Lake Iroquois

Aquatic Nuisance Control Permit Application - Renewal ProcellaCOR Herbicide

Applicant - Lake Iroquois Association
Prepared by - Lakeworks Consulting

Submitted - November 2025

Application Table of Contents

Forms

- Application Form
- Adjoiner Form

Application for use of **Pesticides**
under an **Aquatic Nuisance Control Permit**
Per 10 V.S.A. Chapter 50, § 1455

For Aquatic Nuisance Control Permit Program Use Only
Application Number:

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

Submission of this application constitutes notice that the entities listed below intend to use pesticides in waters of the State to control aquatic nuisance plants, insects, or other aquatic life; and that the entities below have demonstrated that (1) there is no reasonable nonchemical alternative available; (2) there is acceptable risk to the nontarget environment; (3) there is negligible risk to public health; (4) a long-range management plan has been developed which incorporates a schedule of pesticide minimization; and (5) there is a public benefit to be achieved from the application of a pesticide or, in the case of a pond located entirely on a landowner's property, no undue adverse effect upon the public good. Submit a permit review fee of $75 for a private pond or $500 for all other waterbodies, made payable to the State of Vermont. All information required on this form must be provided, and the requisite fees must be submitted to be deemed complete.

A. Applicant Information

1. Entity's Name: Lake Iroquois Association

2a. Mailing Address: PO Box 569

2b. Municipality: Hinesburg	2c. State: VT	2d. Zip: 05461

3. Phone:	4. Email: info@lakeiroquois.org

B. Pesticide Applicator Information (Check box if same as above in Section A: ☐)

1. Entity's Name:

2a. Mailing Address:

2b. Municipality:	2c. State:	2d. Zip:

3. Phone:	4. Email:

C. Application Preparer Information (Check box if same as above: Section A ☐ and/or B ☐)

1. Preparer's Name: Lakeworks Consulting

2a. Mailing Address: 29 Jolicoeur Ave

2b. Municipality: Spencer	2c. State: MA	2d. Zip: 01562

3. Phone: 508-523-1024	4. Email: kmsliwoski@gmail.com

D. Waterbody Information

1. Name of waterbody: Iroquois Lake - Hinesburg 2. Hinesburg - Chittenden

3. Are there wetlands associated with the waterbody? ■ Yes ☐ No
Contact the Vermont Wetland Program: (802) 828-1535 for additional information.

4. Are there rare, threatened or endangered species associated with the waterbody? ■ Yes ☐ No
Contact the Vermont Fish & Wildlife Natural Heritage Inventory: (802) 241-3700 for additional information.

5a. Is this waterbody a private pond (per 10 V.S.A. 5210)? ☐ Yes ■ No If No, skip to Question D6.

5b. Is this private pond totally contained on landowner's property? ☐ Yes ☐ No

5c. Does the private pond have an outlet? ☐ Yes ☐ No
If yes, what is the name of the receiving water from this outlet?

5d. Is the flow from this outlet controlled? ☐ Yes ☐ No
If yes, how and for how long?

6. List the uses of the waterbody – check all that apply:
■ Water supply ■ Irrigation ■ Boating ■ Swimming ■ Fishing ☐ Other:

E. Treatment Information

1a. Proposed start date: June 2026

1b. Proposed end date (if known): June 2031

2. Aquatic nuisance(s) to be controlled:
Plant/Algae/Animal: Eurasian watermilfoil, Myriophyllum spicatum
Submit additional information as needed.

3. Pesticide(s) to be used[1]: florpyrauxifen-benzyl
Trade Name: ProcellaCOR EC
EPA Registration #: 67690-80
Submit a copy of the Product Label & Material Safety Data Sheet.

4. Provide a map of control activity area.
Provide location of (each) treatment area in waterbody.

5. Application rate (ppm): 3-4 PDU (5.79-7.72 ppb)
Explain the above application rate & provide calculations.

6. Attach a narrative description of the proposed project to include the following items:
a) Reason(s) to control the aquatic nuisance;
b) Brief history of the aquatic nuisance in the waterbody;
c) Reason why no reasonable nonchemical alternatives are available; and,
d) Description of the proposed control activity.

7. If you answered "no" to D5b above, then a Long-range Management Plan[2] (LMP) is required:
a) Describe how control of the nuisance species will be conducted for the duration of the permit (must be at least a 5 year time span and incorporate a schedule of pesticide minimization); and,
b) Explain how the LMP will be financed; include a budget and funding sources for each year.

F. Adjoining Property Owner Certification

(For additional information, please see the APO Notification Guidance)

I certify, by initialing to the left, that I have notified adjoining property owners of the proposed project using the DEC Adjoiner Form template letter that was sent by U.S. Mail.

G. Applicant/Applicator Certification

As APPLICANT, I hereby certify that the statements presented on this application are true and accurate; guarantee to hold the State of Vermont harmless from all suits, claims, or causes of action that arise from the permitted activity; and recognize that by signing this application, I agree to complete all aspects of the project as authorized. I understand that failure to comply with the foregoing may result in violation of the 10 VSA Chapter 50, § 1455, and the Vermont Agency of Natural Resources may bring an enforcement action for violations of the Act pursuant to 10 V.S.A. chapter 201.

Applicant/Applicator Signature: Jane Clifford
Jane Clifford (Nov 18, 2025 20:12:43 EST)
Date: Nov 18, 2025

H. Application Preparer Certification (if applicable)

As APPLICATION PREPARER, I hereby certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Application Preparer Signature: _____ Date: Nov 19, 2025

I. Application Fees

Refund Policy:
Permit Review Fees are non-refundable unless an application is withdrawn prior to administrative review.

Submit this form and the $75 or $500 fee to:

Vermont Department of Environmental Conservation
Watershed Management Division
Aquatic Nuisance Control Permit Program
1 National Life Drive, Davis 3
Montpelier, VT 05620-3522

Municipalities are exempt and do not need to submit fee.

Direct all correspondence or questions to the Aquatic Nuisance Control Permit Program at: ANR.WSMDShoreland@vermont.gov
For additional information visit: https://dec.vermont.gov/

1 The application fee for the aquatic pesticide Aquashade® and copper compounds used as algaecides is **$50** per application.

2 Any landowner applying to use a pesticide for aquatic nuisance control on a pond located *entirely* on the landowner's property is exempt from the Long-range Management Plan requirement, as per 10 VSA §1455(e)

LIA ANC permit form

Final Audit Report 2025-11-19

Created:	2025-11-19
By:	Kara Sliwoski (kmsliwoski@gmail.com)
Status:	Signed
Transaction ID:	CBJCHBCAABAA5ftjoB99T-9SDKx3DvC9DnjMZ8TLLgom

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WATERSHED MANAGEMENT DIVISION
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A. Applicant Information

1. Entity's Name: Lake Iroquois Recreational District

2a. Mailing Address: 7900 Williston Road, Williston, VT

2b. Municipality: Lake Iroquois Recreational District	2c. State: VT	2d. Zip: 05495

3. Phone: 802-343-3535	4. Email: jadavis@peakcm.com

B. Pesticide Applicator Information (Check box if same as above in Section A: ☐)

1. Entity's Name:

2a. Mailing Address:

2b. Municipality:	2c. State:	2d. Zip:

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Trade Name: ProcellaCOR EC
EPA Registration #: 67690-80
Submit a copy of the Product Label & Material Safety Data Sheet.

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Provide location of (each) treatment area in waterbody.

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JS

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Applicant/Applicator Signature: Jeff Davis
Jeff Davis (Nov 18, 2025 20:26:20 EST)
Date: Nov 18, 2025

H. Application Preparer Certification (if applicable)

As APPLICATION PREPARER, I hereby certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Application Preparer Signature: JSm
Date: Nov 19, 2025

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Watershed Management Division
Aquatic Nuisance Control Permit Program
1 National Life Drive, Davis 3
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LIRD ANC permit form

Final Audit Report 2025-11-19

Created:	2025-11-19
By:	Kara Sliwoski (kmsliwoski@gmail.com)
Status:	Signed
Transaction ID:	CBJCHBCAABAAnS3Ztq4jtxiO4ksgnT2a7o1OwnZ9Ogtd

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VERMONT
Department of Environmental Conservation

OFFICIAL NOTICE

Hello Neighbor,

This letter is to let you know that Lake Iroquois Association & Lake Iroquois Recreational District plans to apply for permits from the Agency of Natural Resources, Department of Environmental Conservation (DEC). As your property borders where this activity will happen, Vermont law requires that you be informed about the application(s).

Once the application is accepted by the DEC, it will be posted on the DEC Environmental Notice Bulletin (ENB) website at ENB.VERMONT.GOV. You can sign up there to get updates as the application goes through the review process. Even if the application hasn't been sent in yet, you can still register for notifications in your area. Instructions can be found on the next page.

You may contact the property owner/applicant with questions about the activity. The contact information is listed below. The permit process includes a time for public comments and a chance to ask for a public meeting. This can be done through the ENB website once the applications are posted. Note that to appeal the final permit decision, you must submit a comment during the public comment period.

For more information, please visit DEC.VERMONT.GOV/PERMITS/ENB/GENERAL. If you have questions or need help signing up on the ENB, call the DEC at (802) 828-1556 with the information below.

PROPERTY OWNER(S)/APPLICANT(S) NAME

Lake Iroquois Association & Lake Iroquois Recreational District

PROPERTY OWNER(S)/APPLICANT(S) CONTACT INFORMATION (MUST PROVIDE TELEPHONE NUMBER AND/OR EMAIL)

info@lakeiroquois.org

PROPOSED ACTIVITY STREET ADDRESS/ROUTE

Lake Iroquois

PROPOSED TOWN(S)

Hinesburg and Williston

PERMIT TYPE(S) (INDICATE FOR EACH PERMIT TYPE NEW OR RENEWAL)

Aquatic Nuisance Control - Pesticide - Renewal

DATE NOTICE GENERATED

11/20/2025

VERMONT
Department of Environmental Conservation

Understanding when permit applications will be shown on the ENB

- Permit applications are posted on the ENB website after all necessary information is received by the DEC. This means it might take a few weeks for the noticed activity to show up on ENB. Nearby property owners should check the website again one or two weeks after getting a notice in the mail. You can also sign up on the ENB to get updates about new activities in your town.

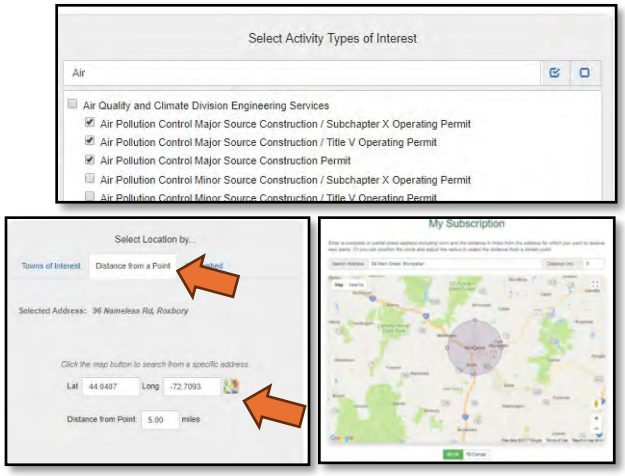
Register with the ENB

To register on the ENB and set up your subscription: please go through the following steps. There are illustrated instructions on Page 16 of the ENB User Guide:

1. Go to ENB.VERMONT.GOV
2. Click **Register** on the upper right-hand side of the home page
3. Enter the required information (name, email address and create password) and click **Register**
4. You will receive an email confirmation for your email address. Once confirmed you will be able to log-in and set up your subscription.

Subscribe to ENB Notifications for New Activities in your Area

1. Log into ENB and then click **My Subscription** at the top left-hand side of the home page
2. Click **Modify Alerts** on the My Subscription page
3. Click **Edit** for Alert #1
4. Check the box next to the permits you are interested in receiving alerts for from the **Select Activity Types of Interest** list.
5. Next, click the **Distance from a Point** tab under **Select Location by**... and click the **map** icon to set your location.
6. Enter your own address in the **Search Address** field. Set the distance large enough to capture the project activity (1 mile, 5 miles, etc.)
7. Click **OK** once the radius has been set
8. Click **SAVE** on the next page, then Click **OK** to return the main subscription page.



9. Once you receive an alert for an activity, you can choose to **Follow** the activity from your subscription page on the ENB

For additional instructions see the **User Guide** on ENB.VERMONT.GOV.

For help with registration please contact the ENB Administrator: ANR.ENBAdministrator@vermont.gov.

Project Narrative Table of Contents

Introduction

This application is for the continuation of ProcellaCOR EC (active ingredient: florpyrauxifen-benzyl) aquatic herbicide efforts at Lake Iroquois approved under Aquatic Nuisance Control Permit 3038-ANC-C. This five-year management plan for control of Eurasian watermilfoil (EWM) proposes area-selective application of ProcellaCOR herbicide, within 40% or less of the littoral zone as part of its integrated management plan. A five-year Aquatic Nuisance Control (ANC) Permit is sought for this effort, with the understanding that during any year when use of ProcellaCOR is needed, there will be an annual treatment plan submitted to Vermont Department of Conservation (DEC) for approval.

The following other integrated pesticide minimization and lake management approaches will be continued for Lake Iroquois by the Lake Iroquois Association:

1. Dive assisted suction harvesting (DASH)
2. Benthic barrier use in selective locations
3. SCUBA diver hand-pulling
4. Snorkel hand-pulling
5. Boat ramp greeter program for equipment inspections and user education
6. Boat wash station for hot water washing of boats entering and exiting the lake
7. Vermont Invasive Patroller (VIP) surveys
8. Water quality monitoring through lay monitoring
9. Pursuit of grants to address site-specific nutrient loading
10. Pursuit of stream remediation to reduce sediment discharge
11. Reduction of road runoff, mitigation of erosion and sediment discharge with LIRD and the surrounding municipalities
12. Sponsorship of outreach programs such as Septic Socials, the Lake Wise Program and education on shoreline protection and restoration
13. Outreach with members and volunteer training for continued education

Lake Iroquois History

Lake Iroquois (formerly known as Hinesburg pond) is geologically a kettle pond located in a valley between Dow and Magee Hills on the east, and Mount Prichard

on the west. It lies in the Lake Champlain watershed and is bordered by the towns of Williston, Hinesburg, Richmond, and St. George.

The lake was formed after the last ice coverage in Vermont receded about 15,000 years ago. Over the years, the lake has naturally become more eutrophic, and it has been the site of significant human development and use in the last 150 years. By 1900, settlers had cleared most of the pond's watershed for farming and began to build seasonal camps on its shores. A hundred years later, much of the watershed is reforested but most of the shoreline has been developed with over 90 summer camps and year-round homes.

A dam built on the lake's outlet in the mid-1800s was used to control the water supply to mills downstream in Hinesburg. Milling declined in the 20th century and in the 1960s the dam was intentionally cemented in its top position, keeping the pond at its current level throughout the year. Approximately 32 streams flow into the lake on the north, east and west sides, the largest being the one that flows in from the northwest section (crossing Beebe Lane). There are also several streams that bubble up from the lake bottom. The outflow of the lake is over the dam in the south end. The outlet stream flows into Sunset Lake in Hinesburg, and then into the LaPlatte River and into Lake Champlain.

The lake is used extensively throughout the year by residents and by visitors. The Lake Iroquois Association (LIA) was founded in 2007 to enhance the water quality of the lake and protect the health of the surrounding ecosystem. The Lake Iroquois Recreation District (LIRD) maintains the public beach at the north end of the lake. The LIRD also maintains a trail network on the land around the lake. The trails are accessible from the beach parking lot. The Vermont Department of Fish and Wildlife maintains the fishing access and boat ramp, also at the north end of the lake, which provides public access to the lake for boating and fishing.

The above history information is provided from LIA's website (Lake Iroquois Association, 2025).

Lake Surface Area: 247 acres
Drainage Basin Area: 2, 418 acres
Maximum Depth: 37 ft.
Average Depth: 19 ft.
Elevation: 685 ft.

Lake Iroquois Eurasian Watermilfoil Background

Eurasian watermilfoil, *Myriophyllum spicatum*, is a non-native and invasive aquatic plant capable of growing dense stands that outcompete and inhibit the growth of native plant species, which can have notable ecological and economic impacts.

Similar to many Vermont and New England waterbodies, EWM has been present within Lake Iroquois for multiple decades. The LIA has operated an integrated milfoil management program for nearly 20 years, which primarily consisted of non-chemical control efforts until 2021 when ProcellaCOR EC aquatic herbicide was also introduced into the management strategy. This herbicide was added to the program in order to provide control to the larger, beyond non-chemical control, areas of EWM present within the lake. EWM is well established and has been widely distributed throughout Lake Iroquois. Eradication is not a feasible long-term goal, but integrated management to control nuisance levels of EWM growth that are impacting public uses is.

Lake Iroquois Eurasian Watermilfoil Management History

Overall, LIA has utilized the following activities to control EWM previously in the lake: hand-pulling, benthic barriers, DASH, VIP volunteers, installation of buoys to mark boating channels, greeter program for education and outreach, and a boat wash station. Milfoil weevils (*Euhrychiopsis lecontei*) were utilized as a biological control, but were not effective enough and have been difficult to source for many years. As the EWM distribution and density increased prior to 2020, LIA worked to begin incorporating use of ProcellaCOR EC aquatic herbicide into their integrated management program around that time.

Table 1. LIA's EWM management history

Year	EWM control effort
2008	Snorkel and SCUBA diver hand-pulling efforts began to control dense EWM growth; milfoil weevil population was supplemented.
2009	LIA began participating in the Vermont Boat Access Greeter Program to educate users on invasive species, inspect vessels and

	equipment entering and exiting the lake, and collect boater data. The milfoil weevil population was again supplemented.
2010-2016	Work during these years (and beyond) focused on stormwater and incoming nutrient remediation. More information is provided in the Lake Iroquois Nutrient Management History section below.
2014	LIA appointed a special task force to research BMPs to more effectively control EWM. Comprehensive aquatic plant survey conducted during the summer.
2016	LIA added a hot water wash station at the boat ramp for greeters to clean boats entering or exiting the lake. DASH efforts and benthic barrier installation began for EWM control. LIA's ANC permit application for use of Sonar (fluridone) herbicide was submitted.
2017	Benthic barrier installation and DASH efforts conducted. Aquatic plant survey conducted.
2018	Benthic barrier installation and DASH efforts conducted. LIA's ANC permit application for use of Sonar herbicide was denied.
2019	Benthic barrier installation and DASH efforts conducted. Aquatic plant survey conducted.
2020	LIA's ANC permit application for use of ProcellaCOR was submitted.
2021	LIA's ANC permit application for use of ProcellaCOR was approved. ProcellaCOR herbicide application conducted to approximately 37 percent of the lake's littoral zone. Aquatic plant survey conducted in spring and fall.
2022	Aquatic plant survey conducted in spring and fall.
2023	DASH efforts conducted. Aquatic plant survey conducted in spring and fall.

2024	ProcellaCOR herbicide application conducted to approximately 31 percent of the lake's littoral zone. DASH efforts conducted. Aquatic plant survey conducted in spring and fall.
2025	Aquatic plant survey conducted in spring and fall.

It is important to acknowledge that unmanaged areas of EWM growth around the lake have the ability for their fragments to enter an actively or recently managed area and cause growth to re-establish there. However, spread prevention measures need to be thoroughly adopted to minimize spread within Lake Iroquois, but also nearby waterbodies, which LIA has done and will continue to do.

Lake Iroquois Nutrient Management History

LIA has conducted various projects through the years to reduce nutrient and sediment input to the lake. Through their tributary monitoring program, LIA has focused their efforts on high phosphorus carrying streams and areas of shoreline/beach erosion. Current plans and efforts are described in the comprehensive Lake Iroquois Management Plan 2020-2025 and the Lake Iroquois Patrick Brook Watershed Management Plan – 2024, both of which can be found on LIA's website (Lake Iroquois Association, 2025).

As referenced above in Table 1. LIA's EWM management history, work between 2009 and 2018 focused on stormwater and incoming nutrient remediation. Mapping and sampling of tributaries to identify those carrying most nutrients into the lake was conducted. Catch basins and riparian plantings along several tributaries on the west side of the lake were completed, as they were identified as problematic. A flood plan restoration project was completed on another tributary. Around 2017, an engineering plan was developed to remediate the largest and worst tributary that crosses under Beebe Lane. That work was delayed due to funding and Covid, but was completed during the summer of 2025.

Current Aquatic Plant Conditions

EWM was first observed in Lake Iroquois in 1990 near the state fishing access in the northwestern end of the lake. Since that time, EWM has been widely distributed throughout Lake Iroquois's littoral zone, which extends to a depth of approximately 16 feet, per Darrin Fresh Water Institute's determination. Based on that depth and bathymetric data for the lake, approximately 100 acres of the 247-acre total surface area (40.4%) are capable of supporting aquatic plant growth.

Since 1984, through multiple surveys, a total of 45 aquatic plant species have been reported for the lake. From the 2014 plant survey report, "In Lake Iroquois, milfoil has become the dominant aquatic plant in the lake. The plant has so overrun the littoral zone that native aquatic plant species are disappearing. Northeast Aquatic Research (who conducted the survey) found 23 species during the September 2014 survey compared with 34 species that were present in the lake in 2012 according to the LIA species roster." Between 2014 and 2025, an average of 22.8 species per year have been observed during aquatic plant survey efforts. Species observed also typically include two aquatic plants found on Vermont's rare plant list (as of June 2024), humped bladderwort (*Utricularia gibba*) and white water-crowfoot (*Ranunculus longirostris*, also called white water buttercup). Between 2017 and 2025, native species richness in the littoral zone was an average of 3.45 species per sample point. From the 2017 plant survey report, "Nineteen species were present in the point intercept portion of the 2017 surveys, slightly less than the 23 reported in 2014." Presence of EWM in a waterbody is usually what most declines in native species presence can be attributed to, as the EWM outcompetes the natives. Fortunately, native species recovery typically occurs within 1-2 growing seasons of EWM management, assuming EWM pressure is continually minimized.

From 2017 through 2025 fall aquatic plant survey efforts, EWM frequency of occurrence at survey points varied as shown in the below table.

Table 2. EWM frequency of occurrence by year

Year	EWM percentage
2017	24%
2019	43%
2021[1]	0%
2022	1%
2023	19%
2024[2]	0%
2025	3.8%

[1] First ProcellaCOR treatment year
[2] Second ProcellaCOR treatment year

During the June 2025 survey by Lawrence Eichler (formerly with Darrin Fresh Water Institute), there were twenty-two aquatic plant species reported. Per Eichler's report, "this number of species exceeds the 15 species typically reported for moderately productive lakes in our region and indicated good water quality and a variety of habitat types," (Eichler, 2025). Common native species in the June 2025 survey for Lake Iroquois included *Elodea canadensis* (43% of survey points), *Chara sp.* (39%), *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%). EWM was only found at 2 survey locations, which is 2.6% of survey points. This frequency of occurrence for EWM is nearly identical to that of the spring 2023 survey, whereas the 2024 spring survey had a frequency of occurrence of 27.6% and a ProcellaCOR treatment was subsequently conducted that season.

During the September 2025 survey, also by Eichler, there were twenty-one aquatic plant species reported. EWM was present in 3.8% of survey points, which is only approximately a 1% increase in frequency of occurrence since the June survey and a 3.8% increase since the fall 2024 survey when no EWM was observed following

the ProcellaCOR application that season. Common native species included *Elodea canadensis* (51% of survey points), *Potamogeton zosteriformis* (41%), *Chara sp.* (39%), *Vallisneria americana* (28%), *Potamogeton amplifolius* (20%), *Nymphaea odorata* (17%), *Potamogeton pusillus* (14%), *Zosterella dubia* (10%), *Najas flexilis* (5%), *Eleocharis acicularis* (5%), *Ceratophyllum demersum* (5%), and *Potamogeton praelongus* (5%). Eichler also importantly notes that "in 2025, 12 of 20 native species increased in frequency of occurrence," (Eichler, 2025). This increase aligns with the anticipated native species recovery within 1-2 growing seasons following EWM management and illustrates the minimization of the significant EWM pressure as a result of the 2024 ProcellaCOR application.

If LIA had not been effectively and strategically managing the EWM within the lake, through their integrated management program since their inception as an organization, it is presumed that the distribution and density of EWM would be significantly worse than it presently is. This presumption is applicable to all EWM control efforts LIA has undertaken through the years and not just to the observed 2025 growth.

Both the June and September survey reports are included within this application for reference.

Project Objectives

Proposed for Lake Iroquois are the following objectives for the five-year management plan:

1. Continued use of integrated EWM management approaches, outlined in the Introduction section above, in combination with site-specific ProcellaCOR EC aquatic herbicide treatment. The combination of these approaches will allow LIA to achieve financially efficient EWM control and simultaneously minimize impacts to non-target species.
2. Achievement of multiple years of EWM control from ProcellaCOR EC aquatic herbicide treatment to utilize other planned EWM control methods, as well as reduce future acreage, frequency and expense of herbicide treatment. Based on the existing 3038-ANC-C ProcellaCOR permit, LIA has previously proven their intentions of this objective.

3. To promote a stable, native plant community, improve fish and wildlife habitat, and support recreational use of the lake by all user types through strategic and effective EWM control.
4. Prevention through continued education and outreach of future introduction and/or establishment of other invasive aquatic species.

Though the current EWM presence is not at an infestation level which warrants another ProcellaCOR application, experience at Lake Iroquois and elsewhere in Vermont and New England tells us that at some point in coming years, the EWM growth will expand faster and further than non-chemical controls may be capable of keeping up with. LIA's goal is to effectively manage the lake's EWM growth through their previously proven integrated management plan, which has not required annual herbicide treatment.

ProcellaCOR Herbicide Information

First registered with the EPA in 2018, and approved for use in Vermont for the 2019 management season, ProcellaCOR was then applied at four Vermont waterbodies that year. Since then, it has been applied extensively throughout New England, New York and elsewhere in Vermont. Based on available data, ProcellaCOR has been more selective for EWM control in Vermont than when previously using Sonar (fluridone) or Renovate (triclopyr) herbicides.

