

# LAKE SHORE HOMEOWNER'S MANUAL

Created by  
The Lake Iroquois Association



## Credits

Thank you to the Vermont Department of Environmental Conservation for contributing to the contents of this booklet. We have also used ideas from the Greensboro Association (Caspian Lake) and the Squam Lake Association. Special thanks to Joanna and Chip Wright for long term service to the quality of the water in Lake Iroquois, and for contributing to our knowledge base through involvement in state and local organizations working to preserve water bodies in Vermont.

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***WWW.LAKEIROQUOIS.ORG***

## A MESSAGE TO HOMEOWNERS

Dear Homeowners,

The Lake Iroquois Association (LIA) is pleased to provide you with the Lake Iroquois Property Owners Manual. Lake Iroquois is a precious and fragile resource that is enjoyed by many camp owners, year-round residents, renters, visitors and many and varied recreational enthusiasts. Our association was founded to maintain and improve the lake and its ecosystem so that we, and generations to come, will continue to enjoy it.

The Association exists to study, research and try to protect the lake water from pollutants and invasive species. Lake Iroquois has one of the highest phosphorus levels of any water body in Vermont, according to studies performed by the Agency of Natural Resources. We already have a flourishing crop of Eurasian Watermilfoil and are working hard to avoid taking on other invasive species such as zebra mussels and water chestnuts that have infested Lake Champlain. The ecosystem of Lake Iroquois is in danger and this will impact our enjoyment of the lake as well as our property values. How each of us reacts to the challenge of nutrients entering the water and the concern over invasive species can affect all other property owners. We encourage every property owner and visitor to Lake Iroquois to contribute to preserving, protecting and enhancing its natural beauty.

This booklet offers simple steps that can be done to help preserve the lake. It provides you with information about state and local regulations, guidelines and hints as it relates to your dwelling, property, shoreline, boating and the lake in general. We encourage you to read it, understand it, keep it in a prominent place, refer to it, and share it with renters and visitors.

Actions to improve the lake conditions require both financial and volunteer support. Membership in LIA and contributions to support the work of the association 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 this critically important fight to protect and improve our beautiful lake. Membership information can be found on our web site at: <http://www.lakeiroquois.org/home/membership> or contact any board member to contribute time and fi-

## FOR MORE INFORMATION

*There are several sources of information related to subjects covered in this booklet:*

**Boating:** [www.boat-ed.com/vt/handbook/](http://www.boat-ed.com/vt/handbook/)

**Docks:** [www.anr.state.vt.us/dec//waterq/permits/html/pm\\_encroachment.htm](http://www.anr.state.vt.us/dec//waterq/permits/html/pm_encroachment.htm)

**Invasive Species:** [www.anr.state.vt.us/dec//waterq/lakes/html/ans/lp\\_ans-index.htm](http://www.anr.state.vt.us/dec//waterq/lakes/html/ans/lp_ans-index.htm)

**Lay Monitoring:** [www.anr.state.vt.us/dec//waterq/lakes/html/lp\\_volunteer.htm](http://www.anr.state.vt.us/dec//waterq/lakes/html/lp_volunteer.htm)

**Rain Gardens:** <http://nsgl.gso.uri.edu/lcsg/lcsg09001.pdf>

**Septic Systems:** [www.anr.state.vt.us/dec//waterq/lakes/docs/lpseries/lp\\_lpseries4.pdf](http://www.anr.state.vt.us/dec//waterq/lakes/docs/lpseries/lp_lpseries4.pdf)

**Shoreland Protection Act:** [http://www.anr.state.vt.us/dec/waterq/lakes/docs/shoreland/lp\\_ShorelandHandbook.pdf#zoom=100](http://www.anr.state.vt.us/dec/waterq/lakes/docs/shoreland/lp_ShorelandHandbook.pdf#zoom=100)

**Shoreline stabilization:** <http://www.nrpcvt.com/Publications/Reports/NaturalResourcesWaterQuality/ShorelineHandbook.pdf>

**Vermont Invasive Patrollers:** [www.vtwaterquality.org/lakes/html/ans/lp\\_VIP.htm](http://www.vtwaterquality.org/lakes/html/ans/lp_VIP.htm)

**Vermont Use of Public Waters Rules:**

[www.watershedmanagement.vt.gov/rulemaking/docs/wrprules/wsmd\\_upw2012.pdf](http://www.watershedmanagement.vt.gov/rulemaking/docs/wrprules/wsmd_upw2012.pdf)

**Lake Iroquois Association**

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

**Email:** [lakeiroquoisassociation@gmail.com](mailto:lakeiroquoisassociation@gmail.com)

## WHAT YOU CAN DO TO REDUCE RUNOFF INTO THE LAKE

Best management practices for protecting the lake from excessive nutrient runoff is to plant as many native shrubs as you can on your property when you can. Here is a list of some native species to consider:

**Red Osier Dogwood:** This shrub can grow in a myriad of conditions, including wet soil. Its thicket-forming habit makes it a great hedge option. And the fibrous root system provides effective erosion control on banks and slopes.

