038-ANC-C)

Please accept this as the final treatment plan for the ProcellaCOR EC herbicide treatment of Eurasian watermilfoil (*Myriophyllum spicatum*, EWM) in Lake Iroquois during the 2024 season.

The attached map shows the final treatment areas for the 2024 season, as well as the proposed FasTEST water sample location map for approval. A treatment date of Tuesday, July 16, 2024 is scheduled. The abutter and downstream notices were sent by a mailing service and were postmarked on 6/14/24. Posting of warning signs will be handled by the Lake Iroquois Association. Copies of public notifications are attached. The pre-treatment survey was conducted on June 4, 2024 by Larry Eichler and on June 5, 2024 by SOLitude to verify and finalize the treatment areas.

Summary of Treatment Area EWM

This will be the second herbicide treatment performed at Lake Iroquois. The initial treatment performed in 2021 provided three years of effective EWM suppression. A report prepared by Larry Eichler is attached that documents the distribution of EWM and the presence and distribution of non-target, native species.

During SOLitude's inspection on June 5th, we marked locations and edges of dense EWM growth in order to determine the treatment areas.

Area A - North End - 25.98 acres: This supported the most growth of EWM that was seen in the lake. The north end of the lake is relatively shallow overall and supports moderate to dense native plant growth as documented by Larry Eichler's surveys. The treatment area is intentionally pulled away from shore and outside of the shoreline beds of white waterlily and spatterdock, to limit off-target impacts.

Area B - East Cove - 0.13 acres: This is a small area of dense EWM growth. Treatment is desired to limit spread to nearby shallow areas.

Area C - Sunken Island - 2.6 acres: This is a sunken island/rock pile area in the middle of the lake that has historically supported EWM growth. The EWM is moderate to dense in this area and the rocky bottom is difficult for DASH or Hand-Pulling operations.

Area D - South Cove - 3.1 acres: This cove has moderate to dense growth EWM along with robust native plant growth dominated by pondweeds and waterweed..

As described in the permit application, we are planning to apply area-selective treatments of ProcellaCOR EC (3 PDU/ac-ft or 5.79 ppb/ac-ft). A copy of the dosing table is provided below:

SITE	DESCRIPTION	ACREAGE	AVG DEPTH	TYPE	RATE	PDUs
A	North End	25.98	7	ProcellaCOR EC	3	545.58
B	East cove	0.13	5	ProcellaCOR EC	3	1.95
C	Center	2.60	7	ProcellaCOR EC	3	54.6
D	South cove	3.10	6	ProcellaCOR EC	3	55.8
	TOTALS	*31.81*				657.93

The total area being targeted for herbicide treatment is 31.81 acres, which is ~~3%~~ of the total lake area (~~985 acres~~) and ~~4.8%~~ of the lake's littoral zone (100 acres). An additional 5.25 acres are potentially targeted for DASH work. The total area being managed is less than 40% of the lake's littoral zone.

12.9% of the total lake area (247 acres), and 31.81% of the lake's littoral zone (100 acres) -OR 6/17/20204

The liquid ProcellaCOR EC herbicide will be diluted with lake water in an onboard mixing tank and applied subsurface using trailing hoses.

The treatment is expected to be completed in one work day beginning at 12-1 pm and ending at approximately 3-4 pm. The State boat launch on the northwest shoreline off of Beebe Lane will serve as the base of operations. We will take a temperature/dissolved oxygen profile immediately prior to treatment.

Spread Prevention Measures

Please accept the following as written documentation of the spread prevention measures that we intend to employ, in accordance with the general conditions.

Prior to each treatment, all boats and equipment that will be used in the water will be:

- Inspected and all plants, plant fragments and animals will be removed
- The plug will be removed and the bilge water will be drained

- The boat hull, motor, and all spray equipment that will be placed in the water will be thoroughly washed with "Formula 409 Cleaner Degreaser Disinfectant" or similar and rinsed with a pressure washer

Upon completion of the treatment and once the boat is loaded back onto the trailer, the boat and equipment will be:

- Inspected and all plants, plant fragments and animals will be removed
- The plug will be removed and the bilge water will be drained
- The boat hull, motor, and all spray equipment that was placed in the water will be sprayed with "Formula 409 Cleaner Degreaser Disinfectant" or similar
- The boat and equipment will be more thoroughly washed and re-inspected upon return to its home SŌLitude office and before being used on another waterbody

Attached Documents

- 2024 June Survey Report by Larry Eichler
- 2024 Treatment Area Map
- 2024 Management Area Map
- 2024 Wetlands and Littoral Zone Map
- 2024 FasTEST Sample Locations Map
- 2024 Treatment Poster
- 2024 Abutters Notice

Please feel free to contact Marc Bellaud (508-865-1000, mbellaud@solitudelake.com) immediately if you require any additional information for this treatment notice.