ProcellaCOR has a reduced-risk profile from the EPA, a minimal photolytic half-life (1.68 hours), and thus is only present within the water for a short time. Based on ProcellaCOR's high selectivity for milfoils and few other species, there is minimal impact anticipated to the native plant species present within Vermont. For anticipated non-target treatment impacts that are specific to Lake Iroquois, please refer to that section below.

In a recent study led by the Lake George Association, a historically anti-aquatic herbicide organization, it was found that ProcellaCOR and/or its degradates could be identified in sediment core samples within a treatment area approximately a year after application (Wiltse et al., 2025). Although the study was well orchestrated, it is a limited example of this type of data and has not been certified by peer review, which is a crucial step of ensuring credible scientific research.

Additionally, the lead author on the study is a member of the Lake George Association, which could be viewed as a potential conflict of interest. Core samples were only collected at one site per treatment area, but multiple core samples were collected outside of the treatment area and were primarily found to have non-detect results. Further, memos from both Vermont DEC's Monitoring and Assessment Program and the Department of Health's state toxicologist state that findings of their reviews support that proposed use of ProcellaCOR at rates of 3-5 PDU/ac-ft "pose an acceptable risk to the non-target aquatic biota and environment" (Levy, 2022) and "is expected to result in negligible risk to public health from both the active and inert compounds in ProcellaCOR," (Vose, 2022) respectively. Both memos are included within this application for reference.

Given recent attention that PFAS, or perfluoroalkyl or polyfluoroalkyl substances, have received, it is important to note that the State of Vermont has defined PFAS as a class of fluorinated organic chemicals containing at least one fully fluorinated carbon atom, in Bill H.238 (Act 54). It is important to note that florpyrauxifen-benzyl, the active ingredient in ProcellaCOR EC herbicide, does not contain any fully fluorinated carbon atoms (National Center for Biotechnology Information, 2025). Based on that information and the State of Vermont's definition of PFAS, ProcellaCOR would not be defined as a PFAS product. Additionally, it is important to note that Bill H.238 only defines PFAS and does not regulate the sale or use of pesticides that meet this definition.

Proposed Treatment Plan

Vermont DEC has maintained that only a maximum of 40% of the littoral zone can be managed in any one calendar year, which is inclusive of herbicide, DASH, and/or benthic barrier use. Hand-pulling is not included within this maximum. This 40% threshold is to maintain protection for wildlife habitat and ensure that some aquatic plant growth remain unmanaged for refuge of aquatic wildlife species. If there are few other native plant species growing, then EWM is acting as habitat for aquatic wildlife, even though EWM may not be the ideal habitat for those species. Management of EWM typically allows rebound of native plant growth and thus an increase in biodiversity. Additionally, it is important to note that many public good uses, such as boating, fishing or swimming, are often impacted by EWM growth within the littoral zone.

Given that threshold, a maximum of 40 acres of Lake Iroquois's 100 acre littoral zone are eligible for management via any method(s) during a calendar year.

Based on LIA's integrated pest management approaches as outlined in the Introduction section, utilizing ProcellaCOR EC aquatic herbicide is a mere supplement to their existing and thorough EWM management program. Continuing with the herbicide approach initially proposed in 3038-ANC-C's application, non-chemical approaches will be used on the small and scattered patches of EWM where those are effective and feasible, while herbicide use will focus on the larger and more dense areas of EWM growth. Based on the distribution and density of EWM on an annual basis, the most appropriate integrated management approach(es) (DASH, bottom barriers, ProcellaCOR, etc.) will be determined and utilized accordingly.

Areas where sensitive native species, state ranked species and/or mapped wetlands (as defined in the Anticipated Non-Target Treatment Impacts section) are present will be avoided for herbicide treatment to the best of LIA's ability. This approach has been utilized for ProcellaCOR treatments previously in Vermont. Application rates no greater than 3 PDU per acre-foot will be proposed for annual approval if treatment is needed nearby to where these species and/or areas are present.

When utilized, a ProcellaCOR herbicide application would only occur one time per calendar year. Again, LIA does not have intentions of conducting an herbicide application on a regular basis as they have proven through their use of the previously issued ProcellaCOR permit 3038-ANC-C. Additionally, as Lake Iroquois has experienced from past ProcellaCOR applications, it would be anticipated for areas managed via herbicide application to have multiple years of EWM control from any one application.

Table 3. ProcellaCOR EC treatment information

Product information	ProcellaCOR EC aquatic herbicide, which is a liquid formulation. Active ingredient: florpyrauxifen-benzyl 2.7% EPA registration number: 67690-80

	Link to ProcellaCOR EC herbicide label Link to ProcellaCOR EC herbicide SDS Both the label and SDS are also included within the ProcellaCOR EC Documentation section of this application
Application Methodology	The liquid herbicide will be mixed with lake water to create a diluted solution in an onboard mixing tank of the treatment boat. The liquid mixture will be applied from the mixing tank via pump system to trailing drop hoses from the transom of the treatment boat. The application is fully sub-surface and allows the mixture to be applied closely to the plants. The pump system is calibrated for the boat and an onboard GPS system, pre-loaded with the treatment area shape(s), is utilized to ensure thorough and even application within the application area(s).
Application Rate	PDU = prescription dose unit. 1 PDU is equal to 3.2 fl. oz. The recommended and anticipated application rate for Lake Iroquois is 3 PDU per acre-foot, but an application rate of 4 PDU per acre-foot may be applicable for treatment areas that are subject to high dilution. Application rates will not exceed 4 PDU per acre-foot to minimize any potential non-target impacts at higher rates. 3 PDU per acre-foot is only 12% of the maximum application rate on the EPA product label (which is 25 PDU per acre-foot).
Target Concentration	1 PDU per acre-foot results in a concentration of 1.93 ppb per acre-foot. The anticipated application rate of 3 PDU per acre-foot will result in a concentration of 5.79 ppb per acre-foot within a treated area.
Treatment Area	Up to a maximum of 40 acres, which would assume that LIA did not utilize any other EWM management strategies in that respective calendar year. Given that

	this scenario is unlikely based on LIA's history of managing EWM, the maximum treatment area would be anticipated to be less than 40 acres in any one year. As with the current 3038-ANC-C permit, any proposed treatment and otherwise managed area(s) will be submitted for annual approval according to the conditions in the issued permit. The same treatment location(s) will not be targeted with the same herbicide for more than two consecutive years. However, based on LIA's treatment history, this situation is unlikely to happen as they have never previously conducted an herbicide treatment in consecutive years.
Treatment Timing	Between early June and late August, though this range is temperature dependent on both ends. Ultimately, there needs to be enough active EWM growth to ensure that the herbicide is appropriately absorbed by the plants. A treatment will only occur on a Monday or Tuesday.

Anticipated Non-Target Treatment Impacts

ProcellaCOR EC treatments have shown to have minimal non-target species impacts and are very selective for EWM, which is the goal of any management strategy.

Based on the 2025 survey efforts and the Vermont Integrated Watershed Information System (IWIS) plant list report for Lake Iroquois, the only species that may show impacts following treatment are watershield (*Brasenia schreberi*, based on product label information) coontail (*Ceratophyllum demersum*, based on product label information) and waterlily species (*Nuphar variegata* and *Nymphaea odorata*, based on treatment experience elsewhere in Vermont and New England). Watershield can be controlled with an application rate of 4 PDU per acre-foot. Coontail can be impacted with application rates of more than 4 PDU per acre-foot. Depending on the application rate and proximity to the treatment area(s), the waterlily species may present symptoms of twisting and discoloration, but usually outgrow those symptoms during the same growing season. Though not identified on the product label, northern watermilfoil (*Myriophyllum sibiricum*) is

also present within Lake Iroquois and given its shared genus with EWM, it would be anticipated that northern watermilfoil, if within a treatment area, may be impacted.

The following species are shown on the IWIS plant list as being state ranked and present within Lake Iroquois: prickly hornwort (*Ceratophyllum echinatum*, S2), Nuttall's waterweed (*Elodea nuttallii*, S3), Guadalupe naiad (*Najas guadalupensis*, S2), straight-leaf pondweed (*Potamogeton strictifolius*, S3?), Vasey's pondweed (*Potamogeton vaseyi*, S2), white water-crowfoot or white water buttercup (*Ranunculus aquatilis L. var. Diffusus*, S3), humped bladderwort (*Utricularia gibba*, S3), and lesser bladderwort (*Utricularia minor*, S2). These species are not expected to be susceptible to the proposed application rate as they are not identified on the product label. However, prickly hornwort is closely related to coontail, which can be impacted with higher application rates.

Mapped Class II wetlands and wetlands advisory areas are located adjacent to the northern end and within a small cove along the middle of the eastern shoreline of Lake Iroquois, and downstream over the northeastern basin of Sunset Lake (Lower Pond). Given the minimal mapped wetlands areas within Lake Iroquois proper, and treatment that is not being sought for Sunset Lake, there are no anticipated non-target impacts to the wetlands as they are currently mapped. However, it is understood that if only EWM is targeted, an herbicide application is an Allowed Use (6.18) under the Vermont Wetland Rules.

Given that Sunset Lake (Lower Pond) is immediately downstream of Lake Iroquois, it is important to consider the plant species that are present there and any potential impacts. Based on the species list shown on the IWIS report for Sunset Lake, the species that may show impacts following treatment are EWM, watershield, coontail, and waterlily species, which is similar to Lake Iroquois. However, it is important to note that since treatment is and will not be conducted in Sunset Lake, any anticipated non-target impacts would be expected to be minimal to non-existent. This is because of further dilution of the product from its application in Lake Iroquois and its downstream travel to Sunset. If any impacts were to be observed, it is anticipated it would be on EWM plants due to their sensitivity to ProcellaCOR.

Sunset Lake has the following state ranked species present according to the IWIS plant report: white water-crowfoot or white water buttercup, fruited bladderwort (*Utricularia geminiscapa*), and humped bladderwort. Again like Lake Iroquois, these species are not expected to be susceptible to the proposed application rate as they are not identified on the product label.

Areas where sensitive native species and/or state ranked species, whether in a mapped wetland or not, are present will be avoided for herbicide treatment to the best of LIA's ability. This approach has been utilized for ProcellaCOR treatments previously in Vermont. Application rates no greater than 3 PDU per acre-foot will be proposed for annual approval if treatment is needed nearby to where these species are present.

There is no additional concern about a ProcellaCOR herbicide application and subsequent plant decomposition to provide an increase of available nutrients that would cause an algae bloom in Lake Iroquois beyond the chance of it happening in any given year already. This is because the plant decomposition happens over the course of three to four weeks and the maximum theoretical acreage of Lake Iroquois to be managed (40 acres) in any year is only approximately 16% of the entire waterbody.

There are no anticipated impacts for any fish, bird, or other species as a result of a ProcellaCOR application. According to the memo from Vermont DEC's Monitoring and Assessment Program regarding the aquatic toxicity review for ProcellaCOR, "the potential for acute and chronic risks to fish, aquatic invertebrates, amphibians and other aquatic animals is considered low. Any potential chronic toxicity of concern would be short lived due to dissipation in the environment," (Levy, 2022). It is also important to note that ecotoxicity studies on ProcellaCOR are based on a maximum label rate and have shown that any possible toxicity levels are above the application rates used for EWM management.

Treatment Notifications

In accordance with issued permit conditions, at least 30 days in advance of any scheduled treatment date, public notification will be posted online and provided to Vermont DEC, the Agency of Natural Resources (ANR), the applicable municipality offices, all direct waterfront property owners on the lake as well as those one mile

downstream of the lake's outlet. The notifications will be provided by a method that provides proof of notification.

The notifications will be inclusive of a map of the approved treatment location(s), the scheduled treatment date, the approved herbicide to be used, the contact information for all permittees, the webpage with all this information, a summary of the water use advisories and recommendations, a statement identifying that the permittee shall supply potable water upon request to those dependent upon the treated waterbody or within one mile of its effluent for domestic use the day of treatment, and a statement informing all property owners that they are responsible for notifying all transient users (lessees, renters, users, or similar).

Copies of the notifications will be posted in locations visible to vehicle traffic, shoreline property owners, and potential lake users along all public roadways within 1,000 feet of the waterbody, as well as all public access points to the lake, inclusive of public boat launches, public beaches, or other similar public locations that provide access to the lake. The notifications will be posted on weather resistant material and of a large enough size to be easily visible.

The publicly available webpage will include a copy of the notification, the permit, the approved permit application, the herbicide label and SDS, and the status of the water use advisories and recommendations.

In the event that there is any additional information relevant to and/or required by the issued permit to include with the notifications, it will be included.

Treatment Water Use Advisories and Recommendations

Based on the recently issued Lake St. Catherine ANC permit, it would be anticipated for water use advisories and recommendations to be as follows: on the day of treatment, no use of the treated waterbody and associated outlet stream for up to one mile downstream is recommended for any purpose, including swimming, boating, fishing, irrigation, and all domestic uses. It is recommended to not compost aquatic plant material from a treatment location for up to four weeks after the day of treatment. Additional advisories and recommendations related to irrigation and the use of treated waters that are listed under the following sections of the ProcellaCOR EC product label shall be posted to the public webpage as

required under this permit: Use Precautions, Use Restrictions, Application to Waters Used for Irrigation on Turf and Landscape Vegetation, Residential and other Non-Agricultural Irrigation, and TABLE 1: Non-agricultural irrigation following in-water application.

Treatment Reporting

In accordance with issued permit conditions, within one week of any herbicide application, a treatment report will be submitted to Vermont DEC and ANR with the following information: date, time and duration of treatment, herbicide manufacturer, trade name and formulation used, total amount of herbicide applied, total surface area of the herbicide treatment, target herbicide concentration and related calculations, herbicide treatment technique and equipment used, and weather and lake conditions at the time of herbicide treatment.

In the event that there is any additional information relevant to and/or required by the issued permit to submit with the treatment reporting, it will be included.

Treatment Concentration Monitoring

In accordance with the final issued permit and any other conditions that it may contain, water samples will be collected at each of the approved (in the annual treatment plan) monitoring locations to determine the concentration of florpyrauxifen-benzyl after completion of any treatment event. The results will be submitted to DEC and ANR within 24 hours of receipt by the permittee and posted to the public webpage.

Water samples will be collected and analyzed 48 hours after completion of any treatment. If sample results indicate that concentrations are greater than 2 ppb, monitoring will continue for another 24-hour period and this process shall continue until all locations are less than or equal to 2 ppb. All samples will be analyzed using a methodology that has a minimum detection limit of at least 1 ppb.

Aquatic Plant Surveys

Similar to Lake Iroquois' existing 3038-ANC-C permit, a quantitative pre-treatment aquatic plant survey will be completed in a year prior to a proposed treatment. Another pre-treatment, but qualitative aquatic plant survey will be completed within the proposed treatment location(s) prior to and during the year of treatment to assess EWM and any non-target sensitive or controlled species that may be impacted. A quantitative post-treatment aquatic plant survey will be completed after a treatment during the year of treatment. Another quantitative post-treatment aquatic plant survey will be completed the year following a treatment. All quantitative surveys will comply with issued permit conditions such as time of year of survey, point-intercept methodology, and the types of data collected at each survey point.

In the event that there is any additional information relevant to and/or required by the issued permit for aquatic plant surveys, it will be included in the efforts.

Annual Reporting

In accordance with the issued permit, an annual report will be submitted to DEC and ANR by December 31st during the year of treatment and one year after. The report will include a summary of treatment concentration monitoring, aquatic plant survey results (inclusive of survey point and species specific abundance maps, and quantitative survey data in a spreadsheet), a map of where treatment location(s) and location(s) of any other non-chemical control activities occurred, a map of future potential treatment location(s) and location(s) of any other non-chemical control activities when applicable, and a summary of the herbicide application, inclusive of EWM regrowth status within treatment locations.

Given LIA's extensive history with pesticide minimization measures of utilizing non-chemical control methods for their EWM infestation, the information regarding those measures completed during the calendar year and those proposed for the following calendar year will be reported.

In the event that there is any additional information relevant to and/or required by the issued permit to submit with the annual reporting, it will be included.

Aquatic Nuisance Control Estimated Budget

Table 5. Five year estimated LIA aquatic nuisance control budget

	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Description	2026	2027	2028	2029	2030
Boat ramp greeter program[1]	26,000	27,000	28,000	29,000	30,000
Benthic barriers	1,000		1,000		
DASH	14,000	14,500	15,000	16,000	16,500
Diver hand-pulling[2]	TBD	TBD	TBD	TBD	TBD
Herbicide application[3]		60,000			60,000
Monitoring & plant surveys	4,800	6,800	4,900	5,000	7,000
Notifications[3]		1,000			1,000
LIA expenses (permitting, meetings, etc.)	500	1,000	500	500	1,000
TOTALS[4]	**$46,300**	**$110,300**	**$49,400**	**$50,500**	**$115,500**

[1] Inclusive of greeters, boat wash maintenance and insurance, greeter shed, and incidentals.

[2] Costs are to be determined due to lack of available divers to contract for this work.

[3] Years of treatment are based on past experience at Lake Iroquois, but may change as needed. Notification expenses will shift accordingly with treatment years.

[4] All costs are provided in 2025 dollars.

Summary

Lake Iroquois is an important aquatic resource for its residents, users, wildlife, and overall regional area. Unfortunately, similar to many Vermont waterbodies, EWM continues to present a challenge for all users and inhabitants. LIA is dedicated to continuing their integrated EWM management plan, using primarily non-chemical means to control the growth present within the lake. However, past experience there and elsewhere in Vermont tells us that the EWM growth will not only outcompete the native aquatic plant species, but it will eventually grow and spread more rapidly than the non-chemical means are able to keep up with. Fortunately, LIA's past success with utilizing ProcellaCOR EC aquatic herbicide has provided them the additional control for those larger, more densely grown EWM areas. For Lake Iroquois, ProcellaCOR is not anticipated to be an annual management tool, but a tool to utilize when needed in the overall management program. The LIA aims to continue the efforts previously approved in Aquatic Nuisance Control permit 3038-ANC-C for ProcellaCOR aquatic herbicide use under another similarly issued ANC permit.

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Included Reports

- Interim Report on the Aquatic Vegetation of Lake Iroquois, June 2025
- Aquatic Vegetation of Lake Iroquois, October 2025

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

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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.

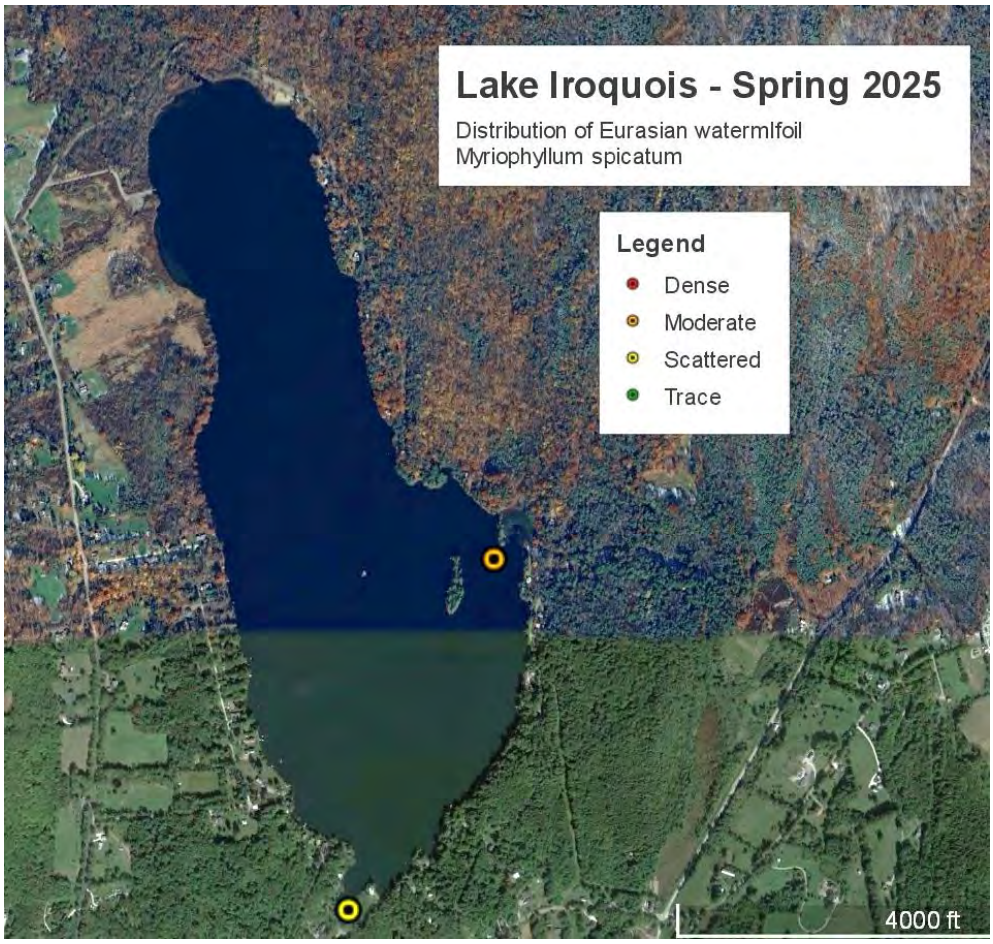
3. Results

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%).

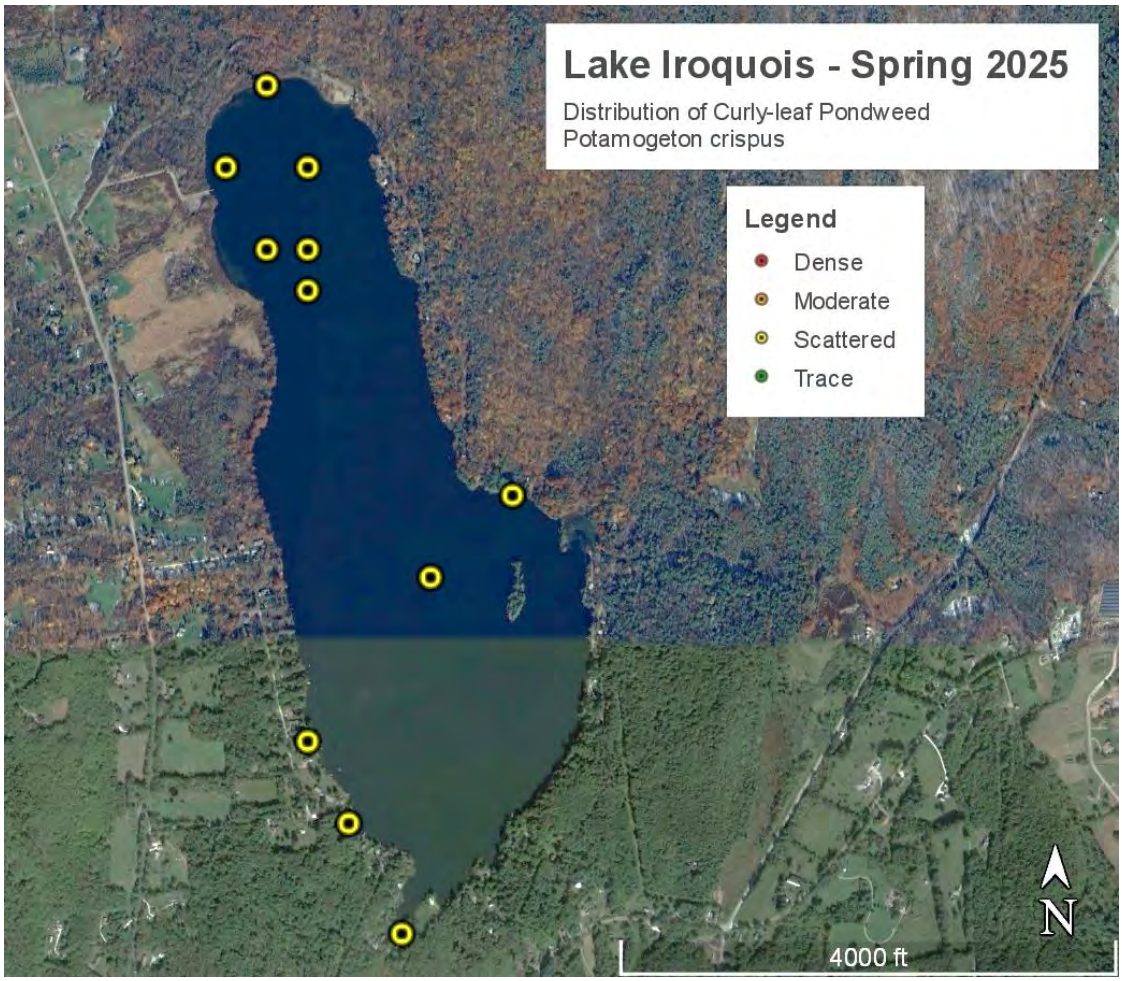
Figure 1. Distribution of Eurasian watermilfoil (*Myriophyllum spicatum*) in Lake Iroquois in June 2025.



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 it's life cycle by mid-July and dies back.

