A Shoreline Owner's Guide to

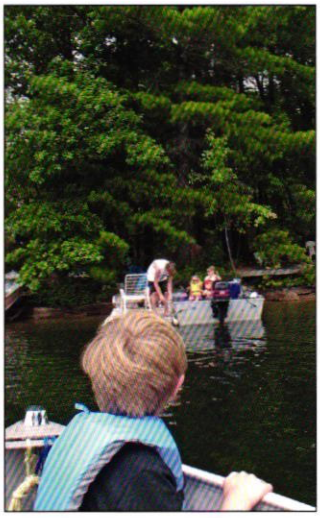
Healthy Waterfronts

3rd Edition

FOCA

Federation of Ontario Cottagers' Associations

Introduction



For generations, families have been lured to Ontario's picturesque lakes and rivers to swim, boat and fish. At the lake, people discover the enchanting call of the loon, the sight of turtles basking on logs and magnificent osprey soaring above crisp blue waters.

The popularity of retreating to Ontario's lakes for rest and recreation continues to grow. As a result, development on the shorelines of our lakes continues.

In addition to this, more and more people are extending their time at the cottage to live there year-round. To preserve the lake environment that brought us here in the first place, it is imperative for us to understand our impacts and to know how to reduce them.

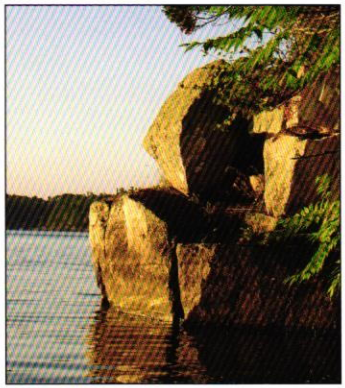
This guide offers you information and advice on ways to make the most of your shoreline property while living in balance with your lake's fragile ecosystem.

Read onward to find out what you can do to take care of your lake so that future generations can enjoy it, too!

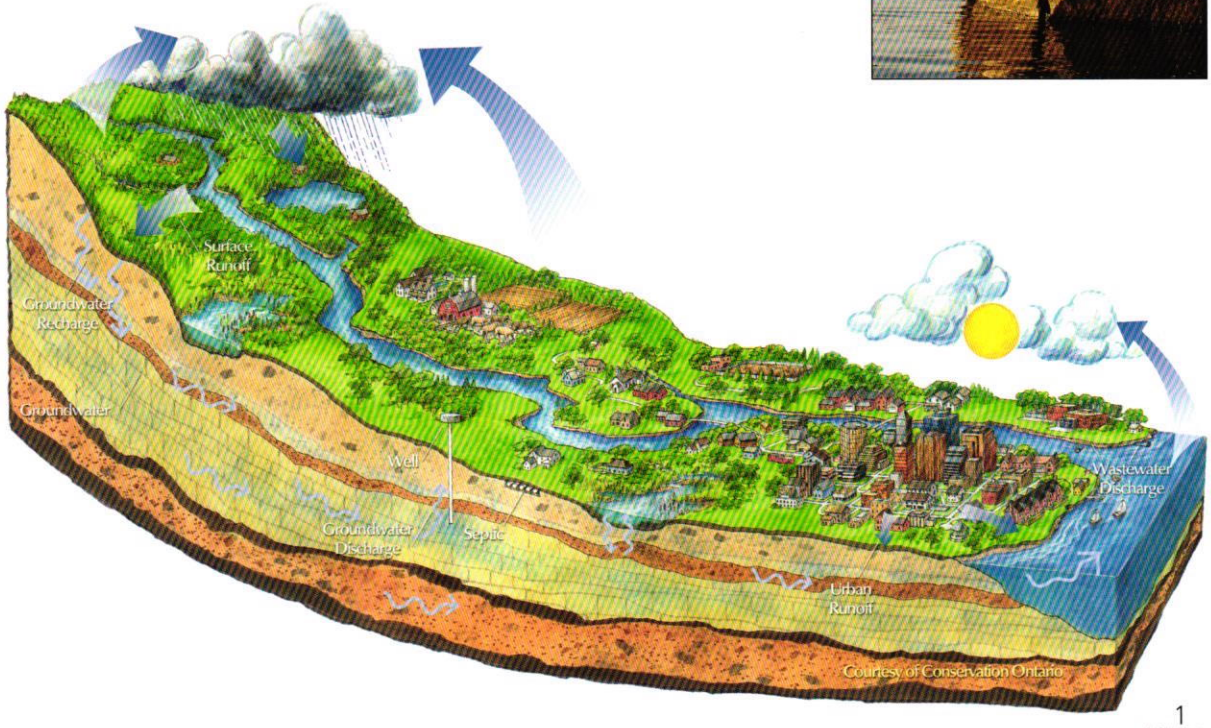
Randy French

What is a Watershed?

Your lake is more than just what you see out your windows: it is connected to and affected by a larger system called a watershed. A watershed is defined as all of the land area drained by a river and its tributaries. Think of it as the path of a raindrop once it hits the ground. That path is shaped by the contours of the land and by climate and vegetation. These factors moderate the flow of water from land to streams and lakes.



Land use has an important impact on the water that moves through a watershed. As human activity reduces forest cover, fills wetlands and paves over open land, less water gets filtered into the watershed. Unfiltered surface runoff increases, and nutrient and contaminant concentrations in water may reach levels that threaten the health of aquatic ecosystems. It is important to recognize that our lifestyle choices may contribute to the declining health of our lakes. A lake benefits – or suffers – from the cumulative actions of all the lake users within the watershed.

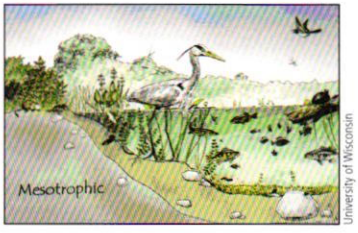


What Type of Lake Do You Live By?

There are three basic types of lakes found in Ontario. You can learn more about your lake's unique characteristics by contacting your local Conservation Authority, Ontario Ministry of Natural Resources and Forestry (MNRF) or cottage association.

