Learn more about local lakes

Township lakes are monitored through a variety of programs led by lake associations, conservation authorities and the provincial Lake Partner Program. Monitoring environmental conditions helps us see trends over time, identify warning signs of degraded water and ecosystem quality, focus our actions where they can do the most good, and evaluate the effectiveness of our watershed policies and programs.

Rideau Valley watershed lakes are evaluated in Table 1 below, using two metrics: trophic status and water quality index (WQI). Trophic status identifies typical nutrient conditions of a given lake, while WQI describes water quality conditions for the protection of aquatic life (rather than recreational uses like swimming).

For lakes in Cataraqui Region see Table 2.

Table 1: Rideau Lakes Township Lakes in the Rideau Valley watershed. Colour indicates WQI index score, for more information click the WQI rating link in the table.

Lake	Status	Concerns	Opportunities for Improvement	Watershed	More information
Bass	Mesotrophic Poor (WQI)	Algal blooms, abundant aquatic vegetation substantial shoreline alteration	Protect and increase natural shoreline buffer	Rideau Valley Watershed/ Rideau Lakes Subwatershed	Lower Rideau Lake Catchment Report, Bass Lake Property Owners Association
Otter	Oligotrophic Fair (WQI)	Algal blooms, septic maintenance, insufficient shoreline buffer	Protect and increase natural shoreline buffer	Rideau Valley Watershed/Middle Rideau Subwatershed	Otter Creek Catchment Report, Otter Lake Landowners Association
Lower Rideau	Mesotrophic Very poor (WQI)	Elevated nutrient concentrations, substantial shoreline alteration, algal blooms and abundant aquatic vegetation	Protect and increase natural shoreline buffer, improve management of agriculture and stormwater runoff	Rideau Valley Watershed/Rideau Lakes Subwatershed	Lower Rideau Lake Catchment Report, Big Rideau Lake Association
Big Rideau	Mesotrophic Fair (WQI)	Natural lake trout lake-sensitive species, development pressure, stormwater management,	Protect and increase natural shoreline buffer, improve management of agriculture and stormwater runoff	Rideau Valley Watershed/Rideau Lake Subwatershed	Big Rideau Lake-Portland Catchment Report, Big Rideau Lake-Rideau Ferry Catchment Report, Big Rideau Lake Association,

		agricultural runoff septic remediation/ construction, algal blooms and abundant aquatic vegetation			Inland lakes designated for lake trout management
Upper Rideau	Mesotrophic Poor (WQI)	Insufficient shoreline buffer, development pressure, stormwater management, agricultural runoff, algal blooms and abundant aquatic vegetation	Protect and increase natural shoreline buffer, improve management of agriculture and stormwater runoff, TP concentrations show declining trend continue efforts to maintain this trend	Rideau Valley Watershed/Rideau Lake Subwatershed	Upper Rideau Lake Catchment Report, Upper Rideau Lake Association
(Westport) Sand	Mesotrophic Poor (WQI)	Elevated nutrients, insufficient shoreline buffer, agricultural runoff, algal blooms and abundant aquatic vegetation	Protect and increase natural shoreline buffer, specifically along the south shore, improve management of agricultural runoff	Rideau Valley Watershed/Rideau Lake Subwatershed	Westport Sand Lake Catchment Report
Wolfe	Oligotrophic Fair (WQI)	Development pressure, Protect and improve existing water quality	Protection and enhancement of natural shorelines and areas	Rideau Valley Watershed/Rideau Lake Subwatershed	Wolfe Lake Catchment Report, Wolfe Lake (Westport) Association
Crosby	Mesotrophic Fair (WQI)	Protect and improve existing water quality	Protection and enhancement of natural shorelines and areas	Rideau Valley Watershed/Tay River Subwatershed	Pike Lake Catchment Report
Little Crosby	Mesotrophic Fair-Good (WQI)	Occasional elevated nutrients	Application of shoreline and agricultural best management practices	Rideau Valley Watershed/Tay River Subwatershed	Pike Lake Catchment Report