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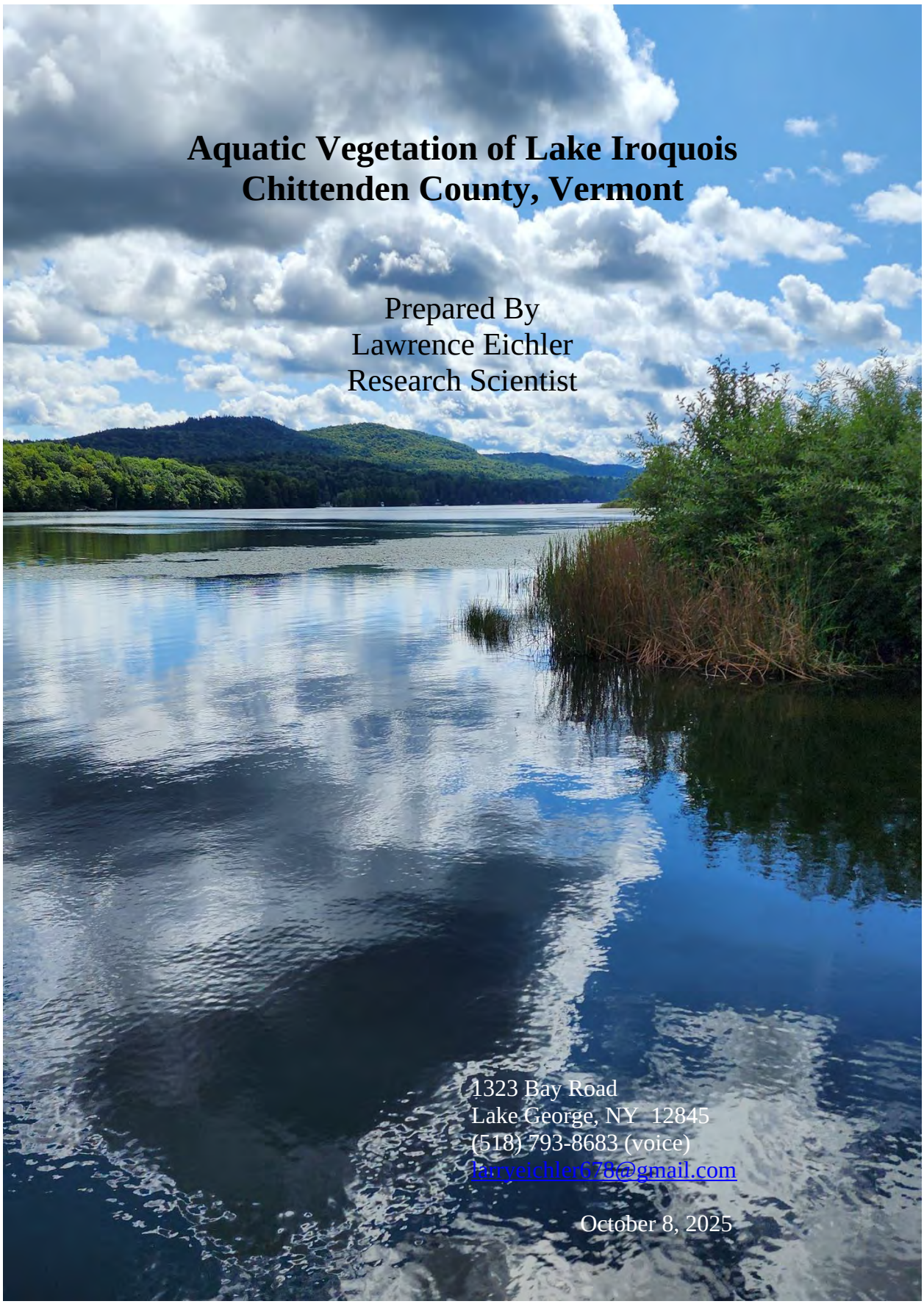
Table 1. Species list for Lake Iroquois.

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 2022	Spring 2023	Spring 2024	Spring 2025
Ceratophyllum demersum L.	coontail	5.5%	6.8%	9.2%	6.4%
Chara sp.	muskgrass, chara	42.5%	37.0%	36.8%	38.5%
Eleocharis acicularis (L.) Roemer & Schultes	needle spike-rush	6.8%	6.8%	6.6%	6.4%
Elodea canadensis Michx.	elodea	37.0%	27.4%	44.7%	42.3%
Isoetes echinospora Dur.	quillwort	4.1%	2.7%	1.3%	
Lemna trisulca L.	duckweed	2.7%	5.5%	1.3%	3.0%
Myriophyllum spicatum L.	Eurasian watermilfoil		2.7%	27.6%	2.6%
Nuphar variegata	yellow waterlily			1.3%	2.6%
Nymphaea odorata Ait.	white waterlily	8.2%	9.6%	7.9%	7.7%
Polygonum amphibium	smartweed		1.4%	1.3%	1.3%
Potamogeton amplifolius Tuckerm.	large-leaf pondweed	9.6%	9.6%	11.8%	10.3%
Potamogeton crispus L.	curly-leaf pondweed	16.4%	19.2%	22.4%	14.1%
Potamogeton foliosus Raf.	pondweed	16.4%	13.0%	10.5%	10.3%
Potamogeton perfoliatus L	clasping-leaf pondweed			2.6%	
Potamogeton praelongus Wulfen	white-stem pondweed	9.6%	12.3%	7.9%	6.4%
Potamogeton zosteriformis Fern.	flat-stem pondweed	8.2%	12.3%	14.5%	21.8%
Ranunculus longirostris Godron	white watercrowfoot	2.7%	2.7%	3.9%	5.1%
Sparganium sp.	burreed	1.4%	6.8%	1.3%	7.7%
Typha sp.	cattail	1.4%	1.4%	1.3%	1.3%
Utricularia vulgaris L.	great bladderwort	5.5%	2.7%	1.3%	3.8%
Vallisneria americana L.	wild celery	4.1%	19.2%	3.9%	2.6%
Zosterella dubia (Jacq.) Small	water stargrass	19.2%	9.6%	25.0%	21.8%



Aquatic Vegetation of Lake Iroquois
Chittenden County, Vermont

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October 8, 2025

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Background.

At the request of Jane Clifford of the Lake Iroquois Association, Spring and Fall 2025 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 for Eurasian watermilfoil control. The surveys largely duplicated 2017, 2019, 2021, 2022, 2023 and 2024 surveys conducted by the author (Eichler 2017, 2019, 2021, 2022, 2023 and 2024). The surveys consisted of frequency of occurrence and relative abundance data 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 includes 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*). Vermont Department of Environmental Conservation (DEC) Grant-in-Aid funds were used to perform the Spring and Fall Lake Iroquois quantitative surveys.

Methods

Survey Sites

Lake Iroquois. Lake Iroquois is in Chittenden County, in the towns of Hinesburg, Richmond and Williston. The lake has a surface area of approximately 244 acres with a watershed area of 2198 acres. Lake Iroquois has a single outlet with a control structure to maintain lake level. Maximum water depth is reported to be 37 ft with average water depth of 19 feet (VTDEC 2016a). Secchi disk transparency in 2015 averaged 12 ft (3.8 m; VT DEC 2015). Lake Iroquois is classified as eutrophic based on phosphorous and chlorophyll concentrations, indicating that nutrient levels are sufficient to support dense growth of planktonic algae and aquatic plants. Two invasive aquatic plant species are reported for Lake Iroquois, Eurasian watermilfoil (*Myriophyllum spicatum*) and Curly-leaf Pondweed (*Potamogeton crispus*) (VT DEC 2016b). VT DEC records indicate that Eurasian watermilfoil was first confirmed in 1991 while curly-leaf pondweed was present in 1984. An aquatic plant survey of Lake Iroquois in September of 2014 reported over 70 acres of dense Eurasian watermilfoil growth (Knoecklein 2015). A total of 45 aquatic plant species have been reported for Lake Iroquois in multiple surveys since 1984, however a 2014 survey only reported 23 species. Loss of native species is a commonly reported phenomenon in lakes with severe infestation by Eurasian watermilfoil and/or other invasive aquatic plant species (Madsen et al. 1991). In a survey conducted by the author in 2017, a total of 25 species of

aquatic plants were observed in Lake Iroquois (Eichler 2017). The aquatic plant community included sixteen submersed species, two floating-leaved species, and seven emergent species. Duck celery (*Vallisneria americana*) and coontail (*Ceratophyllum demersum)* were the most common native plants. Eurasian watermilfoil (*Myriophyllum spicatum*) was present in 24% of survey points. Small declines in the frequency of occurrence of most native species were observed in 2019 (19 of 23 species when compared to the 2017 survey), possibly as a result of the expansion of Eurasian watermilfoil to 43% of survey points. In the Spring of 2021 prior to herbicide treatment, Eurasian watermilfoil was present in 24% of survey points. In September post-treatment and again in June of 2022, Eurasian watermilfoil was absent from all survey points. In September of 2022, Eurasian watermilfoil was found at a single survey point at the south end of the lake. By 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. In the Spring of 2025, 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. Scattered growth of Eurasian watermilfoil persisted in Loon Bay and at the southwest end of the lake in the Fall 2025 survey.

Hand harvesting efforts began on Lake Iroquois in 2008 to control dense growth of Eurasian watermilfoil. The aquatic weevil (*Euhrychiopsis lecontei*) population was supplemented in 2008 and 2009 to provide a biocontrol agent for Eurasian watermilfoil. Extensive growth of Eurasian watermilfoil reported in 2014 suggested a more intensive management effort was necessary. In 2016, diver assisted suction harvesting (DASH) for Eurasian watermilfoil control was employed in the boat launch area and near the LIRD beach. Over a period of 2 weeks, divers harvested over 5000 gallons of Eurasian watermilfoil. Benthic barriers (mats) were installed in 2017 to maintain the areas harvested by DASH in 2016. In 2019, DASH collected approximately 2000 gallons of Eurasian watermilfoil, representing a fraction of Eurasian watermilfoil growth. Residents remained concerned that Eurasian watermilfoil growth was exceeding the capacity of the existing management effort. The management effort was expanded in 2021 to include an herbicide, with 40 acres at the north end of Lake Iroquois treated with ProcellaCOR EC. No organized management efforts occurred in 2022. Annual DASH occurred in 2023 through 2025, with a ProcellaCOR EC treatment in 2024.

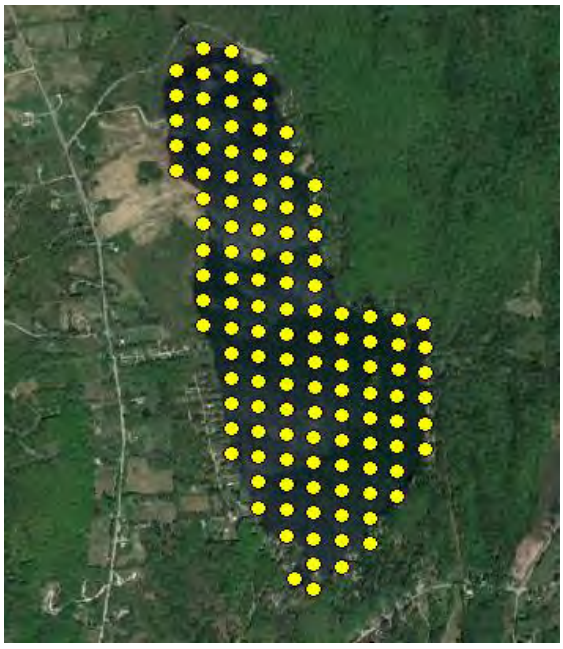


Figure 1. Map of Lake Iroquois with point intercept survey locations.

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 in Bolton Landing, NY. All taxonomy is based on Crow & Hellquist, 2000.

Point Intercept Surveys. The frequency and richness 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 retrieved plants. A total of 76 points were surveyed in the Spring, and 81 points were surveyed in the Fall for Lake Iroquois, based on a 100 m grid. Point intercept plant frequencies were surveyed on June 11, and September 10, 2025 to provide pre- and post-management data. A global positioning system (GPS) was used to navigate to each point for the survey observation.

Relative abundance in the Point Intercept surveys. To characterize relative abundance of each of the species identified in the point intercept survey, a scale developed by Cornell University and the US Army Corps of Engineers was employed. For each rake toss, the relative abundance of each plant species collected was recorded based on this rating scale. Maps of the distribution of each species by its relative abundance is included in Appendix A.

Relative abundance scale based on US Army Corp/Cornell methods.

Code	Rating	Abundance
0	no plants	
1	trace growth of plants	fingerful on rake
2	sparse growth of plants	handful on rake
3	medium growth of plants	rakeful of plants
4	dense growth of plants	difficult to bring into boat

Results and Discussion

In September of 2025, the aquatic plant community of Lake Iroquois included twenty-five submersed species, three floating-leaved species, two floating species and five emergent species (Table 1), including some species observed but not collected in the point intercept survey. Twenty-one species were present in the point intercept portion of the 2025 survey, comparable to the 20, 23, 24, 26, 25, 19 and 23 species reported in 2024, 2023, 2022, 2021, 2019, 2017 and 2014, even though a greater number of survey points were included in 2014. Combining the results of all surveys, a total of 45 aquatic plant species have been reported for Lake Iroquois, however many of these are classified as wetland species not typically captured by the current survey technique. This number of species greatly exceeds the 15 species typically reported for moderately productive lakes in our region and indicates good water quality and a variety of habitat types. Eurasian watermilfoil (*Myriophyllum spicatum)* and curly-leaf pondweed (*Potamogeton crispus*) were the only exotic species reported in Lake Iroquois. Species richness was quite high, with many species occurring in more than 5% of survey points (Table 2).

Table 1. Species list for Lake Iroquois. Species in red are invasive.

Species Name	Common Name	Habit
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.	Waterweed	s
Fontinalis sp.	Moss	s
Isoetes echinospora Dur.	Quillwort	s
Lemna minor L.	Duckweed	f
Lemna trisulca L.	duckweed	f
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.	large-leaf pondweed	s
Potamogeton crispus L.	curly-leaf 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

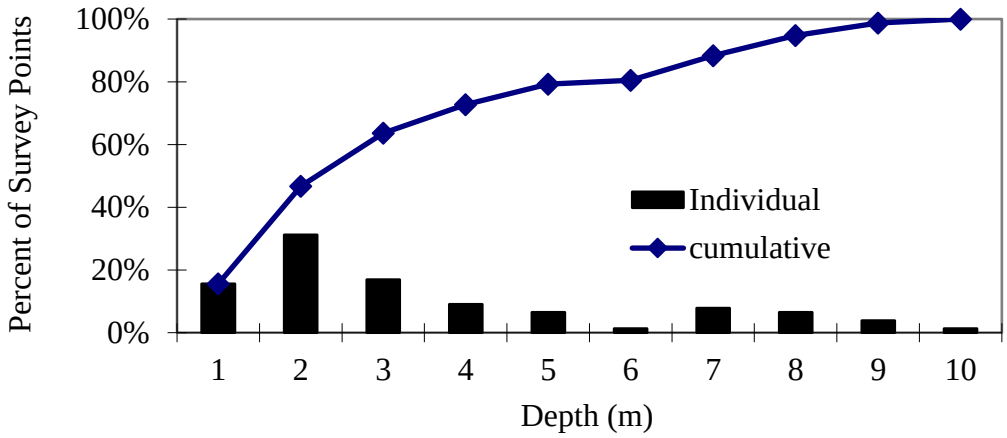
Species Name	Common Name	Habit
Potamogeton pusillus L.	small pondweed	s
Potamogeton richardsonii Oakes	Richardsons' pondweed	s
Potamogeton robbinsii	Robbins' pondweed	s
Potamogeton spirillus Tuckerm.	pondweed	s
Potamogeton zosteriformis Fern.	flat-stem pondweed	s
Ranunculus longirostris Godron	white watercrowfoot	s
Sparganium sp.	bur-reed	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

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

Maximum Depth of Colonization

Maximum depth of rooted aquatic plant growth, termed the littoral zone, extended approximately 5.0 meters (16 feet). The majority of survey points were in the littoral zone (Figure 2), providing a reasonable representation of the plant population of Lake Iroquois.

Figure 2. Depth Distribution of Lake Iroquois Sampling Points in 1 meter depth classes.



Species Lists

Maps of the distribution of aquatic plant species for Lake Iroquois are included in Appendix A. Frequency of occurrence results are presented in 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. Curly-leaf pondweed, another invasive species, was present in 14% of survey points. Common native species in the June 2025 survey for Lake Iroquois included *Chara* (39% of survey points),

Zo*sterella dubia* (22%), *Potamogeton zosteriformis* (22%), *Potamogeton amplifolius* (10%), *Potamogeton foliosus* (10%), *Nymphaea odorata* (8%), *Ceratophyllum demersum* (6%), *Potamogeton praelongus* (6%), and *Eleocharis acicularis* (6%). While the Spring survey provides confirmation of the distribution of Eurasian watermilfoil, a perennial species, the timing of the survey precludes determination of the distribution and relative abundance of most native species that have not started growing this early in the season. The remainder of this report will focus on comparison of the Fall survey results.

Table 2. Lake Iroquois percent frequency of occurrence data for Fall surveys only.

Species Name	Common Name	Fall 2023	Fall 2024	Fall 2025
Ceratophyllum demersum L.	Coontail	11.4%	5.1%	5.1%
Chara sp.	muskgrass, chara	46.8%	39.2%	39.2%
Eleocharis acicularis (L.) Roemer & Schultes	needle spike-rush	3.8%	1.3%	5.1%
Elodea canadensis Michx.	Elodea	43.0%	51.9%	50.6%
Fontinalis sp.	Moss		2.5%	
Lemna trisulca L.	Duckweed	1.3%		
Myriophyllum spicatum L.	Eurasian watermilfoil	19.0%		3.8%
Najas flexilis (Willd.) Rostk. & Schmidt.	bushy pondweed	13.9%	3.8%	5.1%
Nymphaea odorata Ait.	white waterlily	15.2%	10.1%	16.5%
Polygonum amphibium	Smartweed	1.3%	1.3%	2.5%
Potamogeton amplifolius Tuckerm.	largeleaf pondweed	7.6%	17.7%	20.3%
Potamogeton foliosus Raf.	Pondweed	13.0%	13.0%	1.3%
Potamogeton gramineus	variable pondweed	1.3%	5.1%	1.3%
Potamogeton perfoliatus L.	clasping-leaf pondweed	2.5%	1.3%	2.5%
Potamogeton praelongus Wulfen	white-stem pondweed	13.9%	3.8%	5.1%
Potamogeton pusillus L.	small pondweed	13.9%	7.6%	13.9%
Potamogeton robbinsii	Robbins' pondweed			2.5%
Potamogeton richardsonii Oakes	Richardsons' pondweed	5.1%		2.5%
Potamogeton zosteriformis Fern.	flat-stem pondweed	36.7%	29.1%	40.5%
Ranunculus longirostris Godron	white watercrowfoot	3.8%	7.6%	2.5%
Sparganium sp.	burreed	1.3%	1.3%	
Typha sp.	cattail	1.3%		
Utricularia gibba L.	humped bladderwort	3.8%	1.3%	1.3%
Utricularia vulgaris L.	great bladderwort	11.4%	10.1%	3.8%
Vallisneria americana L.	wild celery	39.2%	43.0%	27.8%
Zosterella dubia (Jacq.) Small	water stargrass	27.8%	17.7%	10.1%

For the September 2025 one-year post-treatment sample, waterweed (*Elodea canadensis*) remained the most common species, present in 51% of survey points. Eurasian watermilfoil (*Myriophyllum spicatum*) was present in 4% of survey points. Common native species included *Potamogeton zosteriformis* (41% of survey points), *Chara* sp. (39%), *Vallisneria americana*

(28%), *Potamogeton amplifolius* (20%), *Nymphaea odorata* (17%), *Potamogeton pusillus* (14%), *Zosterella dubia* (10%), *Najas flexilis* (5%), *Eleocharis acicularis* (5%), *Ceratophyllum demersum* (5%), and *Potamogeton praelongus* (5%).

Native species results were generally comparable to those reported in prior surveys with a few exceptions. A common native species, *Ceratophyllum demersum,* was dominant in Lake Iroquois in 2017 but was observed at lower frequency of occurrence in 2019 through 2025. This species is known to be sensitive to ProcellaCOR. Pondweed species (*Potamogeton amplifolius, P. foliosus* and *P. zosteriformis*) were generally more abundant in September post-treatment surveys, particularly Broad-leaf Pondweed (*Potamogeton amplifolius*). Slight declines in the frequency of occurrence of the majority of native species were observed (19 of 23 species) between 2017 and 2019. Most of these species increased in frequency of occurrence in 2021 through 2023 surveys. In 2024, 16 of the 19 native species declined in frequency of occurrence. In 2025, 12 of 20 native species increased in frequency of occurrence. Declines in most native species are observed as a result of invasion and canopy formation by Eurasian watermilfoil, with recovery generally rapid after removal of the canopy.

Seventy-two percent of whole lake sampling points were vegetated by at least one native plant species (Figure 3), 88% of survey points with depths less than 5 m (Figure 4) and 95% of survey points with depths less than 2 meters depth yielded native aquatic plants in Fall of 2025. These results are comparable to 2024, 2023 and 2022, when 73%, 75% and 76% of whole lake

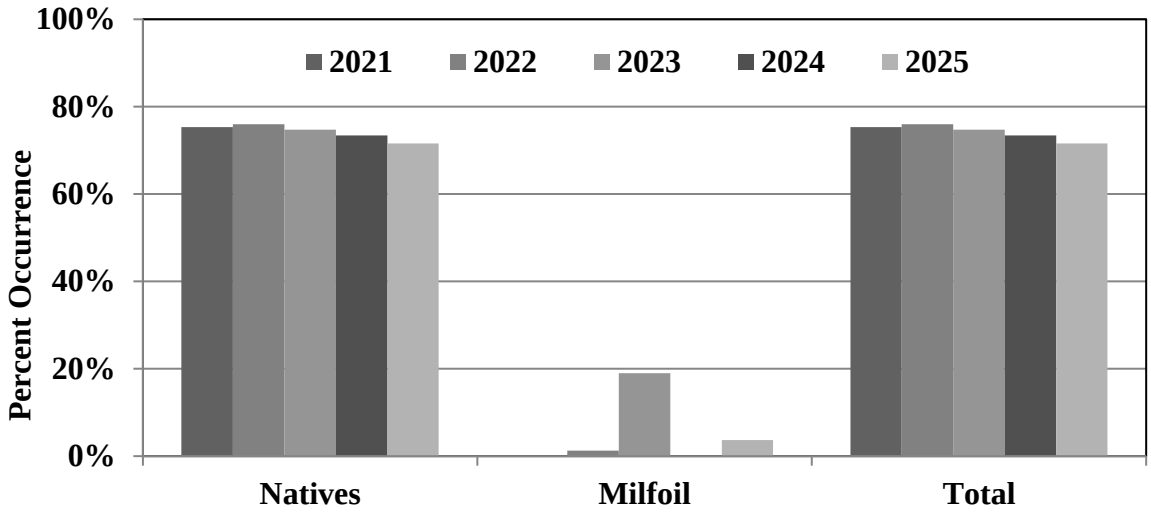


Figure 3. Lake Iroquois frequency of occurrence summaries.

sampling points were vegetated by native plants. In 2021, seventy-five percent of whole lake sampling points were vegetated by at least one native plant species, 94% of survey points with depths less than 5 m and 100% of survey points with depths less than 2 meters depth were vegetated by at least one native plant species. In 2019, forty-five percent of whole lake sampling points were vegetated by at least one native plant species, 91% of survey points with depths less than 5 m and 97% of survey points with whole lake sampling points were vegetated by at least

one native plant species. Eurasian watermilfoil was present in 4% of survey points in the Fall of 2025, absent in the Fall survey of 2024, present in 19% of survey points in the Fall of 2023 and 1% of survey points in the Fall of 2022. Absent in 2021, Eurasian watermilfoil was present in 43% of whole lake survey points, and 86% of survey points less than 5 m water depth in 2019, representing the littoral zone or zone of aquatic plant growth. For survey points within the littoral zone, water depth less than 5 m, results similar to whole lake surveys are reported. The expected relationship of greater frequency of occurrence of aquatic plants with shallower water depth is consistent with that reported by other regional studies.

Littoral zone frequency of occurrence values for both survey years were dominated by native species and similar to nearby lakes (Getsinger et al. 2002). Species richness is presented in Table 3 and Figure 4. Whole lake native species richness in 2025 was 2.45 species per sample

Table 3. Lake Iroquois species richness comparison.

Plant Grouping	Water Depth Class	Summary Statistic	Survey Result				
			2021	2022	2023	2024	2025
Native plant species	Whole Lake (all depths)	Mean	2.65	2.94	3.06	2.61	2.45
		N	77	79	79	79	81
		Std. Error	0.26	0.25	0.27	0.24	0.22
	Points with depths <5m	Mean	3.33	3.75	4.03	3.38	3.05
		N	61	63	60	61	65
		Std. Error	0.26	0.22	0.24	0.23	0.21
	Points with depths <2m	Mean	4.11	4.35	4.23	4.08	3.73
		N	36	43	40	37	42
		Std. Error	0.32	0.22	0.31	0.28	0.23
All plant species	Whole Lake (all depths)	Mean	2.74	2.95	3.25	2.61	2.49
		N	77	79	79	79	81
		Std. Error	0.26	0.25	0.29	0.24	0.22
	Points with depths <4m	Mean	3.44	3.77	4.28	3.38	3.09
		N	61	63	60	61	65
		Std. Error	0.27	0.22	0.26	0.23	0.21
	Points with depths <2m	Mean	4.25	4.37	4.50	4.08	3.78
		N	36	43	40	37	42
		Std. Error	0.33	0.23	0.34	0.28	0.25

point similar to the 2.61, 3.06, 2.94, 2.65, 1.50 and 2.13 reported in 2024, 2023, 2022, 2021, 2019 and 2017, respectively. Species richness in this range is comparable to nearby lakes (Eichler 2016). For survey points exclusively within the littoral zone (depths less than 5 meters), native species richness was 3.05, 3.38, 4.03, 3.75, 3.33, 3.02 and 3.62 species per survey point (Figure 4) for 2025, 2024, 2023, 2022, 2021, 2019 and 2017, respectively. As expected, species richness in the littoral zone and its shallow fringe was higher than whole lake species richness and native species richness increased with the removal of Eurasian watermilfoil.

