

Town of Richmond

Request for Special Appropriations

Request for Fiscal Year: 2027

Organization's Name: LAKE IROQUOIS ASSOCIATION, INC  
Address: PO Box 569  
City, State, Zip: Hinesburg, VT 05461  
Website address: www.lakeiroquois.org

A. GENERAL INFORMATION

1. Program Name: AQUATIC PLANT SURVEY  
2. Contact Person/Title: Jane Clifford

Telephone Number: 802-453-3810  
E-mail address: ejclifford@comcast.net

3. Total number of individuals served in the last complete fiscal year by this program:  
Lake Iroquois is open to all residents of Richmond  
4. Total number of the above individuals who are Town residents: \_\_\_\_\_  
Please attach any documentation that supports this number.

Percent of people served who are Town residents: \_\_\_\_\_

5. Amount of Request: \$ 2000.  
6. Total Program Budget: \$ 5000.- Percent of total program budget you are requesting from the Town of Richmond: \_\_\_\_\_

7. Please state or attach the mission of your agency: MISSION IS FOR A HEALTHY LAKE THROUGH RESEARCH, EDUCATION AND ACTION

8. Will the funding be used to:  
 Maintain an existing program \_\_\_\_\_ Expand an Existing Program  
\_\_\_\_\_ Start a new program

9. Has your organization received funds from the Town in the past for this or a similar program? YES

If yes, please answer the following:

a. Does the amount of your request represent an increase over your previous appropriation? If yes, explain the reason(s) for the increase.  
No

b. Were any conditions or restrictions placed on the funds by the Selectboard? No  
If yes, describe how those conditions or restrictions have been met.

## B. PROGRAM OVERVIEW

1. Statement of Need: Identify the issue or need that the program will address (use statistical data to justify the need for the program). To what extent does this need, or problem exist in the Town of Richmond?

Residents of Richmond use and enjoy the recreational aspects of Lake Iroquois - use of the beach, boating and general appreciation of the lake

2. Program Summary:

a. Identify the target/recipients of program services. Specify the number of Town residents your program will serve during the fiscal year and explain the basis upon which this number is calculated. Indicate any eligibility requirements your program has with respect to age, gender, income or residence.

Lake Iroquois is available to all the towns people of Richmond

b. Identify what is to be accomplished or what change will occur from participating in the program. How will people be better off as a result of participating in the program? Describe the steps you take to make the project known to the public, and make the program accessible and inclusive?

The program will reveal types of invasive plants and areas where they exist - leading to planned action to keep lake healthy

3. Program Funding:

a. Identify how Town funds, specifically, will be used (i.e., funds will provide "X" amount of units of service.)

Plant Survey to maintain information on health of Lake Iroquois.

b. List the other agencies to whom you are submitting a request for funds for this program and the amount requested. How would this program be modified should revenues be lost?

Town of Hinesburg \$10,000.00  
Town of Williston \$10,000.00  
UT DEC \$17,000.00

## C. ORGANIZATIONAL CAPACITY

1. Describe your agency's capability to provide the program including its history, previous experience providing this service, management structure and staff expertise.

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2. How will you assess whether/how program participants are better off? Describe how you will assess program outcomes. Your description should include: what (what kind of data), how (method/tool for collecting the data), from whom (source of data) and when (timing of data collection). \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Summarize or attach program and or service assessments conducted in the past two years. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. Does your organization have a strategic plan and a strategic planning process in place? YES - If yes, please attach your plan.

The strategic plan should include a mission statement, goals, steps to achieve the goals, and measures that assess the accomplishments of the goals.

5. What is the authorized size of your board of directors? 15  
How many meetings were held by the board last year? 12

I, the undersigned, confirm the information contained herein is accurate and can be verified as such. I understand and agree that if the requested funds are approved, the disbursement of funds are subject to all conditions established by the Richmond Selectboard.

Signature of Applicant Lake Troquois Association Date 10/7/2025  
Lake Troquois Association  
Print Name of Applicant and Title

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

Lawrence Eichler

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## 1. Background.

