

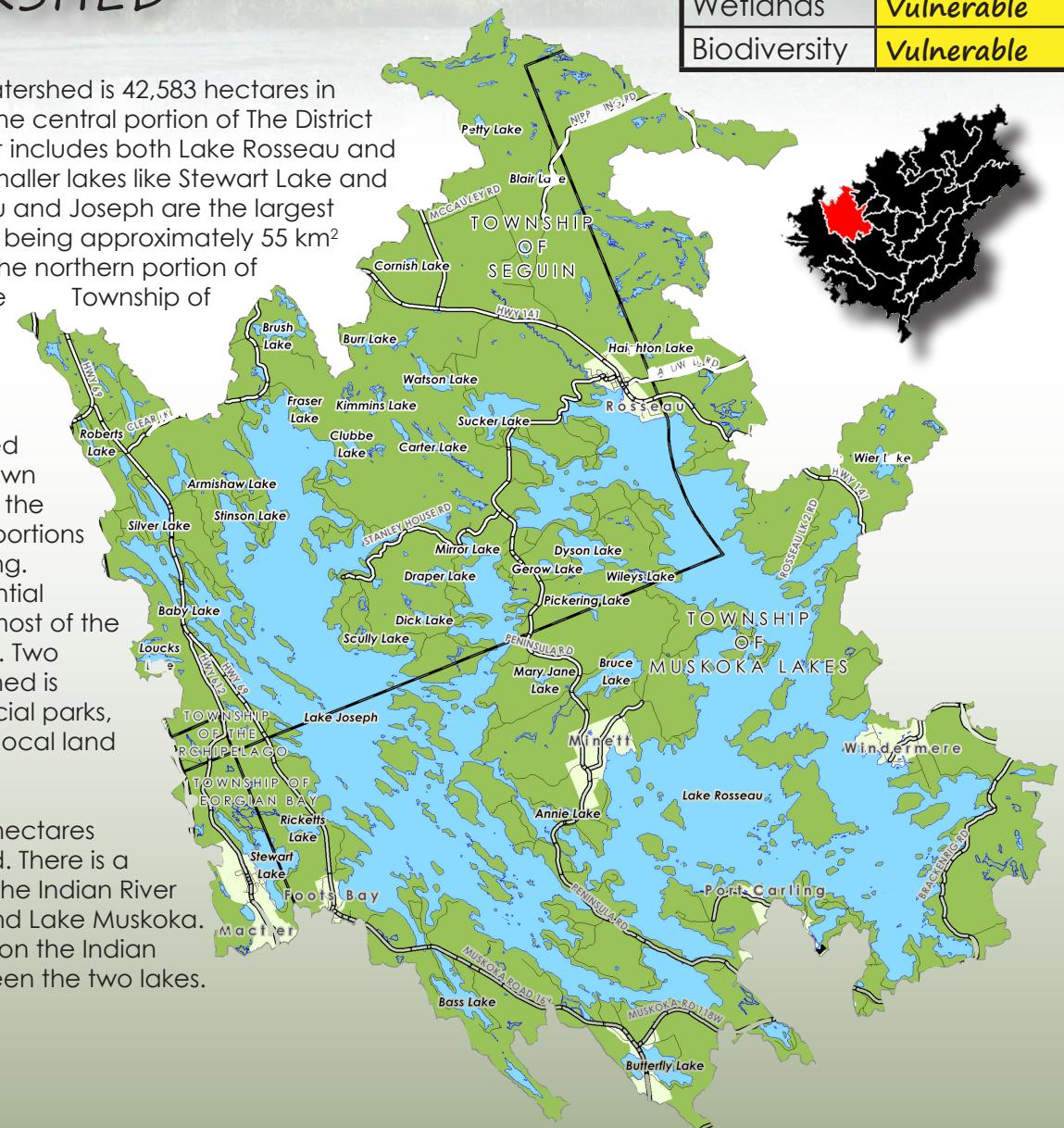
2014 MUSKOKA WATERSHED REPORT CARD

LAKE ROSSEAU SUBWATERSHED

The Lake Rosseau Subwatershed is 42,583 hectares in area and is located in the central portion of The District Municipality of Muskoka. It includes both Lake Rosseau and Lake Joseph along with smaller lakes like Stewart Lake and Bruce Lake. Lakes Rosseau and Joseph are the largest lakes in the subwatershed being approximately 55 km² and 51 km² respectively. The northern portion of each lake is located in the Township of Seguin in the District of Parry Sound.