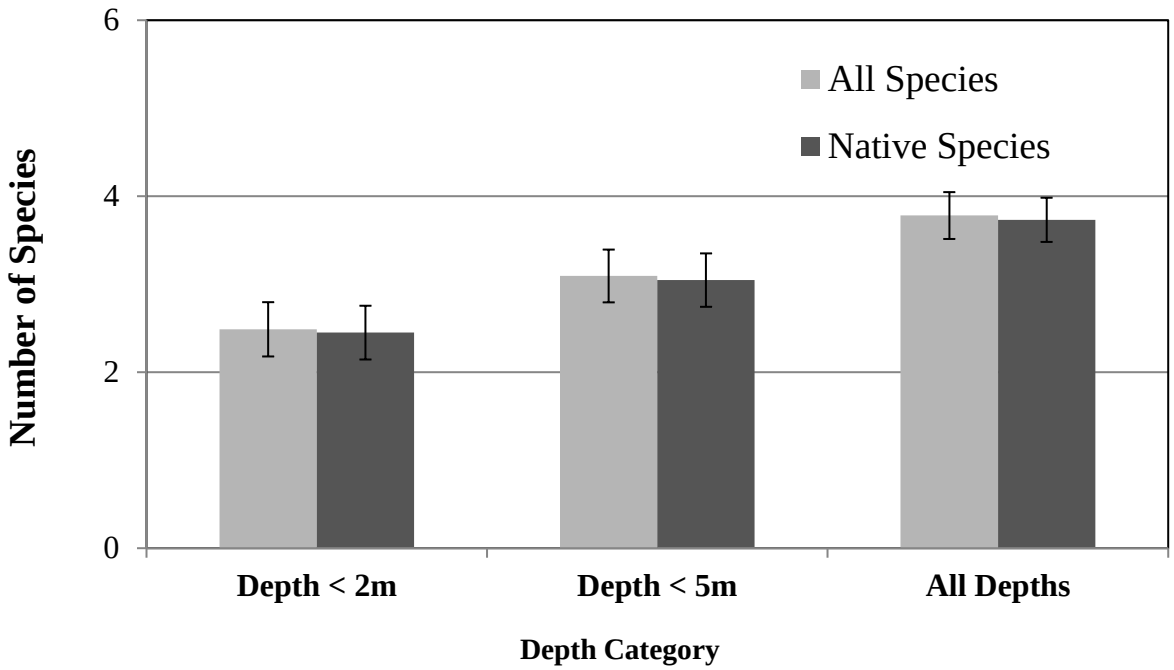


Figure 4. Lake Iroquois species richness.
Error bars are standard error of the mean

Summary

Spring and Fall quantitative aquatic plant surveys were undertaken for Lake Iroquois, Vermont in June and September 2025. The surveys occurred one-year post-treatment for aquatic plant management efforts employing the herbicide ProcellaCOR EC and diver assisted suction harvesting (DASH) for Eurasian watermilfoil control. The September component of the survey duplicated prior surveys conducted by the author (Eichler 2024). The surveys consisted of frequency of occurrence and relative abundance data 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 generated the information necessary to: 1) evaluate the effectiveness of the aquatic plant management efforts, 2) determine the impact of the management efforts on non-target aquatic plant species, and 3) provide data for comparison of post-treatment conditions to prior survey information.

Eurasian watermilfoil (*Myriophyllum spicatum*) populations were first reported in 1990 in Lake Iroquois and confirmed in 1991. Hand harvesting by skin and SCUBA divers has been the basis of the program since the formation of the lake association in 2007. The aquatic weevil (*Euhrychiopsis lecontei*) population of the lake was supplemented in 2008 and 2009 to provide a biocontrol agent for Eurasian watermilfoil. However, by 2014 approximately 70 acres of Lake Iroquois was reported to support dense growth of Eurasian watermilfoil. Benthic barrier and diver assisted suction harvesting (DASH) were included in 2016 through 2019. A more intensive management effort based on herbicide treatment occurred in the Spring of 2021. No organized management efforts occurred in 2022. Limited diver assisted suction harvesting (DASH) was employed in 2023, however a report of dense growth of Eurasian watermilfoil to the west of the water ski course suggested the need for a more intensive management strategy. Four areas of Lake Iroquois were treated with the herbicide ProcellaCOR EC in 2024. DASH was conducted in 2025.

The aquatic plant community of Lake Iroquois in 2025 included twenty-five submersed species, three floating-leaved species, two floating species and five emergent species. Twenty-two species were collected in the point intercept portion of the survey, comparable to the 20, 23, 24, 26, 25, 19, and 23 species reported in 2024, 2023, 2022 ,2021, 2019, 2017 and 2014, respectively. This number of species greatly 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).

Eurasian watermilfoil was present in 4% of survey points in the Fall of 2025. Eurasian watermilfoil was absent post-treatment from the Fall 2024 survey. Pre-treatment in June of 2024, Eurasian watermilfoil had expanded to 28% of survey points. Eurasian watermilfoil was reported for 3% of survey points in the Spring of 2023 and 19% of survey points in the Fall 2023 survey. Present in 1% of survey points in the Fall 2022 survey, Eurasian watermilfoil was absent in the Spring of 2022 and Fall, post-treatment survey of 2021. Eurasian watermilfoil was present in 24% of survey points in the Spring of 2021, 43% of survey points in the Fall of 2019 and 24% of survey points in the Fall of 2017, representing a decline from the dense growth reported for over

67% of the littoral zone in 2014. The density of Eurasian watermilfoil growth also varied, with most points described as dense growth in 2014 reduced to scattered or moderate growth in 2017 and 2019. Absent in the Fall 2021 and Spring 2022 surveys, Eurasian watermilfoil was reported as scattered growth at a single location in the Fall of 2022. By the Fall 2023 survey scattered growth of Eurasian watermilfoil was reported in several locations and dense growth was reported in the north end of the lake west of the water ski course. In the Spring of 2024, 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 in the Fall 2024 survey, post-treatment with the herbicide ProcellaCOR EC. In the Spring of 2025, 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. Scattered growth of Eurasian watermilfoil persisted in Loon Bay and at the southwest end of the lake in the Fall 2025 survey.

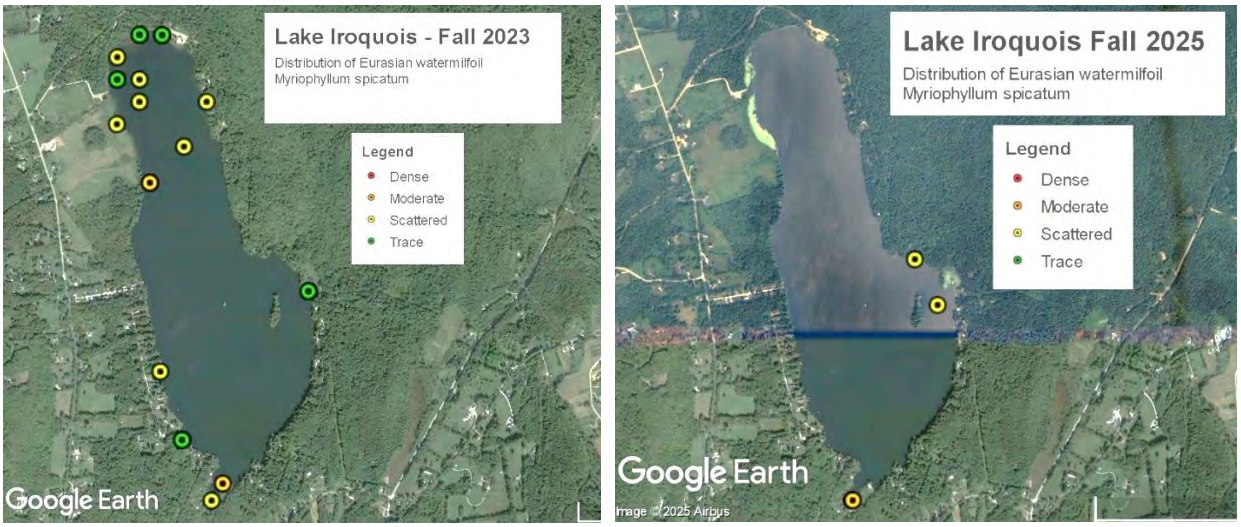
Species richness in Lake Iroquois was quite high, with several species occurring in more than 5% of survey points. Seventy-two percent of sampling points were vegetated by at least one native plant species in the Fall 2025 survey. The large number of points supporting native plant species suggests that Lake Iroquois is a prime candidate for recovery of its native plant population following management of Eurasian watermilfoil. Native species richness in the littoral zone was 3.05, 3.38, 4.03, 3.75, 3.33, 3.02 and 3.62 species per sample in 2025, 2024, 2023, 2022, 2021, 2019 and 2017, respectively; and at the high end of species richness values for other regional lakes, which ranged from 1.79 to 4.00 species per sample.

Common native species for Lake Iroquois in the Fall 2025 survey included waterweed (*Elodea canadensis,* 49% of survey points), flat-stem pondweed (*Potamogeton zosteriformis,* 40%), muskgrass *Chara/Nitella,* 38%), wild celery (*Vallisneria americana,* 27%), broad-leaf pondweed (*Potamogeton amplifolius,* 20%), white waterlily (*Nymphaea odorata,* 16%), small pondweed (*Potamogeton pusillus,* 14%), water stargrass (*Zosterella dubia,* 10%), coontail (*Ceratophyllum demersum,* 5%), white-stem pondweed (*Potamogeton praelongus,* 5%), bushy pondweed (*Najas flexilis,* 5%), needle spike-rush (*Eleocharis acicularis,* 5%), and variable pondweed (*Potamogeton gramineus,* 5%). Native species results are generally comparable to those reported in prior surveys with a few exceptions. A common native species, *Ceratophyllum demersum,* remains dominant in Lake Iroquois but at lower frequency of occurrence. This species is known to be sensitive to ProcellaCOR. Pondweed species (*Potamogeton amplifolius, P. pusillus* and *P. zosteriformis*) were generally more abundant in September post-treatment surveys, particularly Broad-leaf Pondweed. Declines in most native species are observed as a result of invasion and canopy formation by Eurasian watermilfoil, with recovery generally rapid after removal of the canopy. Shifts in plant growth from year to year are common, particularly with new invaders like Eurasian watermilfoil. These shifts are often attributed to changing weather patterns, plant disease outbreaks or differences in the abundance of plant predators.

Eurasian watermilfoil growth in Lake Iroquois was present primarily as scattered and moderate density growth in September of 2017, while native plant populations were robust and similar to other regional lakes. By the Fall 2019, moderate to dense growth of Eurasian watermilfoil was

more typical and native plant populations had declined. In May of 2021 immediately prior to application of ProcellaCOR EC, Eurasian watermilfoil frequency of occurrence was similar to Fall 2017 and was most abundant at the north end of the lake, the area chosen for treatment with the herbicide. Eurasian watermilfoil was absent in post-treatment surveys in September of 2021 and June of 2022, most likely attributable to the use of herbicide. In September of 2022, Eurasian watermilfoil was present in 1% of survey points. In June of 2023, Eurasian watermilfoil was reported at 2 survey points (3%) at the south end of the lake, increasing to 19% of survey points by September of 2023 (Figure 5). In June of 2024 pre-treatment, Eurasian watermilfoil had expanded to 28% of survey points. Following the ProcellaCOR EC treatment, Eurasian watermilfoil was absent from the Fall 2024 survey. By Fall of 2025, Eurasian watermilfoil had returned to 4% of survey points.

Figure 5. Distribution of Eurasian watermilfoil in Lake Iroquois. Eurasian watermilfoil was absent from the 2024 Fall survey.



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Acknowledgements

The author would like to acknowledge Pat Suozzi and Jane Clifford of the Lake Iroquois Association for their assistance in coordinating the current survey project.