Oligotrophic Lakes

- Generally deep
- Minimal aquatic plant growth
- Low nutrient levels
- Support cold-water fish such as trout and whitefish
- Low levels of phosphorus and chlorophyll
- Most lakes on the Canadian shield are oligotrophic with some exceptions



Mesotrophic Lakes

- Medium depth
- Usually good for fishing; support a wide variety of fish such as walleye and bass
- More nutrients than oligotrophic lakes, but not nearly as much as eutrophic lakes
- Occasional algae bloom at the surface

Eutrophic Lakes

- Generally shallow with abundant vegetation
- Support warm-water fish such as perch, bass and pan fish
- Frequent algae blooms
- Susceptible to oxygen depletion
- High phosphorus or chlorophyll readings

Eutrophication is a lake's aging process. Sediments, erosion and the growth and decomposition of aquatic plants eventually fill up the lake bottom. Over time, the lake is converted to a wetland (e.g., a bog or marsh) and later, dry land. This process normally takes tens of thousands of years, but human activity can accelerate lake eutrophication by contributing excessive nutrients.

Limiting Nutrients in Your Lake

Excessive amounts of nutrients, particularly phosphorus, are carried into a water body with runoff from fertilized lawns, golf courses, urban or agricultural areas and from poorly maintained septic systems. Water quality impacts associated with excessive nutrients in a lake include:

- Frequent blooms of undesirable algae* (potentially toxic, giving water poor taste and odour)
- Excessive growth of aquatic plants leading to a loss of open water
- Decrease in water clarity
- Lower levels of dissolved oxygen, which may lead to fish kills and affect fish diversity
- Increased levels of coliform and E. coli bacteria present
- Possible increase in the presence of carcinogens, resulting from increased organic matter reacting with disinfectants such as chlorine

*Note that nutrients are only one of the variables that influence algal blooms. Blooms are also impacted by increased temperatures and water column stability.

Dorset Environmental Science Centre

Simple Steps to Reduce Excess Nutrients

Reduce or Eliminate Fertilizer Use

Remember that what goes on your property goes into the lake! That includes fertilizers applied near the water. Rain and irrigation carry these fertilizers into the water and encourage the rapid growth of aquatic plants and algae. For every pound of phosphorus in the water, 500 pounds of aquatic vegetation are produced!

Maintain Your Septic System

Pumping out your septic tank on a regular basis is critical to reducing nutrient flows into lakes. The frequency of your pump-outs will vary based on the size of your tank, your family size, and the number of appliances you use. As a general rule, pumping your septic tank every 2 to 3 years is a good practice.

Be Careful With Soap

At the lake, soaps should always be phosphate-free. Avoid antibacterial soaps. Soapy wastewater from dishwashing and bathing should be disposed of in soil at least 60 meters from the water's edge to prevent harming wildlife and creating nutrient-induced algae blooms.

To find out more about the water quality of your particular lake, or to play a hands-on role in water quality sampling on your lake, contact the Lake Partner Program at 1-800-470-8322, or visit http://foca.on.ca/lake-partner-program-overview

Climate Change and Cottage Country

Our climate is changing, in large part from human causes. An increase in extreme weather events is anticipated due to climate change including drought, heavy rainfall and extremes (and shifts) in temperature. In cottage country, we need to be prepared for emergency situations such as power outages from downed trees and power lines. Be sure to have adequate supplies of drinking water, extra food and alternative light sources at the cottage, in case of emergency.

Aquatic ecosystems are very vulnerable to climate change. Even small changes can cause big impacts. Weather variables affect lake dynamics such as water temperature, water levels, the number of ice-free days, nutrient runoff and erosion. Physical and biological aspects of lakes—such as temperature stratification, water temperatures, the numbers and types of bacteria and algae, and the timing of seasonal events like fish spawning—may be affected.

For more, see: http://foca.on.ca/climate-change-and-waterfront-Ontario

Climate change will affect our land and water resources, our economy, our communities and all of us as individuals. Some likely developments for Ontario include:

- Extreme heat events will be more common.
- The frequency of intense rainfalls will increase, leading to more flooding events.
- Precipitation distribution will likely change, with more in the winter and less in the summer, reducing surface and groundwater levels.
- Declines in the duration of winter ice may reduce the likelihood for winter fish kills in shallow lakes.
- Fish growth rate should increase, but not at the same rate for each species. The food chain will likely be altered.

Extreme weather events are also likely to increase the effects of erosion, and may affect shoreline infrastructure. The best defence against these forces of nature is a well-established and well-rooted naturalized shoreline, along with thoughtfully designed dock systems.

You have a role to play in maintaining the health of your lake ecosystem, and to mitigate the effects of climate change. Learn more on the following pages.

Kirk Doughty

Shorelines

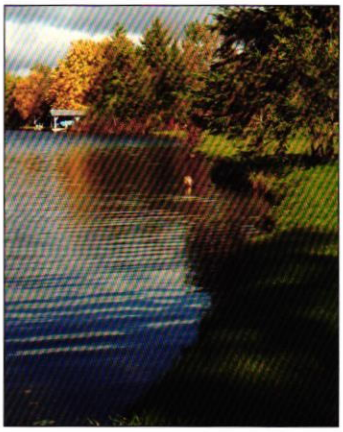
Shorelines

The shoreline of your waterfront property is called a 'ribbon of life' because it is where 90 percent of all lake and river life is born, raised and fed. Natural shorelines support cattail, pickerelweed and reeds that provide habitat for fish, nesting birds, mammals and insects. Plants at the water's edge help filter nutrients and prevent erosion. Underwater logs and rock piles allow fish to rest, feed and spawn while providing protection from predators. In these ways, healthy shorelines help to protect valuable recreational resources and are part of a healthy lake ecosystem. Unfortunately, not every shoreline demonstrates these features.

Kawartha Conservation

Erosion

Shorelines erode due to various forces: natural wave and wind action, ice movement from freezing and thawing, and human activities such as altering the waterfront with lawns, docks and breakwalls. When soil is exposed and vegetation is mowed to the water's edge, the stabilizing effect of root systems is lost, exposing the soil to the power of waves, ice and surface runoff. Sediment carried away by wind or waves reduces the size of waterfront properties and damages shoreline habitat by burying spawning beds and reducing water clarity.