**Willow:** Used for shoreline stabilization, soil erosion control, and wildlife habitat. Good in wet areas.

**Cranberry:** Evergreen dwarf shrubs. Bonus is the fruit.

**Viburnum:** Many different types, usually full sun but some types can tolerate shade. Flowers are usually white or pink and often very fragrant.

**Elderberry:** Easy to grow and adaptable to many conditions. Some have edible berries.

**Winterberry:** Plant in full sun or partial shade, good in wet areas. Bright red berries persist into winter, providing food for wildlife.

**Blueberry:** Excellent for shoreline plantings plus bonus of delicious fruit.

**For more information about planting lake shore buffers and reducing runoff, check out these web sites:**

[http://www.watershedmanagement.vt.gov/lakes/htm/lp\\_lakewise.htm](http://www.watershedmanagement.vt.gov/lakes/htm/lp_lakewise.htm)

and

[http://www.vtwaterquality.org/planning/docs/pl\\_native-veg.buffer-manual.1994.pdf](http://www.vtwaterquality.org/planning/docs/pl_native-veg.buffer-manual.1994.pdf)

nancial resources. The survival of our lake depends on everyone's cooperation. We look forward to having you join us.

Should you have any comments or questions about any of the information contained in this booklet, or have any ideas that might add to its value, please let us know.

### The LIA Board of Directors, 2015

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## 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 on the health and well being of the lake. This will be 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.

### WATER QUALITY

All of the ideas presented in this booklet are aimed toward maintaining or improving the quality of the water in Lake Iroquois. The level of phosphorus in our lake makes us a ready target for excessive plant growth including non-native invasive species. We already have problematic levels of Eurasian Watermilfoil.

Our greeter station at the fishing access is working diligently to keep the other invasive species out of our lake. There are over 40 non-native species in Lake Champlain, which could easily be introduced inadvertently to Lake Iroquois.

However, the greeters alone cannot do the job. It is incumbent on all of us who use the lake and live on the lake to take all possible measures to protect and enhance the quality of the water. The lake 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.

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

## LIA PROJECTS AND INITIATIVES

The LIA hires greeters to inspect boats entering and leaving the lake on weekends at the State Fishing Access, and to provide information to boaters on avoiding the addition of further invasive species to our lake.

In conjunction with the Lake Iroquois Recreation District, the LIA received a grant to come up with a design to improve drainage at the beach. The permit for construction has been received and the goal is for construction to begin in the fall of 2015.

We continue to monitor the tributaries flowing into the lake to determine where additional pollutants such as phosphorus are entering the lake.

The west shore remediation projects have been completed. Working with the Vermont Youth Conservation Corps, catch basins were constructed to stem the flow of streams that rush into the lake from the hills above the west shore.

The Association funded a complete lake survey in the Fall of 2014 to quantify the extent of milfoil in the lake as the first step in the process of developing a plan for whole lake remediation. Board members are meeting with stakeholders during the summer of 2015 to discuss options and next steps.

LIA published the "State of the Lake" report in the summer of 2014 which compiled all of the data that has been collected about the lake.

Board members are working closely with personnel in the Department of Environmental Conservation to seek grant opportunities, and to take advantage of cutting edge research on lake preservation.

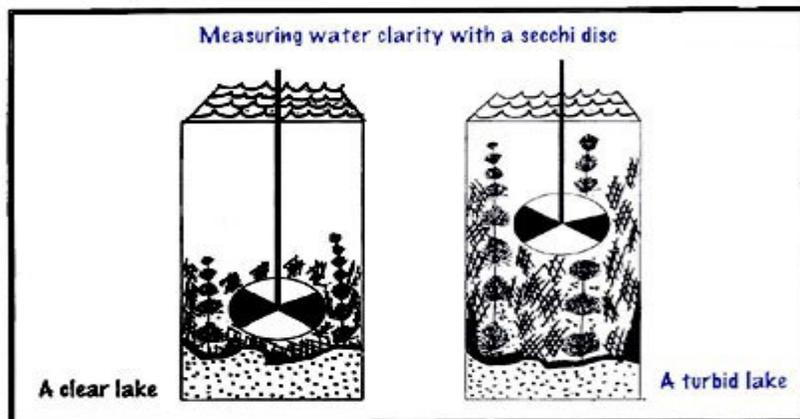
LIA also sponsors various fun events around the lake including the annual picnic on the second Sunday of July. Check the LIA web site <http://www.lakeiroquois.org/> or join the email list (by sending an email to [lakeiroquoisassociation@gmail.com](mailto:lakeiroquoisassociation@gmail.com)) to stay up to date on Lake Iroquois happenings.