Appendix A

Lake Iroquois Aquatic Plant Distribution Maps

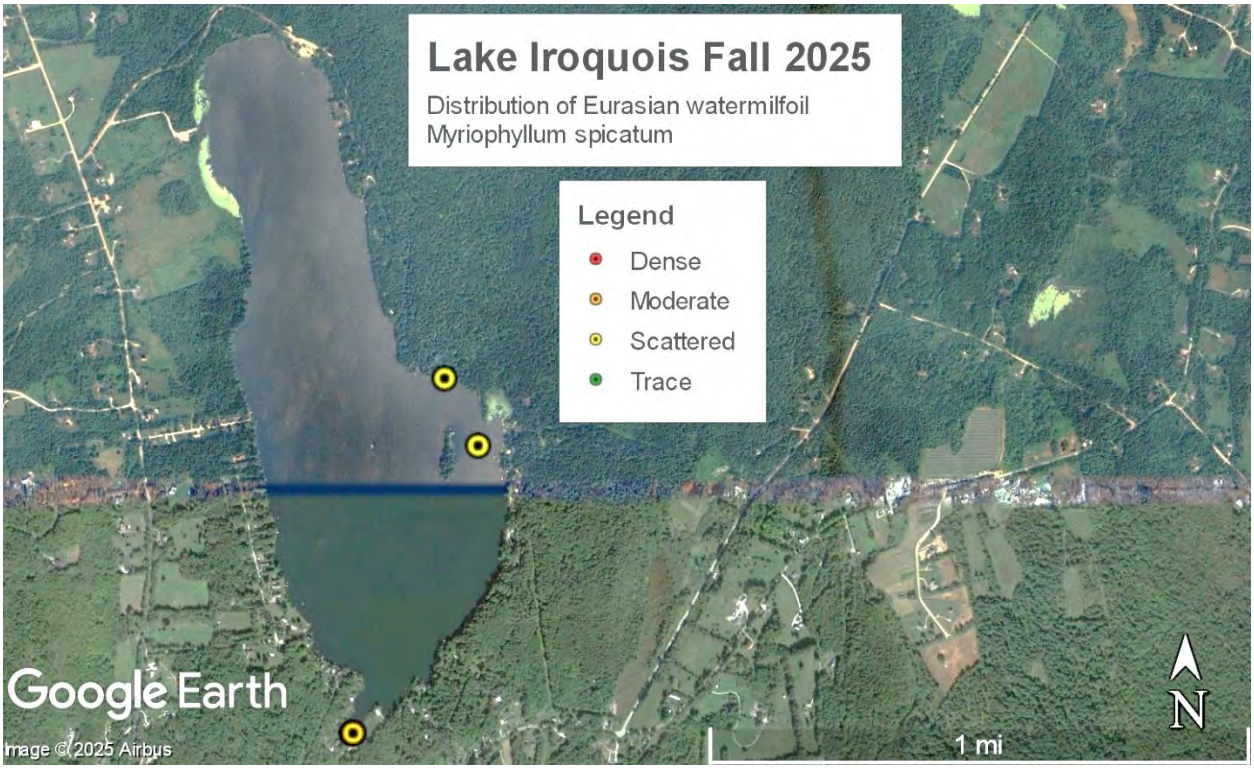
Lake Iroquois Fall 2025
Distribution of Eurasian watermilfoil
Myriophyllum spicatum
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Image © 2025 Airbus
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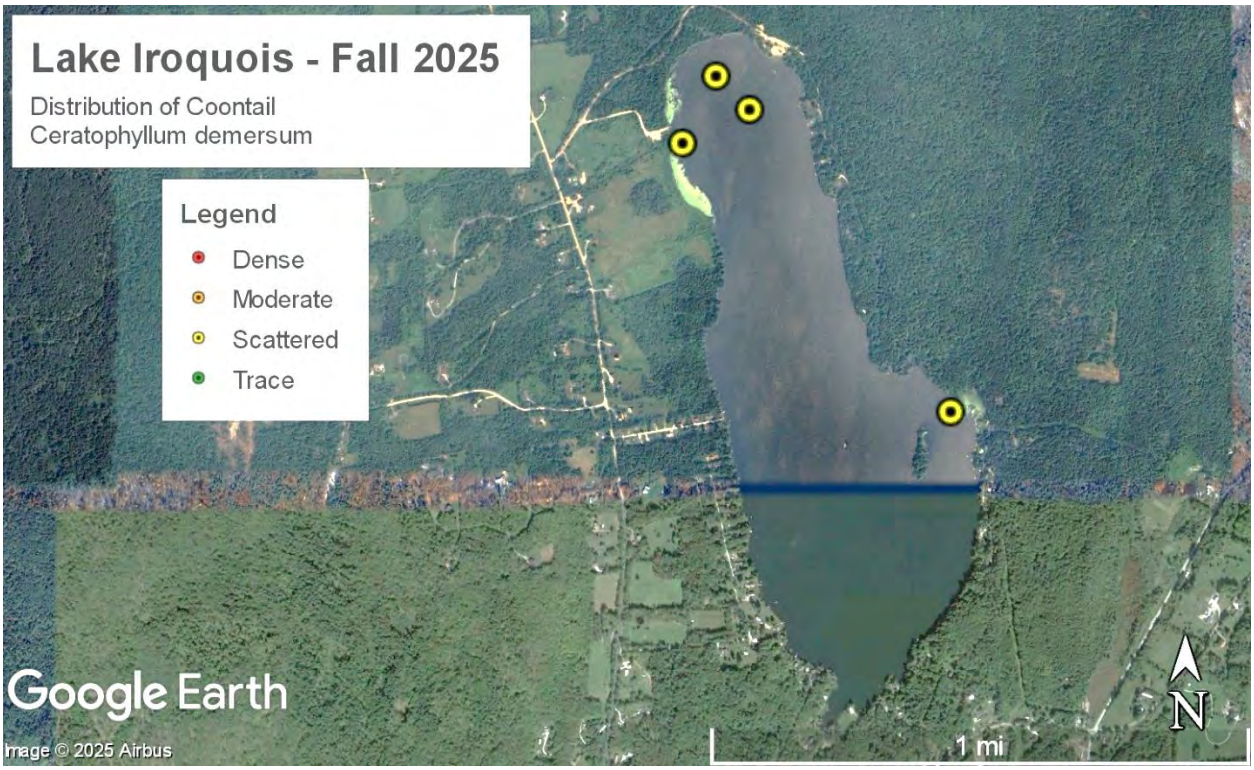
Lake Iroquois - Fall 2025
Distribution of Coontail
Ceratophyllum demersum
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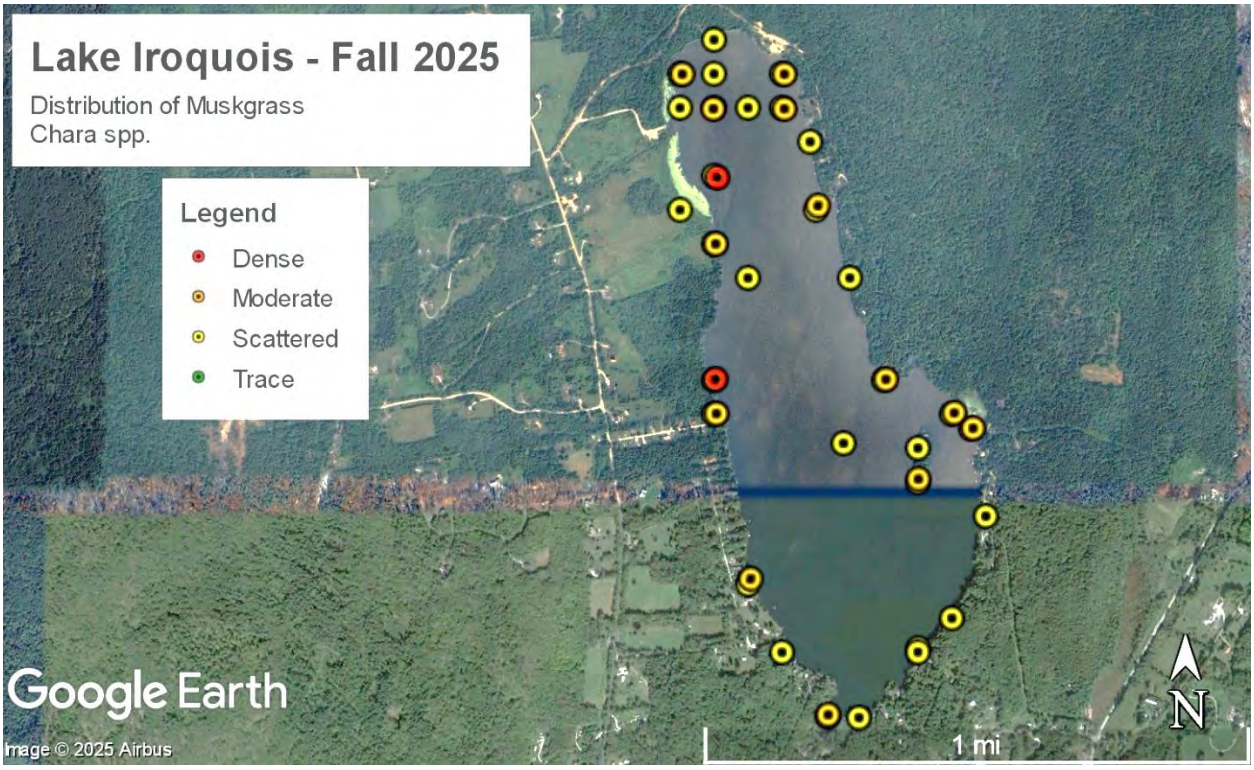
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Distribution of Muskgrass
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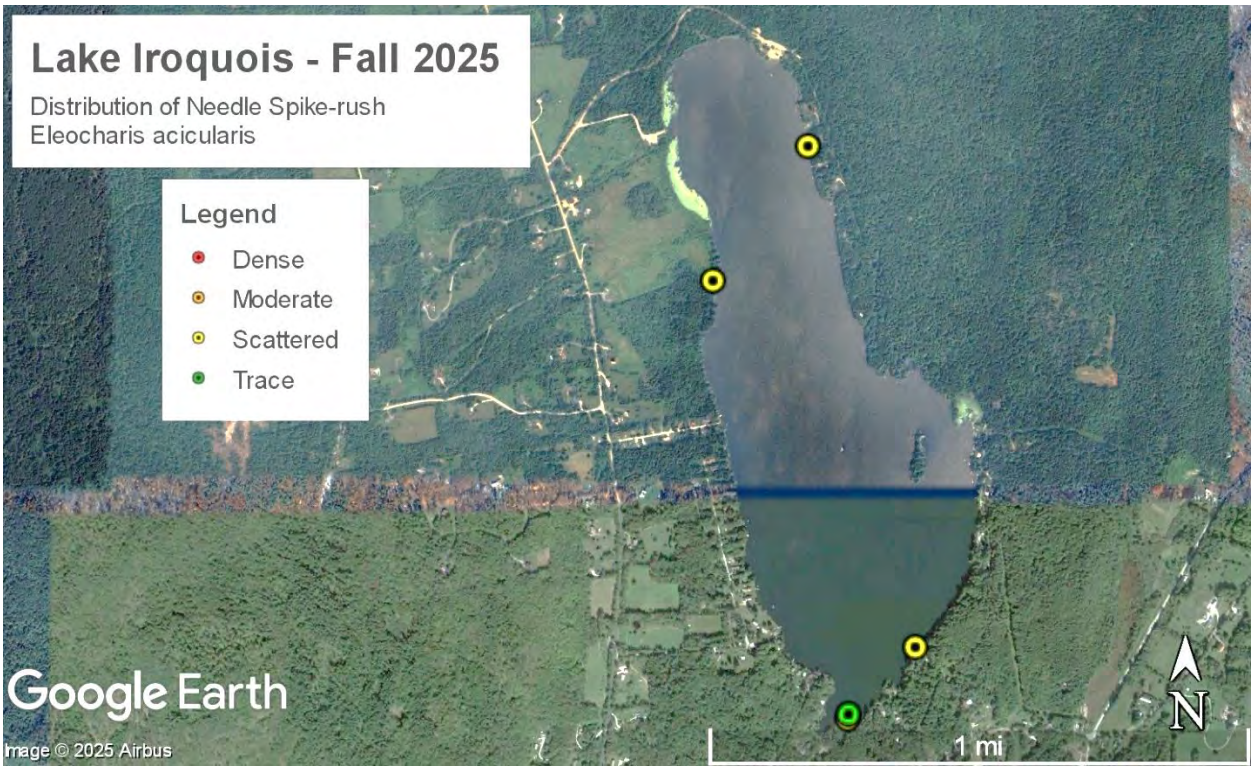
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Distribution of Needle Spike-rush
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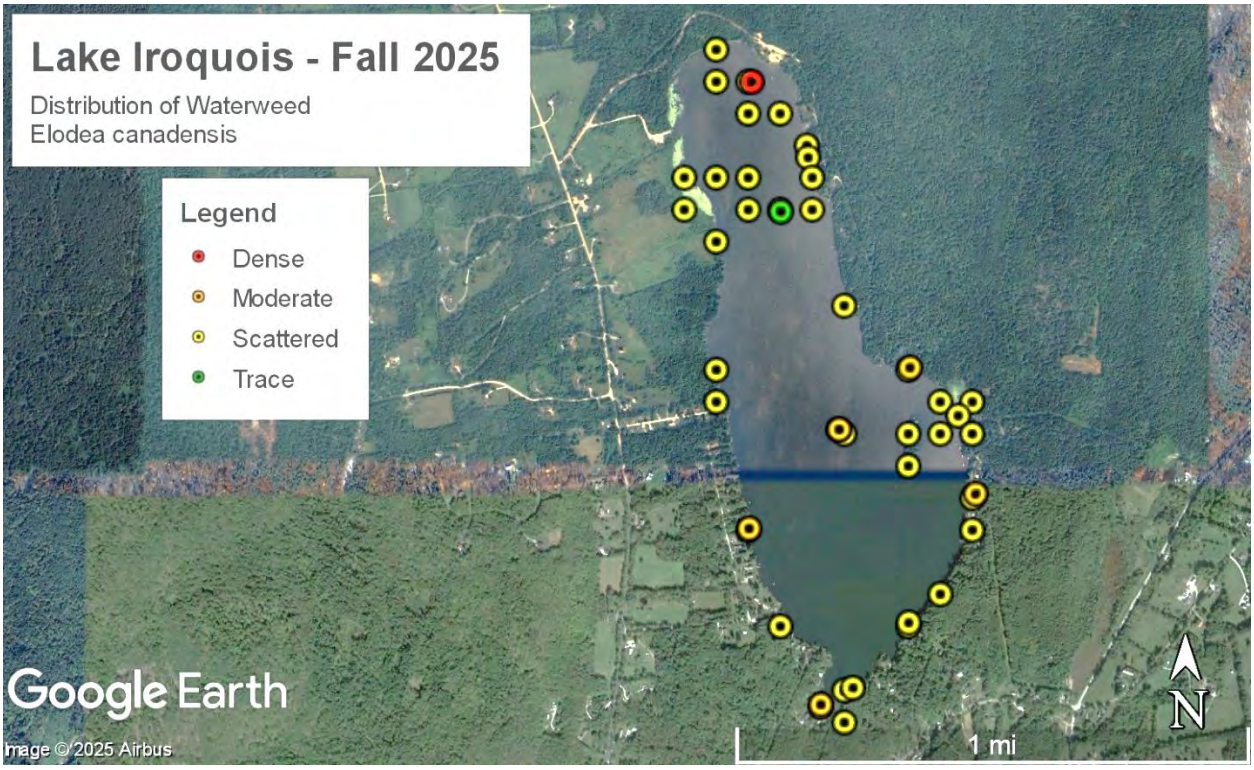
Lake Iroquois - Fall 2025
Distribution of Waterweed
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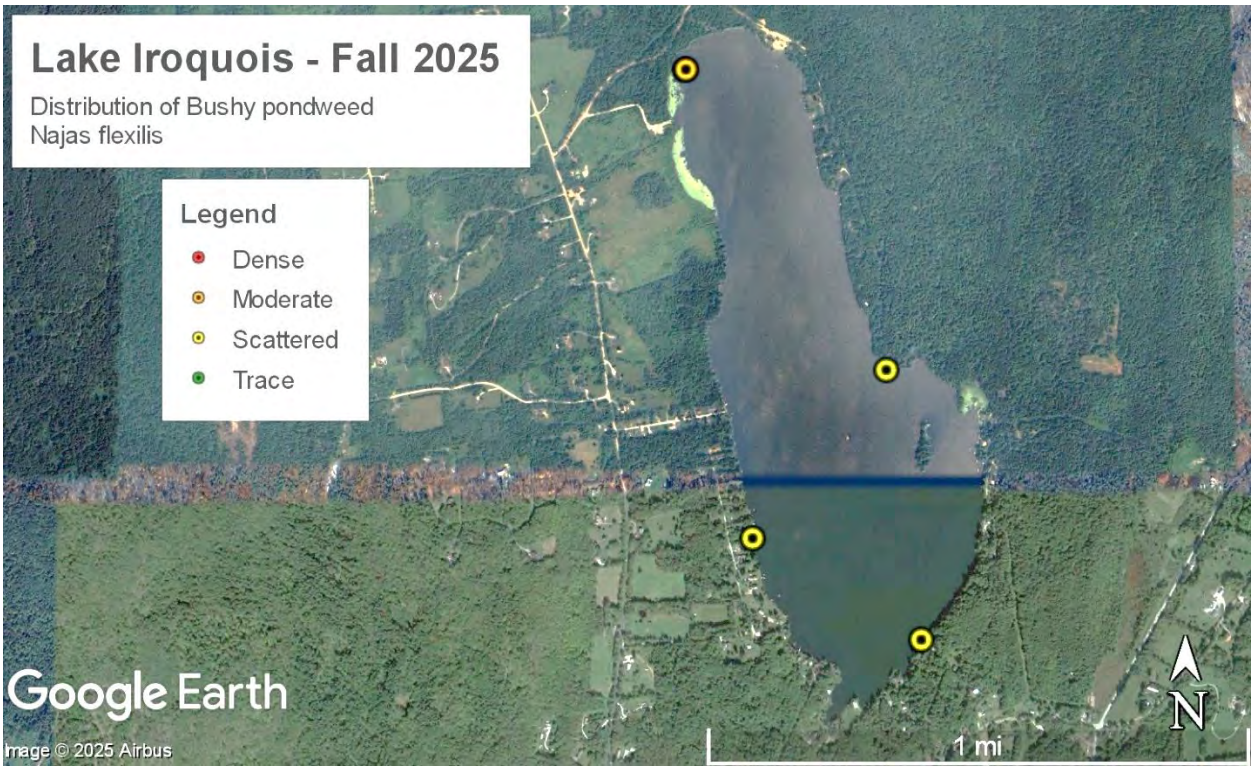
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Distribution of Bushy pondweed
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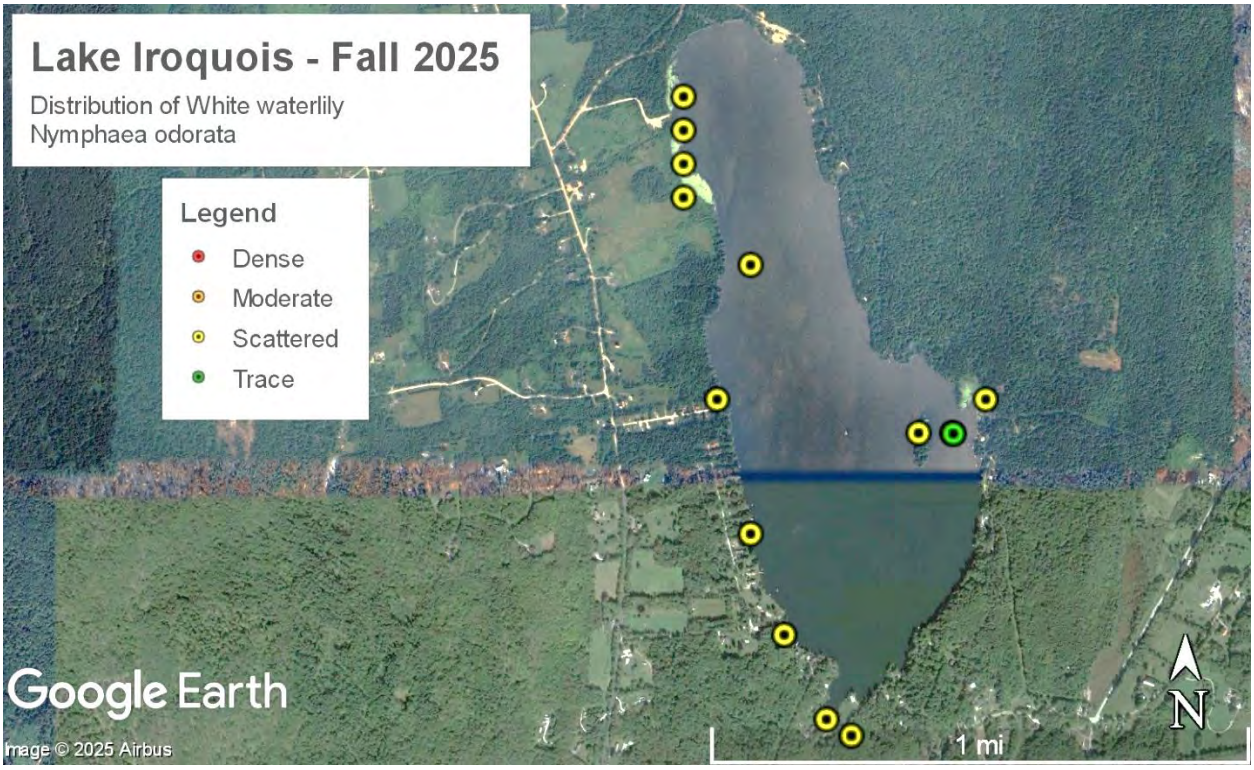
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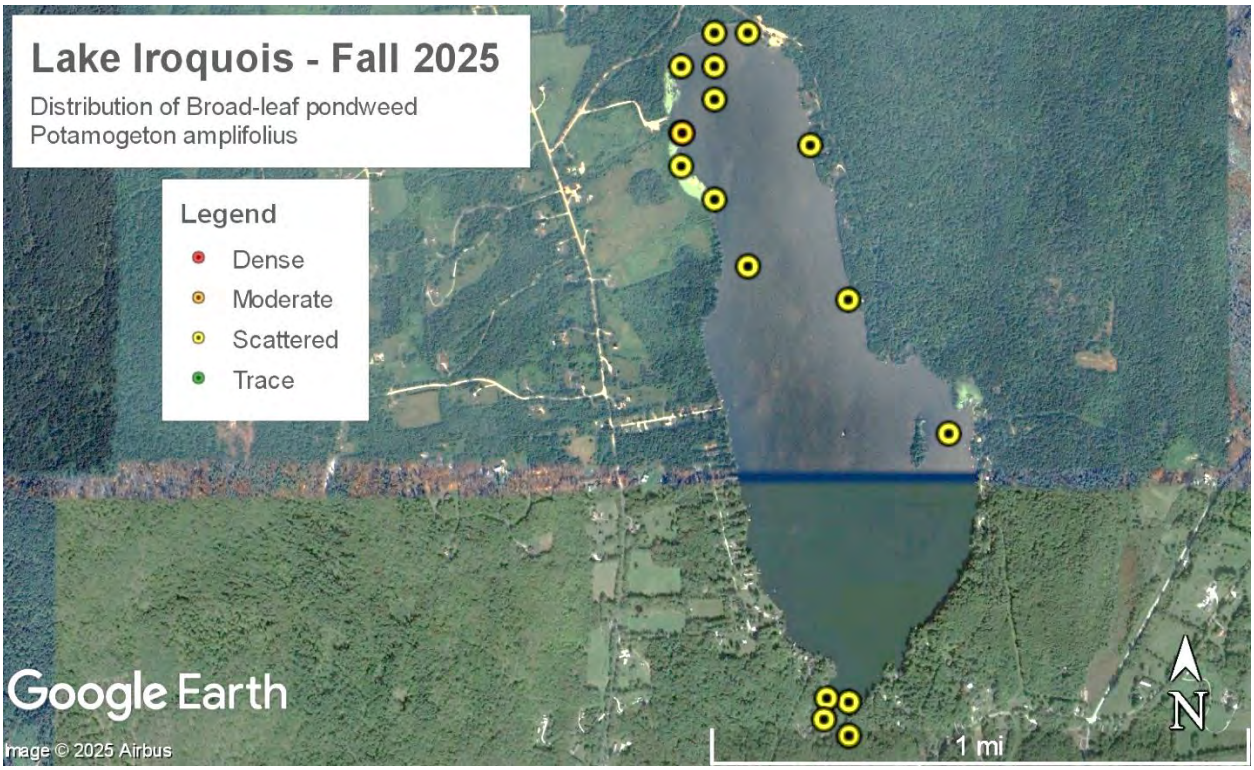
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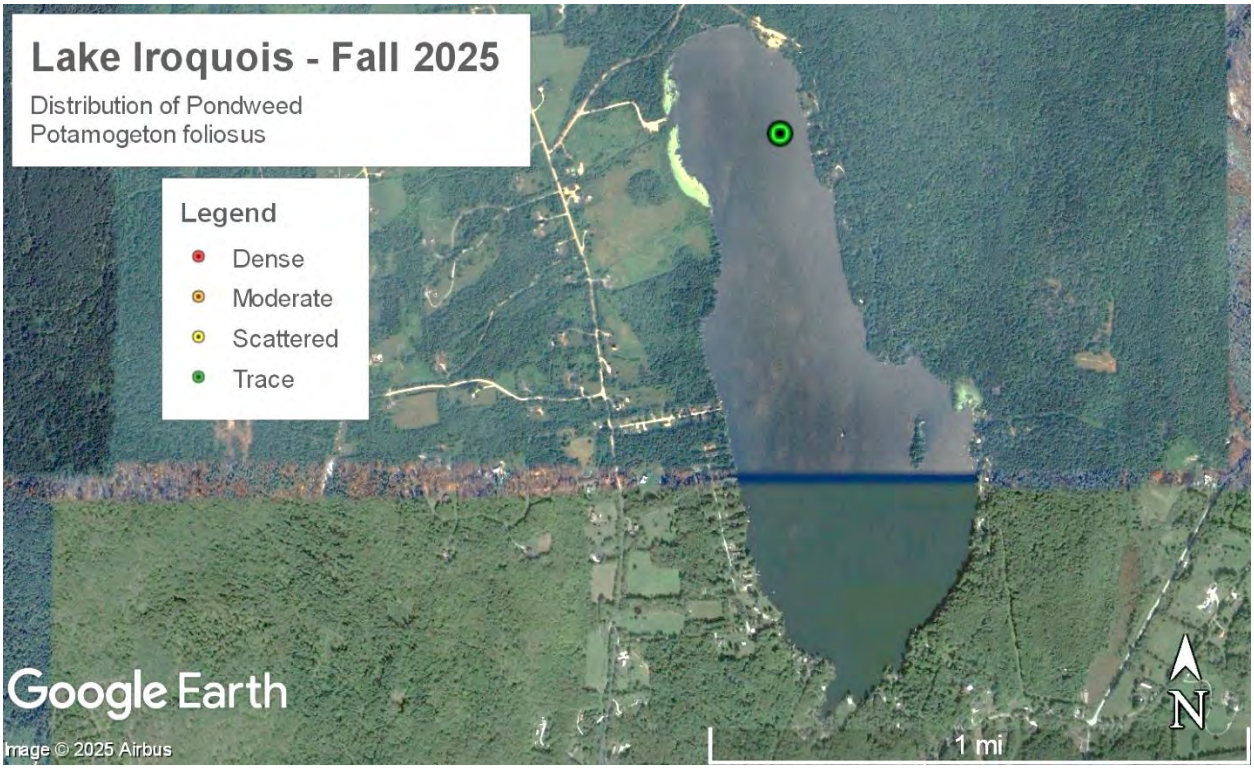
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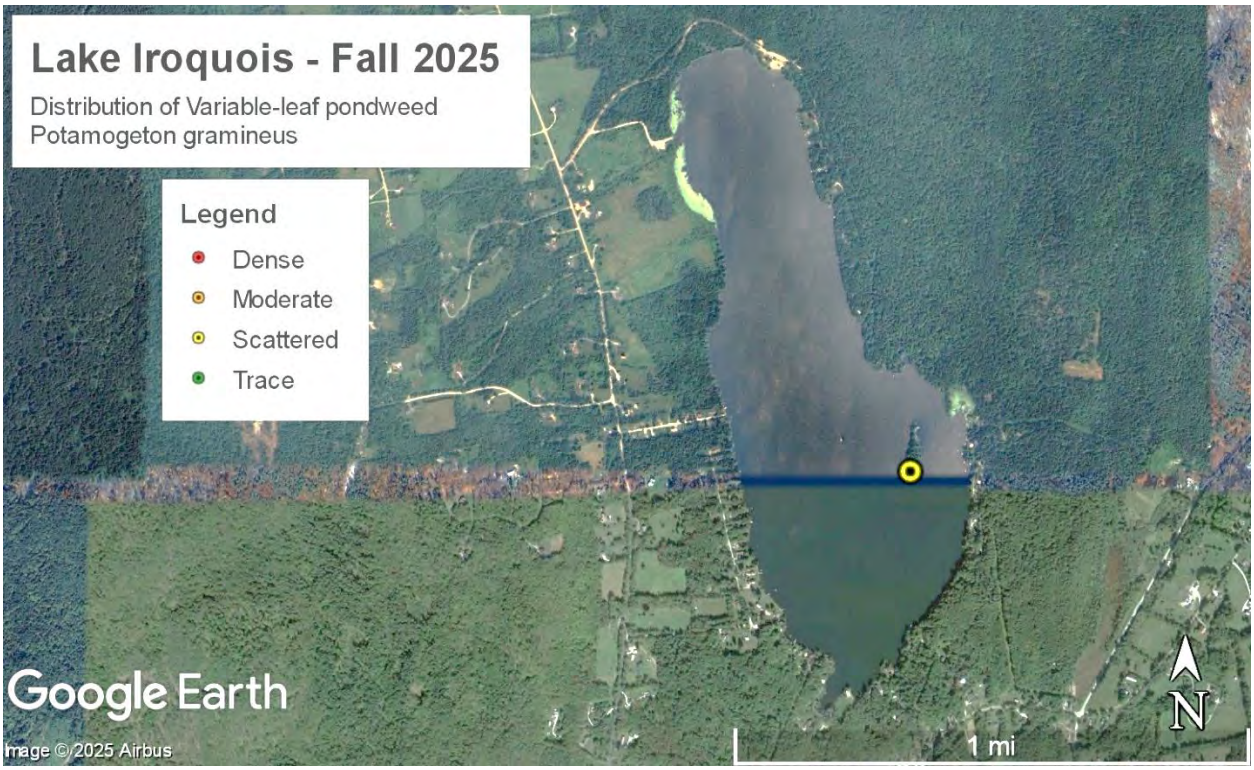
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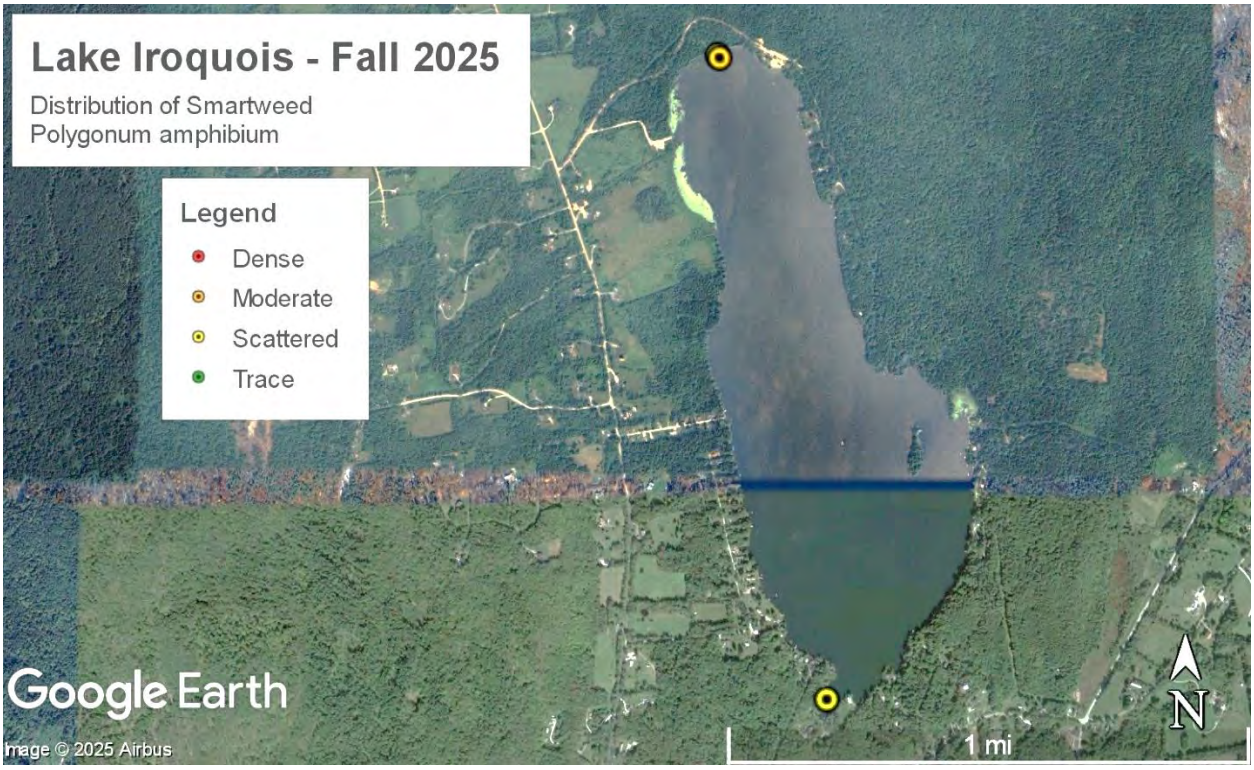
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Distribution of Smartweed
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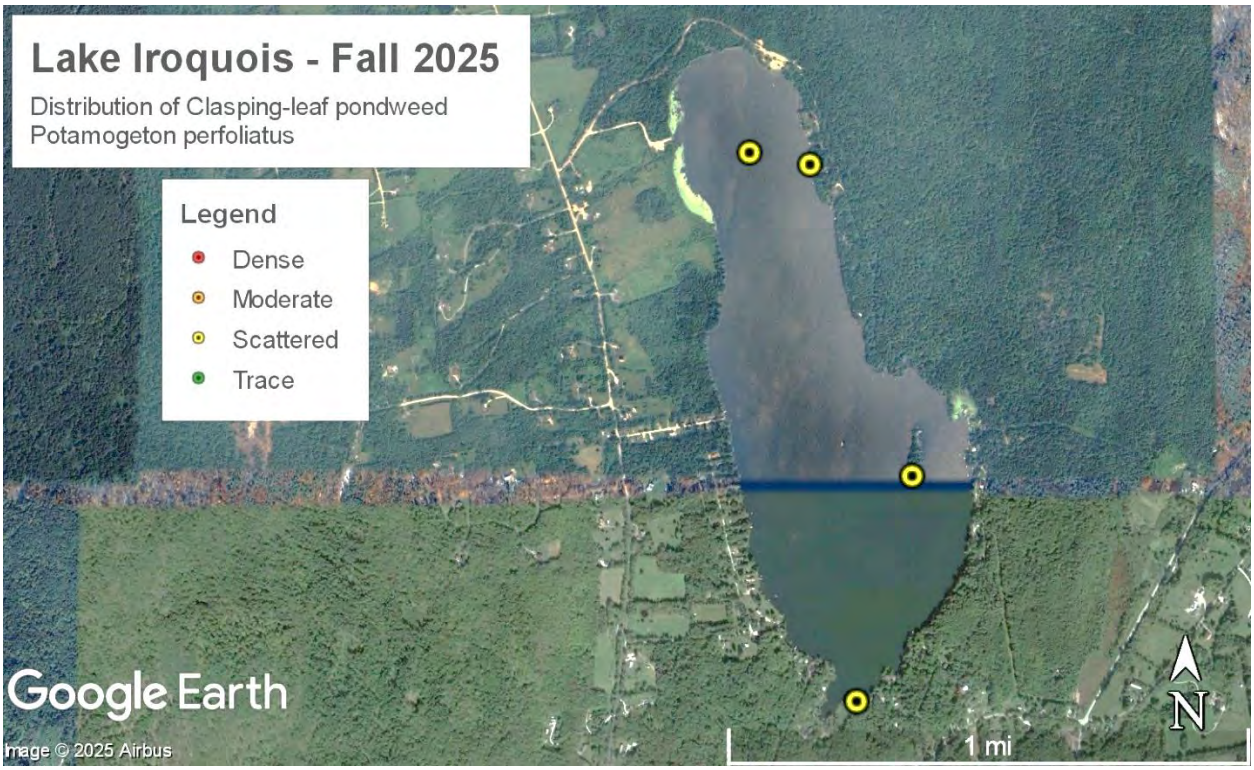
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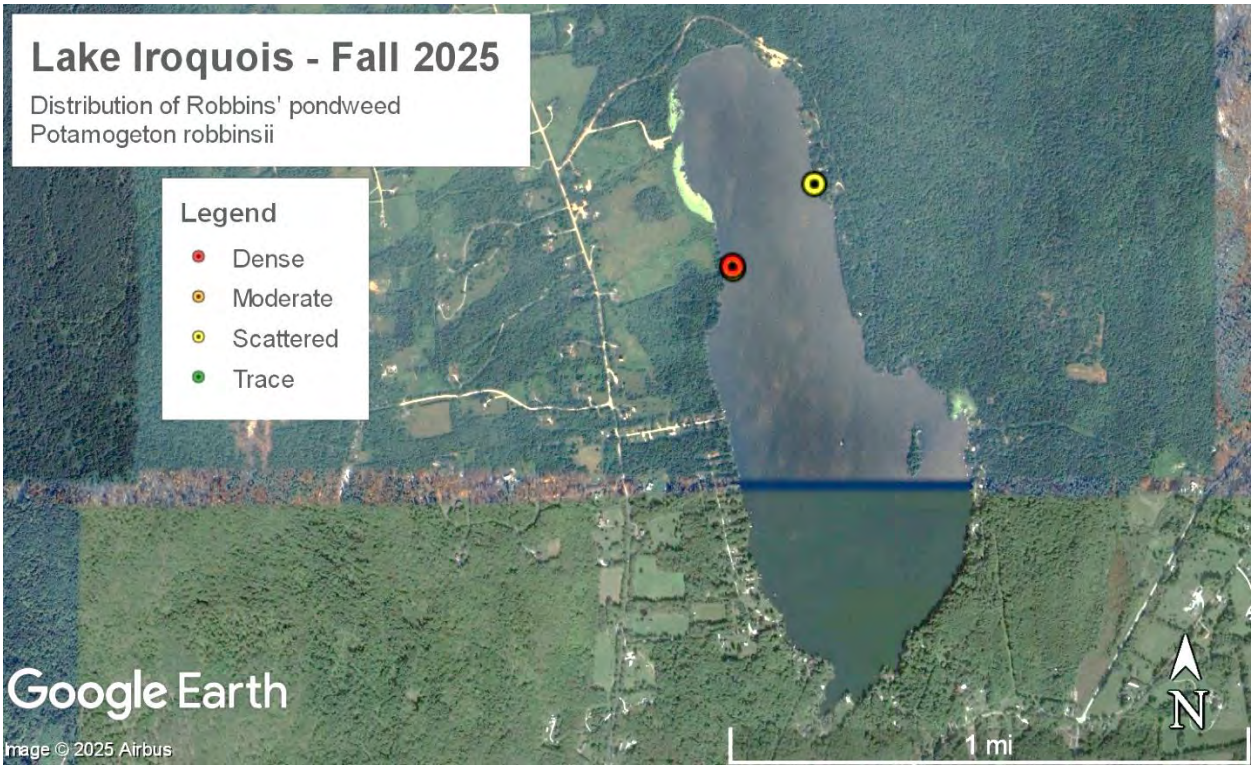
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Distribution of Robbins' pondweed
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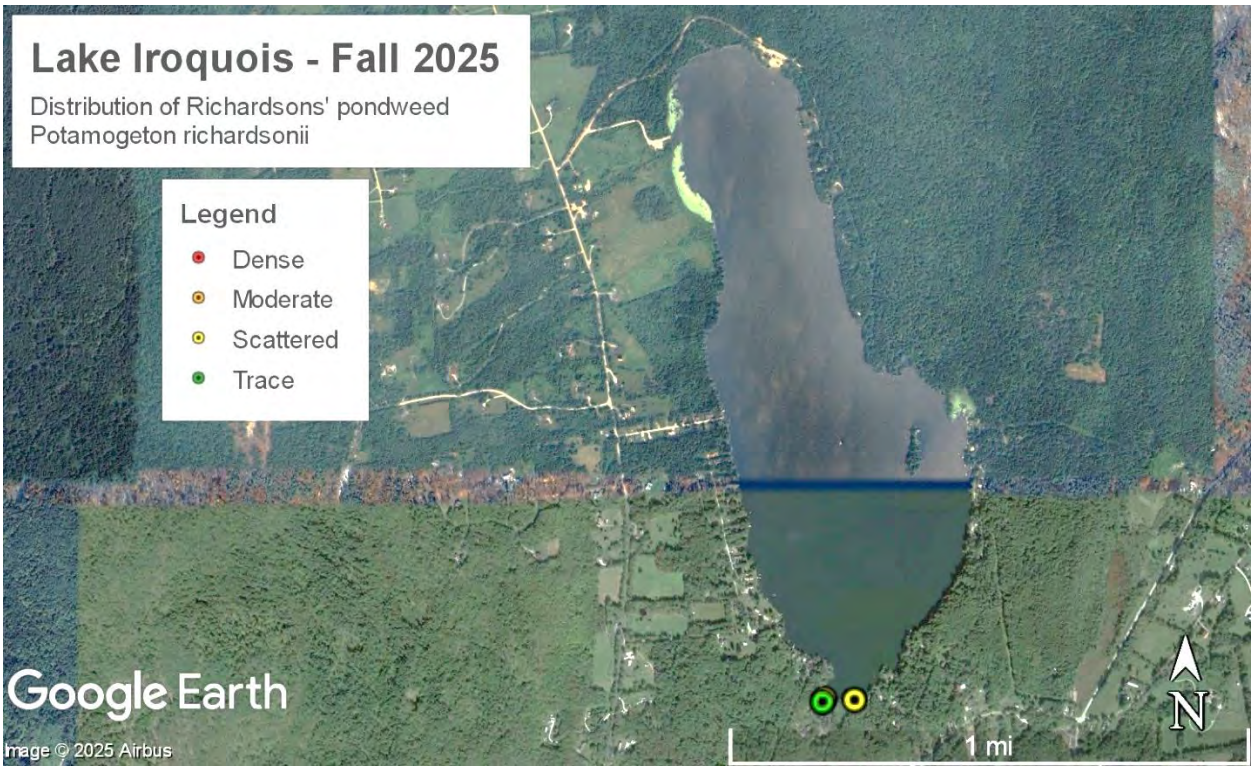
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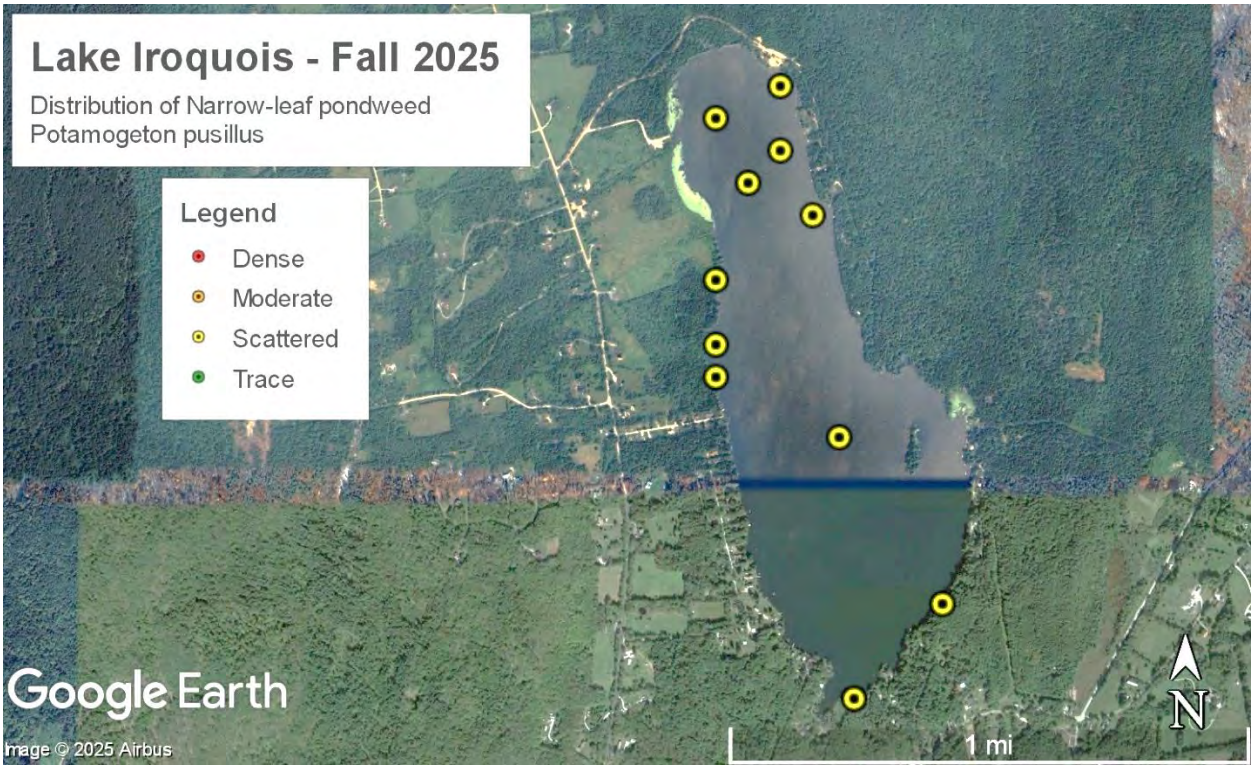
Lake Iroquois - Fall 2025
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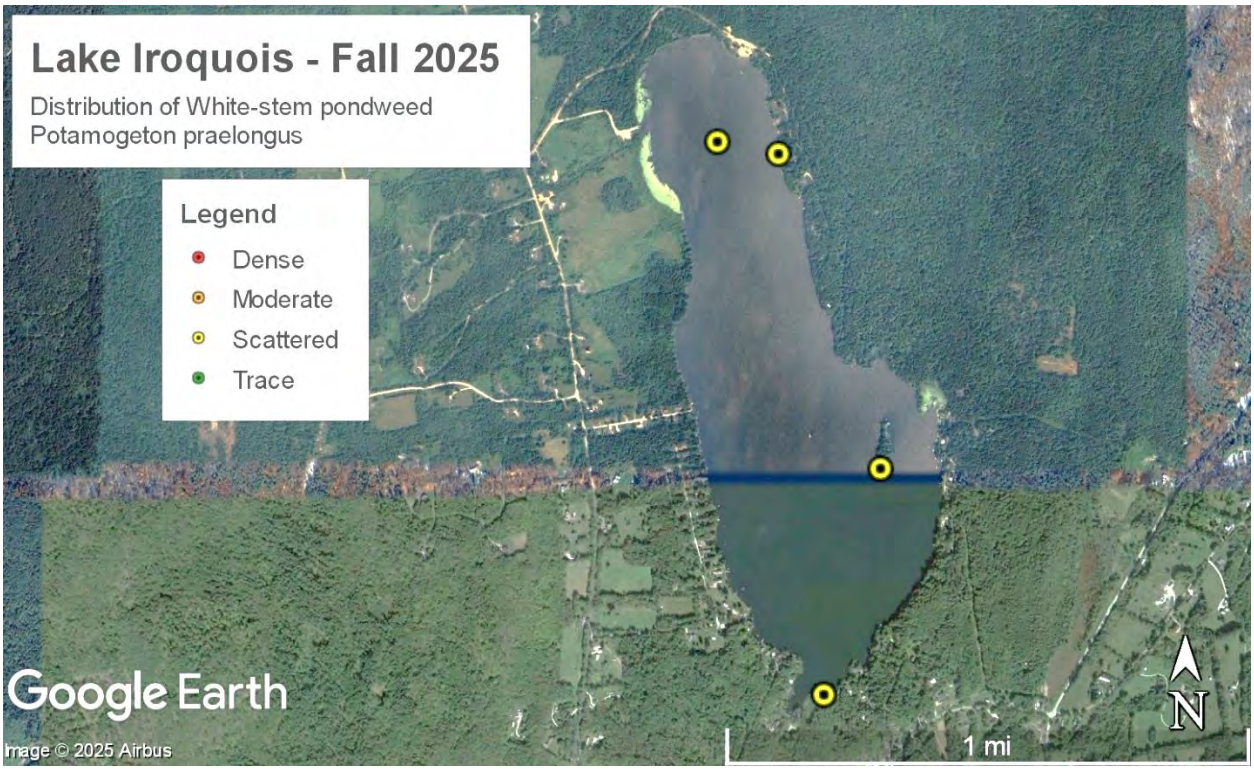
Lake Iroquois - Fall 2025
Distribution of White-stem pondweed
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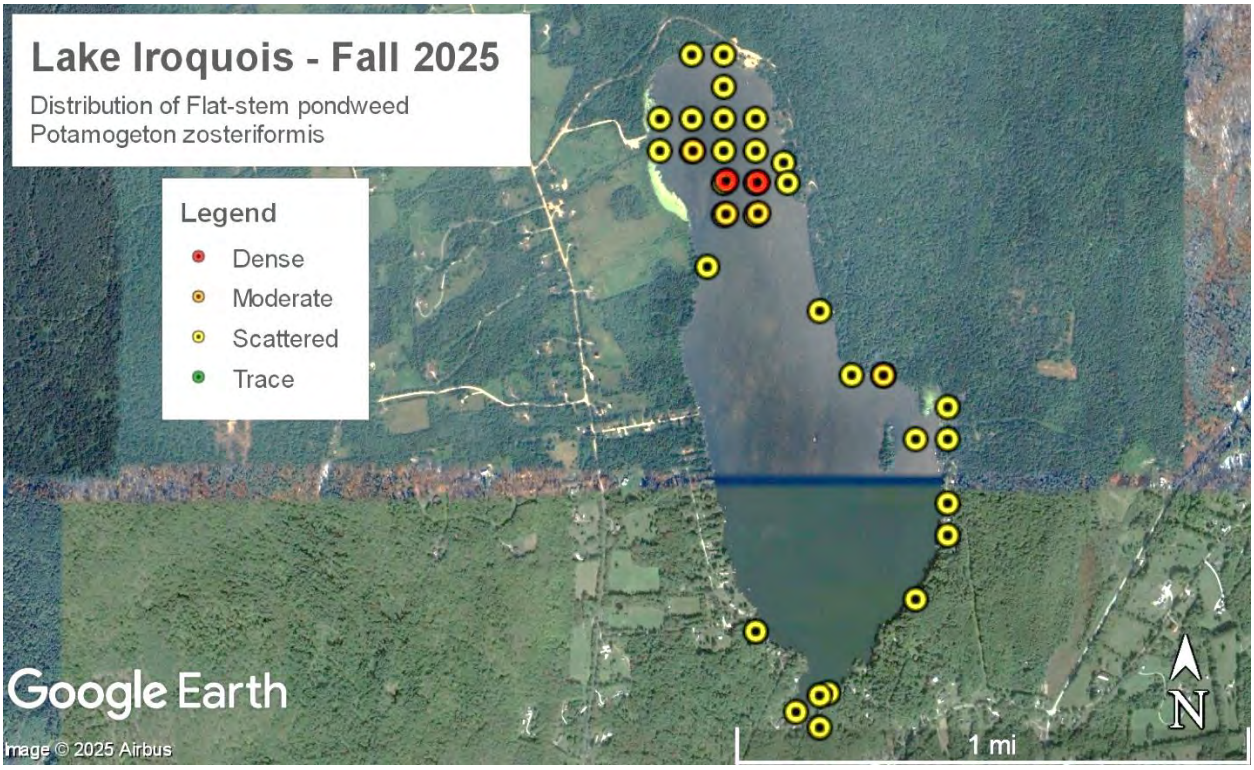
Lake Iroquois - Fall 2025
Distribution of Flat-stem pondweed
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Image © 2025 Airbus
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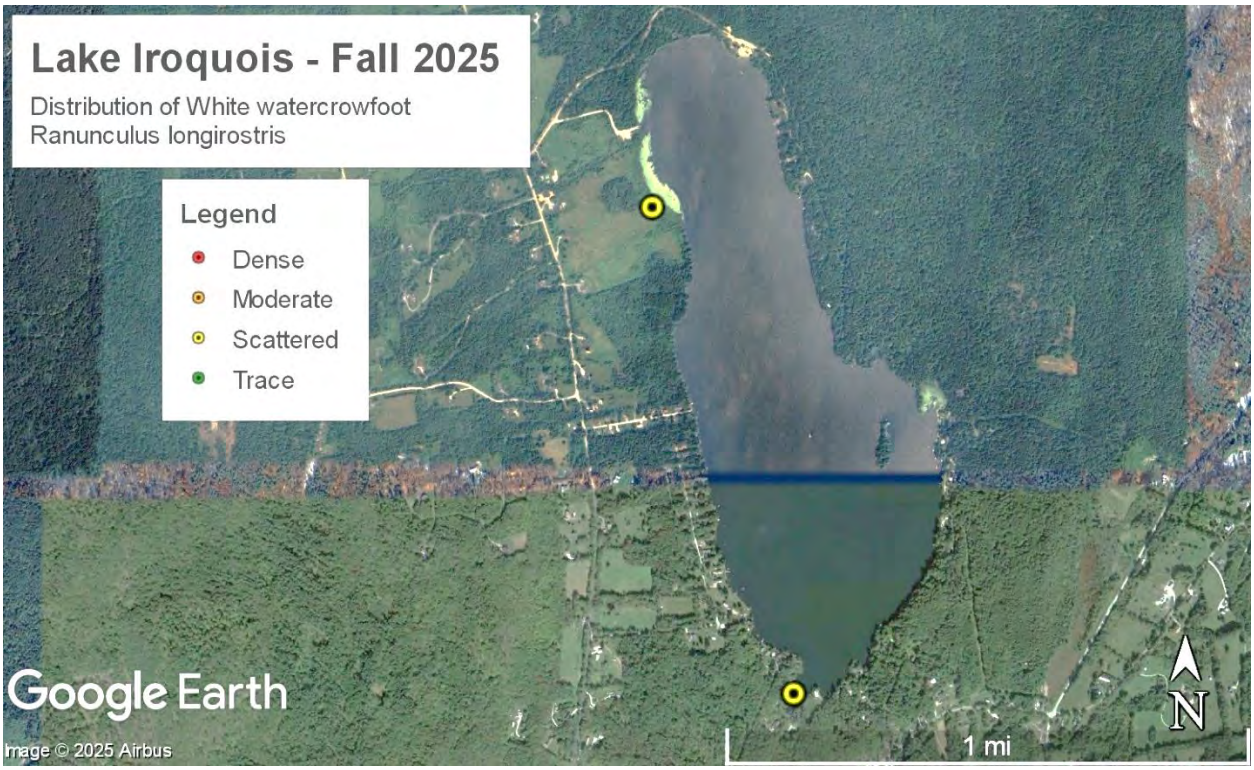
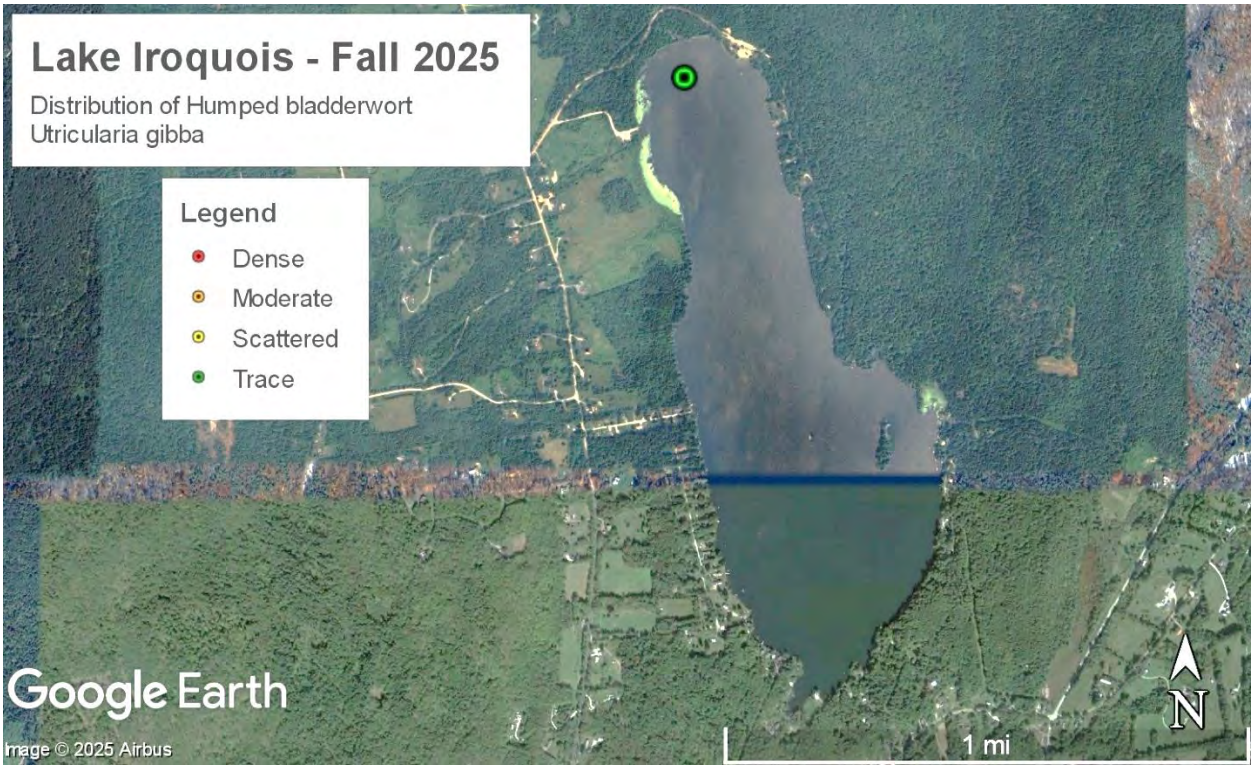
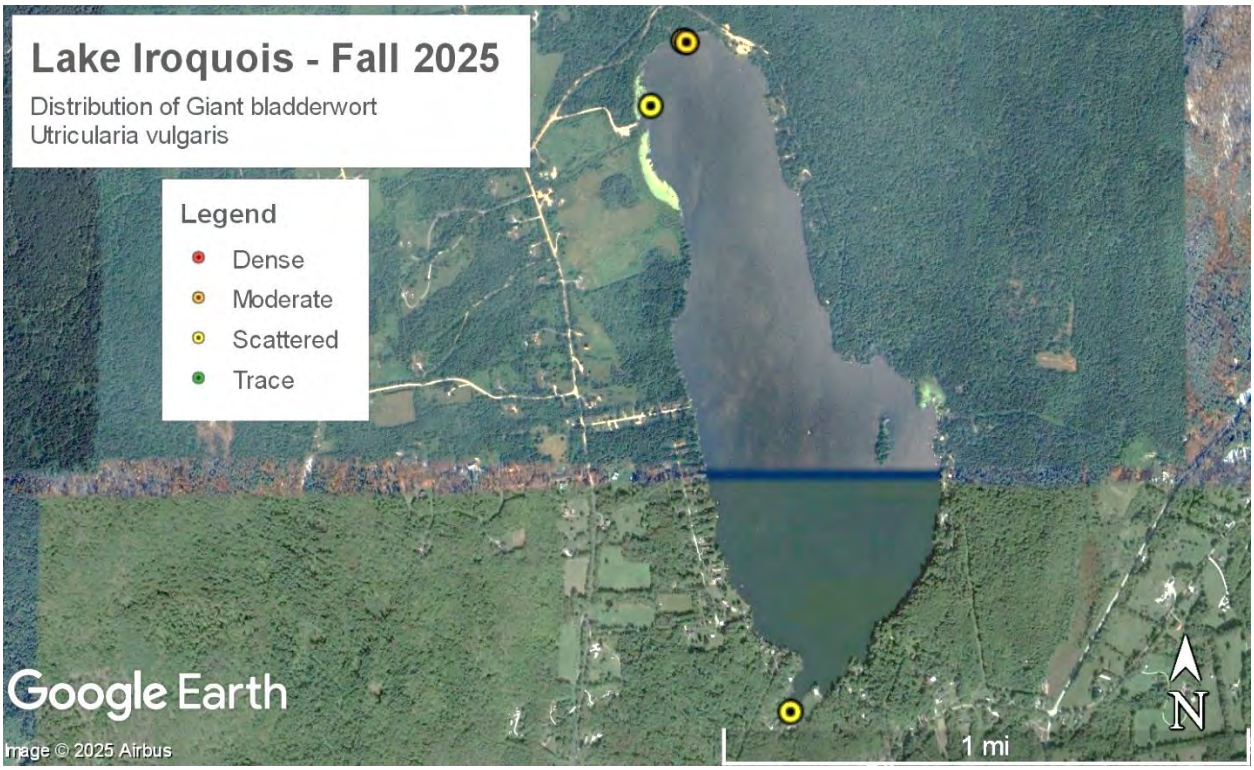
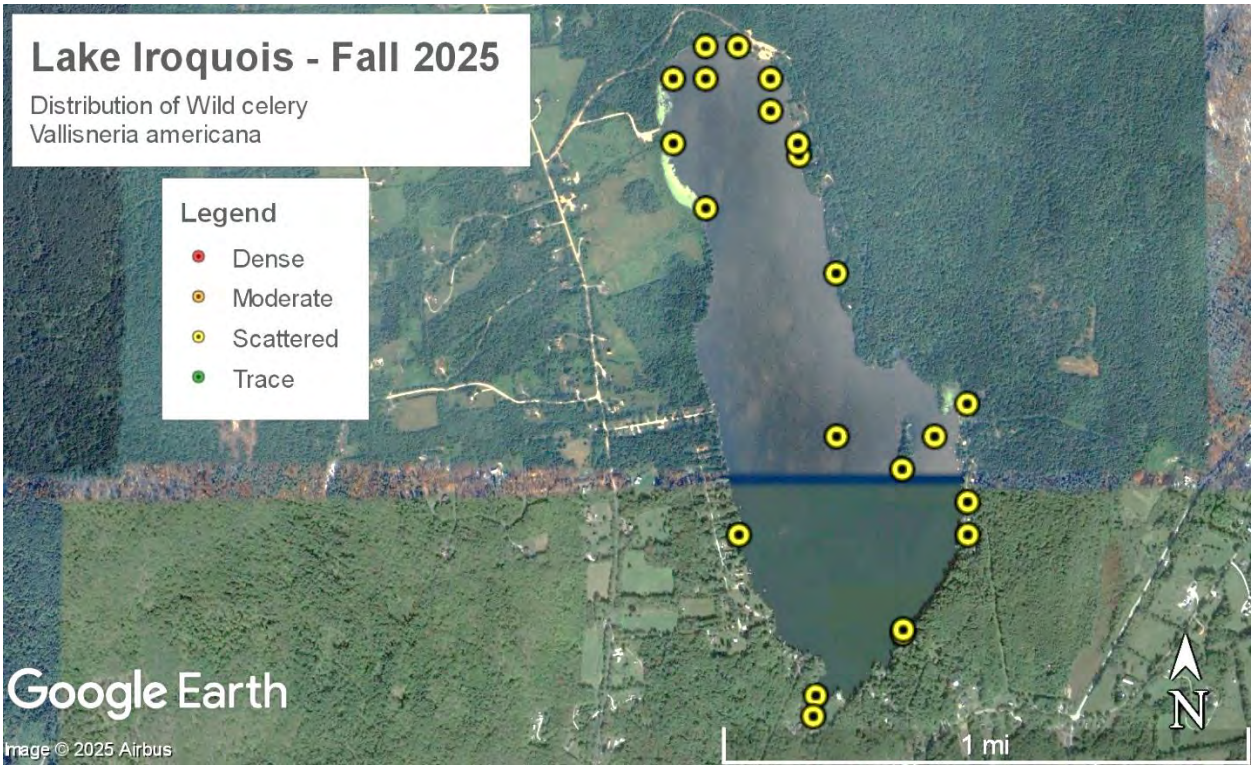
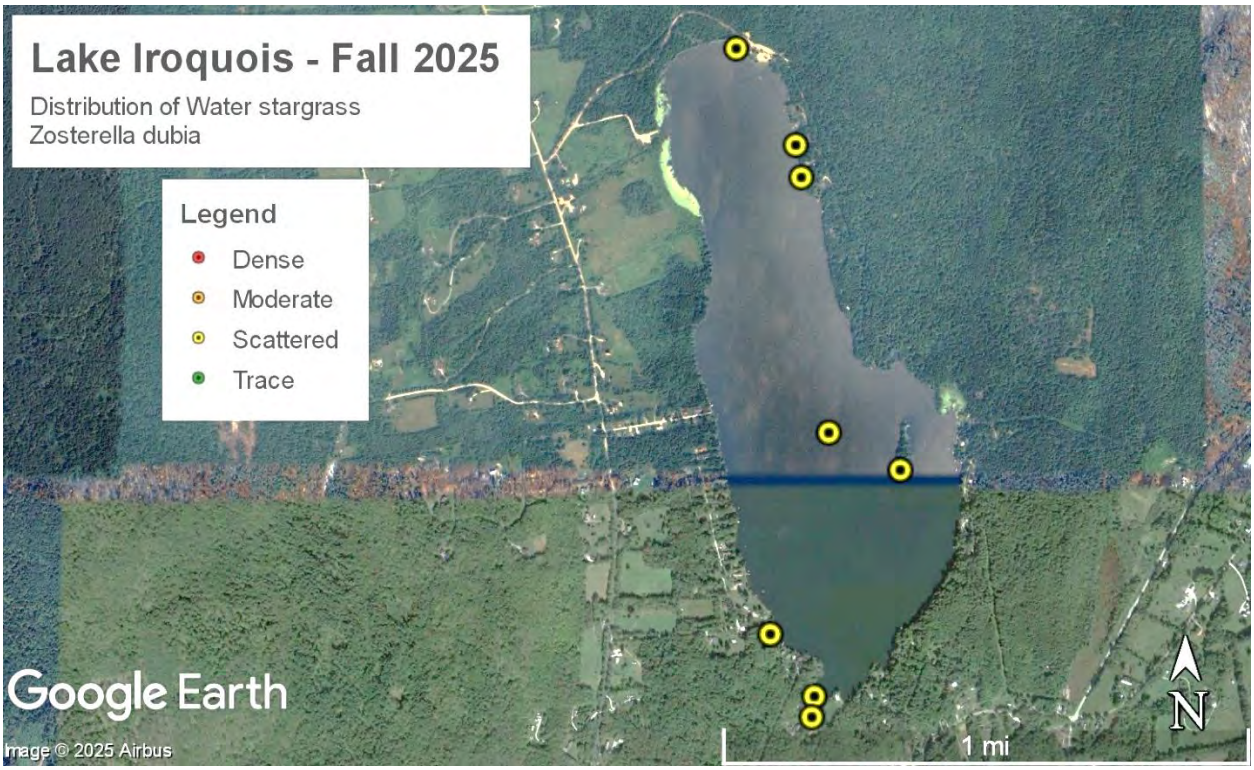

