

# THE LAKE SHORE PROPERTY OWNER'S MANUAL



**Lake Iroquois  
Association**

*[www.lakeiroquois.org](http://www.lakeiroquois.org)*

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*An electronic version of this manual can be found on the LIA website:  
<https://www.lakeiroquois.org/water/shoreline-health>*

## A MESSAGE FROM THE LAKE IROQUOIS ASSOCIATION

The Lake Iroquois Association (LIA) is pleased to provide you with the 4<sup>TH</sup> edition of the Lake Shore Property Owner's Manual. Lake Iroquois is a precious and fragile resource that is enjoyed by many camp owners, year-round residents, renters, visitors, and recreational enthusiasts. The LIA was founded to maintain and improve the lake, its ecosystem, and the surrounding watershed so that we, and generations to come, can continue to enjoy it.

The LIA exists to study, research, and take action to protect the lake from pollutants and invasive species. Due to the work of the Lake Iroquois Association and the support of the lake community, Lake Iroquois is one of the few lakes in Vermont that has shown a significant decrease in phosphorus levels in recent years (<https://www.lakeiroquois.org/water/lake-data-maps>). Unfortunately, we continue to have a flourishing infestation of Eurasian Watermilfoil (*Myriophyllum spicatum*) and are working hard to reduce and control this noxious invasive. At the same time, through our greeter and boat wash programs we are working to prevent the invasion of zebra mussels, water chestnuts, and many other harmful aquatic invasive species. The ecosystem of Lake Iroquois is fragile and aquatic invasive species negatively impact the lake. We encourage every property owner and visitor to Lake Iroquois to contribute to preserving, protecting, and enhancing the health of this lake and its surrounding ecosystem.

This booklet offers simple steps that can be done to help protect the lake. It provides you with information about state and local regulations and guidelines as they relate to your property, as well as to the shoreline, boating, and the lake in general. We encourage you to read this booklet and share it with renters and other lake visitors.

Actions to improve lake conditions require both financial and volunteer support. It is incumbent upon all of us who use and live on the lake to take all possible measures to protect and enhance the lake. Lake Iroquois not only provides pleasure, recreation, and wildlife habitat, it also provides drinking water to many residents and is of great economic benefit to the surrounding towns and to the lake shore property owners.

LIA membership and contributions support the work of the Association and are critical to keeping this effort going. If you are already a member, we thank you for your support. If you have not yet become a member, please join us in our fight to protect and improve this beautiful lake. Membership information can be found on our web site at: [www.lakeiroquois.org](http://www.lakeiroquois.org). The survival of our lake depends on everyone's cooperation. We look forward to having you join the LIA.