Hardened Shorelines

Despite their popularity in some areas, natural erosion can't be prevented by concrete shore walls or sloped rock. Both of these measures are expensive and temporary fixes. Major storms, ice damage and the effects of time eventually cause them to fail. Hardened shores in one place may also deflect wave and wind energy and cause more erosion problems at neighbouring shorelines.

Naturalized Shorelines

A naturalized shoreline is generally considered the best multi-purpose approach to protecting the lake's edge. Maintaining or planting a buffer zone of native vegetation along your shoreline will slow erosion, provide food and shelter for fish and wildlife species and protect your property and investment. Best of all, naturalized shorelines mean less work and more time to enjoy the lake!

- Roots from shrubs and trees absorb wave and ice energy, stabilize soils and prevent erosion
- Plants along the shoreline slow surface runoff and filter contaminants before they reach the lake
- Shrubs and trees discourage Canada Geese, preventing goose poop and nuisance interactions with these birds
- Naturalized shorelines provide food and shelter for fish and wildlife species.

Buffer Zones Protect Shorelines and Reduce Erosion

- Protect the natural shoreline by replanting areas that lack trees and shrubs, and maintain those areas that already exist.
- Leave a buffer zone of native vegetation around all shoreline areas. The buffer zone can be as little as three meters wide or as large as you would like.
- Don't mow right to the waterfront. A pathway can be maintained for access down to the water, but keep any development at least 30 metres away from the shoreline.

Restoring Developed or Damaged Shorelines

Shorelines that have been stabilized with rock 'rip rap', armour stone or gabion baskets can be modified to incorporate natural vegetation and extend the life of retaining structures. Noted below are some options to protect your shoreline from erosion while improving habitat.

Vegetated Buffer Zone

Plant native species of trees and shrubs with a variety of other aquatic and upland plants. Biodegradable erosion-control fabric can be effective when used with native plants; it holds the soil while allowing plants to grow through it.

Kawartha Conservation

Loose Rock Buffer Zone

In some instances, loose rocks can be placed on a gradual slope and used to stabilize an eroding shoreline. Native shrubs and vines should be planted among rocks and will provide natural protection to absorb and dissipate wave action.

Kawartha Conservation

Bioengineering Techniques

Bundles of branches, or "wattles," staked into the bank will protect the shoreline from eroding. (See photo at right) Live stakes or posts of willow or red osier dogwood also work to stabilize eroding shorelines. Brush layers can be used on steeper banks where deeper reinforcement of the soil is needed.

Kawartha Conservation

Shoreline Construction Projects

Building a dock or boathouse along your waterfront can impact important shoreline habitat by covering fish spawning areas, removing rocks and logs that provide shelter, causing erosion from bank disturbance, removing vegetation, and even introducing toxic substances if improper building materials are used.

There are ways to limit disturbances to shoreline areas when construction projects are taking place. Avoid work during fish spawning times. Check whether you need a permit for shoreline work, including dock and boathouse construction, aquatic weed removal and beach creation. If your property fronts onto the Trent Severn Waterway or the Rideau Canal, you will need to contact Parks Canada about any shoreline projects.

Fish Friendly Dock Structures

One of the most common in-water construction projects that waterfront property owners undertake is dock building. The information and drawings below outline some of the most popular dock designs and their impacts on fish and aquatic habitat. Floating docks are among the most "fish friendly".

Floating Dock

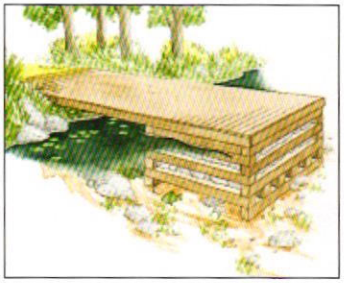
- Simply designed and easy to build
- Causes minimal disruption of lake bed
- Minimal shading of aquatic plants
- Free flow of water underneath
- Least environmental impact

Pipe Dock

- Little contact with lake bed
- Minimal shading of aquatic plants
- Adjustable to water fluctuations
- Free flow of water underneath
- Minimal environmental impact

Crib Dock

- Covers larger area of submerged ground, smothering everything beneath
- May provide structure in otherwise sterile lake bed environments
- Make sure to avoid imported rubble and rock in crib bed



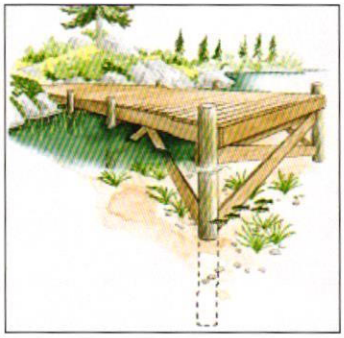
Permanent Pile Dock

- Requires professional installation
- Minimal contact with lake bed
- Free flow of water underneath

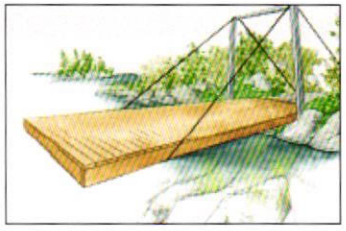
Dock illustrations reproduced with the permission of Fisheries and Oceans Canada
Figures reproduisent avec la permission de Pêche et Océans Canada

Cantilever and suspension or lift dock

- Minimal impact of lake bed
- Minimal shading of aquatic plants
- Installed properly, can cause minimal shoreline damage



Get links from FOCA here:
http://foca.on.ca/permits-for-shoreline-work-crown-land



Low Impact Lake Recreation

The ecological impacts of human activity on the water include wake effects, wildlife disturbance, noise and pollution. Here are a few tips to reduce the impacts of your actions while you enjoy the benefits of living by water.

Clean Marine

It is important to prevent avoidable pollution, such as oil and gas spills and chemical contamination, from entering our lakes. It is vital that boat operators take precautions and use the appropriate facilities when refilling tanks or discharging used water. Remember to use absorbent pads to soak up oil, fuel or anti-freeze spills before discharging your bilge water. One litre of spilled gasoline can contaminate thousands of litres of water. Oily water from a messy bilge leaves a choking rainbow-hued slick. Garbage thrown overboard may take tens to hundreds of years to decompose.