Table 2: Rideau Lakes Township Lakes in the Cataraqui Region Watershed

Lake	Status	General Description	Watershed	More information
Benson	Eutrophic	A mid-depth, warm, highly nutrient-rich lake that is downstream of several other lakes, impacted by water control structures on the Rideau Canal, and with a moderate flushing rate. The contributing watershed has good wetland cover and excellent forest cover.	Cataraqui River	Benson Lake Fact Sheet
Clear		A deep, warm, lake that is downstream of several other lakes, impacted by water control structures on the Rideau Canal, and with a long flushing rate. The contributing watershed has poor wetland cover and excellent forest cover.	Cataraqui River	
Crow		A lake that is close to the headwaters, impacted by the Delta dam and with a high flushing rate. The contributing watershed has good wetland cover and excellent forest cover.	Cataraqui / Loughborough Lake Area	
Indian	Mesotrophic	A deep, cold, moderately nutrient-rich lake that is downstream of several other lakes, impacted by water control structures on the Rideau Canal, and with a very high flushing rate. The contributing watershed has good wetland cover and excellent forest cover.	Cataraqui River	Indian Lake Fact Sheet
Little		A shallow, warm headwater lake. The contributing watershed has excellent wetland cover and good forest cover.	Cataraqui River	
Loon	Mesotrophic	A shallow, warm, moderately nutrient-rich lake that is downstream of several lakes, impacted by Bedford dam and dams and the Delta and Lyndhurst dams and with a very high flushing rate. The contributing watershed has low wetland cover, but excellent forest cover.	Cataraqui River	Loon Lake Fact Sheet
Lower Beverley	Mesotrophic	A deep, warm, moderately nutrient-rich lake that is downstream of only two other lakes, impacted by the Delta and Lyndhurst dams and with a high flushing rate. The contributing watershed has excellent wetland cover and good forest cover.	Gananoque / Lyndhurst Dam Area	Lower Beverley Lake Fact Sheet
Mosquito		A shallow, warm, lake that is downstream of several other lakes, impacted by water control structures on the Rideau Canal, and with a very high flushing rate. The contributing watershed has good wetland cover and excellent forest cover.	Cataraqui River	

Mud		A mid-depth, warm headwater lake with a high flushing rate. The contributing watershed has excellent wetland cover and good forest cover.	Gananoque / Upper Beverley Lake Area	
Newboro	Mesotrophic	A mid-depth, warm, moderately nutrient-rich lake that is downstream of several lakes, impacted by water control structures on the Rideau Canal, part of the Rideau Canal navigation channel and with a high flushing rate. The contributing watershed has good wetland cover and excellent forest cover.	Cataraqui River	Newboro Lake Fact Sheet
Opinicon	Mesotrophic	A mid-depth, warm, moderately nutrient-rich lake that is downstream of several lakes, impacted by water control structures on the Rideau Canal, and with a very high flushing rate. The contributing watershed has good wetland cover and excellent forest cover.	Cataraqui River	Opinicon Lake Fact Sheet
Sand	Mesotrophic	A mid-depth, cold, moderately nutrient-rich lake that is downstream of several other lakes, impacted by water control structures on the Rideau Canal, and with a very high flushing rate. The contributing watershed has good wetland cover and excellent forest cover.	Cataraqui River	Sand Lake Fact Sheet
Troy	Eutrophic	A shallow, warm, highly nutrient-rich headwater lake and with a high flushing rate. The contributing watershed has few wetlands, but excellent forest cover.	Cataraqui River	Troy Lake Fact Sheet
Upper Beverley	Mesotrophic	A shallow, warm, moderately nutrient-rich lake that is close to the headwaters, impacted by the Delta dam and with a high flushing rate. The contributing watershed has excellent wetland cover and good forest cover.	Gananoque / Upper Beverley Lake Area	Upper Beverley Lake Fact Sheet
Whitefish	Mesotrophic	A shallow, warm, moderately nutrient-rich lake that is downstream of several lakes, impacted by water control structures on the Rideau Canal, part of the Rideau Canal navigation channel and with a very high flushing rate. The contributing watershed has good wetland cover and excellent forest cover.	Cataraqui River	Whitefish Lake Fact Sheet

Don’t see your lake? Contact your local conservation authority for more information:

Cataraqui Conservation

Rideau Valley Conservation Authority

What does my lake status mean?