Figure 1. Iroquois Lake 2024 ProcellaCOR EC Treatment Areas

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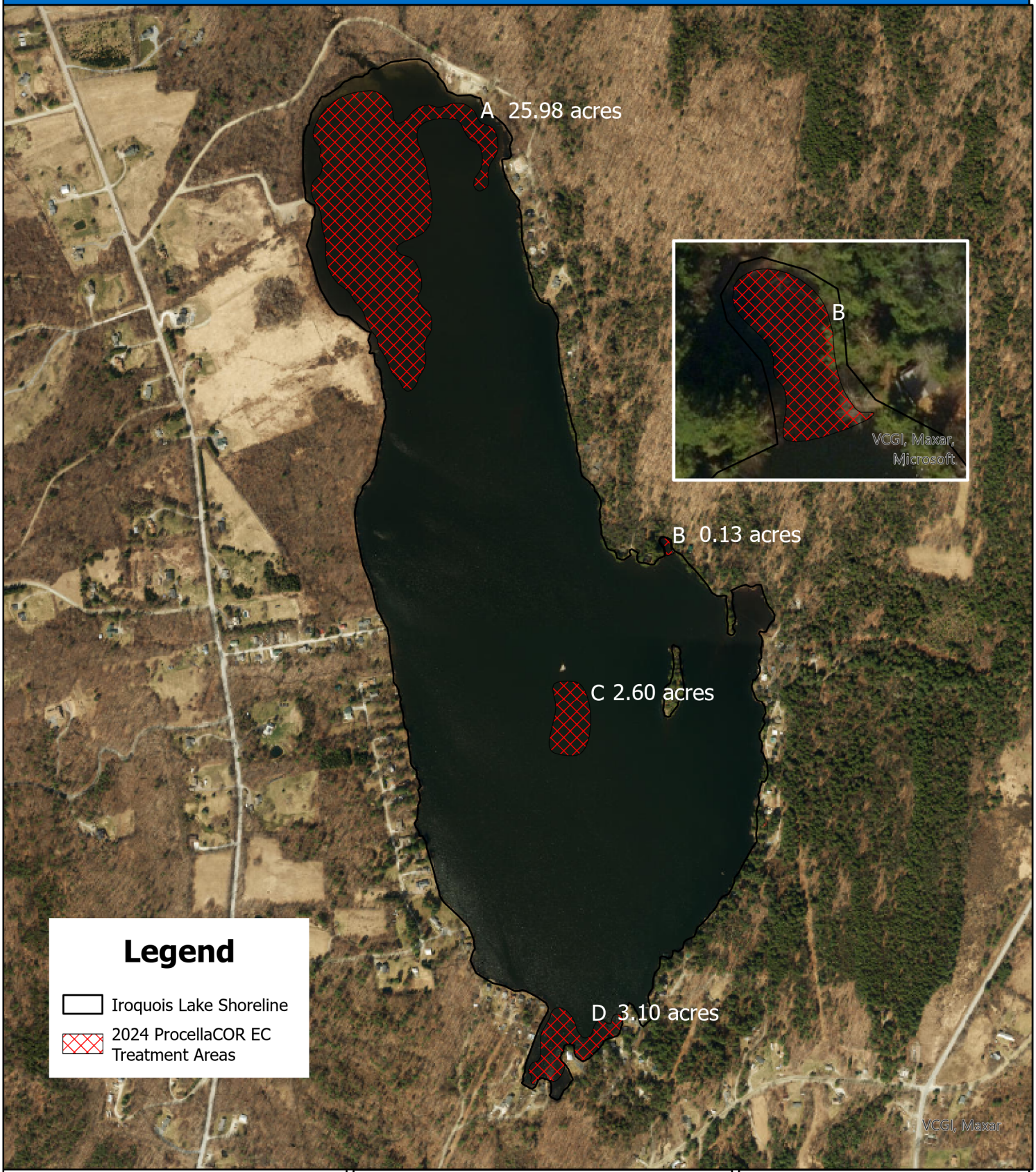

IROQUOIS LAKE
Williston/Hinesburg/Richmond, Vermont
Chittenden County
Center: 73°5'4"W 44°22'12"N

N

IROQUOIS LAKE
0 0.13 0.25
Miles
Scale: 1:10,646

Survey Date: 6/5/2024
Prepared by: E. Vulgamore
Office: SHREWSBURY, MA

Iroquois Lake 2024 Eurasian Watermilfoil Pre-treatment Survey

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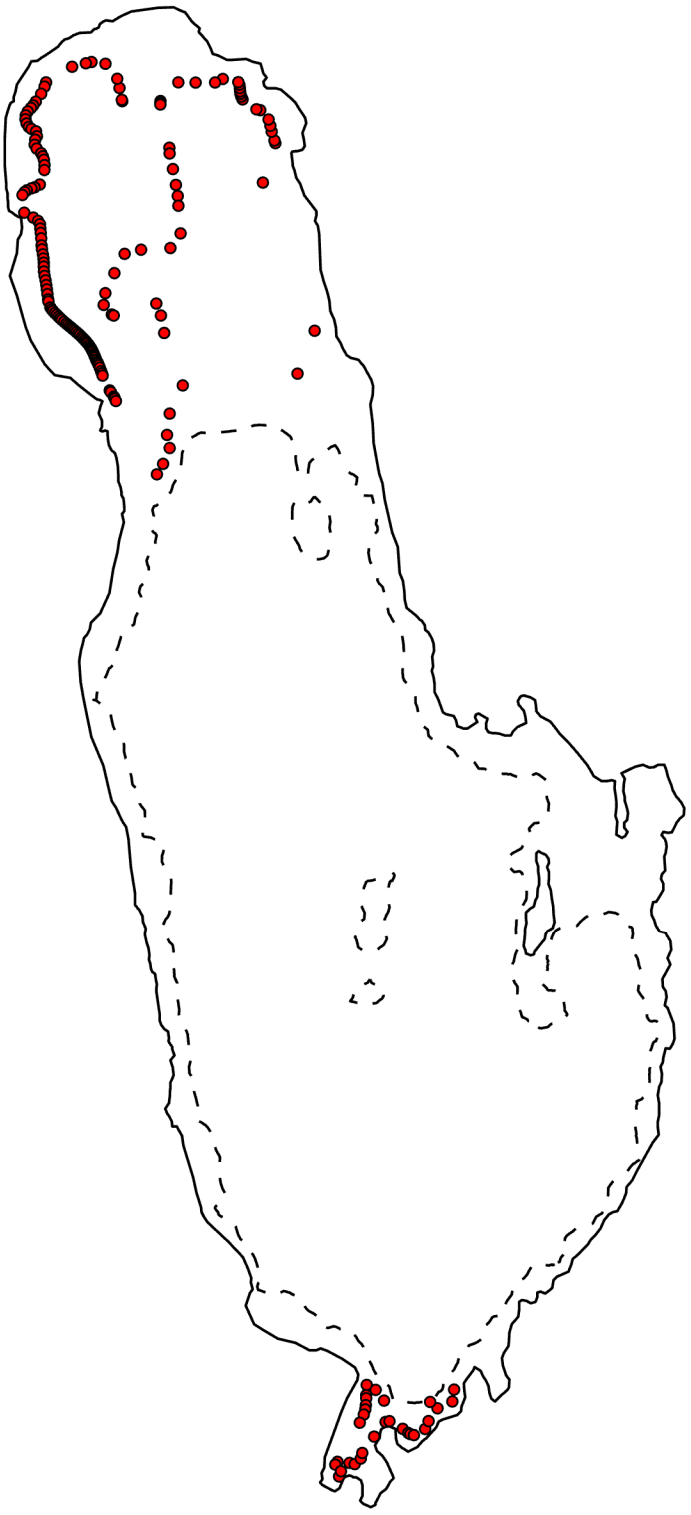