Approximately 7% of the subwatershed is developed and 12% of the land is Crown land. Urban areas include the village and Rosseau and portions of the village of Port Carling. Rural and shoreline residential development comprises most of the remaining land ownership. Two percent of the subwatershed is protected through provincial parks, crown nature reserves, or local land trusts.

There are 52 lakes over 8 hectares in size in the subwatershed. There is a dam control structure on the Indian River between Lake Rosseau and Lake Muskoka. There is also a set of locks on the Indian River in Port Carling between the two lakes.



This report card describes the health of the land, water, wetlands and biodiversity of the Lake Rosseau Subwatershed and is part of the **2014 Muskoka Watershed Report Card** available at www.muskokawatershed.org.

Stewardship Works!

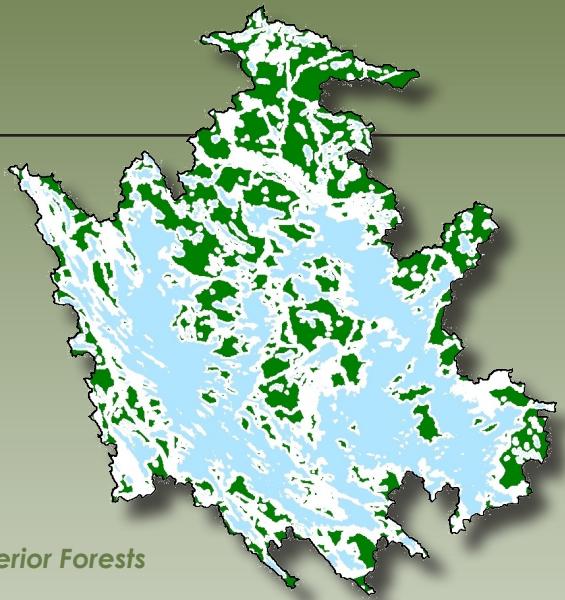
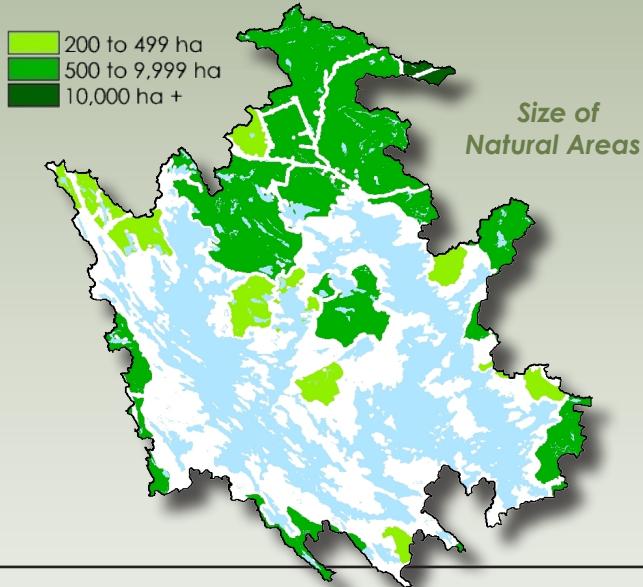


Muskoka
WATERSHED COUNCIL

Land:

- Not Stressed
- Vulnerable
- Stressed

94% of the Lake Rosseau Subwatershed is in natural habitat. The Lakes Rosseau and Joseph dominate the subwatershed and are surrounded by mixed forest vegetation. The subwatershed was one of the first areas within the larger Muskoka River Watershed that was developed. Historic development patterns have resulted in a higher density of development, especially along the shoreline, and a more fragmented landscape with roads and other service corridors.