At the request of the Lake Iroquois Association, Spring quantitative aquatic plant surveys were undertaken for Lake Iroquois, Vermont. The surveys occurred one-year post-treatment following aquatic plant management efforts employing the herbicide ProcellaCOR EC in 2024 for Eurasian watermilfoil control. The survey largely duplicated the 2017, 2019, 2021, 2022, 2023 and 2024 surveys conducted by the author (Eichler 2017, 2019, 2021, 2022, 2023 and 2024). 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 11, 2025 to provide one-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.

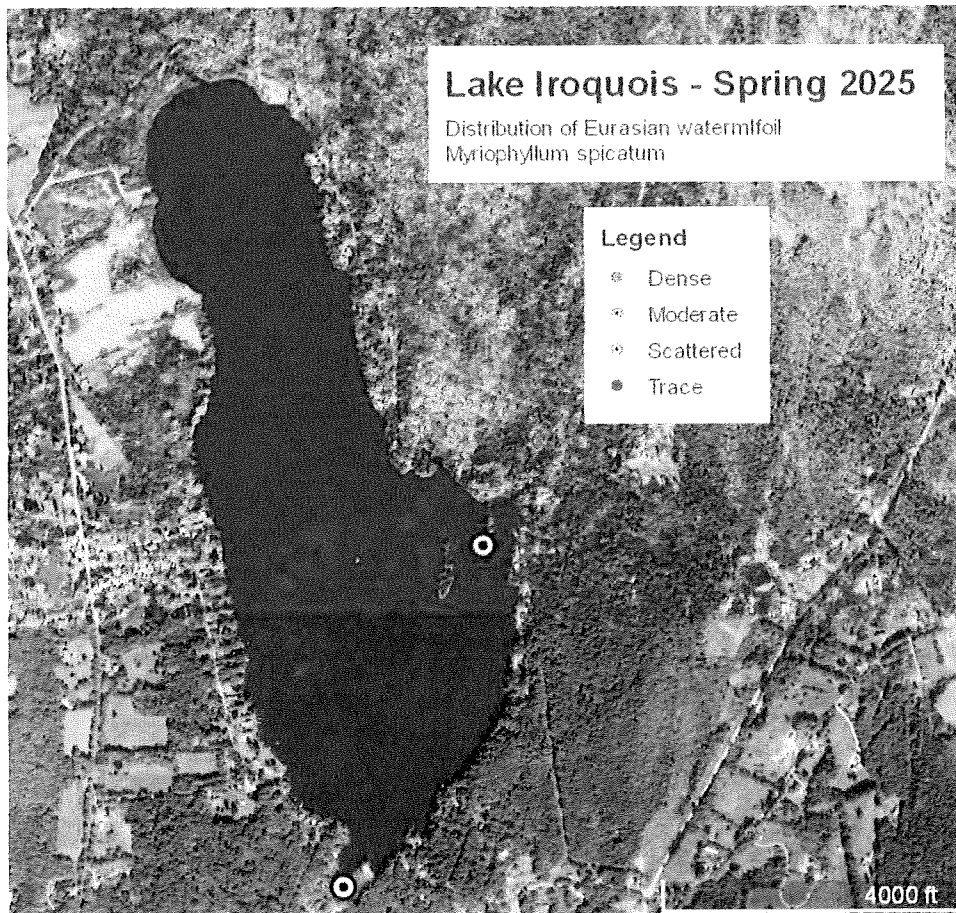
## 3. Results

**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-two species were reported for the Spring 2025 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, one-year post-treatment survey, waterweed (*Elodea canadensis*) was the most common plant (42% of survey points). Eurasian watermilfoil (*Myriophyllum spicatum*) was present in 3% of the survey points (Figure 1). Curly-leaf Pondweed, another invasive species, was present in 14% of survey points (Figure 2). Common native species in the June 2025 survey for Lake Iroquois included *Chara* (39% of survey points), *Zosterella dubia* (22%), *Potamogeton zosteriformis* (22%), *Potamogeton amplifolius* (10%), *Potamogeton foliosus* (10%), *Nymphaea odorata* (8%), *Ceratophyllum demersum* (6%), *Potamogeton praelongus* (6%), and *Eleocharis acicularis* (6%).