Legend

- Eurasian Watermilfoil Survey Points
- Littoral Zone
- Iroquois Lake Shoreline

IROQUOIS LAKE
Williston/Hinesburg/Richmond, Vermont
Chittenden County
Center: 73°5'4"W 44°22'12"N

N

IROQUOIS LAKE
0 0.13 0.25 Miles
Scale: 1:10,646

Survey Date: 6/5/2024
Prepared by: E. Vulgamore
Office: SHREWSBURY, MA

Figure 3. Iroquois Lake 2024 FasTEST Sample Locations

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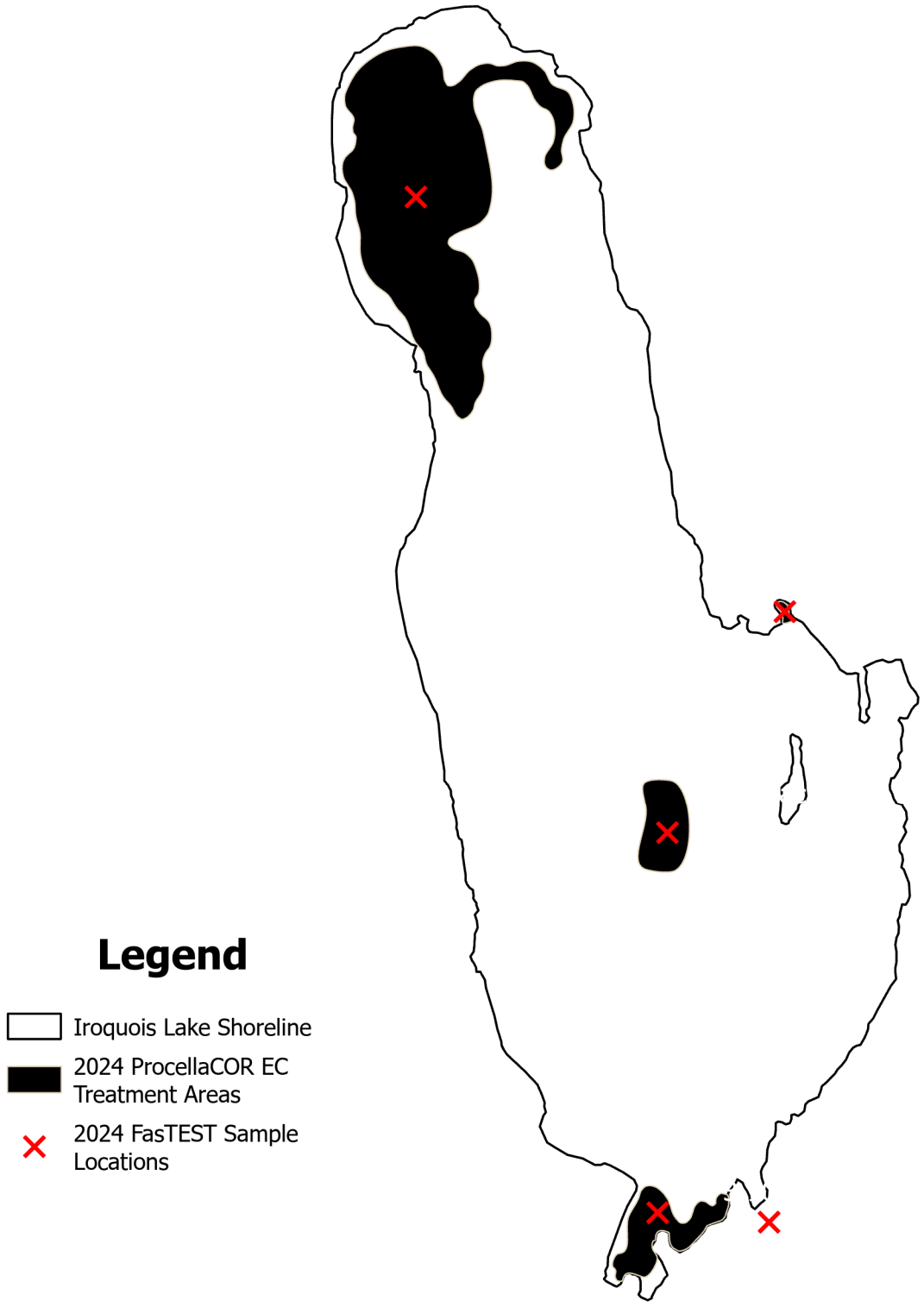

Legend

- Iroquois Lake Shoreline
- 2024 ProcellaCOR EC Treatment Areas
- 2024 FasTEST Sample Locations

IROQUOIS LAKE
Williston/Hinesburg/Richmond, Vermont
Chittenden County
Center: 73°5'4"W 44°22'12"N

N

IROQUOIS LAKE

0 0.13 0.25 Miles

Scale: 1:10,646

Survey Date: 6/5/2024
Prepared by: E. Vulgamore
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Figure 2. Iroquois Lake 2024 Wetlands and Littoral Zone