## VERMONT INVASIVE PATROLLERS PROGRAM (VIP)

Vermont Invasive Patrollers (VIPs) are volunteers who are 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 hoping not to find new invasive plants or animals. If anything is found, they notify the Agency of Natural Resources and a fast response team is dispatched to address the problem and take action to stem the introduction of the new species. Information on becoming a VIP can be found at: [http://www.vtwaterquality.org/lakes/htm/ans/lp\\_vip.htm](http://www.vtwaterquality.org/lakes/htm/ans/lp_vip.htm)

### 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. Information on joining the Lay Monitoring Program can be found here: [http://www.watershedmanagement.vt.gov/lakes/htm/lp\\_imp.htm](http://www.watershedmanagement.vt.gov/lakes/htm/lp_imp.htm)



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## THE VERMONT SHORELAND PROTECTION ACT

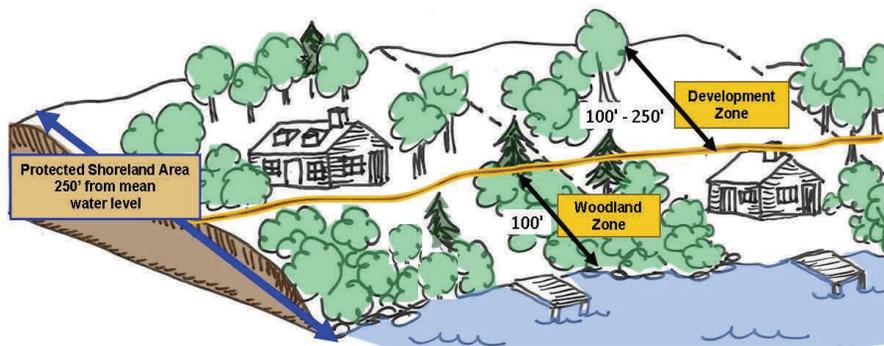
In spite of its title, this act, effective July 1, 2014, is intended to protect and improve the water quality of Vermont's lakes and ponds. Lake water quality is, of course, vital to all lake shore property owners as water quality directly affects the value of lake shore property. The more we, as lakeshore property owners, can do to improve the quality of the water of Lake Iroquois and to reduce the incidence of pollution and invasive species, the more our property will be worth and the greater the return on our investment.

The Shoreland Protection Act (Chapter 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.

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 that there are small parcels that cannot meet the new standards. In the case of small parcels, staff of the Agency of Natural Resources will work with homeowners so that standards are met to the extent possible.

### WHAT THE ACT REGULATES

- ◆ Naturally vegetated areas within 100 feet of the mean water level



## WHAT YOU CAN DO ABOUT INVASIVE SPECIES

There are no easy answers. They thrive in water environments that have high levels of phosphorus and other nutrients. The battle against these invaders is going on around the country. There are several things that you can do as individuals to help with this battle in our lake:

- ◆ Keep an eye out for any suspected new infestations and call the VT Water Quality Division at 802-241-3777.
- ◆ Reduce the amount of nutrients added to the lake by following the suggestions in this booklet.
- ◆ 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.
- ◆ Hand pull or hire divers to pull and remove milfoil in front of your property.
- ◆ Volunteer! Your help is needed. You can become a volunteer greeter at the fishing access, join the LIA board, become a lay monitor or Vermont Invasive Patroller or help out with the many projects and fun activities that LIA undertakes. Check the LIA web site for more information: <http://www.lakeiroquois.org/>

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

*[http://www.vtwaterquality.org/lakes/htm/ans/lp\\_ans-index.htm](http://www.vtwaterquality.org/lakes/htm/ans/lp_ans-index.htm)*