Interior Forests

86% of the subwatershed is privately owned and it will be important to maintain a strong private land stewardship program to ensure that the long-term health of the subwatershed is maintained as development occurs. Although only 2% of the land is currently under active private land stewardship, there has been an increase in participation in MFTIP, CLTIP, and Environmental Farm Plans and donations to land trusts.

Both healthy riparian areas and interior forests are important to support local wildlife and maintain good water quality.

Indicator	Lake Rosseau Subwatershed		Muskoka Watershed		Description
	Value	Grade	Value	Grade	
Size of Natural Areas	48%	Stressed	79%	Vulner-able	Areas of natural cover that are 200 ha or greater. Natural cover includes forest, lakes, rock barrens and wetlands.
200 - 499 ha	10%		7%		
500 - 9,999 ha	38%		52%		
10,000 ha +	0%		20%		
Interior Forest	35%	Vulner-able	58%	Not Stressed	Interior forest is a forested area with a 100-metre forested buffer surrounding it.
Road Density	0.45 km/km ²	Not Stressed	0.51 km/km ²	Vulner-able	Road density is a measure of the degree of fragmentation of the landscape. Roads are a primary cause of death of many species, especially turtles and snakes.
Level of Development	7%	Vulner-able	5.4%	Vulner-able	Level of development is the percent of the watershed in urban or rural development. When more than 10% of a watershed is developed, lake and stream health may be impacted.
Shoreline Density	13-16 lots/km	Vulner-able	N/A	N/A	Shoreline density is an indicator of the human stress on a water body. This stress includes nutrient loading, crowding, aesthetic appeal, and habitat impacts.
Shoreline Buffer	75-85%	Vulner-able	75%	Vulner-able	Shoreline buffer is the percent of unaltered lot area from the water's edge 20 metres inland. The shoreline buffer is the last line of defense against the forces that may otherwise damage a healthy lake.

Water:

- Not Stressed
- Vulnerable
- Stressed

Indicator	Lake Rosseau Subwatershed		Muskoka Watershed		Description
	# Lakes	Grade	# Lakes	Grade	
Total Phosphorus Concentration	27	Stressed	129	Vulnerable	The amount of total phosphorus in a lake is a measure of recreational water quality as phosphorus is generally the limiting nutrient in algae production.
< BG + 30%	8	73			
BG + 30% to BG + 50%	3	27			
> BG + 50%	16	29			
Algae		Not Stressed		Not Stressed	The propensity for algal blooms is the percentage of lakes with TP greater than 15 µg/L and are over threshold.
Fish Habitat (% Unaltered)	75-90%	Vulnerable	91	Not Stressed	This is a measure of fish habitat. Many fish species require the overhanging vegetation, rock shoals, and aquatic vegetation generally found in undisturbed sites.
Calcium Levels	46	Not Stressed	377	Vulnerable	Calcium is an important nutrient for the development of bones and exoskeletons. As a result of acid precipitation, calcium has been leached out of the forest soils and is now also in decline in many of the lakes in the watershed threatening the continued presence of important lake species.
< 1.5 mg/L	6	161			
1.5 - 2.0 mg/L	9	138			
> 2.0 mg/L	31	78			

The Lake Rosseau Subwatershed is dominated by Lakes Rosseau and Joseph. The outflow is through the Indian River at Port Carling into Lake Muskoka.