Click on the topics below for more information on lake status and the role that these monitored parameters play in understanding conditions in the lake. Please note a Water Quality Index (WQI) rating is only available for monitored lakes within the Rideau Valley watershed.

Trophic Status

Total phosphorus (TP) can be used to understand the **trophic status** of a lake. Lakes naturally progress over time from oligotrophic to eutrophic. An ideal trophic status does not exist; trophic status offers a reference for typical conditions of lakes within that classification. Trophic state can be considered a description of a lake's productivity and allows us to understand how the lake may respond in the future.

Phosphorus is a chemical that occurs both naturally and as a result of human activities. It is typically used in fertilizers and is found in municipal wastewater and other human sources. It promotes plant growth, which is good for agricultural yields, but high concentrations can be harmful to the environment. High phosphorus levels can cause algae blooms and reduce the oxygen available to plants and fish.

Total Phosphorus Concentration	**Trophic Status**	**Typical characteristics**
<0.004 mg/L	Ultraoligotrophic	Unproductive lakes with very clear waters
0.004 to <0.010 mg/L	Oligotrophic	Less productive with little vegetation, these lakes are usually well oxygenated but have relatively few fish species
0.010 to <0.019 mg/L	Mesotrophic	Productive, will support the greatest diversity of fish species with a variety of habitats and sufficient oxygen available
0.02 to <0.035 mg/lL	Meso-eutrophic	Very productive, abundant plant/algal growth, decline in some sensitive fish species due to periods of limited oxygen availability
0.035 to <100 mg/L	Eutrophic	Highly productive, profuse plant/algal growth and relatively few fish species due to lack of open water and competition for oxygen
> 0.1 mg/L	Hyper-eutrophic	Highly productive, characterized by persistent algal blooms, few aquatic plants and unable to support fish populations

Source: http://ceqg-rcqe.ccme.ca/download/en/205

Some lakes are naturally nutrient-rich with high productivity and lots of valuable habitat for wildlife that depend on this type of environment. Others are nutrient-poor with lower productivity including fewer plants and animals. Knowing whether a lake is nutrient-rich or poor is important to know what to expect. Not all nutrient rich lakes have been negatively affected by watershed activities. Looking at total phosphorous levels over a period of years to learn whether there is an increasing trend is a more appropriate way of knowing whether watershed activities could be boosting nutrient levels and potentially causing problems.

Water Quality Index (WQI)

WQI has been used to describe water quality conditions of lakes within the Rideau Valley Watershed. This tool was developed by the Canadian Council of Ministers of the Environment and uses water quality guidelines for the protections of aquatic life. It does not reflect suitability for recreational use (swimming or water sports).

What the WQI ratings mean:

Water Quality Rating*	**Description of conditions**
Very Good	Water quality is protected with a virtual absence of threat or impairments; conditions very close to natural or pristine levels
Good	Water quality is protected with only a minor degree of threat or impairment; conditions rarely depart from natural or desirable levels
Fair	Water quality is usually protected but occasionally threatened or impaired conditions sometimes depart from natural or desirable levels
Poor	Water quality is frequently threatened or impaired; conditions usually often depart from natural or desirable levels
Very Poor	Water quality is almost always threatened or impaired conditions usually depart from natural or desirable levels

*Adapted from CCME Water Quality Index User's Manual 2017 Update

The rating is based on the number of parameters that meet their respective guidelines, the frequency that guidelines are met and the amount by which a guideline is not met.

What role each WQI parameter plays in the lake environment:

Parameter	**Role in the lake environment**
Phosphorus	Nutrient essential for algae and aquatic plant growth, and influences lakes productivity. Occurs naturally but is increased through fertilizers, municipal wastewater, runoff and other human sources
Nitrogen	Nutrient for algae and aquatic plant growth, influences lakes productivity. Occurs naturally but is increased through fertilizers, municipal wastewater and other human sources
Dissolved oxygen	Required to support fish and other aquatic life. Decomposition of plants and algae consumes oxygen, reducing the amount available for aquatic life
Secchi depth	A measure of water clarity. Increased suspended material such as algae in the water column may reduce water clarity.
pH	A measure of acidity in the water, an important factor for many aquatic life forms

Characterizing Lake Sensitivity

Each lake is unique. However, understanding more about the characteristics of the lake itself, its place within the watershed and the impacts of human influences will provide insights about expected conditions and whether lake health could be at risk. Using the table below to characterize a lake can help gauge how sensitive a lake may be to additional human influences. It also explains the importance of each topic and what can be done to make improvements to increase a lake's resilience.