Clean Boating

Many animals respond to human disruptions by altering their behaviour and location. Breeding water birds nest at the water's edge where high wakes can drown nests and destroy eggs. Disturbances such as noise and frequent visits to nesting areas may mean that waterfowl abandon their nests or young chicks.

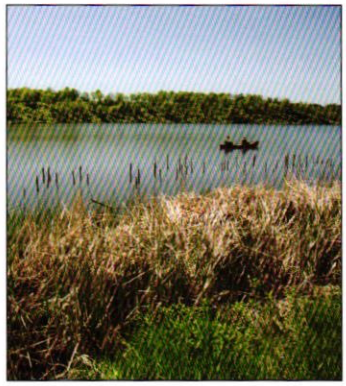
- Operate your boat below 10km/h whenever you are within 30 meters of the shore – it's the law!
- Obey posted speed limits and "No Wake" zones and know your boat's wake-free speed.
- Remember that operating your boat on plane creates a smaller wake than when 'plowing' through the water at lower speeds
- Always avoid waterfowl nests and other sensitive wildlife habitat.
- Always follow safe refueling guidelines to avoid polluting water.
- Only use non-lead fishing tackle.

Following these tips will help ensure that your recreational activities aren't negatively impacting your human and wildlife neighbours!

Get tips from FOCA at http://foca.on.ca/safe-boating

Biodiversity

The haunting cry of the loon or the sight of a deer leaping in your woodlot is an experience that can make you love your lake. As our natural lake landscapes are altered through increased development, pollution and the spread of invasive species, many native species are finding it difficult to cope. Habitat loss can result in population declines for sensitive species. With careful consideration to the needs of the plant and animal communities with which we share our lakefront properties, we can make a difference and help conserve Ontario's biodiversity. You can enhance the variety of natural life that your property supports by taking a few simple steps, outlined below.



Maintain Natural Habitat

Consider leaving specific areas around your property "untouched". Keep large rocks, fallen tree limbs and brush piles where they are to provide habitat for a variety of wildlife. Hawks and owls will keep your rodent populations to a minimum if you leave standing dead trees (where safety permits) for them to use for cavity nests and hunting perches. Rock piles are perfect habitats for reptiles, mammals and amphibians, all of which play an important role in Ontario's biodiversity.

Parks Canada

Dark Skies

Light pollution can negatively affect foraging, hunting and reproductive behaviours of birds and animals. Keep light impacts to a minimum at night, using illumination where and when you really need it. Consider motion detectors instead of dusk-to-dawn fixtures. Light shields help to direct light along pathways or steps without flooding large areas. Now you can really star-gaze!

Keep Aquatic Plant Populations Intact

Aquatic plants support the insects that fish eat, and are a primary food and habitat source for birds. In addition, aquatic plants help stabilize loose sediment and are an effective natural breakwater keeping waves from eroding the shoreline. Wherever possible, keep your shoreline vegetation intact and enhance it with shrubs and plants to create a natural buffer zone.

Find out more at http://foca.on.ca/ontario-biodiversity

Native Plant Gardening

When gardening, think about enhancing the habitat value of your property by planting native vegetation. Native plants thrive with minimal care and maintenance: they are a natural choice for cottage properties since they don't require the watering or chemical support that many of their exotic counterparts depend on.

By providing shelter to local wildlife species native plants contribute to biodiversity and the preservation of local gene pools. Native plants also give your property a sense of place. Indigenous wildlife species such as birds, bees and butterflies will help to bring a native plant garden to life. With a variety of beautiful native plants such as the black-eyed susan and butterfly milkweed (left), your landscape can be a splendour of colours through the seasons. Ask for native plants at your local garden centre and make sure the plants are native to the immediate area. Never dig plants from the wild.

Bird Feeding

Nannyberry, serviceberry, pin cherry and birch are all native shrubs and trees that are excellent choices for feeding birds throughout the fall and winter. Finches and other seed-eating birds feast on the seed heads of thistle and goldenrod in the fall and winter. When using a built birdfeeder in winter, be sure to wash it to avoid transmitting disease and bacteria and maintain a consistent amount of food in the feeder for your feathered friends.

For the Ontario Invasive Plants Council's "Grow Me Instead" guides, visit http://foca.on.ca/fact-sheets-videos and find links in the "Additional Resources" section.

Animal-proof Your Home or Cottage

Attracting wildlife and planting native plant species on your property can result in positive effects ranging from pest control provided by bats and dragonflies to hawks hunting rodents around your buildings. Sometimes, wildlife creates a challenge when some species occur where you might not want them, or are too numerous.

Squirrels, raccoons, chipmunks and other rodents can invade your home or cottage by way of tree limbs and cracks in the ceiling, walls and floors. To discourage these animals, remove tree limbs that give access to your home and seal up all openings with wire mesh, metal flashing or caulking. Don't forget to check for any young (or any other adults) that might be still inside before you seal the access point. The parents will try everything to get back inside! Small mammals such as skunks and mice make their homes in and around woodpiles, so be sure to store your wood a good distance away from your home.

Voracious Visitors

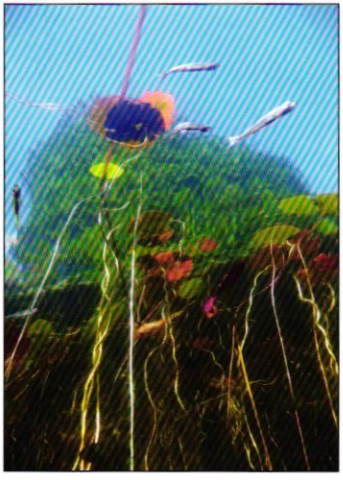
In Ontario, numbers of Canada geese continue to increase due to suitable habitat and low predator numbers. Geese prefer to eat short tender lawn grasses, and they feed where they have an open view of the water. To discourage geese from visiting your property, allow naturally occurring vegetation along the shoreline to grow. To be effective, a vegetative barrier needs to be 60cm (24 inches) or more in height and dense enough to keep geese from seeing through.