**It is up to all of us to join as a community to protect this most precious and beautiful resource.**

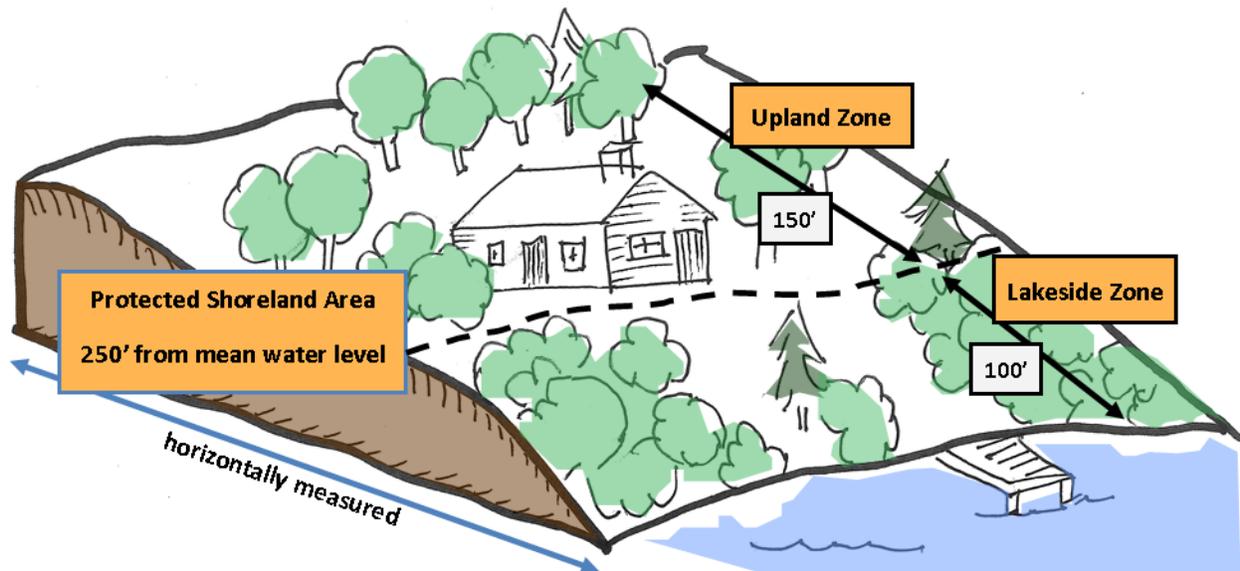
The LIA Board of Directors

July 2021

## THE VERMONT SHORELAND PROTECTION ACT

The Shoreland Protection Act (Vermont Statute 49A of Title 10) establishes a state regulation for guiding shoreland development. It applies to activities within 250 feet of the mean water level of all Vermont lakes greater than 10 acres. The intent of the act is to prevent degradation of water quality in lakes, preserve habitat and natural stability of shorelines, and maintain the economic benefits of lakes and their shorelands by defining standards for the creation of buildings, driveways, and cleared areas on shorelands. Lake water quality is vital to all lake shore property owners as water quality directly affects the value of lake shore property.

The act recognizes that many shoreland properties in Vermont are already developed. It is important to note that such properties are “grandfathered” until the owner proposes redevelopment. The act also recognizes there are small parcels that cannot meet these standards. In the case of these small parcels, Vermont Agency of Natural Resources staff work with homeowners so that standards are met to the extent possible.



### WHAT THE ACT REGULATES

- ◆ The Lakeside Zone (100 feet from the mean water level) is especially sensitive and must be maintained according to the Vegetation Protection Standards in the act.
  - WHY? A wooded shoreland is essential for a healthy lake ecosystem. Most animal and plant life in a lake spends all or some of their life cycle in the littoral zone of a lake's shore. A buffer of natural vegetation and duff absorbs and filters runoff from uphill land uses much more effectively than does a mown lawn. Tree roots hold the bank together and protect against erosion while branches shade the shallow waters.

- ◆ The act establishes a maximum of **20% impervious surface** unless best management practices are used to mitigate impact.
  - WHY? Hard surfaces (roofs, driveways, decks, dirt or gravel roadways, etc.) result in increased runoff during rainstorms. Increased runoff can result in erosion, lessen absorption and filtration functions of the natural vegetation, and causes more sediment and pollutants to enter the lake.
- ◆ The act establishes a maximum of **40% cleared area** unless best management practices are used to mitigate impact.
  - WHY? Clearing the shoreland of its natural vegetation increases stormwater runoff which can cause eroding banks, increased pollutants and sediment entering the lake, and degradation of the aquatic habitat.

## **SHORELAND PROTECTION ACT PERMITS AND EXEMPTIONS**

The Shoreland Protection Act may require a permit or registration of projects occurring in the Protected Shoreland Area (250 feet from the mean water level). In general, a permit is required for the creation of new cleared area or new impervious surface in the Protected Shoreland Area. Smaller projects meeting certain criteria may only require registration with the Shoreland Permitting Program.

### **Activities not requiring a Shoreland Permit or Registration include**

- Reconstruction of existing impervious areas without changing the existing footprint, such as rebuilding a house in the exact same location.
- Changing one type of impervious surface for another, such as building a garage over the footprint of an existing driveway.
- Creation of a six foot wide footpath to access the lake through the Protected Shoreland Area.
- Tree removal using the Vegetation Protection Standards (see below).
- The installation or repair of a wastewater system permitted by the Vermont Agency of Natural Resources.
- Dead, diseased, or unsafe trees may be removed, so long as below-ground root structures remain intact.

## **SHORELAND PROTECTION ACT VEGETATION PROTECTION STANDARDS**

The Vegetation Protection Standards (VPS) use a point-and-grid system to selectively thin trees. Trees can be removed if at least 12 “points” are in each 25-foot by 25-foot plot. Points are assigned based on tree diameter – larger trees are worth more points. In addition to 12 points, at least 5 saplings and all vegetation less than three feet in height, including the duff layer, must be retained in each plot. Before beginning any project within the Shoreland Protection zone, property owners should contact the Shoreland Permitting Program to determine whether a permit or registration is needed or if the project is exempt.