The sensitivity table is an educational resource that presents relative rankings based on a combination provincially applied watershed report card thresholds (i.e. wetland and forest cover) and scientific principles (e.g. more upstream lakes increase the likelihood for higher levels of pollution). The table is not intended to replace detailed lake capacity studies and / or other lake monitoring and reporting efforts. It is a tool to help gain a general understanding of a lake's character and potential sensitivity to encourage meaningful lake protection and restoration.

Using the table: Answer as many of the sensitivity questions as possible by circling the most applicable answer. Are most of the circles in the low sensitivity range or is the lake ranking higher? Refer to the recommendations in the table to understand what needs to be done to maintain low sensitivity or to lower high sensitivity. In the future information on lake sensitivity will be included in the summary of lake conditions presented in tables 1 and 2.

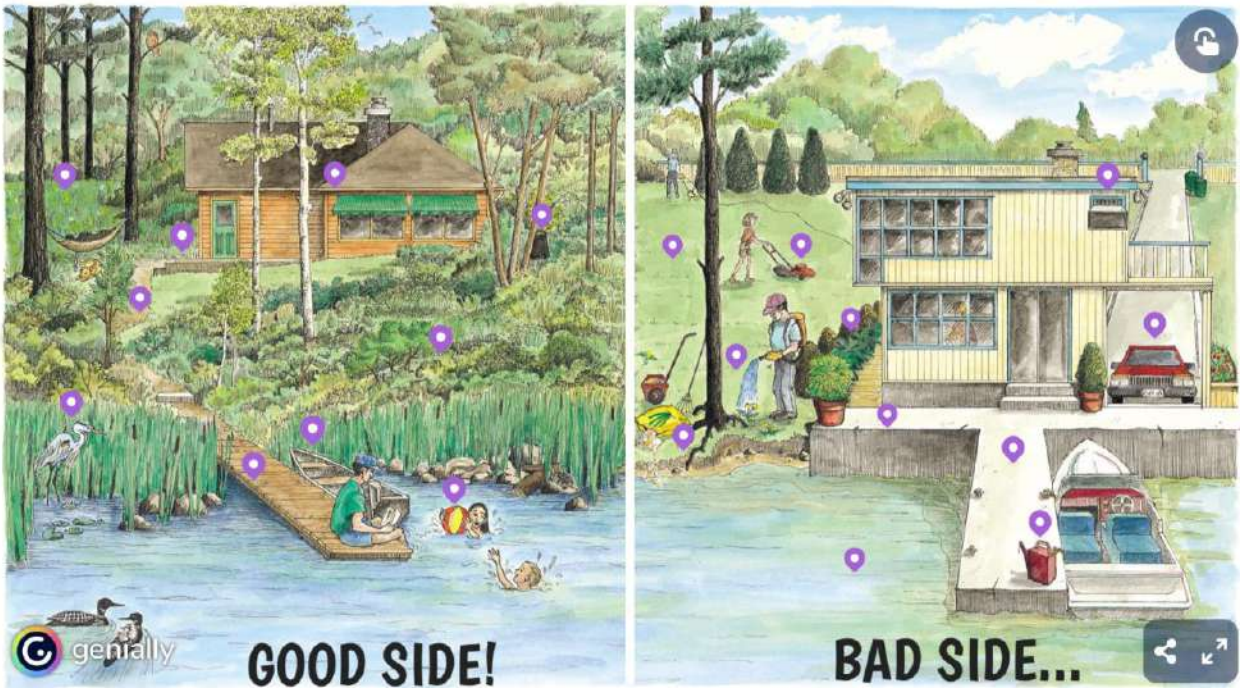
BEFORE YOU START: Know the lake nutrient levels	**Sensitivity Questions**	**Are nutrient levels changing? (Consider at least the last five years of total phosphorous samples.)**	**How many lakes are upstream?**	**How long does it take for the water in the lake to be replaced (i.e. flushing rate)?**	**How many years out of the last five have blue green algae blooms occurred?**	**How forested is the upstream watershed?**	**How much wetland is in the upstream watershed?**	**How much development surrounds the lake?**	**How has / does the operation of dam(s) impact the lake levels?**	**Are there any public boat launches on the lake?**	**Is the lake accessible via a navigation channel?**	**How is the lake classified?**	**Is there any evidence that the lake ecosystem is shifting?**
ultra-oligotrophic (0 to <0.004 mg/L of total phosphorous)	**Very low**	Levels are either decreasing or not changing.	0	< 1 season	0	> 35%	> 11.5%	Little development and with best practices	Not at all	none	No	It's a warm water environment	No
oligotrophic (0.004 to <0.01 mg/L of total phosphorous)	**Low**		1 to 4	> 1 season, but < 1 year	1	25.1 to 35%	8.51 to 11.5%	Some development with some best practices	The hydrology of the lake may be influenced by dam(s) on adjacent lakes	1 private launch	It's possible to boat from a neighbouring lake with a navigation channel	It's a warm water lake with a few cool water fish species	No
mesotrophic (0.1 to <0.02 mg/L of total phosphorous)	**Moderate**	There appears to be an increase but not enough to confirm a trend.	5 to 10	> 1 year, but < 3 years	2	15.1 to 25%	5..51 to 8.5%	Moderate development and best management practices	The lake is likely slightly larger or deeper as a result of the construction of dam(s) and water levels continue to be active managed	>1 private launch	Only one bay of the lake is a navigation channel	It's a cold water lake	Unknown
meso-eutrophic (0.02 to <0.035 mg/L) and eutrophic (0.035 to <1 mg/L of total phosphorous)	**High**	Yes, an increasing trend has been identified.	11 to 20	> 3 years, but <10 years	3	5 to 15%	2.5 to 5.5%	High development with some best practices	The lake is now much bigger and / or deeper as a result of the construction of dam(s)	1 or more with limited roadside parking	A portion of the lake is a navigation channel	It's a lake trout lake that's not at capacity	Possibly
hyper-eutrophic (> 0.1 mg/L of total phosphorous)	**Very high**		20+	10 years+	4+	< 5%	< 2.5%	High development with few best practices	The lake was created through the construction of dam(s)	1 or more public launches with dedicated parking	Yes, much of the length of the lake is a navigation channel	It's a lake trout lake that's at capacity	Yes