Lake Iroquois - Fall 2025
Distribution of White watercrowfoot
Ranunculus longirostris
Legend
Dense
Moderate
Scattered
Trace
Google Earth
Image © 2025 Airbus
1 mi
N


Lake Iroquois - Fall 2025
Distribution of Humped bladderwort
Utricularia gibba
Legend
Dense
Moderate
Scattered
Trace
Google Earth
Image © 2025 Airbus
1 mi
N


Lake Iroquois - Fall 2025
Distribution of Giant bladderwort
Utricularia vulgaris
Legend
Dense
Moderate
Scattered
Trace
Google Earth
Image © 2025 Airbus
1 mi
N


Lake Iroquois - Fall 2025
Distribution of Wild celery
Vallisneria americana
Legend
Dense
Moderate
Scattered
Trace
Google Earth
Image © 2025 Airbus
1 mi
N


Lake Iroquois - Fall 2025
Distribution of Water stargrass
Zosterella dubia
Legend
Dense
Moderate
Scattered
Trace
Google Earth
Image © 2025 Airbus
1 mi
N

Maps

- Site Locus
- Littoral Zone
- Significant Wetland Areas
- Littoral Zone with Significant Wetland Areas

Note: there is not an included proposed treatment area map as LIA does not yet need to conduct another herbicide application at this time, but wants to be prepared with an active ANC permit to do so when the need arises. A proposed treatment map will be included when submitting an annual treatment plan to VT DEC for approval, when needed.