## INVASIVE SPECIES IN LAKE IROQUOIS

### *Eurasian Watermilfoil*

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 a widespread nuisance around the lake. It is easily spread when plant fragments are caught and moved on boat trailers, propellers, anchors and other equipment, or in live wells. Dense mats clog propellers, impair swimming, restrict boating and fishing accesses, and affect water quality. It is extremely difficult to eradicate once it becomes established. It reproduces almost exclusively by the breaking off of fragments which can drift away, sink, develop roots, and grow into new plants. A fragment just a few inches long is capable of starting a new plant. Boating activity through dense milfoil beds contributes to the fragmenting and spread of milfoil plants, as does wind and wave action. Eurasian Watermilfoil particularly likes nutrient (especially phosphorus) rich water which is why the LIA has focused on reducing runoff into the lake, helping lakeshore owners to create vegetation buffers to absorb runoff, and creating a greeter program at the fishing access. There are currently 48 invasive species in Lake Champlain that could easily be carried into Lake Iroquois. These include water chestnut and zebra mussels. It is therefore crucial that all boats entering the lake be checked and cleaned to insure that none of these nuisance hitchhikers are on board



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 spend all or some of their life cycle in the shallow water, along a lake's shore. A buffer of natural vegetation and duff absorbs and filters runoff from uphill land uses much more effectively than does lawn. Tree roots, hold the bank together, protecting against erosion and branches shade the shallow waters.
- ◆ The act establishes a maximum of **20% impervious surface coverage** 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 rain storms. Increased runoff can result in erosion, and lessen absorption and filtration functions of the natural vegetation.
- ◆ The act establishes a maximum of **40% cleared area coverage** unless best management practices are used to mitigate impact.
  - ⇒ WHY? Clearing the shoreland of its natural vegetation increases stormwater runoff and reduces the lake's natural defense in protecting itself from pollution, eroding banks, and creating degraded habitat.
- ◆ Building on **slopes greater than 20% requires** demonstrating the development will not compromise stability.
  - ⇒ WHY? Steeper slopes are more prone to erosion and instability and therefore a wider Woodland Zone, and/or other best management practices may be required to help reduce these impacts.

## **PERMITS, PERMIT EXEMPTIONS, REGISTRATIONS:**

Beginning July 1, 2014, permits or registration, with some exemptions, may be required for some projects occurring in the Protected Shoreland Area.

**Permit Exemptions** (*These projects do not need to be registered or permitted through the Shoreland Permit Program.*)

- ◆ Maintenance of existing buildings, gardens, and lawns, without enlarging them.
- ◆ Creation of a six foot wide footpath to access the lake through the Woodland Zone.
- ◆ Reconstruction of existing impervious areas without increasing or changing the current footprint, such as rebuilding a house, deck or driveway in the exact same spot.
- ◆ Removal of 250 sq feet of vegetation under three feet in height, 25 feet from the mean water level, as long as the Vegetation Management Practices are met and the duff layer is not removed.
- ◆ Tree removal and pruning within 100 feet of the mean water level using the Vegetation Management Practices.

**Registrations** (*Projects that require the landowner to submit a registration form.*) The limits described below are the total allowed for the lifetime of the property, regardless of ownership.

- ◆ Creation of less than or equal to 100 sq feet impervious surface, such as a gazebo or shed, located 25 feet back from mean water level.
- ◆ Less than or equal to 500 sq feet of new clearing or impervious surface at least 100 feet from the mean water level.

**Permits** (*Projects that require a landowner to fill out a permit application and obtain a permit before proceeding.*)

### **Re-development of existing developed shorelands**

If a property does not already meet the new standards, re-development proposals will be reviewed to ensure:

- ◆ Any existing wooded areas within 100 feet of mean water level are maintained under the Vegetation Management Practices;
- ◆ New buildings, decks, or driveways are not closer to the mean water level than currently located;
- ◆ Total coverage of all buildings, decks, and/or driveways (impervious surface area) does not exceed 20% of property area or Best Management Practices (BMPs) are used to offset the effects of the new surfaces;
- ◆ Any proposed new clearing does not exceed 40% of the property area or BMPs are used to offset the impact of the new cleared areas;

## **RULES FOR THE LAKE**

*Rules and regulations for activities in and on public waters are set by the State of Vermont. Further details can be found at the Vermont Department of Environmental Conservation web site.*

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

**Boating:** 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 be carried on board at all times.

**Skiing/Wakeboarding:** All water-skiers and wake-boarders must wear an approved flotation device. Also, there must be an observer in the boat who is 12 years old or older.