### ***Contact Information for Guidance Materials and Questions***

Vermont Department of Environmental Conservation Watershed Management Division, Shoreland Permit Program 1 National Life Drive, Main 2, Montpelier, VT 05620

Email: ANR.WSMDSshoreland@vermont.gov

**Website:** <https://dec.vermont.gov/watershed/lakes-ponds/permit/shoreland>

**Phone:** 802-828-1115

## **PROTECTING THE LAKE**

Sediment, nutrients, such as phosphorus, and other pollutants can be carried into the lake from road runoff, other impervious surfaces, and from removal of shoreline buffers. Erosion along streams entering the lake will also carry sediment and pollutants into the lake. Excessive nutrients, especially phosphorus, can encourage cyanobacteria (sometimes called blue-green algae) blooms. For this reason, it is important to prevent erosion and runoff to the greatest extent possible at the Lake shoreline and along streambanks. In addition to runoff, other activities can cause problems for the lake, such as failing septic systems or use of fertilizers on lawns and gardens. In addition to complying with the Shoreland Protection Act, there are many other actions property owners can take to protect the lake and improve water quality, reduce pollution, and increase your property value.

### ***No-Mow Zones***

By reducing or even eliminating the amount of lawn you mow, a vegetated buffer along your shoreline can considerably reduce runoff into the lake and minimize your workload. Lawns mowed up to the shoreline do not readily absorb runoff and can lead to unstable banks. No-mow zones, also called riparian buffers, absorb the runoff, helping to prevent sediment and pollutants from entering the lake and they help to stabilize shorelines. By planting with native species, no-mow zones not only protect the lake but also provide habitat for native pollinators and birds as well as providing shade on the water which is beneficial to fish and other aquatic organisms. The Federation of Vermont Lakes and Ponds has created an excellent guide to lake friendly landscaping that includes planting plans and a list of lake friendly native species: <http://vermontlakes.org/wp-content/uploads/VTLakescapingBooklet.9.9.15.pdf>

### ***Rain Gardens***

Rainwater from roofs, roads, and other impervious surfaces can also carry pollutants into the lake. Creating rain gardens on your property can help to decrease the quantity and increase the quality of runoff. Rain gardens are bowl-shaped gardens designed to capture runoff from impervious surfaces which allow the rain to infiltrate into the ground. They are planted with native perennials and are a low maintenance addition to a lake friendly landscape. The benefits to the homeowner are that it creates a visually pleasing landscape, attracts birds and butterflies, cultivates diverse plant life, and reduces storm water runoff. It benefits the lake by reducing the amount of pollutants carried into the lake, thus improving water quality and property values. Details on how to create a rain garden and suggestions for plantings can be found at:

[https://dec.vermont.gov/sites/dec/files/wsm/lakes/Lakewise/docs/LP\\_BMPRainGardens.pdf](https://dec.vermont.gov/sites/dec/files/wsm/lakes/Lakewise/docs/LP_BMPRainGardens.pdf)

### ***Shoreline Stabilization***

If erosion is occurring, methods that mimic a natural shore are long-term solutions that benefit the lake and prevent the problems retaining walls can cause. Besides being expensive to build, walls offer no lake habitat or ecological benefits, are a barrier to wildlife, and can increase the velocity of wave action leading to scouring of the lake bottom. Resloping the shoreline to create a more natural contour, lining it with rock, and planting native vegetation will reduce erosion and help mitigate the effects of wave action. Further information on best practices for shoreline stabilization can be found at:

[https://dec.vermont.gov/sites/dec/files/wsm/lakes/Lakewise/docs/LP\\_BMPReslopingRockToeRiprap.pdf](https://dec.vermont.gov/sites/dec/files/wsm/lakes/Lakewise/docs/LP_BMPReslopingRockToeRiprap.pdf)

### ***Lake friendly yard maintenance***

Overwatering lawns or gardens, mowing all the way to the shoreline, indiscriminate use of fertilizers and pesticides can lead to water quality problems for the lake. Excessive watering and mowing influence freer flow of pollutants and sediment flowing into the lake. Fertilizers and pesticides can also be washed into the lake, adding nutrients and pollutants which can encourage cyanobacteria (blue-green algae) blooms. By properly amending the soil and planting native species, the need for fertilizers or pesticides can be virtually eliminated. Once established, lawns need little to no watering in Vermont. Shortly mown grassy areas absorb less water; overwatering lawns leads to more runoff into the lake. Allowing a greater amount of your property to naturalize is especially helpful to the lake. Wherever possible, don't rake leaves or mow. Leaving a spongy, naturally occurring duff layer will absorb considerable runoff. Finally, be sure to pick up animal waste from your yard. This can be a damaging pollutant if carried into the lake. For more information on lake friendly yard maintenance go to:

[https://dec.vermont.gov/sites/dec/files/wsm/lakes/Lakewise/docs/LP\\_BMPLakefriendlyYardMaintenance.pdf](https://dec.vermont.gov/sites/dec/files/wsm/lakes/Lakewise/docs/LP_BMPLakefriendlyYardMaintenance.pdf)

### ***Septic Systems***

Properly sited and functioning septic systems are immensely important to the lake water quality. A septic system too close to the lake, or one that is leaking or failed, can permit waste to leach directly into the lake, leading to dangerous pollution in the vicinity of where we swim, boat, fish and from which many people around the lake draw their drinking water.

*Here are some tips to help your septic system operate properly:*

- ◆ Use white toilet paper (colored paper takes far longer to decompose).
- ◆ Collect cooking grease for composting.
- ◆ Avoid installation or use of garbage disposal; fats and greases from food interfere with the normal bacterial activity.
- ◆ Keep the leach field clear of parked cars, heavy stored objects, and buildings. Excess weight will compact the soil in the field, which reduces permeability and can break pipes, leading to failure of the system.
- ◆ Keep deep-rooted trees and shrubs from growing on or near your leaching area or near any part of the septic system. Root systems can disrupt underground pipes or crack your tank, causing the system to fail. Ground covers, flowers or low-maintenance grasses are fine.
- ◆ Enzymes or commercial additives should not be added to your system. The bacteria already present in your system should provide all the digestion required.

*Maintain your septic system by doing the following:*

- ◆ Pump your septic tank every three to five years. The proper frequency depends upon tank size, frequency of use, number of people, etc. If sludge and solids are not removed as necessary, they clog the leach field, causing the system to fail.

- ◆ Inspect your septic system every year to ensure that all aspects of the system are operating properly.
- ◆ If your septic system has a pump, ensure that the pump is functioning properly.
- ◆ Look for signs of malfunction; odors, slow or backed-up drain, standing water on the leach field.

*Updating your system:*

Many older homes have outdated systems that may be failing and adding dangerous pollutants to the lake that can cause illness and cyanobacteria blooms. If you are ready to replace your septic system, consider the following:

- ◆ Locate the system as far from the lake as possible.
- ◆ Make sure an engineer designs a system appropriately sized for your home. There are several advanced technologies now available that allow smaller leach fields where space is a problem.
- ◆ Be sure to consult with the Vermont Department of Environmental Conservation (VT DEC) about wastewater rules and permitting.

*A few other reminders:*

- ◆ Do not allow human or animal defecation or urination in or within 150 feet of the lake.
- ◆ Keep animal manure far from the shoreline or streams to prevent phosphorous and other nutrients from washing into the lake. Cleaning up after pets in areas close to the shoreline is essential.
- ◆ There are many different liquids that may adversely impact the natural ability of your mound system to function properly. Simple dairy products such as milk can alter the pH drastically and alter your systems workability.

Further information on septic system do's, don'ts, and design can be found at:

<https://dec.vermont.gov/water/programs/ww-systems/program-education>

***Construction and Renovation***

New construction or renovation of existing dwellings can have a huge impact on the lake. Taking a few simple precautions can make this less of an issue.

- ◆ The Shoreland Protection Act sets standards for siting new houses, camps, or outbuildings. Any new projects will require a permit. Be sure to consult with VT DEC staff early in the design process.
- ◆ Prevent pollution by using non-toxic paint on the outside of your building. Never paint anything over or near the water. Use drop cloths under exterior work areas.
- ◆ Consider using shingles or siding that do not require painting or staining.
- ◆ Construct driveways and paths of pervious materials such as crushed stone, and do not direct them toward the lake.
- ◆ Use best practices to control runoff into the lake from projects on your property by setting up

appropriate barriers and filter fences during construction.

- ◆ Avoid adding anything to the lake (such as sand). Having your own beach may sound like a good idea but it does real damage to the ecosystem. In addition, the state of Vermont requires that you receive an encroachment permit for this type of activity.

### ***Docks***

- ◆ Construct docks and floats with environmentally friendly material such as cedar, redwood, cypress, recycled wood/plastic, or aluminum.
- ◆ Avoid using pressure-treated wood as it contains chemicals that can leach into soils, groundwater, or surface water.