Be Bear Aware

To discourage bear visits, store your garbage and recycling in bear-proof dumpsters, and avoid storing garbage outside. Burn barbeques clean after cooking, wash and store them covered and out of the wind to minimize attracting bears. Don't leave pet food outside and keep meat, fish and sweet foods (including fruit) out of your household composter. If you feed birds in the winter, be aware that seeds, suet or hummingbird nectar can attract bears as well as birds. From March to November, birds have access to plenty of natural foods. Consider a birdbath as an alternative to attract birds without encouraging bears during the summer season.

Aquatic Plants – Too Much of a Good Thing?

Aquatic plants play a key role in maintaining your lake's biodiversity, preventing erosion and providing oxygen in the water. Aquatic plant growth is something that some lakefront owners feel they have too much of.



As a lake gets older, an accumulation of nutrients in the sediment can cause an increased growth in aquatic plants. This natural process can be sped up by pollution and erosion. When a lake receives an overload of nutrients from fertilizer runoff, leaky septic systems, or erosion, aquatic plants and algae can grow out of control. Eliminating sources of pollution and reducing erosion can help to avoid the over-fertilization of plants in the lake.

Water temperature also has a profound effect on aquatic plant growth. Increases in water temperature can be caused by the removal of shoreline vegetation, which shades shallow waters from the heat of the sun. If the streams and rivers that feed a lake have unprotected banks, pre-warmed water entering the lake adds to the increase in temperature.

What Can You Do to Control Aquatic Plant Growth?

Cutting is an expensive and labour intensive method of controlling aquatic vegetation; it may not even be productive, as cutting can sometimes stimulate growth. Fragments left in the water can re-root and create a denser patch of vegetation than was originally there. In smaller areas, plants might be pulled out, rather than cut. Be sure to remove pulled plants from the water.

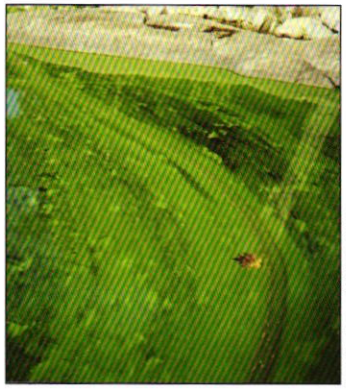
Toxic herbicides should be avoided! They may, or may not, control aquatic plants quickly in the short term, but can be expensive, may have to be used often to be effective, and have negative side effects. Herbicides are especially discouraged within a wide area where anyone will be swimming, or where water intakes are nearby. Using these chemicals has health and environmental risks, and always requires a Ministry of the Environment and Climate Change and/or Parks Canada permit.

Maintain a lakeside buffer zone by using trees to shade the shores and tributaries. This can reduce erosion as well as prevent excess nutrients from entering the lake.

All about Algae

Algae are critical to the life of our lakes. At the base of the food chain, algae convert nutrients to organic matter and oxygenate the water. Without algae, there would be no fish.

Thousands of species of algae live in Ontario's waters and shorelines. Some are microscopic simple cells, while others can grow as mass aggregates of cells, or in strands, or even resemble plants.



Dorset Environmental Science Centre

Algae thrive in areas where water is shallow, slow moving and warm, with ample available nutrients, and visible blooms most commonly occur during late summer and fall. Many factors influence algal growth, such as:

- the amount of light that penetrates the water
- the concentration of nutrients in the water
- water temperature
- the surrounding food chain (microscopic animals and fish that graze on algae)
- parasitism by bacteria and fungi
- competition from aquatic plants for nutrients.

Because algae produce oxygen as a by-product of photosynthesis and also take in oxygen for respiration, a lake that has a large population of algae can experience great fluctuations in dissolved oxygen concentration which can stress fish and other wildlife in the lake. Nutrient sources, such as detergents, septic tank leaks and fertilizer runoff from lawns and gardens can increase algal growth, or blooms. For this reason, it is important to limit nutrients that enter your lake. (see Page 3)

Blue-Green Algae

Some species of algae, referred to as "blue-green" or cyanobacteria, can release toxins that can be harmful to the health of both humans and animals. Do not swim, drink or eat fish from an area with a suspected blue-green algal bloom. Note: boiling water will NOT remove these toxins.

Dense blue-green algae blooms may make the water look like green pea soup or turquoise paint. Report all suspected sightings of blue-green algae by calling the Spills Action Centre: 1-800-268-6060. For tips about recognizing suspected blue-green algae, find links at http://foca.on.ca/fact-sheets-videos/.

Invasive Species

Non-native, exotic or invasive species are all terms used to describe organisms that have been introduced into habitats where they haven't historically existed and do not belong. Invasive species can negatively affect the habitats they invade, displacing native species and causing a serious threat to biodiversity. Aquatic ecosystems are especially vulnerable to invasive species. Once established in an aquatic ecosystem, an invasive species is almost impossible to eliminate and control measures can be costly.

For more, see http://foca.on.ca/invasive-species/

Ted Lawrence

Photos courtesy of Dave Brenner (Michigan Sea Grant Archives–www.miseagrant.umich.edu

Common Aquatic Invaders of Ontario

Asian Carp

Asian carp is the term used to describe several species of invasive fish that were imported into North America in the 1970s to be used in southern United States aquaculture operations. Flooding allowed the fish to escape into the Mississippi and Illinois Rivers in the 1990s, and they have been advancing toward the Great Lakes ever since, with reported sightings in Canada beginning in 2015. These carp are avid feeders and eat up to 20% of their body weight in plankton per day, and they have the potential to displace native fish species. For more, see http://foca.on.ca/asian-carp/

Zebra Mussels

Tolerant of a wide range of environmental conditions, these mussels have managed to spread throughout all of the Great Lakes as well as into many inland lakes. They filter the water and can encourage nuisance levels of aquatic plants which can destroy the habitat of some native species. Zebra mussels can also cause considerable damage to property and significant changes to the recreational quality of the waterfront.

Spiny Water Flea

The spiny water flea is an invasive crustacean with a range in Ontario that includes over 65 inland lakes and waterways. This hungry zooplankton competes directly with native species and juvenile fish, eating up to three times as much food. Spiny water fleas have a sharp tail spine that can become entangled in fishing lines and downrigger cables. When the cable is pulled from the water, the spiny water fleas attached to the cable can look like straight pins.