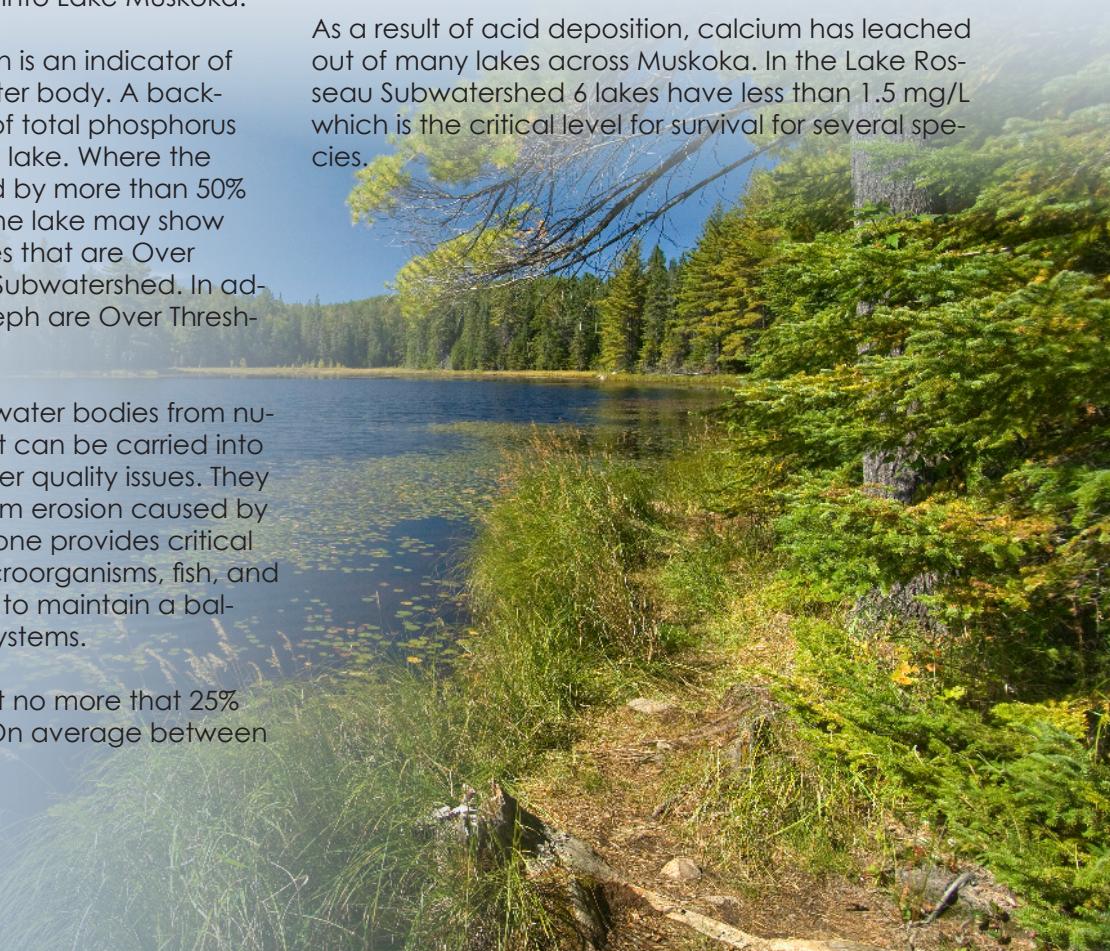
Total phosphorus concentration is an indicator of the amount of nutrient in a water body. A background or undeveloped level of total phosphorus has been determined for each lake. Where the phosphorus level has increased by more than 50% above the background level the lake may show signs of stress. There are 16 lakes that are Over Threshold in the Lake Rosseau Subwatershed. In addition, many bays on Lake Joseph are Over Threshold.

Shoreline vegetation protects water bodies from nutrients and toxic chemicals that can be carried into the lake and contribute to water quality issues. They also protect the lake edges from erosion caused by waves and ice. The shoreline zone provides critical habitat for aquatic insects, microorganisms, fish, and other animals, thereby helping to maintain a balance in sensitive aquatic ecosystems.

Municipalities recommend that no more than 25% of a shoreline be developed. On average between

10% and 25% of the shoreline of lakes in the Lake Rosseau Subwatershed have been altered.

As a result of acid deposition, calcium has leached out of many lakes across Muskoka. In the Lake Rosseau Subwatershed 6 lakes have less than 1.5 mg/L which is the critical level for survival for several species.