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



## CARING FOR THE LAKE *(continued)*

### **Power Boats**

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

- ◆ Clean boats and tune motors each year before using. Insure that you are not transporting plant life on your trailer, engine or hull.
- ◆ Eliminate spillage when refueling.
- ◆ Ensure that fuel tanks, hoses and all fuel connections are not leaking.
- ◆ 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.
- ◆ Insure that no water or plant life is carried from another body of water into Lake Iroquois.
- ◆ Empty all bilge tanks, bait tanks, and live wells far from the lake before reentering the lake.
- ◆ When replacing your outboard, consider the purchase of a four-stroke engine to reduce emissions into the air and water.
- ◆ Be mindful of wave action which erodes the shore and can cause canoes or kayaks to capsize. Minimize the wake that reaches the shore and keep a safe distance from paddlers.
- ◆ Remember that boats under power must yield the right of way to boats not under power (that is sailboats, canoes, kayaks, etc.).
- ◆ **Important Note:** Transporting of plant life or live bait violates state law and can result in substantial fines.

- ◆ Development takes place on slopes of less than 20% unless it is demonstrated BMPs maintain slope stability and prevent erosion; and
- ◆ Standards are scaled down to fit a small parcel that was already in existence as of July 1, 2014.

### **Development of undeveloped shorelands**

Undeveloped properties, both existing small parcels and parcels that can meet all the standards, will be reviewed to ensure:

- ◆ The 100 foot wide Woodland Zone is maintained using the Vegetation Management Practices. For existing small parcels, the width will be scaled to allow development on the property;
- ◆ New buildings, driveways, and other surfaces will be created above the 100 foot wide Woodland Zone. For small parcels in existence by July 1, 2014 the width of the Woodland Zone will be scaled to allow for development; and
- ◆ Development avoids areas of the property with slopes over 20% whenever possible.

## **VEGETATION MANAGEMENT PRACTICES**

The Vegetation Management Practices outline maintenance of plants in the Woodland Zone using a point and grid system. For each 25 foot by 25 foot plot, the diameter of each tree is measured along with the number of saplings to calculate the number of points. Trees can be thinned as long as the minimum number of points is met for each 25 x 25 foot plot. The lower 1/3 of a tree's branches can be pruned, and hazardous trees can be cut.



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

*Vermont Agency of Natural Resources, Department of Environmental Conservation, Watershed Management Div., Lakes and Ponds Shoreland Permit Program, 1 National Life Dr., Main 2, Montpelier, VT 05620*

**Web Page:** [www.watershedmanagement.vt.gov/lakes.htm](http://www.watershedmanagement.vt.gov/lakes.htm)

**Email:** [ANR.WSMDSshoreland@state.vt.us](mailto:ANR.WSMDSshoreland@state.vt.us)

**Phone:** 802-490-6196

## PREVENTING RUNOFF INTO THE LAKE

Excess nutrients entering the lake, particularly phosphorus, feed the proliferation of invasive plant species, especially Eurasian Watermilfoil. Lake Iroquois already has high levels of phosphorus and a growing milfoil problem. Preventing stream and road erosion from entering the lake is an important way to reduce nutrient loads. When streams and roads empty into the lake, they are laden with phosphorus. The west side of the lake is particularly prone to this problem. In recent years, the LIA has worked to create several catch basins to help reduce runoff on the west side of the lake and to decrease erosion from one of the worst streams. However, the nutrient load continues to be high and more work needs to be done.

Creating vegetated shoreland buffers in the first 100 feet from the mean water level is a good way to reduce runoff into the lake. The vegetation absorbs the nutrients and helps lessen shoreline erosion.

Preventing silt from entering the lake when building or digging will also help to reduce nutrient levels. Note that as of July 1, 2014 some of this type of work may require a permit. The staff of the Vermont Department of Environmental Conservation in the Agency for Natural Resources can advise property owners on permit requirements as well as best practices for managing projects and protecting the water.

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.

Avoid using fertilizers or pesticides on your garden or lawn. These are significant pollutants to the lake and increase the phosphorus level. Our susceptibility to Eurasian watermilfoil is directly attributable to the high level of phosphorus in Lake Iroquois.

A vegetated buffer will also prevent ducks and geese from congregating in your yard and reduce the mess and pollution from their droppings.

## CARING FOR THE LAKE (*continued*)

### *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 may require a permit. Be sure to consult with Vermont DEC staff early in the design process.
- ◆ Prevent pollution through the use of 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.

### *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 be emitted into ground or surface water.
- ◆ Note that docks exceeding 500 square feet may need a permit

## CARING FOR THE LAKE *(continued)*

- ◆ 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.