You Can Prevent the Spread of Aquatic Invasive Species

With over 180 non-native species already established in the Great Lakes, preventing the spread of invasives can seem like an overwhelming task. Yet, there are simple things that you can do to stop their spread.

Boaters

- When removing your boat from a lake, inspect the boat, trailer and all accessory equipment that has been in the water. Remove all plant and animal material before leaving the launch.
- Drain water from motor, live wells, bilge and transom wells immediately, before leaving water access area.
- Before transporting your boat to another water body, wash your boat, tackle, downrigger cables, trailer, and other equipment with hot water, or spray with high-pressure water; or, let your boat dry out in the sun for at least five days.

Anglers

- Empty bait buckets on land. Never dump a bait bucket into a lake if it has water from another water body in it, and never dump live fish from one water body into another. Not only can this result in the introduction of a new species into a lake, it is also **illegal**.
- Learn to identify the different species of baitfish and distinguish them from invasive fish such as the round goby. Buy your bait where you fish and dispose of unused bait and water on land away from the lake, or in the trash.

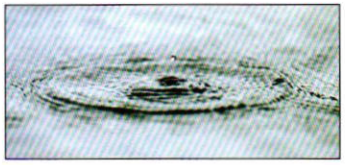
Gardeners

- Exotic plants can add beauty and variety to your garden. But take care – some species can become invasive if they escape to our natural waters or woodlands.
- Learn how to identify exotic/invasive species. Remember that they thrive in disturbed areas; so wherever possible, keep it natural.
- Choose contained areas for your exotic plants; or, better yet, use native plants.

Report sightings to the Invading Species Hotline at 1-800-563-7711 or online at http://www.invadingspecies.com

Find out how YOU can get involved in the fight against invasives at your lake: http://foca.on.ca/ais-monitoring-program/

Protecting and Testing Drinking Water Sources



James Wilkes

Untreated surface water should never be ingested. Even healthy lakes can harbour harmful bacteria and parasites that can make you sick or worse. Bacterial contamination, such as E. coli, causes stomach cramps and diarrhea, along with other problems. Bacteria such as Giardia (which causes the illness known as "beaver fever") and cryptosporidium can cause gastro-intestinal problems.

Natural groundwater quality is often excellent and is vastly superior to surface water sources. If your drinking water comes from a well, follow these tips:

- Test treated drinking water for bacteria at least three times a year, and after any major plumbing work.
- Clean debris from your well and make sure the lid is vermin-proof and fits tightly.
- Ensure that your well is at least 100 feet away from your (and your neighbours') septic bed.

Well Aware

Get links to information about well safety here:
http://foca.on.ca/water-wells-overview/

To locate your local public health unit or laboratory to test drinking water, visit http://www.health.gov.on.ca and search "public health."

Whether your water comes from a well or a municipal source, everyone can take the following steps to help protect water quality:

- Use less water! Conserve water by installing water-saving fixtures like low-flow aerators.
- Take short showers rather than full baths.
- Only run laundry machines and dishwashers with full loads.
- Fix leaky faucets.
- Install and maintain vegetated zones to manage storm water runoff from parking areas and driveways.

Be Smart About Septic Systems

With septic systems what goes in, must come out! Most of Ontario's waterfront property owners rely on on-site wastewater treatment systems to manage household water. Maintaining your septic system is critical to ensuring that your wastewater does not add excess nutrients to your lake or contaminate groundwater. Some tips:

- Have your septic tank inspected and pumped out on a regular basis. The frequency of your pump-outs will vary based on the size of your tank, your family size, and the number of appliances you use. As a general rule, pump your septic tank every 2 to 3 years.
- Avoid constructing patios, decks or parking areas over your septic tile bed. Extra weight can crush pipes and compact the soil, limiting its permeability.
- Do not use snowmobiles over the leaching bed area in winter; this will reduce the snow cover's insulating effect. ATV and snowmobile traffic can also compact filtration material.
- Have an effluent filter installed in your septic tank, to reduce the amount of solids entering the leaching bed to prevent clogging.
- Ensure access to the septic tank for proper maintenance and servicing.
- Avoid planting certain species of trees around the leaching bed area. Willow roots can clog pipes and shade the septic area, slowing evaporation.
- Do not water your lawn around leaching bed area; extra water can reduce the bed's ability to absorb and treat waste water from the house.
- Direct rainwater from roofs, patios and driveways away from the leaching bed to avoid system overload.
- Do not dump toxic waste down your drain or toilet. Paints, oil, gasoline, antifreeze and chlorine can be disposed at your local hazardous waste centre
- Use environmentally friendly cleaning products and avoid putting fats, oils or antibacterial products into your septic system.
- Avoid using in-sink garbage disposal units.
- Consider installing a composting toilet to reduce wastewater.

Contact your local building inspector for more information.
For resources, visit http://foca.on.ca/septic-systems

Your Role in Lake Stewardship

There are many things that you can do to take care of your lake so that future generations can enjoy it too! Here is a summary of some of the key points in this guide.

Before

Kawartha Conservation

After

Kawartha Conservation

Joe Fowler Park, Port Perry, Ontario. Restoration undertaken by Scugog Lake Stewards.

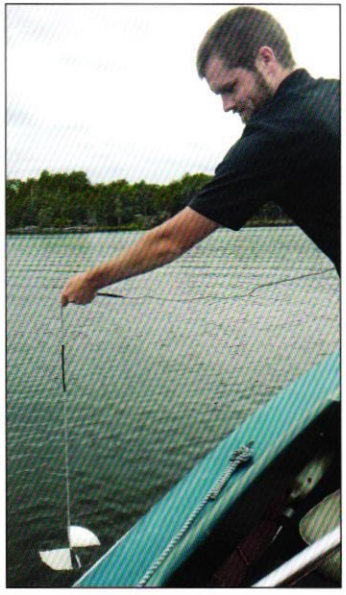
"When one tugs at a single thing in nature, he finds it attached to the rest of the world."