### ***Household Tips***

Everything that goes down the drain affects the groundwater and ultimately ends up in the lake and/or your well. Consider doing the following:

- ◆ Use only eco-friendly cleaners and laundry/dishwasher detergents.
- ◆ Use baking soda followed by vinegar as an alternative drain cleaner.
- ◆ Use alternative bathroom cleaning products such as soap and water, baking soda, borax or other non-chlorine scouring powders.

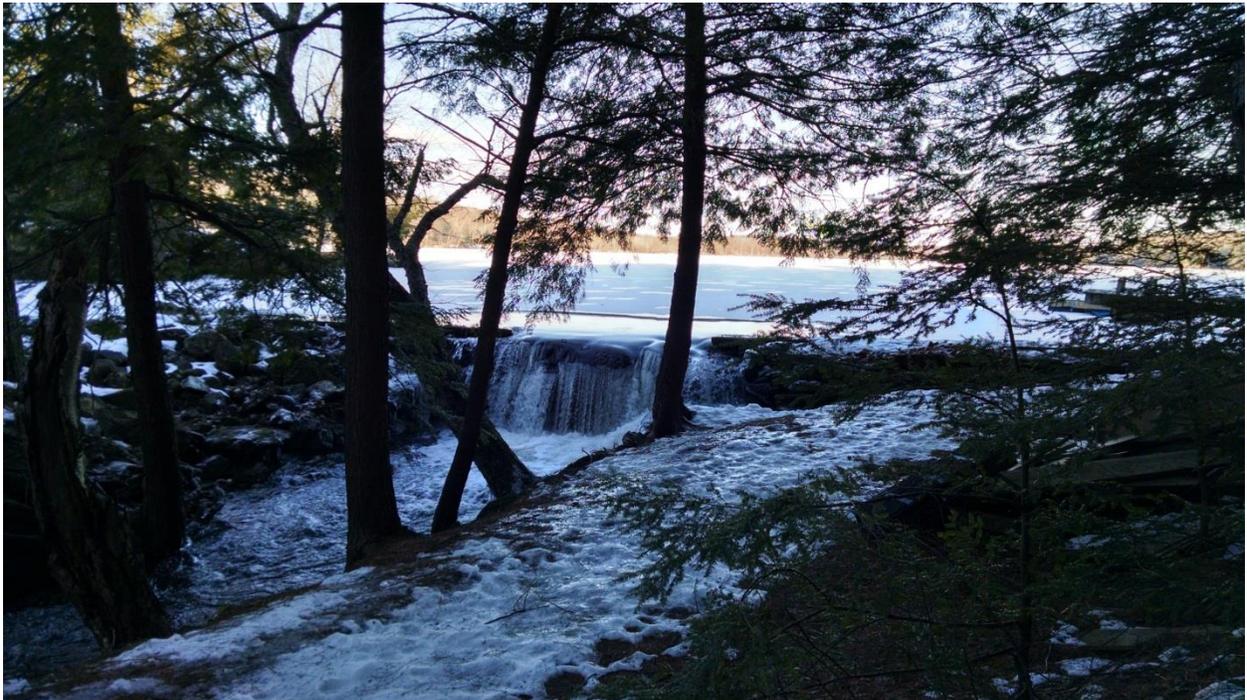
### ***Boats***

Maintaining your boat properly can have a great impact on the water quality of the lake. Here are some suggestions:

- ◆ Federal and Vermont state law requires that all vessels with propulsion machinery be able to retain oil mixtures on board. You are not allowed to discharge oil or hazardous substances into any waterbody or to dump oil into the bilge of a vessel without means for proper disposal. Absorbent bilge pads should be used to remove fuel spills. The penalty for illegal discharge may be a fine of up to \$10,000. If your vessel should discharge oil into the water, you must notify the National Response center (1-800-424-8802) and Vermont Emergency Management (1-800-641-5005).
- ◆ Clean boats and tune motors each year before using. When replacing your outboard, consider the purchase of a four- stroke engine to reduce air and water emissions.
- ◆ Ensure that fuel tanks, hoses and all fuel connections are not leaking and ensure no spillage when refueling. Replace old and rusting fuel tanks (and store others out of the sun and water to extend lifetime).
- ◆ Use petroleum-absorbing pads when performing engine repairs and maintenance, to avoid accidental fuel and oil spills, and dispose of them properly.
- ◆ All boaters must ensure there is no transportation of plant life on the trailer, engine or hull. Check and clean all boats and gear, empty all bilge tanks, bait tanks, and live wells far from the lake and let them dry for 5 days before reentering the lake to ensure no water or plant life is carried into the lake from elsewhere.
- ◆ **Important Note:** Transportation of plant life or live bait violates state law and can result in substantial fines.