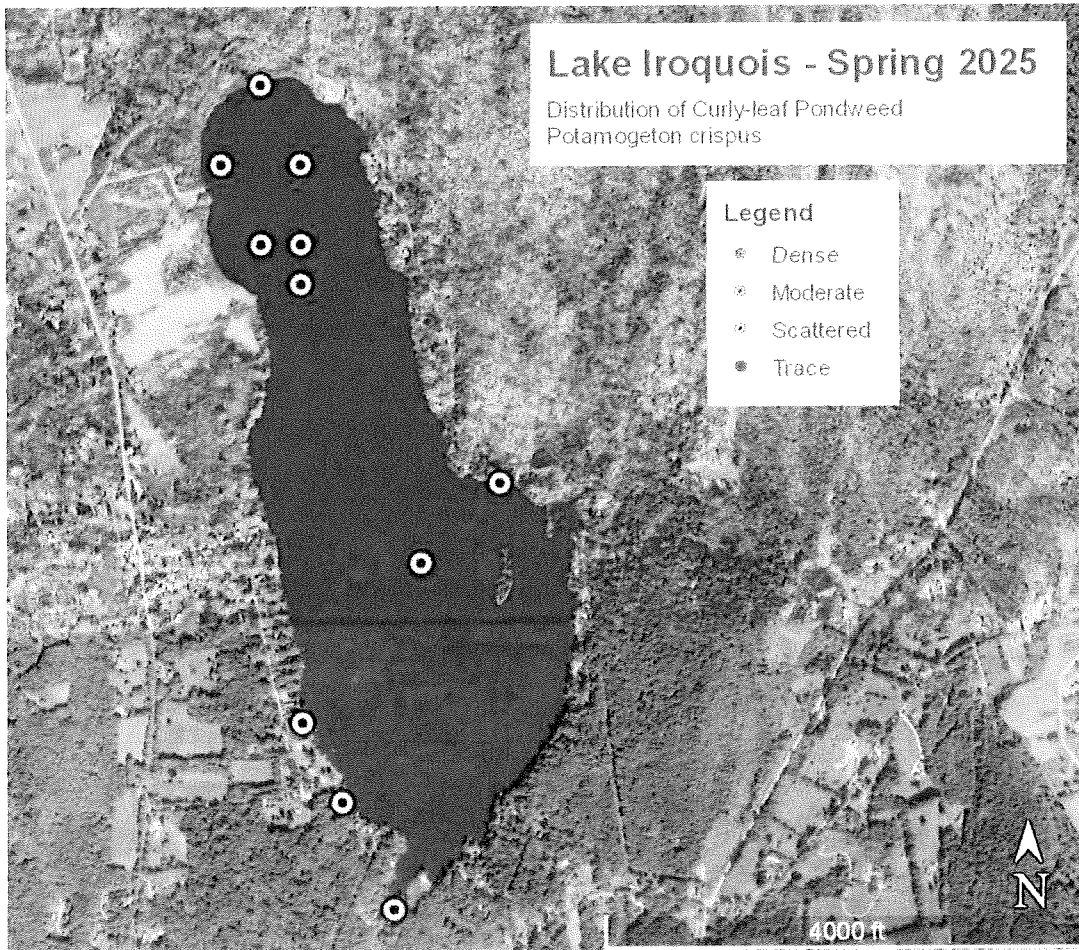
**Figure 1. Distribution of Eurasian watermilfoil (*Myriophyllum spicatum*) in Lake Iroquois in June 2025.**



**3c. Distribution of Eurasian watermilfoil.** Eurasian watermilfoil was observed at two locations in the 2025 Spring survey. 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 points. Scattered Eurasian watermilfoil growth was found (Figure 1). By the Spring 2024 survey, Eurasian watermilfoil had expanded to 28% of survey from a minimum depth of 2 feet (0.5 m) to a maximum depth of 11 feet (3.5 m). Dense growth of Eurasian watermilfoil was found in the mouth of Loon Bay and scattered Eurasian watermilfoil growth occurred at the southwest end of the lake.