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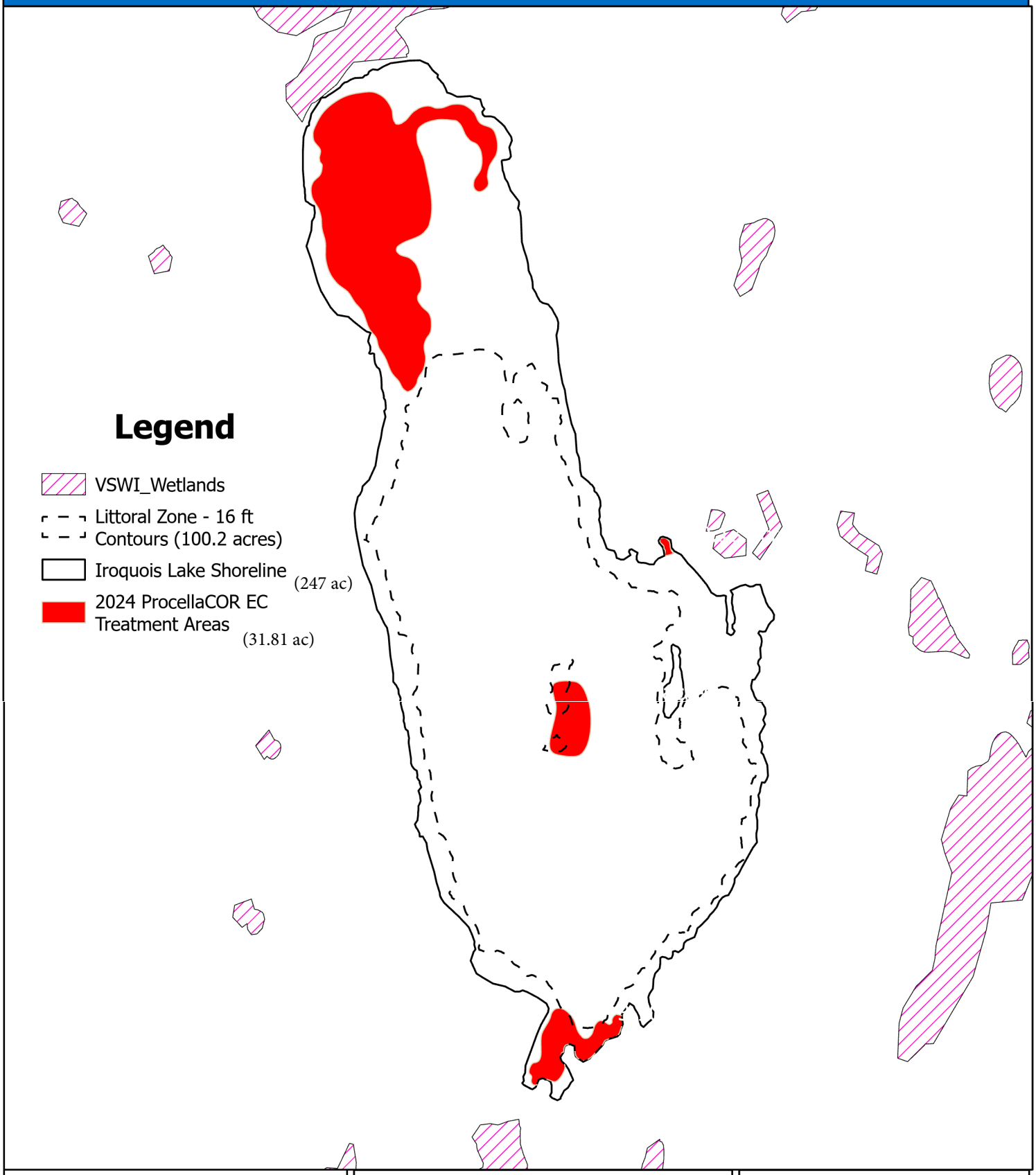

IROQUOIS LAKE
Williston/Hinesburg/Richmond, Vermont
Chittenden County
Center: 73°5'4"W 44°22'12"N

N

IROQUOIS LAKE
0 0.13 0.25 Miles
Scale: 1:10,646

Survey Date: 6/5/2024
Prepared by: E. Vulgamore
Office: SHREWSBURY, MA

Iroquois Lake 2024 Management Areas - DASH and/or Hand Pulling

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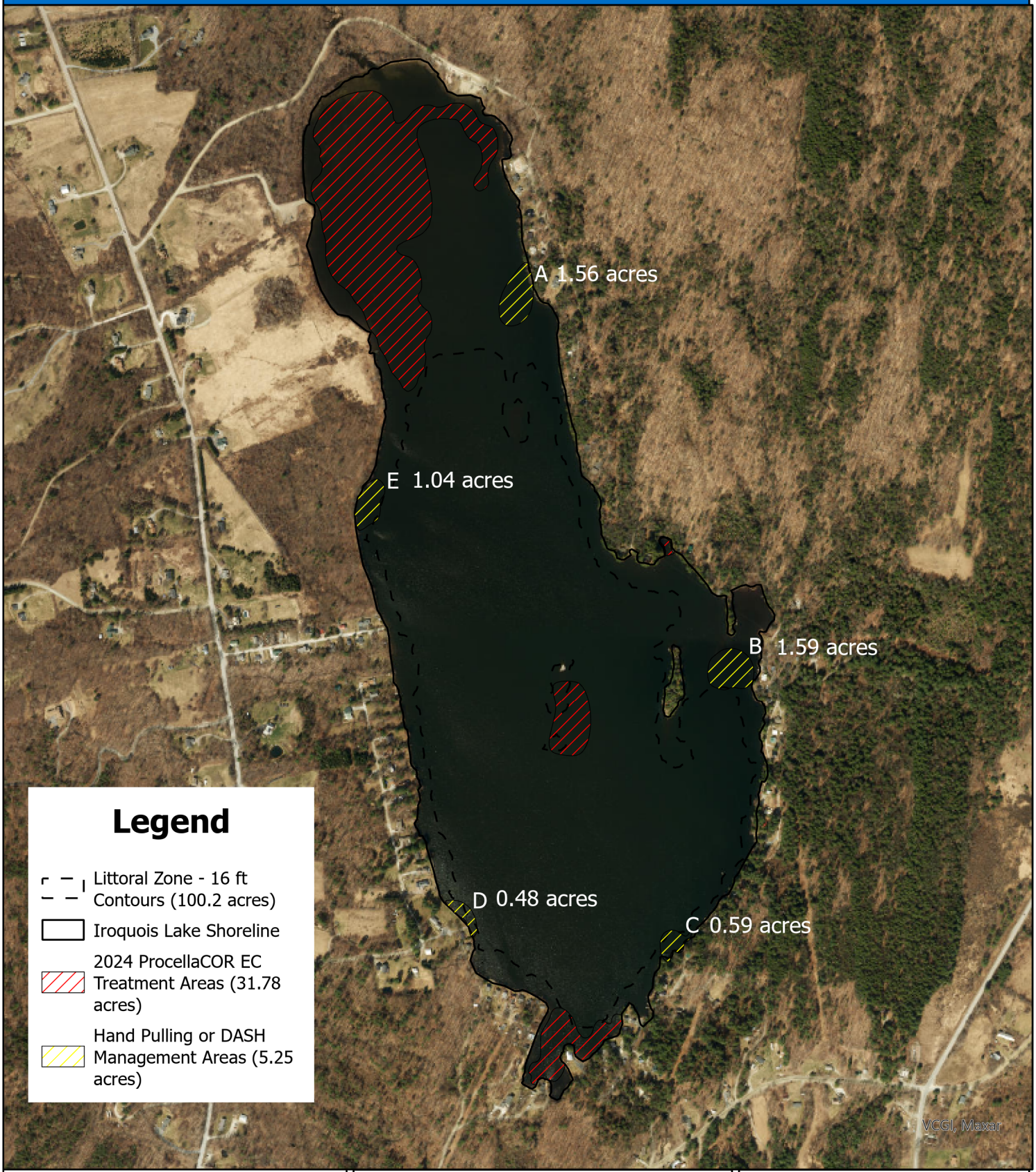