- John Muir

- Remember that what goes on your property and into your drain eventually finds its way into the lake, so avoid the use of harsh cleaners, pesticides, herbicides and fertilizers.
- When undertaking construction projects along the shoreline reduce disturbance to aquatic habitat, and contact your local Conservation Authority, Ministry of Natural Resources and Forestry or Parks Canada.
- Keep your boat speed under 10km/h whenever you are within 30 meters of the shore, and be careful with oil and gas when filling gas tanks and emptying bilge water.
- Watch your wake! Respect the shoreline zone and reduce erosion and damage to bird nests by adjusting your speed and direction to minimize impact.
- Clean and inspect your boat before moving it to other lakes to control the spread of invasive species.
- Protect your shoreline from erosion, Canada geese and runoff by maintaining or planting a buffer zone of native vegetation – don't mow to the water's edge!
- Enhance biodiversity on your property by leaving rock piles, fallen tree limbs and brush piles untouched so they can function as wildlife habitat.
- Encourage native species of flowers, shrubs and trees to limit your maintenance work and provide shelter to local wildlife species.
- The water that you drink is precious! Practice water conservation inside and outside your cottage, and have your drinking water tested regularly.
- Maintain your septic system by booking regular pump outs and inspections.

FOCA and Lake Stewardship

FOCA (the Federation of Ontario Cottagers' Associations) formed over 50 years ago, in 1963, because of cottage owners' concerns about water quality and a desire to protect the Ontario waterfront for future generations. During the 1990s, FOCA and the Ontario Ministry of Natural Resources (now MNRF), piloted one of the first programs for lake stewardship in Ontario, with volunteer "Lake Stewards," a designated member from each FOCA member lake Association, trained in environmental issues facing cottage associations. Each year, FOCA publishes the annual Lake Stewards Newsletter with updates and tips. Find online editions here: http://foca.on.ca/news/publications/.



Today, FOCA has more than 500 member Associations all across Ontario that represent a total of 50,000 waterfront families. Ontario's lakefront communities are experiencing changing demographics, increased development pressure, and many uncertain but significant climactic changes.

We thank all the many individuals who are Lake Stewards at their own waterbody, and we are always excited to welcome new Lake Stewards, as well as new FOCA supporters.

Is there a lake association at your waterbody? Find out:
http://foca.on.ca/member-services/list-of-associations/

Find out more about how you can get involved, for the sake of your waterfront: http://foca.on.ca/about/your-role/

Take the Plunge

Are you keen for more information about how you can contribute to the health of Ontario's waterfront? It's time to "take the plunge" into lake stewardship!

FOCA's original Lake Stewardship manual was updated in the late 1990s and again in 2009 to become Take the Plunge. This 136-page guide is an excellent resource for you as an individual waterfront property owner. It is also a good source for lake associations looking for articles to reproduce, or for ideas to put into practice and to share at the lake.

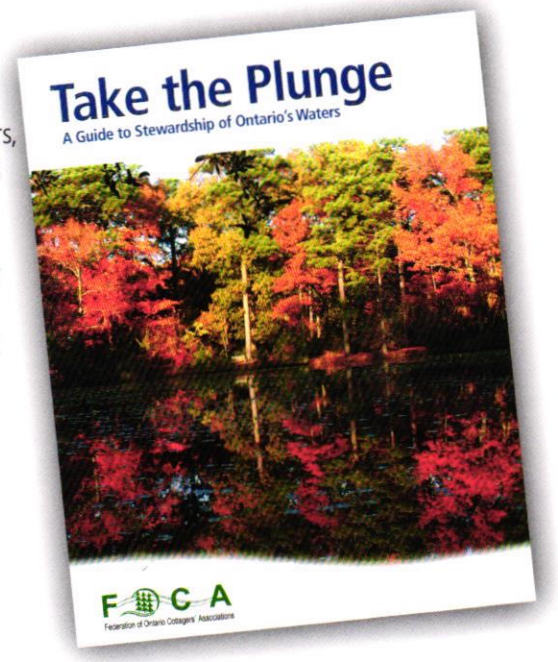
Take the Plunge will help you find out more about:

- the geology of cottage-country lakes
- water quality issues
- the significance of wetlands
- the importance of tree maintenance on your property and planting native vegetation
- light and air pollution issues
- how to design a sustainable waterfront property

and much, much more. It makes a great addition to a lake "Welcome" package for new property owners!

For lake associations, the publication also includes tips on finding and keeping volunteers, developing your communications and other elements for success.

Contact the FOCA office to order a copy of Take the Plunge:
info@foca.on.ca 705-749-3622



Printed in China

Lake Management Planning

If there isn't already a lake management plan in place for your lake, you and your lake association may want to consider getting one started. The process of lake management planning can help everyone involved to recognize and protect the unique character of a lake while you consider land use and larger watershed matters. A well-developed plan engages and empowers the community and brings the public together to support the sustainable future use of our lakes.

"There is an amazing amount of knowledge and experience around every lake."
– Don and Ruth Benson, Mountain Lake, Haliburton

The first step in lake management planning is to establish a committee that:

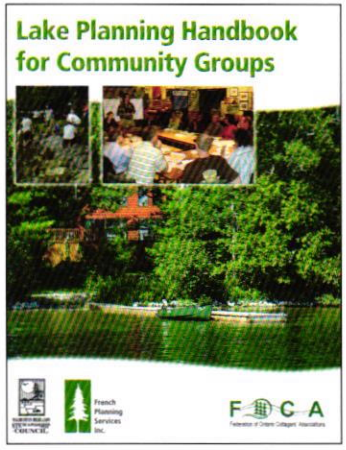
- Encourages partnerships between concerned citizens, lake users, resource managers, municipalities and other stakeholders
- Identifies concerns that people feel need to be addressed
- Sets realistic goals, objectives and action plans.

A comprehensive management plan includes information about the watershed. It could also address key issues including:

Water quality
Land use and zoning
Public water access
Natural and cultural heritage
Aquatic vegetation
Exotic species
Surface water use conflicts
Fisheries management
Wildlife

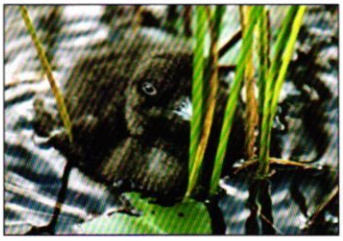
Lake management planning can be an important community-building process!

