



Lake Iroquois Association

PO Box 569, Hinesburg, VT 05461

Research, education, and action for a healthy lake

COMBATTING EURASIAN WATERMILFOIL 2020

Why are aquatic invasive plants a problem?

Invasive species outcompete beneficial native plants and decrease the optimal habitat for aquatic animals. In some cases, growth can limit fish spawning, habitat and foraging success, and restrict access to areas for fish, birds, amphibians, and mammals. This can have a profound effect on the ecosystem food web. More problematic events such as fish kills, algae growth, and additional invasive species introductions can also occur due to the effects that invasives have on the ecosystem. Excessive growth also has a severe impact on the recreational uses of a waterbody which can lead to decline in property values, a wider disruption of the surrounding ecosystem, and ultimately a loss of a precious natural resource. makes swimming, boating, and fishing difficult, if not impossible. The impact on recreational uses of a waterbody as well. In addition, the persistent presence of an aquatic invasive species threatens other waterbodies due to increased risk of spread through attachment to recreational watercraft of all types. This risk cannot be completely mitigated due to lack of control over private watercraft launch.

What is Eurasian Watermilfoil (EWM)?

The aquatic invasive plant of concern in Lake Iroquois is Eurasian Watermilfoil (EWM). EWM was first identified in Lake Iroquois in the early 1990s. The predominant means of plant spread is through fragmentation. Pieces break off from the main plant easily with minimal disturbance. These pieces then easily root and grow quickly, forming dense stands that can grow to the surface and form dense mats that impede recreational use of a waterbody. The dense stands that can overrun nearly the entire littoral zone of a waterbody can also squeeze out native plant species which feed the aquatic fish and animal species, eventually leading to habitat and species loss and severe disruption to the natural ecosystem.

What is the LIA Doing about EWM?

Since 2007, the Lake Iroquois Association has worked to improve the water quality of Lake Iroquois. Beginning in 2014, LIA has been researching and implementing control options to combat Eurasian Water Milfoil (EWM). Diver Assisted Suction Harvesting was used to maintain an open boat channel at the fishing access in the summers of 2016, 2018, and 2019 as well as near Rock Island in 2018 and 2019. The LIA also placed benthic barriers (bottom mats) in the boat channel to keep it invasive free in addition to the beach area. Many people around the lake have also engaged in hand pulling in shallow areas in addition to individual certified divers attempting to hand pull EWM in the deeper portion of the littoral zone.

In addition to these efforts, the LIA has undertaken many projects to reduce nutrient-laden sediment runoff into the lake. These nutrients, especially phosphorus, feed the growth of invasive EWM. While results of these projects have shown significant reductions in the phosphorus levels in the lake, the EWM continues to spread. It has formed dense mats reaching the surface, making navigation, swimming, or fishing virtually impossible. Of even greater concern is the way in which it is changing the natural lake environment, out-competing and eliminating the more beneficial native aquatic plants, and severely reducing natural plant diversity within the lake. In 1984, 45 native aquatic plant species were

documented in the lake but by 2014 only 33 native species could be found, a 27% decline. This decline in native species has continued. By 2019, only 19-23 native species were found in the lake with EWM being by far the most common aquatic plant.

While the LIA is continuing with efforts to reduce nutrient levels and undertaking mechanical means, it is increasingly clear these steps are inadequate to reduce and control the problem. Herbicides have been successfully used in other Vermont lakes to reduce the incidence of EWM to the point mechanical means can then be used to control it. The LIA was not permitted to use one of those older herbicides. However, in 2018, the state approved the use of a new herbicide developed to specifically target only EWM. This herbicide, ProcellaCor, was used in four lakes in Vermont in 2019 with excellent results. The EWM was eliminated with virtually no effect on native plant species or aquatic animal life. These results have encouraged the LIA to pursue permitted use of ProcellaCor in Lake Iroquois. It is expected the permit application will be submitted to the state in early February 2020.

Why use an herbicide and are there other options?