**Figure 2. Distribution of Curly-leaf Pondweed (*Potamogeton crispus*) in Lake Iroquois in June 2025.**



A second invasive species, Curly-leaf Pondweed (*Potamogeton crispus*) was present in Lake Iroquois in the Spring 2025 survey. Reported in 14% of survey points, results indicate a slight decrease from the 22% of survey points reported in 2024, 19% 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 its 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.
- Eichler, L.W. 2024. Aquatic vegetation of Lake Iroquois, Chittenden County, Vermont – 2024. Prepared for Vermont DEC & the Lake Iroquois Association. Prepared by L. Eichler, Scientific Consultant, Lake George, NY. September 2024.
- Hellquist, C.B. 1993. Taxonomic considerations in aquatic vegetation assessments. *Lake and Reservoir Management*. 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](http://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
<i>Brasenia schreberi</i>	water shield	fl
<i>Ceratophyllum demersum</i> L.	Coontail	s
<i>Chara</i> sp.	muskgrass, chara	s
<i>Eleocharis acicularis</i> (L.) Roemer & Schultes	needle spike-rush	e
<i>Elodea canadensis</i> Michx.	Elodea	s
<i>Isoetes echinospora</i> Dur.	Quillwort	e
<i>Lemna minor</i> L.	Duckweed	f
<i>Lemna trisulca</i> L.	Duckweed	s
<i>Megalodonta (Bidens) beckii</i> Torr.	water marigold	s
<i>Myriophyllum spicatum</i> L.	Eurasian watermilfoil	s
<i>Najas flexilis</i> (Willd.) Rostk. & Schmidt.	bushy pondweed	s
<i>Najas guadalupensis</i> L.	southern naiad	s
<i>Nuphar variegata</i>	yellow pondlily	fl
<i>Nymphaea odorata</i> Ait.	white waterlily	fl
<i>Polygonum amphibium</i>	Smartweed	c
<i>Pontederia cordata</i> L.	pickerelweed	c
<i>Potamogeton amplifolius</i> Tuckerm.	largeleaf pondweed	s
<i>Potamogeton crispus</i> L.	curlyleaf pondweed	s
<i>Potamogeton foliosus</i> Raf.	Pondweed	s
<i>Potamogeton natans</i> L.	floating-leaf pondweed	s
<i>Potamogeton perfoliatus</i> L.	clasping-leaf pondweed	s
<i>Potamogeton praelongus</i> Wulfen	white-stem pondweed	s
<i>Potamogeton pusillus</i> L.	small pondweed	s
<i>Potamogeton richardsonii</i> Oakes	Richardsons' pondweed	s
<i>Potamogeton spirillus</i> Tuckerm.	Pondweed	s
<i>Potamogeton zosteriformis</i> Fern.	flat-stem pondweed	s
<i>Ranunculus longirostris</i> Godron	white watercrowfoot	s
<i>Sparganium</i> sp.	Burred	e
<i>Typha</i> sp.	cattail	c
<i>Utricularia gibba</i> L.	humped bladderwort	s
<i>Utricularia vulgaris</i> L.	great bladderwort	s
<i>Vallisneria americana</i> L.	wild celery	s
<i>Zosterella dubia</i> (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 2022	Spring 2023	Spring 2024	Spring 2025
<i>Ceratophyllum demersum</i> L.	coontail	5.5%	6.8%	9.2%	6.4%
<i>Chara</i> sp.	muskgrass, chara	42.5%	37.0%	36.8%	38.5%
<i>Eleocharis acicularis</i> (L.) Roemer & Schultes	needle spike-rush	6.8%	6.8%	6.6%	6.4%
<i>Elodea canadensis</i> Michx.	elodea	37.0%	27.4%	44.7%	42.3%
<i>Isoetes echinospora</i> Dur.	quillwort	4.1%	2.7%	1.3%	
<i>Lemna trisulca</i> L.	duckweed	2.7%	5.5%	1.3%	3.0%
<i>Myriophyllum spicatum</i> L.	Eurasian watermilfoil		2.7%	27.6%	2.6%
<i>Nuphar variegata</i>	yellow waterlily			1.3%	2.6%
<i>Nymphaea odorata</i> Lit.	white waterlily	8.2%	9.6%	7.9%	7.7%
<i>Polygonum amphibium</i>	smartweed		1.4%	1.3%	1.3%
<i>Potamogeton amplifolius</i> Tuckerm.	large-leaf pondweed	9.6%	9.6%	11.8%	10.3%
<i>Potamogeton crispus</i> L.	curly-leaf pondweed	16.4%	19.2%	22.4%	14.1%
<i>Potamogeton foliosus</i> Raf.	pondweed	16.4%	13.0%	10.5%	10.3%
<i>Potamogeton perfoliatus</i> L.	clasping-leaf pondweed			2.6%	
<i>Potamogeton praelongus</i> Wulfen	white-stem pondweed	9.6%	12.3%	7.9%	6.4%
<i>Potamogeton zosteriformis</i> Fern.	flat-stem pondweed	8.2%	12.3%	14.5%	21.8%
<i>Ranunculus longirostris</i> Godron	white watercrowfoot	2.7%	2.7%	3.9%	5.1%
<i>Sparganium</i> sp.	burreed	1.4%	6.8%	1.3%	7.7%
<i>Typha</i> sp.	cattail	1.4%	1.4%	1.3%	1.3%
<i>Utricularia vulgaris</i> L.	great bladderwort	5.5%	2.7%	1.3%	3.8%
<i>Vallisneria americana</i> L.	wild celery	4.1%	19.2%	3.9%	2.6%
<i>Zosterella dubia</i> (Jacq.) Small	water stargrass	19.2%	9.6%	25.0%	21.8%