FOCA can provide advice and resources to help your group get started on lake planning. The process is outlined in detail in the Lake Planning Handbook, a 65-page self-help guide available in digital format from FOCA. Visit http://foca.on.ca/lake-planning-handbook-overview/



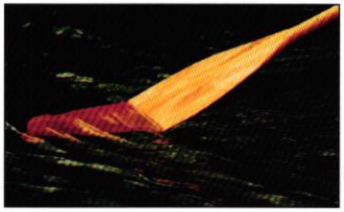
Printed in China

Thriving Waterfronts – Our Common Goal



James Wilkes

Dorset Environmental Science Centre



James Wilkes

FOCA's mission is to protect thriving and sustainable waterfronts across Ontario. That means vibrant and safe waterfront communities, environments, animals and plants. So, what makes cottage country so special? Here are some of the characteristics people have told us matter the most to them at the cottage:

- the pace of life is slower
- clean water and air, abundant trees
- dark night skies and glorious sunsets
- family time, where kids can play safely
- proximity to nature
- enjoying diverse landscapes and seasonal changes
- experiencing peace and quiet.

Everyone has a role to play in maintaining thriving waterfronts! Local lake associations can help make this a reality. Be sure to join yours as a member or volunteer, to support your lake community. (see page 21 for links)

Doing your part can improve your quality of life and help you feel at peace with nature, as well as your waterfront neighbours. Encourage your visitors and friends to be safe, respectful and courteous when they visit. Remind them of these "soft rules" while at the waterfront:

- be discreet – noise carries over water, whether from a boat engine, stereo or voices
- check fire regulations and burning restrictions before lighting any outdoor fires
- prevent wave damage to shorelines from boat wakes, and limit speed near shore or around non-powered watercraft like canoes and kayaks.

Most of all: enjoy yourself at the waterfront! FOCA encourages you to leave the lawn unmowed, and take a nap in the hammock instead.

Contributors

This guide was originally produced by the Lakeland Alliance, a collaboration of organizations and government agencies that worked together for natural shorelines and healthy waters throughout central Ontario, including:

- Federation of Ontario Cottagers' Associations (FOCA)
- Fisheries and Oceans Canada
- Otonabee Region Conservation Authority
- Kawartha Conservation
- Peterborough Green Up
- Stewardship Councils in Bancroft, Peterborough, Victoria County and Haliburton

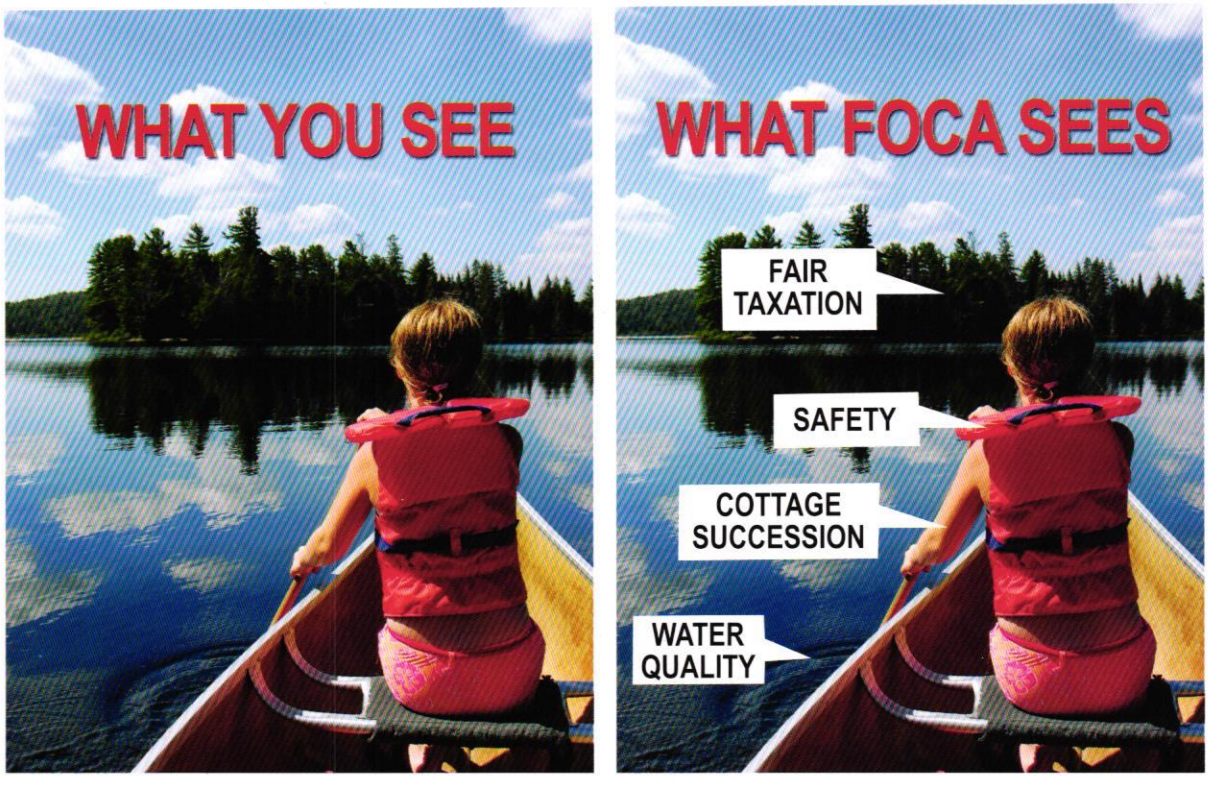
Information and material for the guide was originally compiled by students of the Ecosystem Management program at Fleming College (Lindsay).

This 2015 revised edition has been funded and updated by FOCA with new information and current resource links. Contact the FOCA office to request additional copies of this publication: info@foca.on.ca 705-749-3622

FOCA
Federation of Ontario Cottagers' Associations

FOCA

Federation of Ontario Cottagers' Associations



Join your local lake association!

Find it here: http://foca.on.ca/member-services/list-of-associations/