Legend

- Littoral Zone - 16 ft Contours (100.2 acres)
- Iroquois Lake Shoreline
- 2024 ProcellaCOR EC Treatment Areas (31.78 acres)
- Hand Pulling or DASH Management Areas (5.25 acres)

IROQUOIS LAKE
Williston/Hinesburg/Richmond, Vermont
Chittenden County
Center: 73°5'4"W 44°22'12"N

N

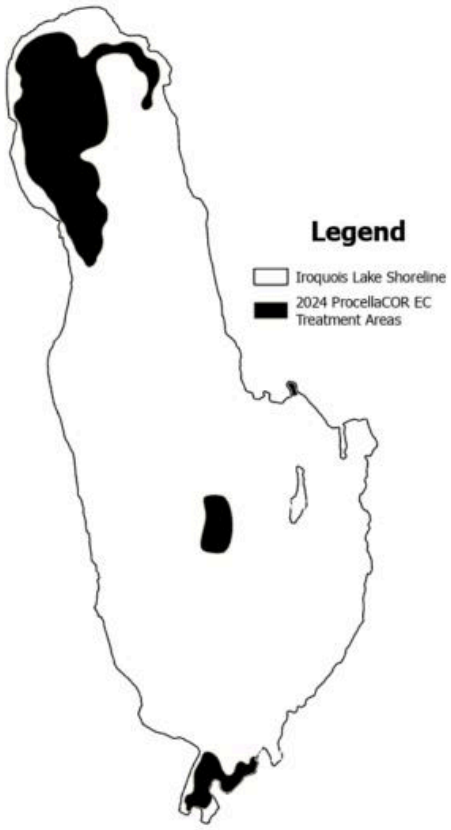
IROQUOIS LAKE
0 0.13 0.25 Miles
Scale: 1:10,646

Map Date: 6/12/2024
Prepared by: E. Vulgamore
Office: SHREWSBURY, MA

Advisory Notice and Map

The Lake Iroquois Association, Lake Iroquois Recreation District and SŌLitude Lake Management plan to conduct an aquatic herbicide treatment using SePRO **ProcellaCOR® EC** (active ingredient florpyrauxifen-benzyl) in Lake Iroquois as authorized under Aquatic Nuisance Control Permit #3038-ANC-C.

The target date/time for the initial treatment is **Tuesday, July 16, 2024 beginning at 1:OO p.m.**



Signs will be posted around the shoreline, along adjacent roadways; and at all public and private campgrounds and access points with the exact treatment date/time and updated use advisories.

Lake Water Advisory Use Restrictions

- It is recommended there be NO USE of Lake Iroquois waters and water from the outlet stream FOR ANY PURPOSE on the day of treatment including boating, fishing, swimming, domestic (household) use, or irrigation.
- It is recommended that swimming/wading, boating, fishing and domestic (household) use may resume 24 hours after completion of treatment.
- It is recommended there be NO USE of water from Lake Iroquois and from the outlet stream FOR RESIDENTIAL AND OTHER NON-AGRICULTURAL IRRIGATION beginning the day of treatment and continuing until notification is provided that the active ingredient in SePRO ProcellaCOR® EC is at or below 2 parts per billion OR until after a 7-day waiting period has passed, whichever is longer. Established turf may be irrigated immediately after treatment.

The exact duration of the above recommendations on this Notice is subject to change. Please refer to the posted signs and the website listed below for up-to-date information regarding water use recommendations. Bottled water is available upon request by the Lake Iroquois Association (contact information below) to any person recommended from using their domestic water supply for drinking or food or drink preparation on the day of treatment only. IF A RESIDENCE OR PROPERTY IS LEASED, RENTED OR USED at any time after the initial treatment until December 31, 2024, the property owner is responsible for informing all transient users of the treatment and these advisory water-use recommendations. Any person who chooses to ignore these use advisories does so at their own risk.

Please refer to www.solitudelakemanagement.com/vermont or www.lakeiroquois.org for additional information and updated water use advisories and recommendations.

For additional information contact:

Marc Bellaud
SŌLitude Lake Management
590 Lake Street
Shrewsbury, MA 01545
Office: 508-865-1000

Pat Suozzi
Lake Iroquois Association
info@lakeiroquois.org
PO Box 569
Hinesburg, VT 05461
Phone: 802-355-2411

Olin Reed
Dept. of Environmental Conservation
1 National Life Drive
Montpelier, VT 05602
Phone: 802-490-6199

WARNING
AQUATIC PESTICIDE IN USE

Due to aquatic herbicide use in Lake Iroquois with SePRO ProcellaCOR EC (active ingredient florpyrauxifen-benzyl), authorized under Aquatic Nuisance Control Permit #3038-ANC-C, the following advisory water use recommendations are in effect for the entire lake and outlet stream.