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

Lawrence Eichler

Darrin Fresh Water Institute

Bolton Landing, NY 12814

(518) 644-3541 (voice) (581) 644-3640 (fax)

[eichll@rpi.edu](mailto:eichll@rpi.edu)

## 1. Background.

At the request of Pat Suozzi and Jane Clifford of the Lake Iroquois Association, Spring and Fall 2024 quantitative aquatic plant surveys were undertaken for Lake Iroquois, Vermont. The surveys occurred pre- and post- treatment following aquatic plant management efforts employing the herbicide ProcettaCOR EC in 2024 for Eurasian watermilfoil control. The September component of the survey largely duplicated the 2017, 2021 and 2023 surveys conducted by the author (Eichler 2017; 2021, 2022, 2023). The surveys consisted of frequency of occurrence and relative abundance data for all aquatic plant species present in points distributed throughout both lakes. 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 in the Spring, and 79 points were surveyed in the Fall 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 and September 6, 2024 to provide 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 and Fall 2024 surveys. 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).

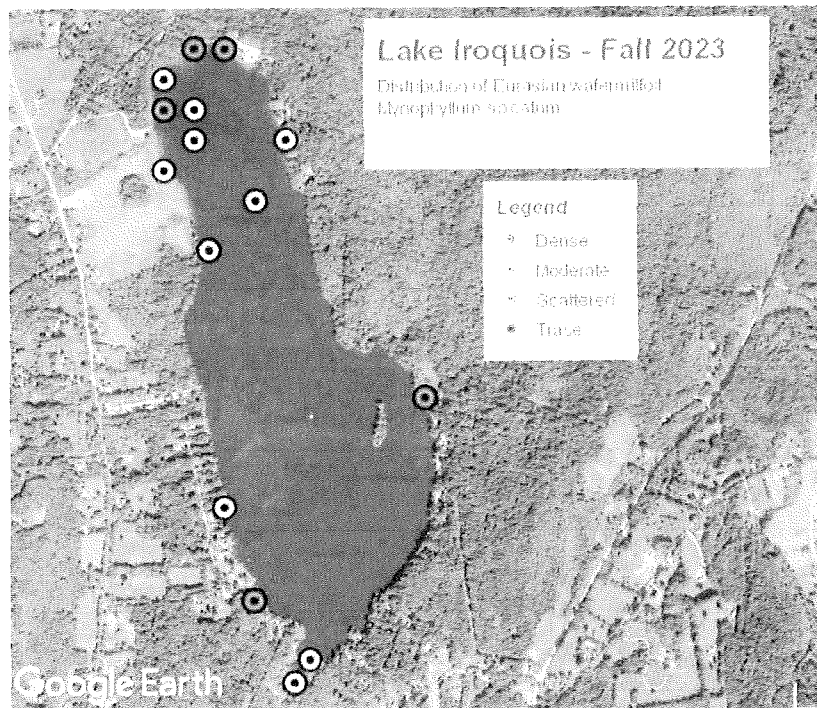
**3b. Species Frequency.** Species richness in Lake Iroquois remains high, with a number of species occurring in more than 5% of survey points (Table 2). For the June, three-year post-treatment survey, waterweed (*Elodea canadensis*) was the most common plant (45% of survey points). Eurasian watermilfoil (*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%).