Some lakes are naturally nutrient rich with high productivity and lots of valuable habitat for wildlife that depend on this type of environment. Others are nutrient poor with lower productivity including fewer plants and animals. Whether a lake is nutrient rich or poor is important to know what to expect. Not all nutrient rich lakes have been negatively affected by watershed activities. Looking at total phosphorous levels over a period of years to learn whether there's an increasing trend is a more appropriate way of knowing whether watershed activities could be boosting nutrient levels and potentially causing problems.	**Why it matters**	Additional changes on the landscape, including shoreline development, adds additional nutrients and could shift the lake to a higher nutrient category where algae blooms / excessive plant growth could become issues and sensitive species (like trout) could be lost.	More lakes upstream means that all the upstream lakes, catchments and activities impact the lake. Conversely, a headwater lake can be protected and improved more easily because there are fewer upstream influences.	Longer residence times mean that any pollutants in the lake take longer to be flushed out.	These blooms are signals that the lake ecosystem is not balanced.	Areas with low forest cover have greater runoff meaning that pollutants can flow overland more easily to reach the lake.	Wetland moderate flows, take-up nutrients and protect the water cycle.	More development increases runoff, removes habitat, increases exposure to invasive species and presents additional nutrients sources.	Lakes that are created or modified as a result of water control structures have an influx of nutrients that were previously upland. This makes the lake more nutrient rich that it would have been without the dam(s). Additionally, continued water level management alters the natural fluctuations particularly affecting littoral areas where the highest levels of biodiversity are present.	Boat launches accommodate more boat traffic, suspending nutrients from the lake bottom in shallow areas, disturbing wildlife and increasing the possibility of invasive species introduction.	Regular boat traffic through the lake from vessels that may originate from far away pose risks as listed for boat launches.	Cold water environments, including the aquatic species, are more susceptible to impacts from development.	The lake is stressed. Some examples include: a shrinking hypolimnion, increasing trend for total phosphorous, decreasing trend for Secchi depth, annual algae blooms that didn't occur before, excessive aquatic plant growth, etc.
Understand the natural character of the lake and appreciate what it has to offer.	**What can be done?**	Reduce nutrient inputs by improving on-site sewage systems, increasing infiltration form hard surfaces, planting more buffers along shorelines and tributaries, increasing forest cover and wetlands in the catchment area, increasing agricultural Best Mangement Practices in the catchment area.	Work with upstream lake associations to coordinate lake protection efforts.	Be mindful of how long the lake takes to flush out any pollution. Reduce any pollutants and the risk of pollution.	Take action to increase lake resiliency by implementing best practices both around the lake and in the catchment area.	Plant more native trees and shrubs to increase forest cover.	Protect the wetlands that remain and work to restore those that were lost.	Take note of other lake sensitivities to determine whether additional development is advisable. Implement best practices for lake health net gains.	Understand that the lake is at a disadvantage if dams created or modified them. Implement best practices to offset the effects.	Educate boat launch users about the lake and how to enjoy boating in ways that are better for the lake..	Educate canal users about the lake the lake and how to enjoy boating in ways that are better for the lake..	With climate change cold water lakes are already at risk so take action to reduce impacts from development including low impact development to help cool water and reduce nutrients from runoff.	Take action to increase the lakes resilience through implementation of best practices both around the lake and in the catchment.