LAKE WATER ADVISORY USE RECOMMENDATIONS

- NO USE of Lake Iroquois waters and water from the outlet stream FOR ANY PURPOSE including boating, fishing, swimming, domestic (household) use or irrigation, the day of treatment on:

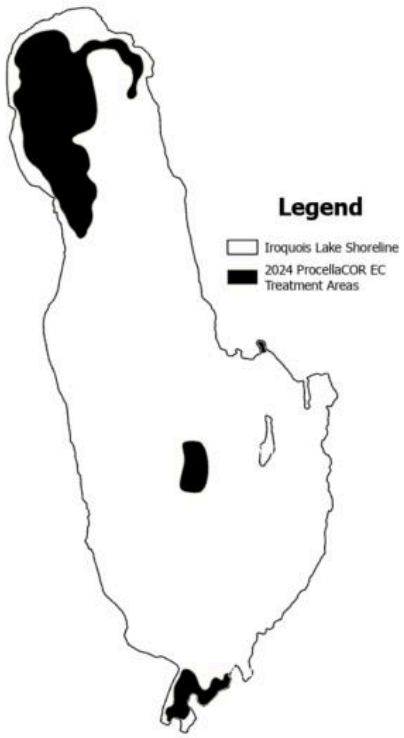
  Tuesday, July 16, 2024, beginning at 1 pm

- Swimming/wading, boating, fishing and domestic (household) use may resume on:

  Wednesday, July 17, 2024 beginning at 1 pm

- USE of water from Lake Iroquois FOR IRRIGATION PURPOSES including for watering lawns, trees, or other plants may resume on:

  Tuesday, July 23, 2024, beginning at 11 am
  or earlier based on sampling results, please refer to the website below for up-to-date results.



Please refer to www.solitudelakemanagement.com/vermont or www.lakeiroquois.org for additional information and updated water use advisories and recommendations.

Bottled water is available upon request by the Lake Iroquois Association (contact information below) to any person recommended from using their domestic water supply for drinking or food or drink preparation on the day of treatment only. Any person who chooses to ignore these use advisories does so at their own risk.

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Interim Report on the Aquatic Vegetation of Lake Iroquois, Chittenden County, Vermont

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Research Scientist
Lake George, NY 12845
(518) 793-8683
larryeichler678@gmail.com

1. Background.

At the request of the Lake Iroquois Association, Spring quantitative aquatic plant surveys were undertaken for Lake Iroquois, Vermont. The surveys occurred three years post-treatment following aquatic plant management efforts employing the herbicide ProcellaCOR EC in 2021 for Eurasian watermilfoil control. The survey largely duplicated the 2017, 2019, 2021, 2022 and 2023 surveys conducted by the author (Eichler 2017, 2019, 2021, 2022 and 2023). Frequency of occurrence and relative abundance data were recorded for all aquatic plant species present in points distributed throughout the lake. The Point-Intercept Rake Toss method presently used by the US Army Corps of Engineers and others was employed. The assessment ultimately will include the distribution and density of existing aquatic plant communities, the extent of exotic species infestation and a review of ongoing management efforts to control Eurasian watermilfoil (*Myriophyllum spicatum*).

2. Methods

2a. Species List and Herbarium Specimens. As the lake was surveyed, the occurrence of each aquatic plant species observed in the lake was recorded and herbarium specimens collected where necessary. Herbarium specimens were pressed, dried, and mounted (Hellquist 1993); and became part of the permanent collection at the Darrin Fresh Water Institute Laboratory in Bolton Landing, NY. All taxonomy is based on Crow & Hellquist, 2000.

2b. Point Intercept. The frequency and diversity of aquatic plant species were evaluated using a point intercept method (Madsen 1999). At each grid point intersection, all species located at that point were recorded, as well as water depth. Species were located by a visual inspection of the point and by deploying a rake to the bottom, and examining the plants retrieved. A total of 76 points were surveyed for Lake Iroquois, based on a 100 m grid. A global positioning system (GPS) was used to navigate to each point for the survey observation. Point intercept plant frequencies were surveyed on June 4, 2024 to provide three year post-treatment data. Data presented in the summary are on a whole-lake basis, and have not been adjusted for the littoral zone only.

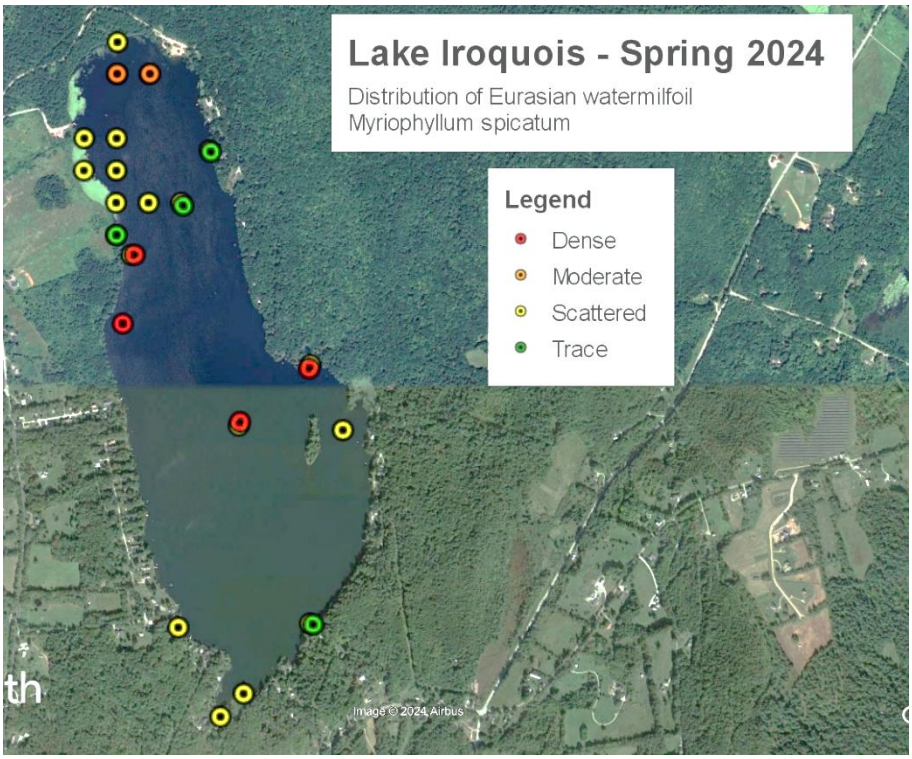
3. Results

3a. Species List. A total of 34 species of aquatic plants have been observed in Lake Iroquois (Table 1). The aquatic plant community of Lake Iroquois included twenty-four submersed species, three floating-leaved species, one floating species and six emergent species. Twenty-one species were reported for the Spring 2024 survey. This number of species exceeds the 15 species typically reported for moderately productive lakes in our region and indicates good water quality and a variety of habitat types. Two of the species present in Lake Iroquois, Humped

Bladderwort (*Utricularia gibba*) and White Watercrowfoot (*Ranunculus longirostris*) are found on Vermont's rare plant list (VT DEC 2022).