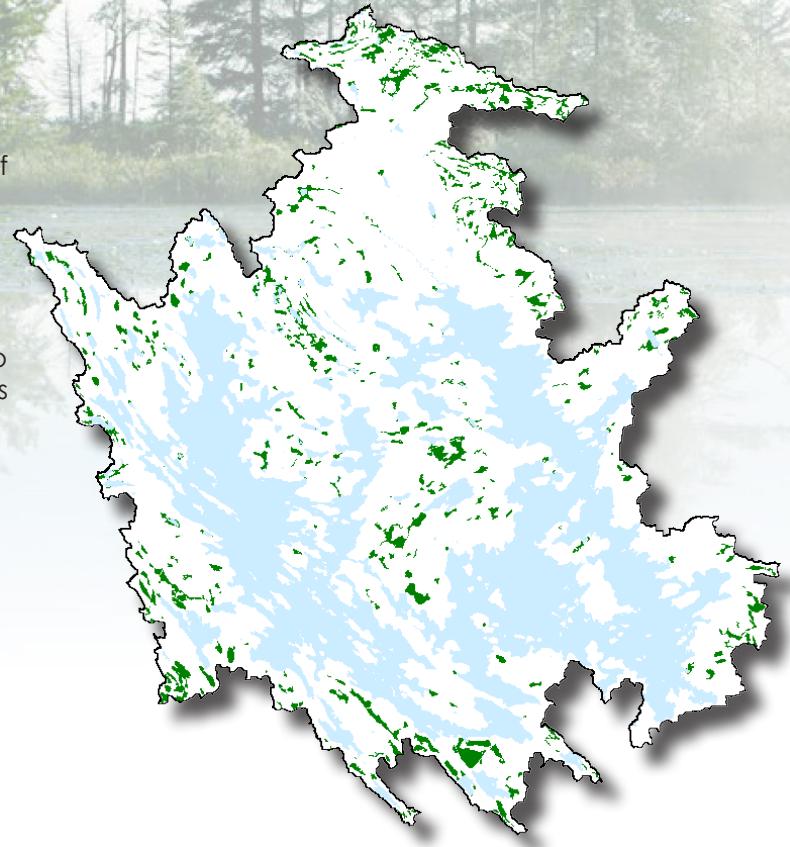
Wetlands:

- Not Stressed
- Vulnerable
- Stressed

The Lake Rosseau Subwatershed is comprised of almost 5% wetlands. Wetlands are recognized by all levels of government as important components of a healthy environment. Wetlands and the area that surrounds them provide continuous, sustainable environmental, economic and social benefits that contribute to the high quality of life in Muskoka. Most "species at risk" native to Muskoka rely on wetlands for all or a portion of their life cycles.

Wetland Values

- Control and storage of surface water and recharge groundwater;
- Maintain and improve water quality, aid in flood control, and protect shorelines from erosion;
- Trap sediments which would otherwise fill watercourses;
- Support and initiate complex food chains;
- Provide important habitat;
- Support species at risk;
- Provide fish populations; and
- Provide active and passive recreational opportunities, including canoeing, bird watching, hunting and fishing



Subwatershed Name	% Wetlands	Comment	Grade
Lake Rosseau	4.61	<p>The Lake Rosseau Subwatershed is approximately 14% Crown and protected lands with approximately 7% development.</p> <p>Development is predominantly on the shore of the lakes where near-shore marshes are prone to destruction as property owners 'tidy' there shoreline. This near-shore habitat is important fish habitat.</p> <p>Significant development is not planned for the area but steady shoreline development can be expected.</p> <p>The wetlands in this subwatershed are in fair condition. They are an important aspect of the landscape, but as there are very few, and they are prone to development, there is risk of loss.</p>	Vulnerable

Biodiversity:

- Not Stressed
- Vulnerable
- Stressed

Biodiversity refers to the richness of life in the environment – the number of different species, their genetic variability, and the extent to which different groups of species occur from one place to another within the region.

Muskoka is blessed with a rich biodiversity primarily because of the extensiveness of its natural ecosystems. This biodiversity provides the resilience necessary to withstand environmental change and to continue to function



normally and provide the environmental goods and services on which we and other species depend.

Indicator	Lake Rosseau Subwatershed		Muskoka Watershed		Description
	# Species	Grade	# Species	Grade	
Species at Risk Habitat	20	Vulnerable	22	Vulnerable	The number of different types of species at risk habitat in the subwatershed. Subwatersheds with habitat for more types of species at risk are more vulnerable to development or other stressors.
Endangered	3		5		
Threatened	7		7		
Species Concern	10		10		
Alien Invasive Species*	2	Stressed	10	Stressed	Maintaining the diversity of native species is important to a healthy watershed. Invasive species often out-compete native species and significantly reduce the biodiversity of an area.