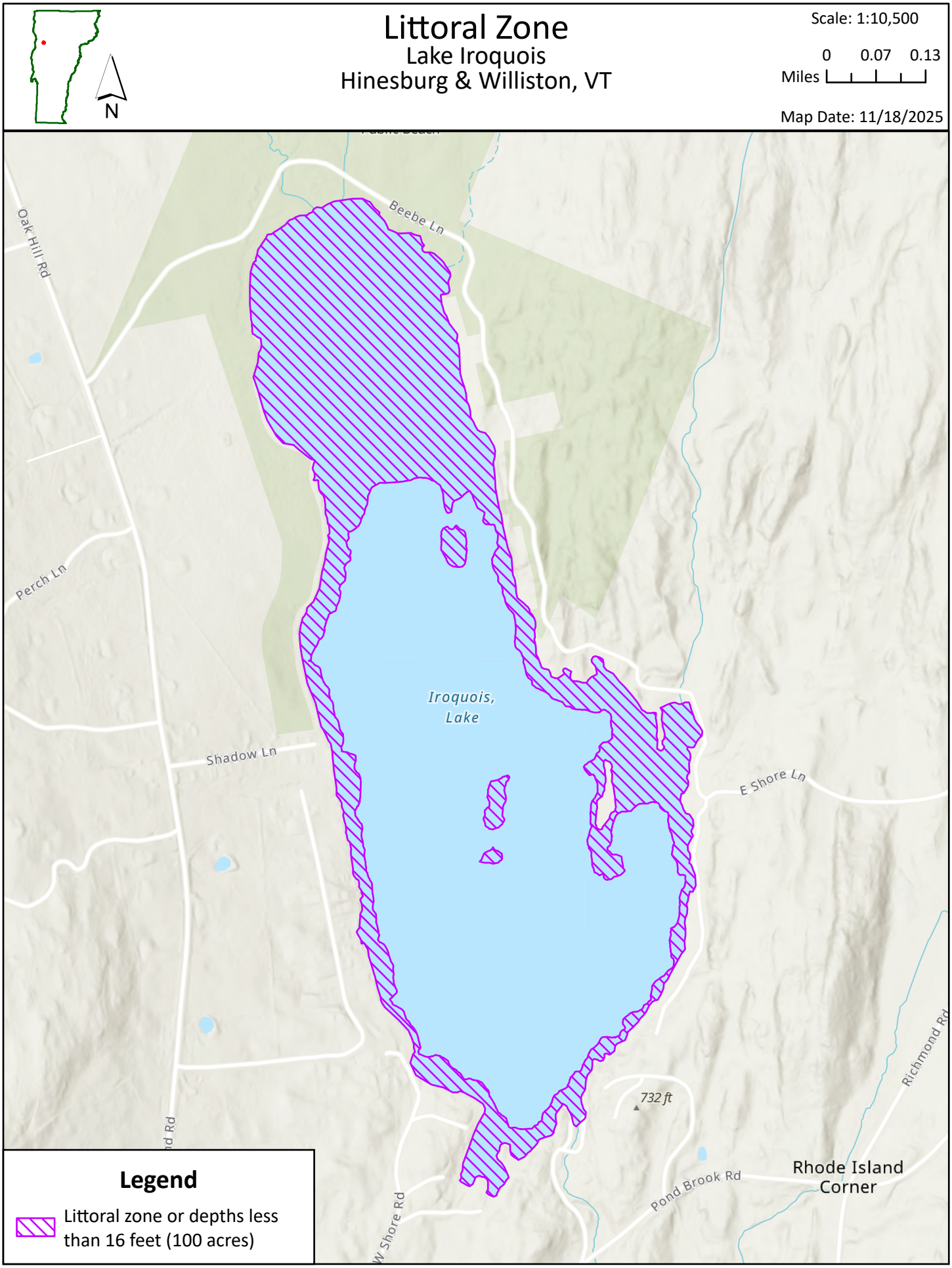
Site Locus

Lake Iroquois
Hinesburg & Williston, VT

Scale: 1:24,000

0 0.15 0.3
Miles

Map Date: 11/13/2025


Littoral Zone
Lake Iroquois
Hinesburg & Williston, VT
Scale: 1:10,500
0 0.07 0.13
Miles
Map Date: 11/18/2025
N
Beebe Ln
Oak Hill Rd
Perch Ln
Iroquois, Lake
Shadow Ln
E Shore Ln
732 ft
Richmond Rd
Pond Brook Rd
Rhode Island Corner
Legend
Littoral zone or depths less than 16 feet (100 acres)

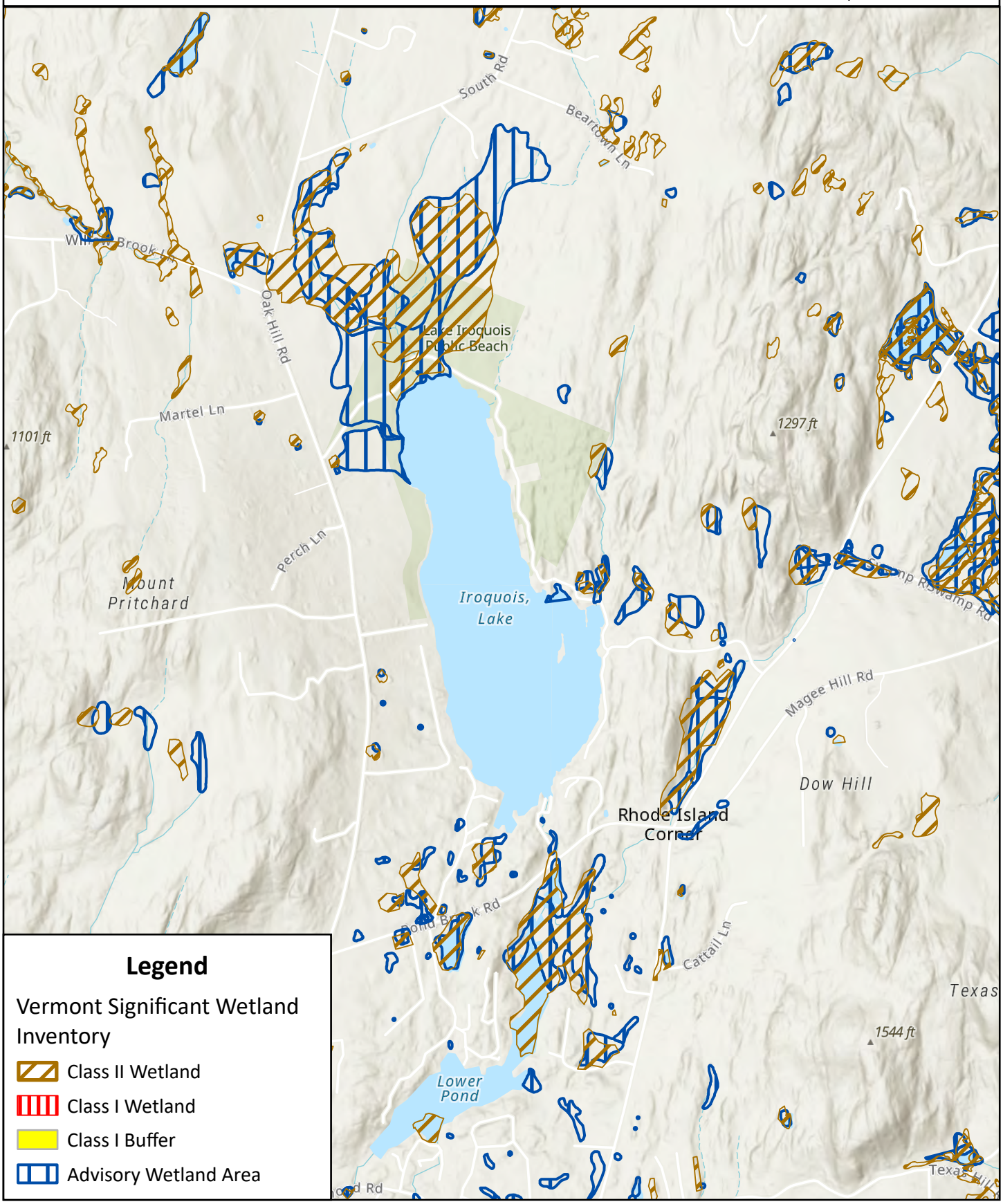
Significant Wetland Areas

Lake Iroquois
Hinesburg & Williston, VT

Scale: 1:24,000

0 0.15 0.3
Miles

Map Date: 11/18/2025



Legend

Vermont Significant Wetland Inventory

- Class II Wetland
- Class I Wetland
- Class I Buffer
- Advisory Wetland Area

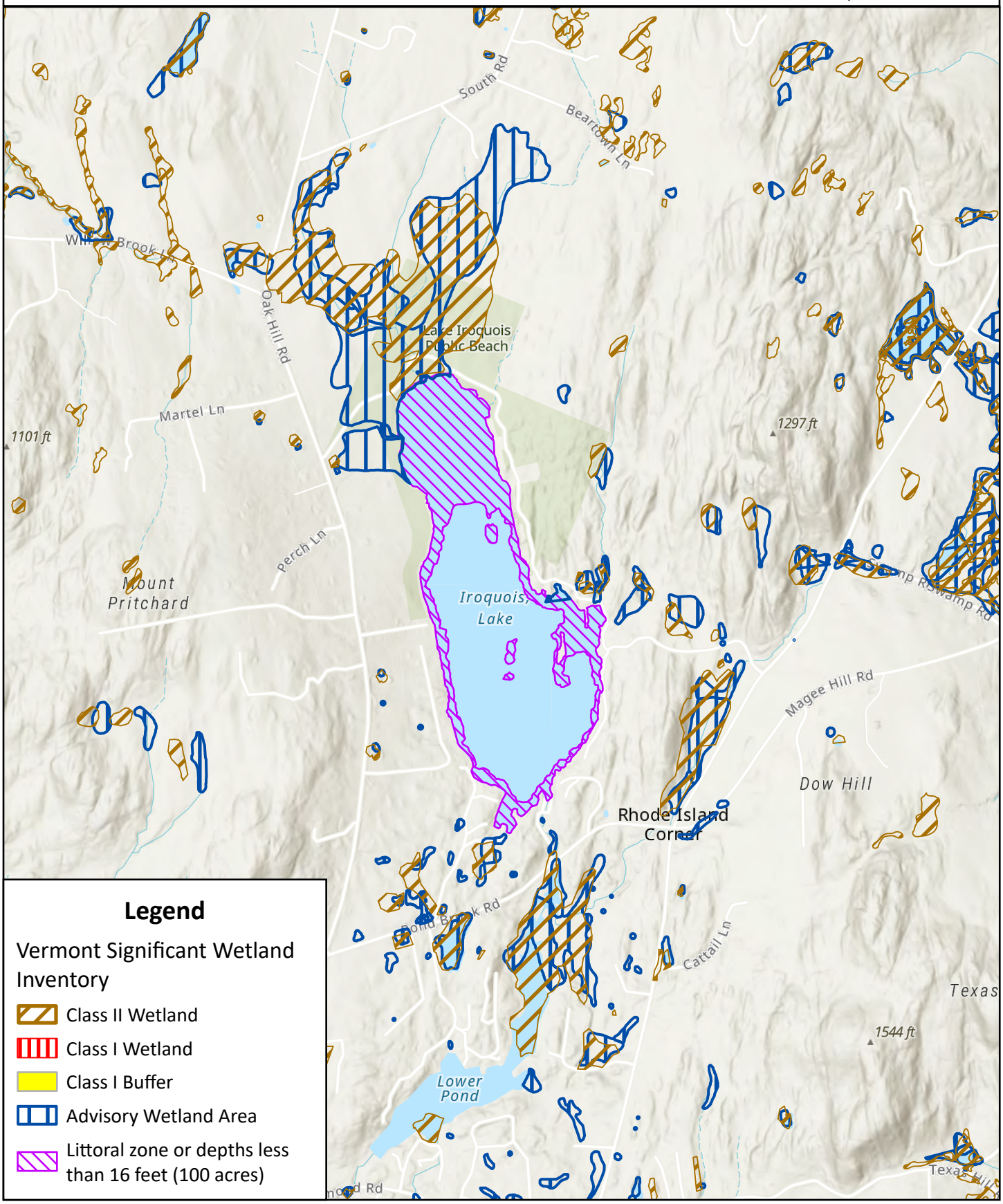
Littoral Zone and Significant Wetland Areas

Lake Iroquois
Hinesburg & Williston, VT

Scale: 1:24,000

0 0.15 0.3
Miles

Map Date: 11/18/2025



Legend

Vermont Significant Wetland Inventory

- Class II Wetland
- Class I Wetland
- Class I Buffer
- Advisory Wetland Area
- Littoral zone or depths less than 16 feet (100 acres)

ProcellaCOR EC Documentation

- Product Label
- SDS

SPECIMEN LABEL

ProcellaCOR™ EC

A selective systemic herbicide for management of freshwater aquatic vegetation in slow-moving/quiescent waters with little or no continuous outflow: ponds, lakes, reservoirs, freshwater marshes, wetlands, bayous, drainage ditches, and non-irrigation canals, including shoreline and riparian areas in or adjacent to these sites. Also for management of invasive freshwater aquatic vegetation in slow-moving/quiescent areas of rivers (coves, oxbows or similar sites).

FLORPYRAUXIFEN-BENZYL	GROUP	4	HERBICIDE

Produced for:
SePRO Corporation
11550 North Meridian Street, Suite 600
Carmel, IN 46032, U.S.A.

EPA Reg. No. 67690-80
FPL20180226

Active Ingredient:

Florpyrauxifen-benzyl: 2-pyridinecarboxylic acid, 4-amino-3-chloro-6-(4-chloro-2-fluoro-3-methoxy-phenyl)-5-fluoro-, phenyl methyl ester	2.7%
Other Ingredients:	97.3%
TOTAL:	100.0%

Contains 0.0052 lb florpyrauxifen-benzyl per Prescription Dose Unit™ (PDU™) or 0.21 lb florpyrauxifen-benzyl/gallon. 1 PDU is equal to 3.2 fl. oz. of product.

Keep Out of Reach of Children

CAUTION

Refer to the inside of label booklet for additional precautionary information including directions for use.

Notice: Read the entire label before using. Use only according to label directions. **Before buying or using this product, read *Warranty Disclaimer* and *Misuse* statements inside label booklet. If terms are not acceptable, return at once unopened.**

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION. Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:
- Long-sleeved shirt and long pants;
- Shoes plus socks;
- Protective eyewear; and
- Waterproof gloves.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Controls: When handlers use closed systems or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(5)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations
Users should:
- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

FIRST AID	
If in eyes	• Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. • Remove contact lenses, if present, after the first 5 minutes; then continue rinsing eye. • Call a poison control center or doctor for treatment advice.

HOTLINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. In case of emergency endangering health or the environment involving this product, call **INFOTRAC** at **1-800-535-5053.**

Environmental Hazards
Under certain conditions, treatment of aquatic weeds can result in oxygen depletion or loss due to decomposition of dead plants, which may cause fish suffocation. Water bodies containing very high plant density should be treated in sections to prevent the potential suffocation of fish. Consult with the State agency for fish and game before applying to public waters to determine if a permit is needed.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. Read all Directions for Use carefully before applying.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

Shake well before using.

PRODUCT INFORMATION

ProcellaCOR EC is a selective systemic herbicide for management of freshwater aquatic vegetation in slow-moving/quiescent waters with little or no continuous outflow: ponds, lakes, reservoirs, freshwater marshes, wetlands, bayous, drainage ditches, and non-irrigation canals, including shoreline and riparian areas in or adjacent to these sites. Also for management of invasive freshwater aquatic vegetation in slow-moving/quiescent areas of rivers (coves, oxbows or similar sites).

Apply ProcellaCOR EC directly into water or spray onto emergent foliage of aquatic plants. Depending upon method of application and target plant, ProcellaCOR EC is absorbed by aquatic vascular plants through emergent or floating leaves and from water through submersed plant shoots and leaves. In-water treatments are effective in spot and partial treatment designs with relatively short exposure times (hours to several days). Species susceptibility to ProcellaCOR EC may vary depending upon time of year, stage of growth, and water movement. For best results, apply to actively growing plants. However, effective control can be achieved over a broad range of growth stages and environmental conditions. Application to mature target plants may require higher application rates and longer exposure periods to achieve control.

Resistance Management
ProcellaCOR EC is classified as a WSSA Group 4 Herbicide (HRAC Group O). Weed populations may contain or develop biotypes that are resistant to ProcellaCOR EC and other Group 4 herbicides. If herbicides with the same mode of action are used repeatedly at the same site, resistant biotypes may eventually dominate the weed population and may not be controlled by these products. Unless ProcellaCOR EC is used as part of an eradication program or in a plant management system where weed escapes are aggressively controlled, do not use ProcellaCOR EC alone in the same treatment area for submersed and emergent plant control for more than 2 consecutive years, unless used in combination or rotated with an herbicide with an alternate mode of action.

To further delay herbicide resistance consider taking one or more of the following steps:

- Use tank mixtures with herbicides from a different group if such use is permitted; Consult your local extension service or SePRO Corporation if you are unsure as to which active ingredient is currently less prone to resistance.
- Adopt an integrated weed-management program for herbicide use that includes scouting and uses historical information related to herbicide use, and that considers other management practices.
- Scout after herbicide application to monitor weed populations for early signs of resistance development. Indicators of possible herbicide resistance include: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; (2) a spreading patch of non-controlled plants of a particular weed species; (3) surviving plants mixed with controlled individuals of the same species. If resistance is suspected, prevent weed seed production in the affected area by using an alternative herbicide from a different group or by a mechanical method that minimizes plant fragmentation.
- If a weed pest population continues to progress after treatment with this product, switch to another management strategy or herbicide with a different mode of action, if available.
- Contact your local extension specialist or SePRO Corporation for additional pesticide resistance-management and/or integrated weed-management recommendations for specific weed biotypes.

Stewardship Guidelines For Use

Apply this product in compliance with Best Management Practices (BMP) that include site assessment, prescription, and implementation. BMP have been developed to ensure accurate applications, minimize risk of resistance development, and monitor concentrations in water to document levels needed for optimal performance and manage potential irrigation use. SePRO Corporation will work with applicators and resource managers to implement BMP for application and monitoring to meet management objectives and ensure compatibility with potential water uses.

Use Precautions

- There are no restrictions for recreational purposes, including swimming and fishing.

Use Restrictions

- **Obtain Required Permits:** Consult with appropriate state or local water authorities before applying this product to public waters. State or local public agencies may require permits.
- **Chemigation:** Do not apply this product through any type of irrigation system.
- For in-water applications, the maximum single application rate is 25.0 Prescription Dose Units (PDU) per acre-foot of water with a limit of three applications per year.
- For aquatic foliar applications, do not exceed 10.0 PDU per acre for a single application, and do not apply more than 20.0 PDU total per acre per year.
- To minimize potential exposure in compost, do not allow livestock to drink treated water.
- Do not compost any plant material from treated area.
- Allow 14 days or greater between applications.
- Do not use water containing this product for hydroponic farming.
- Do not use treated water for any form of irrigation, except as described in the Application to *Water Used for Irrigation on Turf and Landscape Vegetation* section.
- Do not use for greenhouse or nursery irrigation.
- Make applications in a minimum of 10 gallons per acre (GPA) for ground and a minimum of 15 gallons per acre (GPA) for aerial applications.
- Do not apply to salt/brackish water.
- Do not apply ProcellaCOR EC directly to, or otherwise permit ProcellaCOR EC to come into contact during an application, with carrots, soybeans, grapes, tobacco, vegetable crops, flowers, ornamental shrubs or trees, or other desirable broadleaf plants, as serious injury may occur. Do not permit spray mists containing ProcellaCOR EC to drift onto desirable broadleaf plants. Further information on spray drift management is provided in the Spray Drift Management section of this label.
- For treatments out of water, do not permit spray mists containing this product to drift onto desirable broadleaf plants as injury may occur. Further information on spray drift management is provided in the *Spray Drift Management* section of this label.
- Do not allow tank mixes of ProcellaCOR EC to sit overnight. See additional tank mix restrictions below.
- Do not use organosilicone surfactants in spray mixtures of this product.
- Do not tank mix this product with malathion or methyl parathion.
- Do not make an application of malathion or methyl parathion within 7 days of an application of this product. See additional tank mix restrictions below.

Application to Water Used for Irrigation on Turf and Landscape Vegetation

To reduce the potential for injury to sensitive vegetation, follow the waiting periods (between application and irrigation) and restrictions below, and inform those who irrigate with water from the treated area. Follow local and state requirements for informing those who irrigate.

When monitoring ProcellaCOR EC concentrations, analyze water samples using an appropriate analytical method for both the active ingredient and the acid form. Use of HPLC (High-Performance Liquid Chromatography), which is also referenced as FasTEST®, is recommended.

Applications to invasive freshwater aquatic vegetation in slow-moving/ quiescent areas of rivers (coves, oxbows or similar sites).

- Users must be aware of relevant downstream use of water for irrigation that may be affected by the treatment and must ensure all label restrictions are followed. All potential downstream water intakes with irrigation practices that may be affected by the treatment must be documented and affected irrigation users notified of the restrictions associated with such treatment.

Residential and other Non-Agricultural Irrigation (such as shoreline property use including irrigation of residential landscape plants and homeowner gardens, golf course irrigation, and non-residential property irrigation around business or industrial properties. Excludes greenhouse or nursery irrigation).

- Turf Irrigation: Turf may be irrigated immediately after treatment.
- For irrigation of landscape vegetation or other forms of non-agricultural irrigation not excluded above, conduct one of the following:
  - o analytically verify that water contains less than 2 ppb (SePRO recommends use of FasTEST); or
  - o if treated area(s) have the potential to dilute with untreated water, follow the precautionary waiting periods described in the tables 1 and 2 below for in-water or foliar application.

TABLE 1: Non-agricultural irrigation following in-water application

Waiting Period (Days) for Irrigation at Specific Target Treatment Rates (PDU per acre-foot)						
Percent Area of Waterbody Treated*	1-3 PDU	>3-5 PDU	>5.0 to 10.0 PDU	>10.0 to 15.0 PDU	>15.0 to 20.0 PDU	>20.0 to 25.0 PDU
2% or less	6 hours	1 day	1 day	2 days	2 days	3 days
3 - 10%	1 day	3 days	5 days	7 days	10 days	14 days
11 - 20%	3 days	7 days	10 days	10 days	14 days	21 days
21 - 30%	5 days	10 days	14 days	21 days	28 days	35 days
>30%	7 days	14 days	21 days	28 days	35 days	35 days

* Assumes treated area(s) have the potential to dilute with untreated water. If the treated area is not projected to dilute rapidly (example: confined cove area), utilize FasTEST to confirm below 2 ppb or verify vegetation tolerance before irrigation use. Consult a SePRO Aquatic Specialist for additional site-specific recommendations.

TABLE 2: Non-agricultural irrigation following foliar application

Waiting Period (days) for Irrigation at Specific Target Treatment Rates		
Percent Area of Waterbody Treated*	5.0 PDU / acre	>5.0 to 10.0 PDU / acre
10% or less	0.5 day	1 day
11 - 20%	1 day	2 days
>20%	2 days	3 days

* Assumes treated area(s) have the potential to dilute with untreated water. If the treated area is not projected to dilute rapidly (example: confined cove area), utilize FasTEST to confirm below 2 ppb or verify vegetation tolerance before irrigation use. Consult a SePRO Aquatic Specialist for additional site-specific recommendations.