For the September year of treatment sample, waterweed (*Elodea canadensis*) remained the most common species, present in 52% of survey points. Eurasian watermilfoil (*Myriophyllum spicatum*) was absent. Common native species included *Vallisneria americana* (43% of survey points), *Chara* sp. (39%), *Potamogeton zosteriformis* (29%), *Zosterella dubia* (18%), *Potamogeton amplifolius* (18%), *Nymphaea odorata* (10%), *Utricularia vulgaris* (10%), *Potamogeton pusillus* (8%), *Ranunculus longirostris* (8%), *Ceratophyllum demersum* (5%), and *Potamogeton gramineus* (5%).

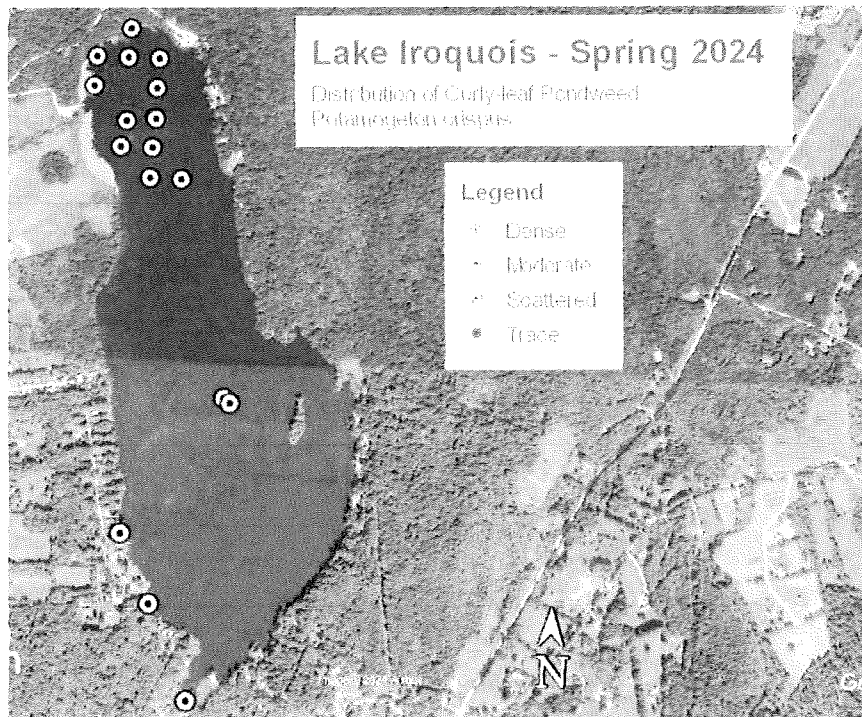
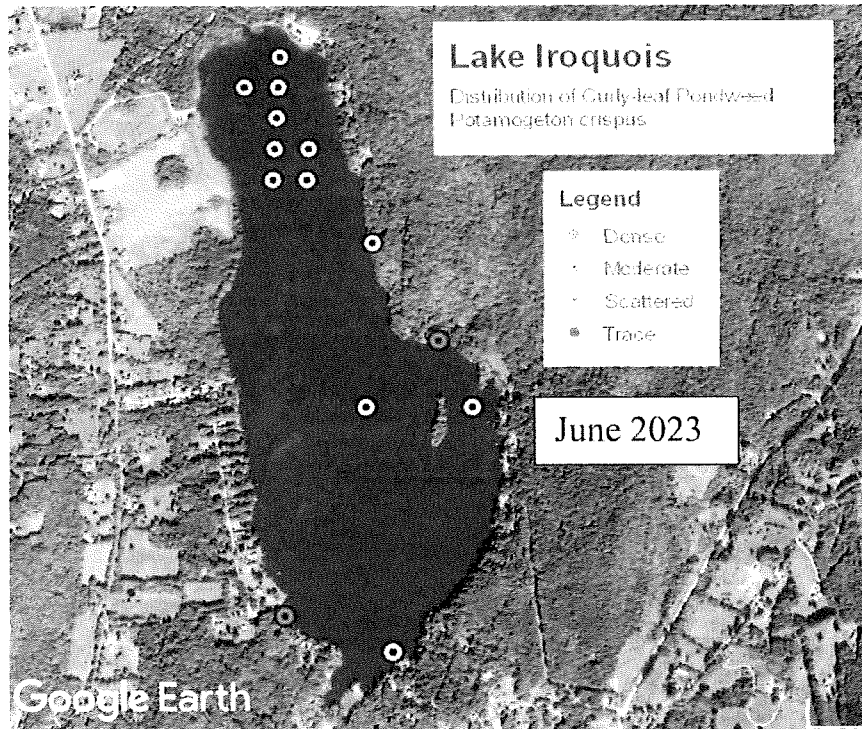
**3c. Distribution of Eurasian watermilfoil.** Eurasian watermilfoil occurred throughout Lake Iroquois in the 2021 Spring survey prior to treatment, with scattered growth found from a minimum depth of 2 feet (0.5 m) to a maximum depth of 11 feet (3.5 m). Eurasian watermilfoil was absent from all survey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