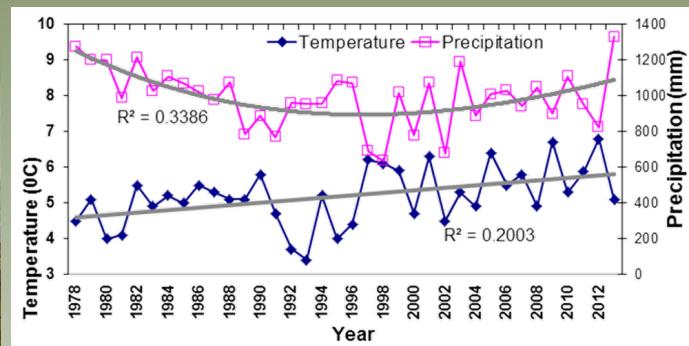
* Includes the Spiny Water Flea in the large recreational lakes. Spiny Water Flea will collapse the biodiversity of a lake.



Changing climate: temperatures continue to rise

The mean temperature showed a clear and moderate increase or warming over 1978 to 2013, about 0.35 degree increase per 10 years, or a warming of 1 degree within 30 years. The annual precipitation had a significant decrease during 1978-1998 and then a weak increase during 1999-2013.

(Dorset Environmental Science Centre)

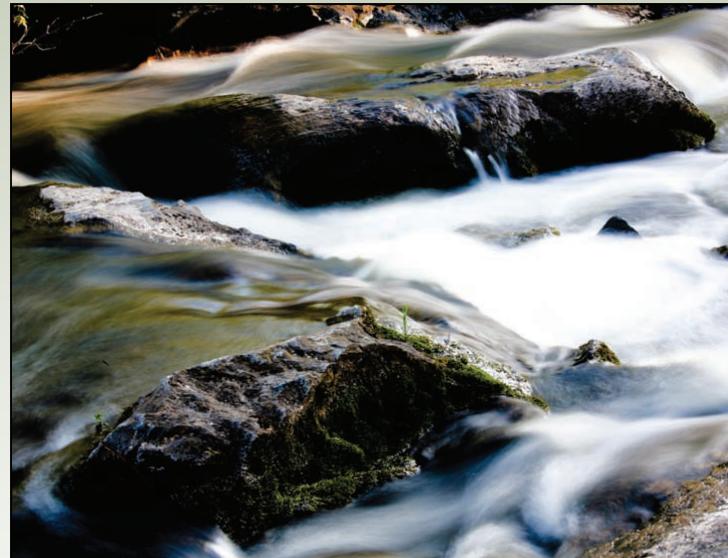


Stewardship Works: help protect the watershed

When all is said and done, the fate of sustainable management of Muskoka's watersheds lies in large part in the hands of local residents as they go about their day-to-day lives. It is the citizens of Muskoka who must generate the interest and enthusiasm to create, continue and expand local projects which lead to positive actions and results.

Stop the spread of invasive species

- Purchase non-invasive or native plants from a reputable dealer.
- Never dispose of domestic plants or animals into the wild.
- Inspect and wash your boat, ATV and other equipment and let dry for at least 6 hours before moving to a new lake or area.
- Do not move species from one area to another.



Retain buffers and leave shorelines in a natural state

- Maintain a wide buffer of native plants and trees around shorelines of lakes and rivers.
- Minimize boat speed (eliminate wake) in all near-shore areas and particularly in areas with known loon nests.
- Avoid grassed lawns in the waterfront area and minimize use of fertilizers.

Protect wetlands

- Leave wetlands alone.
- Keep recreational vehicles out of wetlands. Explore by kayak or canoe instead.

Maintain natural areas

- Limit cleared areas in the rural and waterfront area.
- Do not create new roads.

Reduce your personal impact

- Reduce your use of electricity and fossil fuels.
- Maintain your septic system.
- Improve the energy efficiency of your home and vehicle. Treat electricity as a luxury.
- Reduce waste by reusing, reducing, composting and refusing to buy items with excess packaging.