Susceptible Plants

Do not apply where spray drift may occur to food, forage, or other plantings that might be damaged. Spray drift may damage or render crops unfit for sale, use or consumption. Small amounts of spray drift that may not be visible may injure susceptible broadleaf plants. **Before making a foliar or surface spray application, please refer to your state's sensitive crop registry (if available) to identify any commercial specialty or certified organic crops that may be located nearby. At the time of a foliar or surface spray application, the wind cannot be blowing toward adjacent cotton, carrots, soybeans, corn, grain sorghum, wheat, grapes, tobacco, vegetable crops, flowers, ornamental shrubs or trees, or other desirable broadleaf plants.**

Spray Drift Management
Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment- and weather-related factors determines the potential for spray drift. The applicator is responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to limit off-target drift movement from aerial applications:

Aerial Application:
- Aerial applicators must use a minimum finished spray volume of 15 gallons per acre.
- Drift potential is lowest between wind speeds of 2 to 10 mph. Do not apply below
  2 mph due to variable wind direction and high potential for temperature inversion. Do not apply in wind speeds greater than 10 mph.
- To minimize spray drift from aerial application, apply with a nozzle class that ensures coarse or coarser spray (according to ASABE S572) at spray boom pressure no greater than 30 psi.
- The distance of the outer most operating nozzles on the boom must not exceed 70% of wingspan or 80% of rotor diameter.
- Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.
- Do not apply under conditions of a low-level air temperature inversion.
- The maximum release height must be 10 feet from the top of the weed canopy, unless a greater application height is required for pilot safety.

Evaluate spray pattern and droplet size distribution by applying sprays containing a water-soluble dye marker or appropriate drift control agents over a paper tape (adding machine tape). Mechanical flagging devices may also be used. Do not apply under conditions of a low-level air temperature inversion. A temperature inversion is characterized by little or no wind and lower air temperature near the ground than at higher levels. The behavior of smoke generated by an aircraft-mounted device or continuous smoke column released at or near site of application will indicate the direction and velocity of air movement. A temperature inversion is indicated by layering of smoke at some level above the ground and little or no lateral movement.

Ground Application
- Ground applicators must use a minimum finished spray volume of 10 gallons per acre.
- To minimize spray drift from ground application, apply with a nozzle class that ensures coarse or coarser spray (according to ASABE S572).
- For boom spraying, the maximum release height is 36 inches from the soil for ground applications.
- Where states have more stringent regulations, they must be observed.

The applicator should be familiar with, and take into account the information covered in the following Aerial Drift Reduction Advisory (this information is advisory in nature and does not supersede mandatory label requirements.)

Aerial Drift Reduction Advisory
Information on Droplet Size: The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

Controlling Droplet Size:
- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - Do not exceed the nozzle manufacturer's specified pressures. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- **Number of Nozzles** - Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle Orientation** - Orienting nozzles so that the spray is released parallel to the air stream produces larger droplets than other orientations. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- **Nozzle Type -** Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

Boom Length: To further reduce drift without reducing swath width, boom must not exceed 70% of wingspan or 80% of rotor diameter.

Application Height: Do not make applications at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment: When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase with increasing drift potential (higher wind, smaller drops, etc.).

Wind: Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Do not make applications below 2 mph due to variable wind direction and high inversion potential. Do not apply in wind speeds greater than 10 mph. Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

Temperature and Humidity: When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions: Do not apply during a local, low level temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of the smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

USE DIRECTIONS
ProcellaCOR EC performance and selectivity may depend on dosage, time of year, stage of growth, method of application, and water movement.

Aquatic Plants Controlled: In-Water Application
Table 3 lists the expected susceptible species under favorable treatment conditions for aquatic plant control. Use of lower rates will increase selectivity on some species listed. Consultation with SePRO Corporation is recommended before applying ProcellaCOR EC to determine best in-water treatment protocols for given target vegetation.

TABLE 3. Vascular aquatic plant control with in-water application

Vascular Aquatic Plants Controlled: In-Water Application	
Common name	**Scientific name**
Floating Plants	
Mosquito fern	*Azolla* spp.
Water hyacinth	*Eichhornia crassipes*
Emersed Plants	
Alligatorweed	*Alternanthera philoxeroides*
American lotus	*Nelumbo lutea*
Floating heart	*Nymphoides* spp.
Water pennywort	*Hydrocotyle umbellata*
Water primrose	*Ludwigia* spp.
Watershield	*Brasenia schreberi*
Submersed Plants	
Bacopa	*Bacopa* spp.
Coontail[1]	*Ceratophyllum demersum*
Hydrilla[1]	*Hydrilla verticillata*
Parrotfeather	*Myriophyllum aquaticum*
Water chestnut	*Trapa* spp.
Watermilfoil, Eurasian	*Myriophyllum spicatum*
Watermilfoil, Hybrid Eurasian	*Myriophyllum spicatum X M.* spp.
Watermilfoil, Variable	*Myriophyllum heterophyllum*

[1] Higher-rate applications within the specified range may be required to control less-sensitive weeds.

Aquatic Plants Controlled: Foliar Application
Table 4 lists the expected susceptible species using labeled foliar rates (5.0 – 10.0 PDU per acre) under favorable treatment conditions for aquatic plant control. Use higher rates in the rate range on more established, dense vegetation. Consultation with SePRO Corporation is recommended before applying ProcellaCOR EC to determine best foliar treatment protocols for given target vegetation.

TABLE 4. Vascular aquatic plant control with foliar application

Vascular Aquatic Plants Controlled: Foliar Application	
Common name	**Scientific name**
Floating Plants	
Mosquito fern	*Azolla* spp.
Water hyacinth	*Eichhornia crassipes*
Emersed Plants	
Alligatorweed	*Alternanthera philoxeroides*
American lotus	*Nelumbo lutea*
Floating heart	*Nymphoides* spp.
Parrotfeather (emersed)	*Myriophyllum aquaticum*
Water pennywort	*Hydrocotyle umbellata*
Water primrose	*Ludwigia spp.*
Watershield	*Brasenia schreberi*

APPLICATION INFORMATION

Mixing Instructions

In-Water Application to Submersed or Floating Aquatic Weeds
ProcellaCOR EC can be applied undiluted or diluted with water for in-water applications. To dilute with water, it is recommended to fill the spray tank to one-half full with water. Start agitation. Add correct quantity of ProcellaCOR EC. Continue agitation while filling spray tank to required volume and during application.

Foliar Application to Floating and Emergent Weeds
Dilute ProcellaCOR EC with water to achieve proper coverage of treated plants. To dilute with water, it is recommended to fill spray tank to one-half full with water. Start agitation. A surfactant must be used with all post-emergent foliar applications. Use only surfactants that are approved or appropriate for aquatic use. For best performance, a methylated seed oil (MSO) surfactant is recommended. Read and follow all use directions and precautions on aquatic surfactant label. After adding ProcellaCOR EC and surfactant, continue agitation while filling spray tank to required volume and during application.

TANK-CLEANOUT INSTRUCTIONS

ProcellaCOR EC should be fully cleaned from application equipment prior to use for other applications. Contact a SePRO Aquatic Specialist for guidance on methods for thorough cleaning of application equipment after use of the product.

APPLICATION METHODS

In-Water Application to Submersed or Floating Aquatic Weeds
ProcellaCOR EC can be applied via trailing hose, by sub-surface injection, or surface spray as an in-water application to control weeds such as hydrilla, floating heart, water hyacinth, and other susceptible weed species. This product has relatively short exposure requirements for in-water treatments (hours to days), but treatments with high exchange and short exposure periods should be carefully planned to achieve best results. Where greater plant selectivity is desired - such as when controlling hydrilla or other more susceptible species, choose a lower dose in the specified range. A SePRO Aquatic Specialist can provide site-specific prescriptions for optimal control based on target weed, management objectives, and site conditions.

Apply ProcellaCOR EC to the treatment area at a prescription dose unit (PDU) to achieve appropriate concentrations. A PDU is a unit of measure that facilitates the calculation of the amount of product required to control target plants in 1 acre-foot of water or 1 acre for foliar applications. Per Table 5 below, 1-25 PDU are needed to treat 1 acre-foot of water, depending on target species and the percent of waterbody to be treated.

Use Table 5 to select the dose needed to treat 1 acre-foot of water.

TABLE 5: Prescription Dose Units (PDU) per acre-foot of water***

Percent Area of Waterbody Treated	Target Species			
	Eurasian Watermilfoil	Hybrid Watermilfoil	Variable Leaf Watermilfoil	Other
≤ 2%	3 - 4	4 - 5	3 - 5	3 - 25
>2 - 10%	2 - 3	3 - 5	3 - 4	3 - 20
>10 - 20%	1 - 3	3 - 4	2 - 4	3 - 15
>20 - 30%	1 - 2	2 - 3	2 - 3	2 - 10
>30%	1 - 2	2 - 3	1 - 2	1 - 5

* In all cases, user may apply up to the maximum of 25 PDU per acre-foot. Consult your SePRO Aquatics Specialist for site-specific recommendations.
** 1 PDU contains 3.17 fl. oz. of product.

To calculate the amount of product needed in fluid ounces, use the formula below:
Number of acres X average depth (feet) X PDU* X 3.17 = fluid ounces
*: from Table 5

Example Calculation:
To control hybrid watermilfoil in 2 acres of a 5-acre lake (>30% treated) with an average depth of 2 feet:
2 acres X 2 feet X 3 PDU X 3.17 = 38.04 fl. oz.

For in-water applications, the maximum single application is 25.0 PDU / acre-foot, with a limit of three applications per year. Allow 14 days or greater between applications. Product may be applied as a concentrate or diluted with water prior to or during the application process. Use an appropriate application method that ensures sufficiently uniform application to the treated area.

Foliar Application to Floating and Emergent Weeds
Apply ProcellaCOR EC as a foliar application to control weeds such as water hyacinth, water primrose, and other susceptible floating and emergent species. Use an application method that maximizes spray interception by target weeds while minimizing the amount of overspray that inadvertently enters the water.

For all foliar applications, apply ProcellaCOR EC at 5.0 to 10.0 PDU per acre. Use of a surfactant is required for all foliar applications of ProcellaCOR EC. Use only surfactants that are approved or appropriate for aquatic use. Methylated seed soil (MSO) is a recommended surfactant and is typically applied at 1.0% volume/volume. Refer to the surfactant label for use directions. For best results, apply to actively growing weeds. ProcellaCOR EC may be applied more than once per growing season to meet management objectives. Do not exceed 10.0 PDU per acre during any individual application or 20.0 PDU total per acre, per year from all combined treatments.

Foliar Spot Treatment
To prepare the spray solutions, thoroughly mix ProcellaCOR EC in water at a ratio of 5.0 to 10.0 PDU per 100 gallons (0.12 to 0.24% product) plus an adjuvant. For best results, a methylated seed oil at 1% volume/volume is the recommended spray adjuvant. When making spot application, ensure spray coverage is sufficient to wet the leaves of the target vegetation but not to the point of runoff.

Aerial Foliar Application to Floating and Emergent Weeds
Apply ProcellaCOR EC in a spray volume of 15 gallons per acre (GPA) or more when making a post-emergence application by air. Apply with coarse to coarser droplet category per S-572 ASABE standard; see NAAA, USDA or nozzle manufacturer guidelines. Follow guidelines and restrictions in the *Spray Drift Management and Aerial Drift Reduction Advisory* sections to minimize potential drift to off-target vegetation. Aircraft should be patterned per Operation Safe/PAASS program for calibration and uniformity to provide sufficient coverage and control.

Boat or Ground Foliar Application to Floating and Emergent Weeds
When applying ProcellaCOR EC by boat or with ground equipment to emergent or floating-leaved vegetation, use boom-type, backpack or hydraulic handgun equipment. Apply ProcellaCOR EC in a sufficient spray volume (e.g. 20 to 100 gpa) to provide accurate and uniform distribution of spray particles over the treated vegetation while minimizing runoff. Use higher spray volumes for medium to high density vegetation. For boom spraying, use coarse or coarser nozzle spray quality per S-572 ASABE standard; see USDA literature or nozzle manufacturer guidelines. Follow nozzle manufacturer's recommendations for nozzle pressure, spacing and boom height to provide a uniform spray pattern. Follow appropriate spray drift management information where drift potential is a concern.

TANK MIXES WITH OTHER AQUATIC HERBICIDES

DO NOT TANK MIX ANY PESTICIDE PRODUCT WITH THIS PRODUCT without first referring to the following website for the specific product: www.3206tankmix.com. This website contains a list of active ingredients that are currently prohibited from use in tank mixture with this product.

Only use products in tank mixture with this product that: 1) are registered for the intended use site, application method and timing; 2) are not prohibited for tank mixing by the label of the tank mix product; and 3) do not contain one of the prohibited active ingredients listed on www.3206tankmix.com website.

Applicators and other handlers (mixers) who plan to tank-mix must access the website within one week prior to application in order to comply with the most up-to-date information on tank mix partners.

Do not exceed specified application rates for respective products or maximum allowable application rates for any active ingredient in the tank mix.

Read carefully and follow all applicable use directions, precautions, and limitations on the respective product labels. It is the pesticide user's

responsibility to ensure that all products in the mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Always perform a (jar) test to ensure the compatibility of products to be used in tank mixture.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.
Pesticide Storage: Store in original container only. Keep container closed when not in use. Do not store near food or feed. In case of spill or leak on floor or paved surfaces, soak up with vermiculite, earth, or synthetic absorbent.
Pesticide Disposal: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.
Container Handling
Non-refillable Container. DO NOT reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying; then offer for recycling, if available, or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.
Triple rinse containers small enough to shake (capacity ≤ 5 gallons) as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.
Triple rinse containers too large to shake (capacity > 5 gallons) as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Repeat this procedure two more times.
Pressure rinse as follows: Empty the remaining contents into application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank, or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Warranty Disclaimer: SePRO Corporation warrants that this product conforms to the chemical description on the product label. Testing and research have also determined that this product is reasonably fit for the uses described on the product label. To the extent consistent with applicable law, SePRO Corporation makes no other express or implied warranty of fitness or merchantability nor any other express or implied warranty and any such warranties are expressly disclaimed.

Misuse: Federal law prohibits the use of this product in a manner inconsistent with its label directions. To the extent consistent with applicable law, the buyer assumes responsibility for any adverse consequences if this product is not used according to its label directions. In no case shall SePRO Corporation be liable for any losses or damages resulting from the use, handling or application of this product in a manner inconsistent with its label.

For additional important labeling information regarding SePRO Corporation's Terms and Conditions of Use, Inherent Risks of Use and Limitation of Remedies, please visit *http://seprolabels.com/terms* or scan the image below.

SePRO Corporation
11550 North Meridian Street, Suite 600
Carmel, IN 46032, U.S.A.

Conforms to HazCom 2012/United States

SAFETY DATA SHEET

ProcellaCOR EC

Section 1. Identification

GHS product identifier : ProcellaCOR EC

Recommended use of the chemical and restrictions on use

Identified uses : End use herbicide product

EPA Registration No. : 67690-80

Supplier's details : SePRO Corporation
11550 North Meridian Street
Suite 600
Carmel, IN 46032 U.S.A.
Tel: 317-580-8282
Toll free: 1-800-419-7779
Fax: 317-580-8290
Monday - Friday, 8am to 5pm E.S.T.
www.sepro.com

Emergency telephone number (with hours of operation) **INFOTRAC - 24-hour service 1-800-535-5053**

The following recommendations for exposure controls and personal protection are intended for the manufacture, formulation and packaging of this product. For applications and/or use, consult the product label. The label directions supersede the text of this Safety Data Sheet for application and/or use.

Section 2. Hazards identification

Hazard classification: This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Other hazards: No data available.

Section 3. Composition/information on ingredients

Chemical nature: This product is a mixture.

Component	CASRN	Concentration
Florpyrauxifen-benzyl	1390661-72-9	2.7%
Ethylhexanol	104-76-7	2.1%
Methanol	67-56-1	0.9%
Balance	Not available	94.3%

Section 4. First aid measures

Description of first aid measures

General advice: If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

Skin contact: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Eye contact: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice.

Ingestion: No emergency medical treatment necessary.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

Section 5. Fire-fighting measures

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Do not use direct water stream. May spread fire. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function.

Unsuitable extinguishing media: No data available

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen fluoride. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

Advice for firefighters
Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred

because uncontrolled water can spread possible contamination. Do not use direct water stream. May spread fire. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Spills or discharges to natural waterways are likely to kill aquatic organisms. Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact SePRO Corporation for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

Section 7. Handling and storage

Precautions for safe handling: Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapor or mist. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies.

Section 8. Exposure controls/personal protection

Control parameters: Exposure limits are listed below, if they exist.

Component	Regulation	Type of Listing	Value/Notation
Ethylexanol	Dow IHG	TWA	2 ppm
	Dow IHG	TWA	SKIN
Methanol	ACGIH	TWA	200 ppm
	ACGIH	STEL	250 ppm
	OSHA Z-1	TWA	260 mg/m^3 200 ppm
	ACGIH	TWA	SKIN, BEI

ACGIH	STEL	SKIN, BEI
CAL PEL	C	1,000 ppm
CAL PEL	PEL	260 mg/m^3 200 ppm
CAL PEL	STEL	325 mg/m^3 250 ppm

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use safety glasses (with side shields).

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Chlorinated polyethylene. Neoprene. Polyethylene. Ethyl vinyl alcohol laminate (“EVAL”). Polyvinyl chloride ("PVC" or "vinyl"). Viton. Examples of acceptable glove barrier materials include: Butyl rubber. Natural rubber (“latex”). Nitrile/butadiene rubber (“nitrile” or “NBR”). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

Section 9. Physical and chemical properties

Appearance	
Physical State	Liquid
Color	Amber
Odor	Solvent
Odor Threshold	No data available
pH	4.24 (1% aqueous suspension)
Melting point/range	Not applicable to liquids
Freezing point	No data available
Boiling point (760 mmHg)	No data available
Flash point	> 100 °C (> 212 °F)
Evaporation Rate (Butyl Acetate =1)	No data available
Flammability (solid, gas)	Not applicable
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor pressure	0.0000002 mmHg at 20°C (68°F)
Relative Vapor Density (air = 1)	No data available

Relative Density (water = 1)	0.93
Water solubility	0.015 mg/l at 20°C (68°F)
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	260°C (500 °F)
Decomposition temperature	No data available
Dynamic Viscosity	15.4 mPa.s at 20°C (68°F) 8.90 mPa.s at 40°C (104°F)
Kinematic Viscosity	14.2 mm^2/s at 20°C (68°F) 7.91 mm^2/s at 40°C (104°F)
Explosive properties	Not explosive
Oxidizing properties	Not oxidizing
Liquid Density	0.9257 g/cm3 at 20 °C (68 °F) *Digital density meter*
Molecular weight	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

Section 10. Stability and reactivity

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Thermally stable at typical use temperatures.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Exposure to elevated temperatures can cause product to decompose.

Incompatible materials: None known.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide. Hydrogen chloride. Hydrogen fluoride. Nitrogen oxides.

Section 11. Toxicological information

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.
As product: LD50, Rat, female, > 5,000 mg/kg

Acute dermal toxicity Prolonged skin contact is unlikely to result in absorption of harmful amounts.
As product: LD50, Rat, male and female, > 5,000 mg/kg

Acute inhalation toxicity No adverse effects are anticipated from single exposure to mist. Based on the available data, respiratory irritation was not observed.
As product: LC50, Rat, male and female, 4 Hour, dust/mist, > 5.40 mg/l No deaths occurred at this concentration.

Skin corrosion/irritation Brief contact may cause slight skin irritation with local redness.

Serious eye damage/ eye irritation May cause slight eye irritation. Corneal injury is unlikely.

Sensitization Did not cause allergic skin reactions when tested in guinea pigs. For respiratory sensitization: No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)	Evaluation of available data suggests that this material is not an STOT-SE toxicant.
Specific Target Organ Systemic Toxicity (Repeated Exposure)	For the active ingredient(s): Based on available data, repeated exposures are not anticipated to cause significant adverse effects. For the major component(s): Based on available data, repeated exposures are not anticipated to cause significant adverse effects. For the minor component(s): In animals, effects have been reported on the following organs: Blood, kidney, liver, and spleen.
Carcinogenicity	For the active ingredient(s): Did not cause cancer in laboratory animals. For the major component(s): No relevant data found.
Teratogenicity	For the active ingredient(s): Did not cause birth defects or any other fetal effects in laboratory animals. For the major component(s): No relevant data found. For the minor component(s): Has caused birth defects in laboratory animals only at doses toxic to the mother. Has been toxic to the fetus in laboratory animals at doses toxic to the mother. These concentrations exceed relevant human dose levels.
Reproductive toxicity	For the active ingredient(s): In animal studies, did not interfere with reproduction. For the major component(s): In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.
Mutagenicity	In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.
Aspiration Hazard	Based on physical properties, not likely to be an aspiration hazard. No aspiration toxicity classification

Section 12. Ecological information

Ecotoxicological information appears in this section when such data is available.

Toxicity

Acute toxicity to fish	Material is practically non-toxic to fish on an acute basis (LC50 > 100 mg/L). EC50, *Cyprinus carpio* (Carp), static test, 96 Hour, > 120 mg/l, OECD Test Guideline 203 or Equivalent
Acute toxicity to aquatic invertebrates	Material is slightly toxic to aquatic invertebrates on an acute basis (LC50/EC50 between 10 and 100 mg/L). EC50, *Daphnia magna* (Water flea), 48 Hour, 49 mg/l, OECD Test Guideline 202
Acute toxicity to algae/aquatic plants	Material is very highly toxic to some aquatic vascular plant species. ErC50, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, > 5.4 mg/l, OECD Test Guideline 201 ErC50, *Myriophyllum spicatum*, 14 d, 0.000919 mg/l NOEC, *Myriophyllum spicatum*, 14 d, 0.0000954 mg/l

Toxicity to Above Ground Organisms

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

oral LD50, *Colinus virginianus* (Bobwhite quail), > 2500mg/kg bodyweight.

oral LD50, *Apis mellifera* (bees), 48 Hour, > 212.2µg/bee

contact LD50, *Apis mellifera* (bees), 48 Hour, >200µg/bee

Toxicity to soil-dwelling organisms

LC50, *Eisenia fetida* (earthworms), 14 d, mortality, >2,500 mg/kg

Persistence and degradability

florpyrauxifen-benzyl

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.
10-day Window: Fail
Biodegradation: 14.6 %
Exposure time: 29 d
Method: OECD Test Guideline 301B

Stability in Water (1/2-life)

Hydrolysis, DT50, 913 d, pH 4, Half-life Temperature 25 °C
Hydrolysis, DT50, 111 d, pH 7, Half-life Temperature 25 °C
Hydrolysis, DT50, 1.3 d, pH 9, Half-life Temperature 25 °C

Ethylhexanol

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).
10-day Window: Not applicable
Biodegradation: > 95 %
Exposure time: 5 d
Method: OECD Test Guideline 302B or Equivalent
10-day Window: Pass
Biodegradation: 68 %
Exposure time: 17 d
Method: OECD Test Guideline 301B or Equivalent

Theoretical Oxygen Demand: 2.95 mg/mg

Chemical Oxygen Demand: 2.70 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	26-70 %
10 d	75-81 %
20 d	86-87 %

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitizer: OH radicals
Atmospheric half-life: 9.7 Hour
Method: Estimated.

Methanol

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. 10-day Window: Pass
Biodegradation: 99%
Exposure time: 28 d
Method: OECD Test Guideline 301D or Equivalent

Theoretical Oxygen Demand: 1.50 mg/mg

Chemical Oxygen Demand: 1.49 mg/mg Dichromate

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	72 %
20 d	79 %

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitizer: OH radicals
Atmospheric half-life: 8-18 d
Method: Estimated.

Balance

Biodegradability: No relevant data found.

Bioaccumulative potential

Florpyrauxifen-benzyl

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).
Partition coefficient: n-octanol/water(log Pow): 5.5 at 20 °C
Bioconcentration factor (BCF): 356 *Lepomis macrochirus* (Bluegill sunfish) 30 d

Ethylhexanol

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).
Partition coefficient: n-octanol/water(log Pow): 3.1 Measured

Methanol

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -0.77 Measured
Bioconcentration factor (BCF): <10 Fish Measured

Balance

Bioaccumulation: No relevant data found.

Mobility in soil

Florpyrauxifen-benzyl

Expected to be relatively immobile in soil (Koc > 5000).
Partition coefficient (Koc): 34200

Ethylhexanol

Potential for mobility in soil is low (Koc between 500 and 2000).
Partition coefficient (Koc): 800 Estimated.

Methanol

Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 0.44 Estimated.

Balance

No relevant data found.

Section 13. Disposal considerations

Disposal methods: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

Section 14. Transport information

DOT Not regulated for transport

Classification for SEA transport (IMO-IMDG):

Proper shipping name	Environmentally hazardous substance, liquid, n.o.s. (Florpyrauxifen-benzyl)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	Florpyrauxifen-benzyl
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Environmentally hazardous substance, liquid, n.o.s. (Florpyrauxifen-benzyl)
UN number	UN 3082
Class	9
Packing group	III

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

Section 15. Regulatory information

OSHA Hazard Communication Standard

This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

This product is not a hazardous chemical under 29CFR 1910.1200, and therefore is not covered by Title III of SARA.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Pennsylvania Worker and Community Right-To-Know Act:

The following chemicals are listed because of the additional requirements of Pennsylvania law:

Components	**CASRN**
Ethylhexanol	104-76-7

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

WARNING: This product contains a chemical(s) known to the State of California to cause birth defects or other reproductive harm.

United States TSCA Inventory (TSCA)

This product contains chemical substance(s) exempt from U.S. EPA TSCA Inventory requirements. It is regulated as a pesticide subject to Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) requirements.

Section 16. Other information

Hazard Rating System
National Fire Protection Association (U.S.A.)

Health: 1 Flammability: 1 Instability: 0

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
C	Ceiling
CAL PEL	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
Dow IHG	Dow Industrial Hygiene Guideline
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) – Table Z-1 Limits for Air Contaminants
PEL	Permissible exposure limit
SKIN	Absorbed via skin
SKIN, BEI	Absorbed via Skin, Biological Exposure Indice
STEL	Short term exposure limit
TWA	Time weighted average

History

Date of issue mm/dd/yyyy : 10/09/2017

Version : 1.0

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.