## PERMITS

The waters of the state of Vermont are held as a public trust for the benefit of the entire community. To that end, we are all responsible for protecting the health of our lake. The permitting program developed by the Vermont Department of Environmental Conservation is intended to guide property owners and lake users to insure that best practices are used and this precious natural resource is protected. Many of the activities noted in this section may require permitting. We urge you to not consider this an onerous burden but rather to understand the permitting process as an aid to carrying out projects in the safest and most beneficial manner for the lake. As already noted under the Shoreland Protection Act, permits are required for many projects. In addition, permits are required for shoreline stabilization projects, for dock placement larger than 500 square feet, and for septic system placement. Further information and details on permit requirements can be found at: <https://dec.vermont.gov/watershed/permits>



## INVASIVE SPECIES IN LAKE IROQUOIS

### *Eurasian Watermilfoil (EWM)*

This prolific aquatic plant is found in dozens of lakes in Vermont, including Lake Iroquois. It was first discovered at the fishing access in 1990 and is now widespread around the lake. It is easily spread when plant fragments are captured and transported on boat trailers, propellers, anchors and other equipment, or in live wells. Dense mats clog propellers, impair swimming, restrict boating and fishing accesses, and adversely impacts water quality. The LIA has worked diligently for many years on developing ways to reduce and control this noxious aquatic invasive. Plant surveys conducted in recent years show this invasive has led to a loss of native aquatic plant species. EWM has now become the most dominant plant in the lake. This is of serious concern because EWM, as a non-native species, provides neither food nor habitat for native aquatic fauna. The concern is continued spread and domination of the lake environment that severely disrupts the ecosystem, potentially resulting in widespread loss of native species. It is extremely difficult to eradicate Eurasian watermilfoil once it becomes established. There are no perfect solutions. The LIA has undertaken Diver-Assisted Suction Harvesting (DASH), the use of bottom barriers, and has a permit to use a low-dose EWM targeted herbicide in certain areas of the lake. The first herbicide treatment was completed June 28, 2021. The LIA also does outreach to lake users and lakeshore property owners to educate on best practices to minimize fragmentation and spread of EWM.

### *Other Invasive Species*

There are currently 50+ invasive species in Lake Champlain that could easily be carried into Lake Iroquois. These include water chestnut (*Eleocharis dulcis*), zebra mussels (*Dreissena polymorpha*), and many others, some of which are very difficult to detect. The LIA created a greeter program and boat wash station at the fishing access to reduce the chances of these invasives from entering our lake and to prevent vessels from carrying EWM from our lake to other waterbodies. Vermont state law prohibits the transport of plants or animals from one waterbody to another. The law also specifies that all vessels be checked when greeters are on duty and be washed if the greeter deems it necessary. It is crucial that all boaters entering the lake comply with these requirements and be checked and cleaned to ensure that none of these hitchhikers are on board.



Eurasian  
Watermilfoil



Zebra Mussel



Water Chestnut

## WHAT YOU CAN DO ABOUT INVASIVE SPECIES

There are no easy answers. Because they are non-native species, aquatic invasives have no true predators and therefore no natural limitations. The battle against these invaders is going on around the country. There are several things you as an individual can do to aid the fight against aquatic invasive species in our lake:

- ◆ Keep an eye out for any suspected new infestations and report them to the VT Water Quality Division at 802-828-2225.
- ◆ Do not introduce sand to the lake to create swimming areas. This practice introduces unwanted nutrients, reduces water clarity, increases weed and algae growth, and damages fish spawning sites.
- ◆ If you must locally control EWM around your docks and swimming areas, please elect to hand pull or hire divers to remove milfoil in front of your property.
- ◆ Volunteer! Your help is needed. You can become a volunteer, join the LIA board, become a lay monitor or Vermont Invasive Patroller, or help with the many projects and activities that LIA undertakes. Check the LIA web site for more information: [www.lakeiroquois.org/](http://www.lakeiroquois.org/)

*For information, pictures, and further suggestions on what to do about invasive species go to the Vermont Department of Environmental Conservation, Aquatic Invasive Species Section:*

<https://dec.vermont.gov/watershed/lakes-ponds/aquatic-invasives>



## SAFETY ON THE LAKE

*The Use of Public Water Rules govern the aquatic resources of the public waters of Vermont. Below is a summary of some of the rules governing Lake Iroquois, along with some safety tips. Further information can be found on the LIA website: <https://www.lakeiroquois.org/enjoying/boating-on-lake-iroquois>*

**Prohibited:** Jet skis or any other Class A vessel that uses an inboard engine powering a water jet pump as its primary source of power.