What can you do?

Lake protection is everyone's responsibility, and every action matters. Being a patient, persistent and active caretaker of our lakes is essential to their good health – and ours as well.

Understand your impact

Scroll over the image below to learn how various activities impact your waterbody (link to be embedded in the webpage)



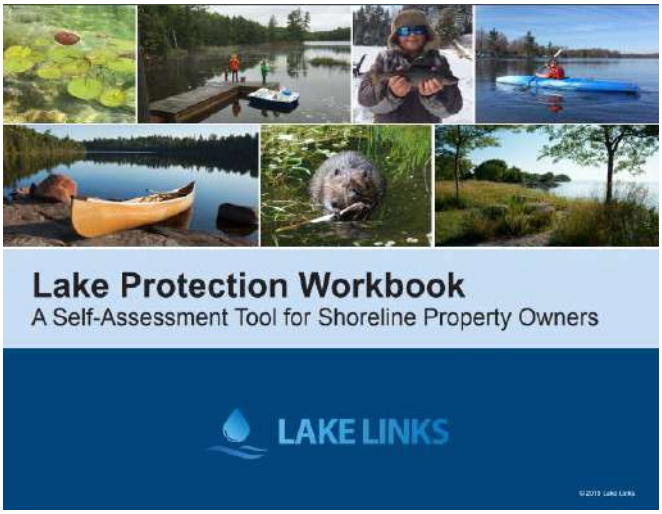
Protecting and Improving Our Lakes

There are compelling reasons why people are drawn to lakeside cottages, homes, camp sites and retreats. Among these are the solitude, the peace and quiet, the beauty of the water and surrounding forests, and the enjoyment that comes from spending time with family and friends. Our lakes are also a source of income for some, a source of significant tourism revenue for local communities, and provide clean drinking water for surrounding villages, towns and cities.

Our lake environments support countless species of plants and animals, with the 'ribbon of life' (near-shore habitat) especially critical to their survival and well-being. Lakes are complex ecosystems, of which humans are a part, and no two are exactly alike. Each depends upon good responsible care and use to remain healthy.

Source: Lake Protection Workbook, 2019.

Assess your own property with the Lake Protection Workbook:



Need help making improvements?

Resources are available through the following partners:

Cataraqui Conservation

Rideau Valley Conservation Authority Stewardship Services

Watersheds Canada

Landowner Resource Centre