- Using the herbicide ProcellaCOR (loryrauxifen-benzyl) is the most cost effective and least disruptive method to combat this lake-wide infestation. It has proven to be successful in clearing EWM infestations in four Vermont lakes in 2019, and showed no adverse impact to native aquatic plants or animals. Water testing showed that in less than 48 hours there were no detectable levels of the herbicide remaining in the water.
- Diver Assisted Suction Harvesting, as noted, has been used in Lake Iroquois and is quite expensive. Even if we could source the quarter million dollars in funding needed to clear 40 acres of EWM, it is very slow. Because of the density of the infestation, the DASH boat can only clear about an acre per week. The EWM spreads faster than DASH can remove it.
- Benthic barriers are another option, which we use in limited areas. These, however, are unacceptable as a wider solution as they kill everything under them.
- The use of weevils was attempted but could not be procured in sufficient numbers to be effective.

Is ProcellaCor safe?

- ProcellaCor is applied in concentrations of between 7 and 8 parts per billion (ppb). According to the Vermont Department of Health, no drinking water advisory is required for the product below 3,429 ppb – over 400 times the concentration used for EWM treatment.
- The Vermont Department of Health has further indicated that in the concentrations used for treating EWM, it poses a negligible risk to public health. The ProcellaCor Safety Sheet also shows that it is “practically non-toxic to fish”
- ProcellaCOR-breaks down in the environment and doesn’t bioaccumulate in plants or animals. Water tests in lakes using ProcellaCor in 2019 showed no detection less than 48 hours after application.
- Application is performed by a professional company and monitored in collaboration with the Vermont Department of Environmental Conservation.

How much will treatment cost?

It is estimated the cost will be approximately \$1300/acre treated. If the permit is approved by the state, no more than 40 acres would be treated, amounting to about \$52,000. This is certainly a lot but the cost of doing nothing is even greater. Not only does EWM impede recreational uses of the lake but it severely damages the lake ecosystem. This destructive effect has ripple effects in disrupting the surrounding ecosystem, affecting downstream waterbodies. It can also cause lowered property values around the lake which can then affect revenue streams in the surrounding towns.

Cost of using ProcellaCor should also be compared to the costs of using mechanical means. The most efficient mechanical methods the state will permit is Diver Assisted Suction Harvesting (DASH). As noted, LIA has used this for several years. The cost of DASH is approximately \$6000/acre, which is significantly more expensive. DASH is best used to clear out small, less dense stands. It is not practical for the level of infestation in Lake Iroquois.

Why is Lake Iroquois Association working on this, not the state of Vermont or towns?

LIA regularly collaborates with the Vermont Department of Environmental Conservation and the four towns within the lake's watershed: Hinesburg, Richmond, Saint George and Williston, and the Lake Iroquois Recreation District. Since 2007, LIA has received numerous grants seeking to improve the water quality of the lake, which includes the greeter program, pressurized hot water boat wash station at the fishing access in partnership with the Town of Williston, and stream remediation on the west shore in partnership with the Town of Hinesburg

Will this single treatment remove all Eurasian Water Milfoil from the lake?

- Unfortunately, once EWM is in a water body, it is almost impossible to completely eradicate it. The goal of this program is to control EWM in the lake and reduce impacts to native aquatic life.
- The LIA will continue to use benthic barriers at the fishing access to maintain a clear channel and prevent regrowth of EWM and the possible fragmentation spread by boats entering and leaving the lake.
- Once the densest EWM infestations are under control, DASH and/or hand pulling can then be used in small areas to prevent recurrence.
- Regular surveys of the lake will be performed to monitor the situation and track any recurrences.

For more information visit www.lakeiroquois.org and www.facebook.com/lakeiroquois or email LIA at lakeiroquoisassociation@gmail.com.

Our water is a collective resource; we all benefit from keeping it clean. Support from private donations in addition to town and state funding ensures everybody participates, control efforts are sustained, and our lake continues to be protected and enhanced.