**Public Beach:** All vessels, including windsurfers and canoes, are prohibited from entering the designated swimming area at the public beach. This area is clearly marked with floating buoys.

**Speed Limits:** Boats may not travel at speeds greater than 5 MPH within 200 feet of shore, a person in the water, other vessels, or docks. The lake is used by many who enjoy its beauty in different ways. Be courteous to others using the lake and think about how your actions affect others.

**Loon nesting sites:** Between May 1 and July 31 all persons and vessels are prohibited from approaching within 300 feet of any loon nesting site. The loon nesting site on Lake Iroquois is clearly marked with signs and buoys

**Power Boats:** All persons born after January 1, 1974 must successfully complete an approved boating safety education course to legally operate any motorized vessel. Proof of successful completion must always be carried on board. Remember that boats under power must yield the right of way to boats not under power (that is sailboats, canoes, kayaks, etc.).

**Skiing/Wakeboarding:** All water-skiers and wakeboarders must wear an approved flotation device. Also, in addition to the operator, there must be an observer in the boat who is 12 years old or older. Be mindful of wave action which erodes the shore and can cause canoes or kayaks to capsize.

**Diving:** Wholly submerged divers and snorkelers must display a diver down flag. Flags must have a white diagonal stripe on a red background. No power boats may operate within 200 feet of a diver-down flag.



**Swimming:** It is recommended that all swimmers remain as close to the shore as possible. There is a 200' buffer zone surrounding the shoreline in which power boats are required to maintain speeds under 5 mph. Swimmers are strongly encouraged to swim well within that buffer. It is unsafe to swim in the middle of the lake at any time. Boaters may not see a person when the sun's reflection hits the water at certain times of the day, resulting in blind spots and possible unsafe conditions.

**Waterski slalom course:** Each summer a waterskiing slalom course is marked by buoys in the north central part of the lake. It is important that swimmers, paddlers, and sail boaters be aware of this and use caution in this area.

**White Buoys:** The white buoys placed intermittently around the lake mark 200 feet from shore to help lake users judge the distance of the no-wake zone.

**Fishing Access Channel Markers:** Colorful buoys are placed at the fishing access to mark a channel cleared of milfoil so that boats entering the lake do not fragment the milfoil aiding its spread.

## HOW YOU CAN HELP

### VOLUNTEER WITH THE LIA

Become involved and help protect the lake and its ecosystem. The LIA has many ongoing projects that you can become part of and welcomes proposals for new initiatives. Volunteer to help protect the lake and to collect the data needed to continue to develop projects and programs that maintain and enhance the health of the lake. Contact us at <https://www.lakeiroquois.org/about/contact-us>

### LAKE WISE

The Lake Wise initiative of the VT DEC is intended to work with lakeshore property owners to manage stormwater for protecting water quality and to restore and protect natural shorelands for wildlife, bank stability, and many other property and lake benefits. The Lake Wise Award, given to properties meeting the Lake Wise standards, certifies that: a property is well managed, uses shoreland Best Management Practices (BMPs), has a functioning septic system, and is maintained to care for the lake. The Lake Wise program works with property owners to develop BMPs appropriate for their properties and to advise them on options for landscaping and use of native vegetation to create riparian buffers. There are a number of properties around Lake Iroquois that have received the Lake Wise award. Look for the Lake Wise signs around the lake to see the many different ways a property can become lake friendly. Learn how to become part of the Lake Wise program at: <https://dec.vermont.gov/watershed/lakes-ponds/lakeshores-lake-wise>