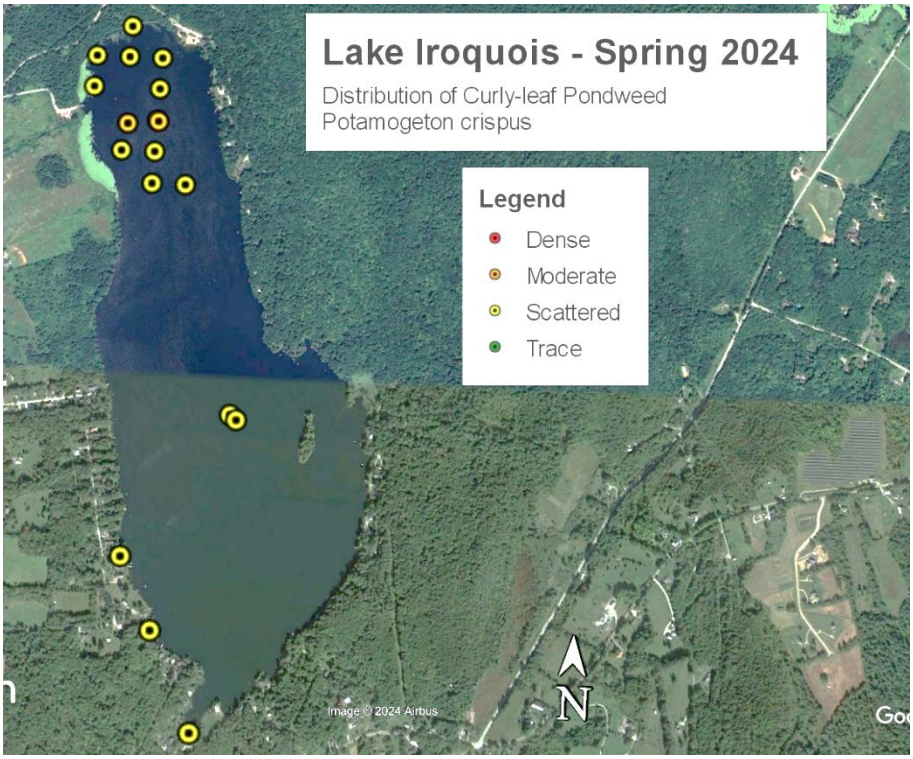
3b. Species Frequency. Species richness in Lake Iroquois remains high, with a number of species occurring in more than 5% of survey points (Table 2). For the June, three year post-treatment survey, waterweed (*Elodea canadensis*) was the most common plant (45% of survey points). Eurasian watermilfoil (*Myriophyllum spicatum*) was present in 28% of the survey points (Figure 1). Curly-leaf Pondweed, another invasive species, was present in 22% of survey points (Figure 2). Common native species in the June 2024 survey for Lake Iroquois included *Chara* (37% of survey points), *Zosterella dubia* (25%), *Potamogeton zosteriformis* (15%), *Potamogeton amplifolius* (12%), *Potamogeton foliosus* (11%), *Ceratophyllum demersum* (9%), *Potamogeton praelongus* (8%), *Nymphaea odorata* (8%), and *Eleocharis acicularis* (7%).

Figure 1. Distribution of Eurasian watermilfoil (*Myriophyllum spicatum*) in Lake Iroquois in June 2024.



3c. Distribution of Eurasian watermilfoil. Eurasian watermilfoil occurred throughout Lake Iroquois in the 2024 Spring survey prior to treatment, with scattered growth found from a minimum depth of 2 feet (0.5 m) to a maximum depth of 11 feet (3.5 m). Eurasian watermilfoil was absent from all survey points post-treatment in September of 2021 and June of 2022. In June of 2023, Eurasian watermilfoil was reported at 2 survey points (3%) at the south end of the lake (Figure 1). By the Spring 2024 survey, Eurasian watermilfoil had expanded to 28% of survey

Figure 2. Distribution of Curly-leaf Pondweed (*Potamogeton crispus*) in Lake Iroquois in June 2024.



points. Dense growth of Eurasian watermilfoil was found along the west shore from the north end of the waterski course southward along the shoreline. Dense growth was also observed around the rocky island in the center of the lake, in the bay north of the large island and in the southeastern bay. Moderate and scattered Eurasian watermilfoil growth also occurred at the north end of the lake.

A second invasive species, Curly-leaf Pondweed (*Potamogeton crispus*) was present in Lake Iroquois in the Spring 2024 survey. Reported in 22% of survey points, results indicate a slight increase from the 19% of survey points reported in 2023 and 16% reported in 2022. This species was found lake-wide, but most commonly at the north end of the lake (Figure 2). Curly-leaf Pondweed typically dominates early season samples, but completes it's life cycle by mid-July and dies back.

4. References

Crow, G.E. and C.B. Hellquist. 2000. Aquatic and wetland plants of northeastern North America. 2 Volumes. University of Wisconsin Press, Madison, WI.

Eichler, L.W. 2016. Aquatic vegetation of Lake Dunmore and Fern Lake, Vermont - 2016. Prepared for Vermont DEC & the Lake Dunmore Association. DFWI Technical Report 2016-11. Darrin Fresh Water Institute, Bolton Landing, NY.

Eichler, L.W. 2017. Aquatic vegetation of Lake Iroquois and Sunset Pond, Chittenden County, Vermont - 2017. Prepared for Vermont DEC & the Lake Iroquois Association. DFWI Technical Report 2017-6. Darrin Fresh Water Institute, Bolton Landing, NY.