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. Curly-leaf Pondweed typically dominates early season samples, completes its life cycle by mid-July and dies back. It was absent in the Fall surveys in 2021 through 2024, however seeds and overwintering buds (turions) were most likely still present in the lake bottom.

**Figure 1. Distribution of Eurasian watermilfoil (*Myriophyllum spicatum*) in Lake Iroquois in September 2022 and September of 2023. This species was absent in September of 2024 surveys.**



**Figure 2. Distribution of Curly-leaf Pondweed (*Potamogeton crispus*) in Lake Iroquois in June 2023 and June 2024.**



#### 4. References

- 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. 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.  
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**Table 1. Species list for Lake Iroquois in 2024.**

Species Name	Common Name	Lake Iroquois
<i>Brasenia schreberi</i>	water shield	fl
<i>Ceratophyllum demersum</i> L.	Coontail	s
<i>Chara</i> sp.	muskgrass, chara	s
<i>Eleocharis acicularis</i> (L.) Roemer & Schultes	needle spike-rush	e
<i>Elodea canadensis</i> Michx.	Elodea	s
<i>Isoetes echinospora</i> Dur.	Quillwort	e
<i>Lemna minor</i> L.	Duckweed	f
<i>Lemna trisulca</i> L.	Duckweed	s
<i>Megalodonta (Bidens) beckii</i> Torr.	water marigold	s
<i>Myriophyllum spicatum</i> L.	Eurasian watermilfoil	s
<i>Najas flexilis</i> (Willd.) Rostk. & Schmidt.	bushy pondweed	s
<i>Najas guadalupensis</i> L.	southern naiad	s
<i>Nuphar variegata</i>	yellow pondlily	fl
<i>Nymphaea odorata</i> Ait.	white waterlily	fl
<i>Polygonum amphibium</i>	Smartweed	e
<i>Pontederia cordata</i> L.	pickerelweed	e
<i>Potamogeton amplifolius</i> Tuckerm.	largeleaf pondweed	s
<i>Potamogeton crispus</i> L.	curlyleaf pondweed	s
<i>Potamogeton foliosus</i> Raf.	Pondweed	s
<i>Potamogeton natans</i> L.	floating-leaf pondweed	s
<i>Potamogeton perfoliatus</i> L.	clasping-leaf pondweed	s
<i>Potamogeton praelongus</i> Wulfen	white-stem pondweed	s
<i>Potamogeton pusillus</i> L.	small pondweed	s
<i>Potamogeton richardsonii</i> Oakes	Richardsons' pondweed	s
<i>Potamogeton spirillus</i> Tuckerm.	Pondweed	s