### TRIBUTARY MONITORING

In 2010, a LIA watershed survey identified as many as 21 tributaries flowing into Lake Iroquois. Many of these tributaries flow intermittently during the period of the year when the lake is not frozen. A number of these tributaries formed artificially as a result of development around the lake, including the construction of homes, roads, and parking areas. The Lake Iroquois Association manages a tributary monitoring initiative that began in 2011 and is supported by the LaRosa Volunteer Water Quality Monitoring Analytical Services Partnership (LaRosa Partnership Program). Five tributary sites were originally monitored beginning in 2011 and five others added in 2012, continuing through 2014. The purpose was to provide general water quality data on water flowing into the lake and determine the effectiveness of remediation projects being undertaken on the western shore. Tributary monitoring was suspended for two seasons in 2015 and 2016 while the LIA continued its work planning and assessing run-off remediation projects on the lake's west shore. Sampling was resumed during the 2017 season. Sampling was suspended at Site 6 (at the north end of the lake) during the 2017 season due to reports of inconsistent flow, however, sampling at this site continued in 2018 and 2019. The decision was based on the fact that even ephemeral flow contributes inputs to the lake, and still contributes to the overall character of inputs to the lake. In 2018 and 2019, LIA decided to expand efforts to additional locations not previously sampled in order to determine if any of the other tributaries were contributing nutrients to the lake. LaRosa funding support for the tributary monitoring was suspended by VT DEC in 2020 due to the COVID-19 global pandemic but the program was revived in 2021 with LIA sampling ten tributaries around the lake.

## **CYANOBACTERIA MONITORING**

Cyanobacteria naturally occurs in lakes and have existed on earth for millions of years. Under the right conditions they form large accumulations referred to as blooms. Some types produce toxins which release into the water when cyanobacteria die and break down. The Lake Champlain Committee trains citizen volunteers to observe and report on water conditions. Lake Iroquois currently has two monitors who report observations weekly. You can find weekly reports on conditions throughout the Lake Champlain basin at: <https://www.lakechamplaincommittee.org/> Information on becoming a monitor for Lake Iroquois: <https://www.lakechamplaincommittee.org/get-involved/volunteers/cyanobacteriamonitors>

## **VERMONT INVASIVE PATROLLERS PROGRAM (VIP)**

Vermont Invasive Patrollers (VIPs) are volunteers trained to patrol the lakes of Vermont looking for evidence of new invasive species in the water body. Lake Iroquois currently has several trained VIPs who use scopes to look below the surface of the water in the hopes they will not discover new invasive plants or animals. If a new invasive species is suspected, the VIP notifies the Agency of Natural Resources. A response team is dispatched to verify the invasive and take action to stem the introduction of a new species. Information on becoming a VIP can be found at: <https://dec.vermont.gov/watershed/lakes-ponds/aquatic-invasives/monitoring/vips>

## **LAY MONITORING**

The Agency of Natural Resources has long supported a lay monitoring program in which volunteers scientifically sample the water. The lay monitoring program started on Lake Iroquois in 1979 and has continued annually ever since. Three measurements are taken each week during the summer months at two pre-determined spots on the lake: water clarity (measured by a black and white Secchi disk), concentrations of phosphorus, and concentrations of chlorophyll-A as a measure of algae growth. Water samples and measurements are sent to state officials for testing and documentation. Results of these tests are available from the Agency for all tested lakes in Vermont. For further information on this program: <https://dec.vermont.gov/watershed/lakes-ponds/monitor/lay-monitoring>



## **ABOUT THE LAKE IROQUOIS ASSOCIATION**

*The Lake Iroquois Association (LIA) was founded to enhance the water quality of Lake Iroquois and to protect the health of the surrounding ecosystem. The LIA is an all-volunteer membership organization, governed by an elected Board of Directors. The LIA performs work around the lake including, but not limited to: managing the greeter program and boat wash station, overseeing various projects to reduce pollutants and sediment runoff into the lake, working on controlling the infestation of Eurasian Watermilfoil, preventive measures to mitigate other invasives from entering the lake, and outreach to all lake users and lake property owners to provide information and education on best practices for maintaining the health of the lake and the surrounding ecosystem. Our work is funded through a combination of membership dues, grant funding, allocations from the surrounding towns, and private donations. Most of all, this work and the health of this special natural resource relies on the numerous hours and very hard work of many volunteers.*



## **THE LAKE IROQUOIS ASSOCIATION MISSION STATEMENT**

*The purpose of the Association is to maintain and enhance healthy ecosystems and appropriate public uses of Lake Iroquois and those aspects of its watershed which impact the health and wellbeing of the lake. This mission is achieved through monitoring, prevention and management initiatives, research, education, advocacy, and other actions, involving the cooperative efforts of property owners, town, state, and federal officials and other interested parties.*

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[www.lakeiroquois.org](http://www.lakeiroquois.org)

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