Eichler, L.W. 2019. Aquatic vegetation of Lake Iroquois, Chittenden County, Vermont - 2019. Prepared for Vermont DEC & the Lake Iroquois Association. DFWI Technical Report 2019-10. Darrin Fresh Water Institute, Bolton Landing, NY.

Eichler, L.W. 2021. Aquatic vegetation of Lake Iroquois, Chittenden County, Vermont - 2021. Prepared for Vermont DEC & the Lake Iroquois Association. DFWI Technical Report 2021-2. Darrin Fresh Water Institute, Bolton Landing, NY.

Eichler, L.W. 2022. Aquatic vegetation of Lake Iroquois, Chittenden County, Vermont – 2022. Prepared for Vermont DEC & the Lake Iroquois Association. Prepared by L. Eichler, Scientific Consultant, Lake George, NY. October 2022.

Eichler, L.W. 2023. Aquatic vegetation of Lake Iroquois, Chittenden County, Vermont – 2023. Prepared for Vermont DEC & the Lake Iroquois Association. Prepared by L. Eichler, Scientific Consultant, Lake George, NY. September 2023.

Hellquist, C.B. 1993. Taxonomic considerations in aquatic vegetation assessments. Lake and Reserv. Manage. 7:175-183.

Madsen, J.D. 1999. Point intercept and line intercept methods for aquatic plant management. US Army Engineer Waterways Experiment Station Aquatic Plant Control Research Program Technical Note CC-02, Vicksburg, MS.

VT DEC. 2022. Rare and Uncommon Native Vascular Plants of Vermont. Vermont Natural Heritage Inventory. Vermont Fish & Wildlife Department. 4 May 2022. www.vtfishandwildlife.com/.../List_of_Rare_and_Uncommon_Native_Plants_of_Vermont.pdf

Table 1. Species list for Lake Iroquois.

Species Name	Common Name	Lake Iroquois
Brasenia schreberi	water shield	fl
Ceratophyllum demersum L.	Coontail	s
Chara sp.	muskgrass, chara	s
Eleocharis acicularis (L.) Roemer & Schultes	needle spike-rush	e
Elodea canadensis Michx.	Elodea	s
Isoetes echinospora Dur.	Quillwort	e
Lemna minor L.	Duckweed	f
Lemna trisulca L.	Duckweed	s
Megalodonta (Bidens) beckii Torr.	water marigold	s
Myriophyllum spicatum L.	Eurasian watermilfoil	s
Najas flexilis (Willd.) Rostk. & Schmidt.	bushy pondweed	s
Najas guadalupensis L.	southern naiad	s
Nuphar variegata	yellow pondlily	fl
Nymphaea odorata Ait.	white waterlily	fl
Polygonum amphibium	Smartweed	e
Pontederia cordata L.	pickerelweed	e
Potamogeton amplifolius Tuckerm.	largeleaf pondweed	s
Potamogeton crispus L.	curlyleaf pondweed	s
Potamogeton foliosus Raf.	Pondweed	s
Potamogeton natans L.	floating-leaf pondweed	s
Potamogeton perfoliatus L.	clasping-leaf pondweed	s
Potamogeton praelongus Wulfen	white-stem pondweed	s
Potamogeton pusillus L.	small pondweed	s
Potamogeton richardsonii Oakes	Richardsons' pondweed	s
Potamogeton spirillus Tuckerm.	Pondweed	s
Potamogeton zosteriformis Fern.	flat-stem pondweed	s
Ranunculus longirostris Godron	white watercrowfoot	s
Sparganium sp.	Burred	e
Typha sp.	cattail	e
Utricularia gibba L.	humped bladderwort	s
Utricularia vulgaris L.	great bladderwort	s
Vallisneria americana L.	wild celery	s
Zosterella dubia (Jacq.) Small	water stargrass	s

fl=floating leaved f=free floating e=emergent s=submersed

Table 2. Aquatic plant percent frequency by species for surveys of Lake Iroquois.

Species Name	Common Name	Spring 2021	Spring 2022	Spring 2023	Spring 2024
Ceratophyllum demersum L.	coontail	6.0%	5.5%	6.8%	9.2%
Chara sp.	muskgrass, chara	17.9%	42.5%	37.0%	36.8%
Eleocharis acicularis (L.) Roemer & Schultes	needle spike-rush	1.5%	6.8%	6.8%	6.6%
Elodea canadensis Michx.	elodea	26.9%	37.0%	27.4%	44.7%
Isoetes echinospora Dur.	quillwort		4.1%	2.7%	1.3%
Lemna trisulca L.	duckweed	3.0%	2.7%	5.5%	1.3%
Myriophyllum spicatum L.	Eurasian watermilfoil	23.9%		2.7%	27.6%
Nuphar variegata	yellow waterlily				1.3%
Nymphaea odorata Ait.	white waterlily	7.5%	8.2%	9.6%	7.9%
Polygonum amphibium	smartweed			1.4%	1.3%
Potamogeton amplifolius Tuckerm.	large-leaf pondweed	11.9%	9.6%	9.6%	11.8%
Potamogeton crispus L.	curly-leaf pondweed	19.4%	16.4%	19.2%	22.4%
Potamogeton foliosus Raf.	pondweed	1.5%	16.4%	13.0%	10.5%
Potamogeton perfoliatus L	clasping-leaf pondweed				2.6%
Potamogeton praelongus Wulfen	white-stem pondweed	7.5%	9.6%	12.3%	7.9%
Potamogeton zosteriformis Fern.	flat-stem pondweed	1.5%	8.2%	12.3%	14.5%
Ranunculus longirostris Godron	white watercrowfoot	1.5%	2.7%	2.7%	3.9%
Sparganium sp.	bBurreed	4.5%	1.4%	6.8%	1.3%
Typha sp.	Cattail	1.5%	1.4%	1.4%	1.3%
Utricularia vulgaris L.	great bladderwort	4.5%	5.5%	2.7%	1.3%
Vallisneria americana L.	wild celery	1.5%	4.1%	19.2%	3.9%
Zosterella dubia (Jacq.) Small	water stargrass	25.4%	19.2%	9.6%	25.0%