<i>Potamogeton zosteriformis</i> Fern.	flat-stem pondweed	s
<i>Ranunculus longirostris</i> Godron	white watercrowfoot	s
<i>Sparganium</i> sp.	Burred	e
<i>Typha</i> sp.	cattail	e
<i>Utricularia gibba</i> L.	humped bladderwort	s
<i>Utricularia vulgaris</i> L.	great bladderwort	s
<i>Vallisneria americana</i> L.	wild celery	s
<i>Zosterella dubia</i> (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	Fall 2022	Fall 2023	Fall 2024
<i>Ceratophyllum demersum</i> L.	Coontail	10.1%	11.4%	5.1%
<i>Chara</i> sp.	muskgrass, chara	44.3%	46.8%	39.2%
<i>Eleocharis acicularis</i> (L.) Roemer & Schultes	needle spike-rush	1.3%	3.8%	1.3%
<i>Elodea canadensis</i> Michx.	Elodea	44.3%	43.0%	51.9%
<i>Fontinalis</i> sp.	Moss			2.5%
<i>Lemna trisulca</i> L.	Duckweed	6.3%	1.3%	
<i>Myriophyllum spicatum</i> L.	Eurasian watermilfoil	1.3%	19.0%	
<i>Najas flexilis</i> (Willd.) Rostk. & Schmidt.	bushy pondweed	8.9%	13.9%	3.8%
<i>Nymphaea odorata</i> Ait.	white waterlily	17.7%	15.2%	10.1%
<i>Polygonum amphibium</i>	Smartweed		1.3%	1.3%
<i>Potamogeton amplifolius</i> Tuckerm.	largeleaf pondweed	17.7%	7.6%	17.7%
<i>Potamogeton crispus</i> L.	curlyleaf pondweed			
<i>Potamogeton foliosus</i> Raf.	Pondweed	6.9%	13.0%	13.0%
<i>Potamogeton gramineus</i>	variable pondweed	1.3%	1.3%	5.1%
<i>Potamogeton natans</i> L.	floating-leaf pondweed	2.5%		
<i>Potamogeton perfoliatus</i> L.	clasping-leaf pondweed	2.5%	2.5%	1.3%
<i>Potamogeton praelongus</i> Wulfen	white-stem pondweed	8.9%	13.9%	3.8%
<i>Potamogeton pusillus</i> L.	small pondweed	10.1%	13.9%	7.6%
<i>Potamogeton robbinsii</i>	Robbins' pondweed	3.8%		
<i>Potamogeton richardsonii</i> Oakes	Richardsons' pondweed		5.1%	
<i>Potamogeton zosteriformis</i> Fern.	flat-stem pondweed	21.5%	36.7%	29.1%
<i>Ranunculus longirostris</i> Godron	white watercrowfoot	6.3%	3.8%	7.6%
<i>Sparganium</i> sp.	burreed	2.5%	1.3%	1.3%
<i>Typha</i> sp.	cattail	1.3%	1.3%	
<i>Utricularia gibba</i> L.	humped bladderwort	1.3%	3.8%	1.3%
<i>Utricularia vulgaris</i> L.	great bladderwort	7.6%	11.4%	10.1%
<i>Vallisneria americana</i> L.	wild celery	41.8%	39.2%	43.0%
<i>Zosterella dubia</i> (Jacq.) Small	water stargrass	24.1%	27.8%	17.7%