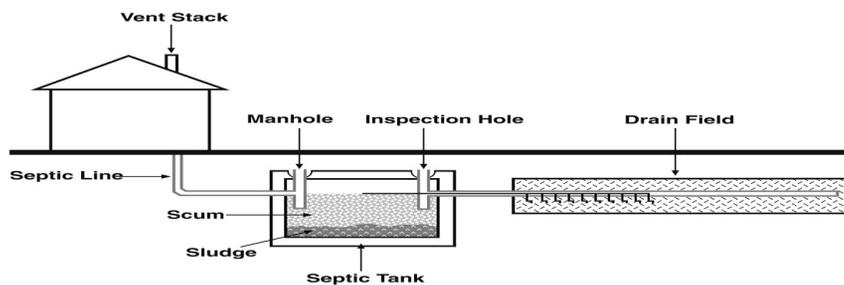
### *Updating your system:*

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:

- ◆ Site the system as far from the lake as possible.
- ◆ Make sure to have an engineer design a system that is appropriately sized for your home. There are a number of advanced technologies now available that allow smaller leach fields where space is a problem.
- ◆ Consider replacing conventional toilets with composting toilets to reduce the amount of waste put into the system.
- ◆ Be sure to consult with the Vermont DEC about wastewater rules and permitting.

### *A few other reminders while we're on this topic:*

- ◆ Do not defecate or urinate (domestic animals and humans) in or within 150 feet of the lake!
- ◆ Keep animal manure far from the shoreline or streams to prevent phosphorous and other nutrients from becoming washed into the lake by rain. Cleaning up after pets in areas close to the shoreline is essential.



## THE RAIN CAN ADD PHOSPHORUS TOO!

Rainwater running from roofs, roads, and other impervious surfaces can also carry phosphorus into the lake. Using rain barrels and creating rain gardens on your property can help to reduce some of this runoff.

**Rain Gardens** are bowl-shaped gardens designed to capture and absorb runoff (rainfall from a roof, parking lot, or other impervious surfaces) into the ground after a storm. 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 silt and phosphorus that is carried into the lake, and therefore water quality is improved.

**Rain Barrels** can be placed under the location where water runs off of the roof. Collecting the water that comes from a rain storm can prevent it from running into streams and lakes, lessen erosion, and provide a source of water for gardening.



## CARING FOR THE LAKE

### *Household Tips*

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

- ◆ Use only eco-friendly cleansers and laundry/dishwasher detergents
- ◆ Use baking soda followed by vinegar as an alternative drain cleaner. Baking soda is also an effective scouring powder for kitchens and bathrooms.
- ◆ Use alternative bathroom cleaning products such as soap and water, baking soda, borax or other non-chlorine scouring powders.

### *Shoreline Stabilization*

One of the critical aspects of maintaining our lake is to avoid practices that will lead to the erosion of our shoreline. Here are several practices that can be used to prevent erosion:

- ◆ Create a vegetative buffer between your building and water. Buffers are the single most important water protection measure and the best thing to prevent erosion. Having lawns that reach the waterfront do not absorb runoff well leading to unstable shorelines and phosphorus runoff into the lake.
- ◆ Cut as few trees as possible on your property to protect the root systems. Tree roots prevent soil erosion and increase shoreline stability.
- ◆ Minimize access points to the lake along your shoreline so the rest can revert to native vegetation.
- ◆ Rather than build retaining walls, use rock and vegetation as these reduce the velocity of waves and are better at preventing erosion.
- ◆ Be mindful of wave action which does erode the shore. If using a power boat, minimize the wake that reaches the shore.
- ◆ For additional information on Best Management Practices for shoreline protection go to the Vermont DEC web site:[http://www.vtwaterquality.org/lakes/htm/lp\\_lakewise\\_standards\\_bmps.htm](http://www.vtwaterquality.org/lakes/htm/lp_lakewise_standards_bmps.htm)

## CARING FOR THE LAKE (*continued*)

### *Septic Systems*

Properly sited and functioning septic systems are immensely important to the quality of the lake water. A septic system too close to the lake, or that is leaking or failed, can cause waste to leach directly into the lake, causing dangerous pollution in the water 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 in an old can and dispose of it in the trash, not down the drain.
- ◆ Do not install a garbage disposal because 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 reducing permeability and/or break pipes causing 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:*

- ◆ If your system was installed more than 20 years ago, be sure that the septic tank and leach field are operating properly and designed to handle the load it is currently receiving.
- ◆ 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.