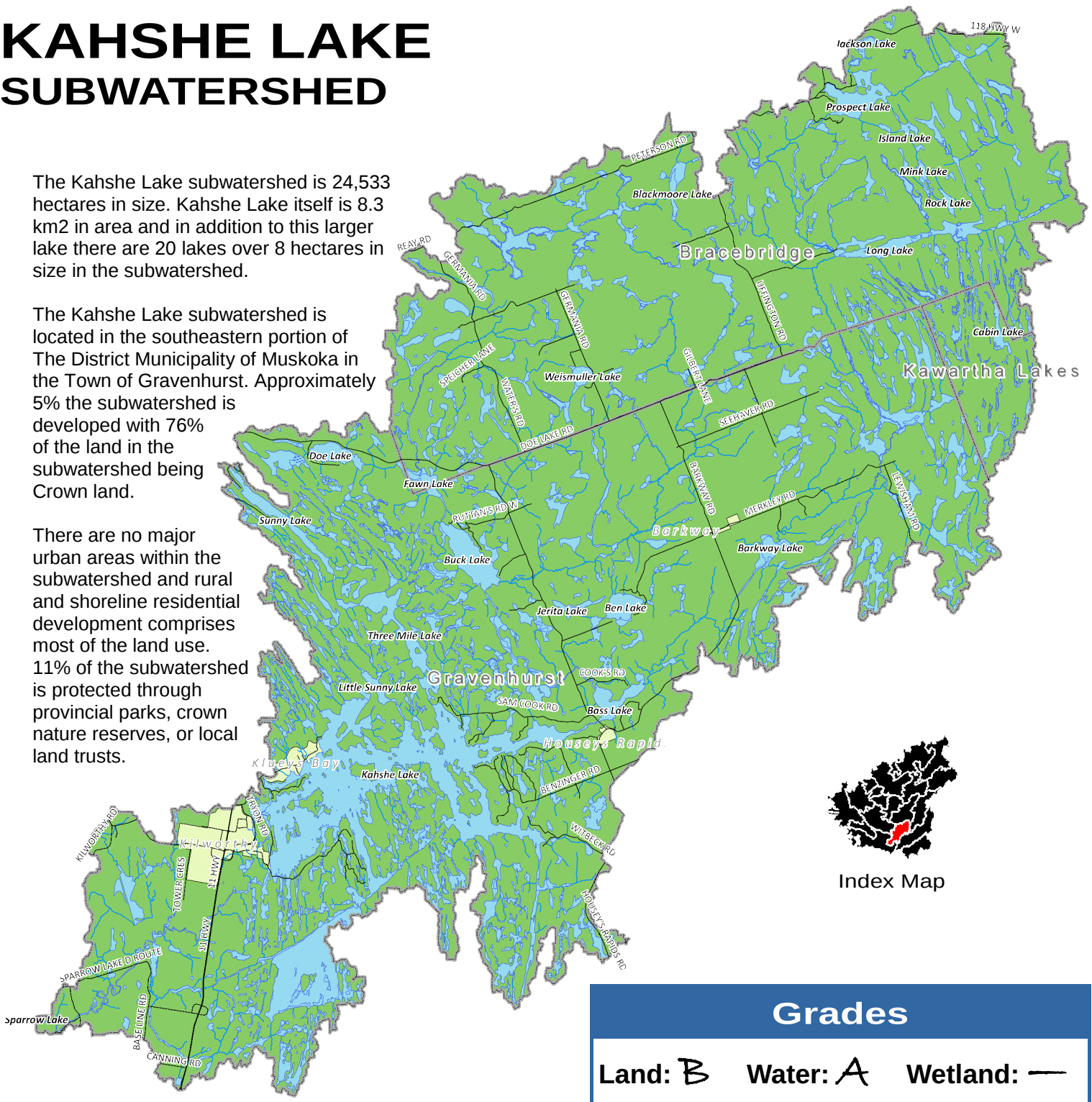


KAHSHE LAKE SUBWATERSHED

The Kahshe Lake subwatershed is 24,533 hectares in size. Kahshe Lake itself is 8.3 km² in area and in addition to this larger lake there are 20 lakes over 8 hectares in size in the subwatershed.

The Kahshe Lake subwatershed is located in the southeastern portion of The District Municipality of Muskoka in the Town of Gravenhurst. Approximately 5% the subwatershed is developed with 76% of the land in the subwatershed being Crown land.

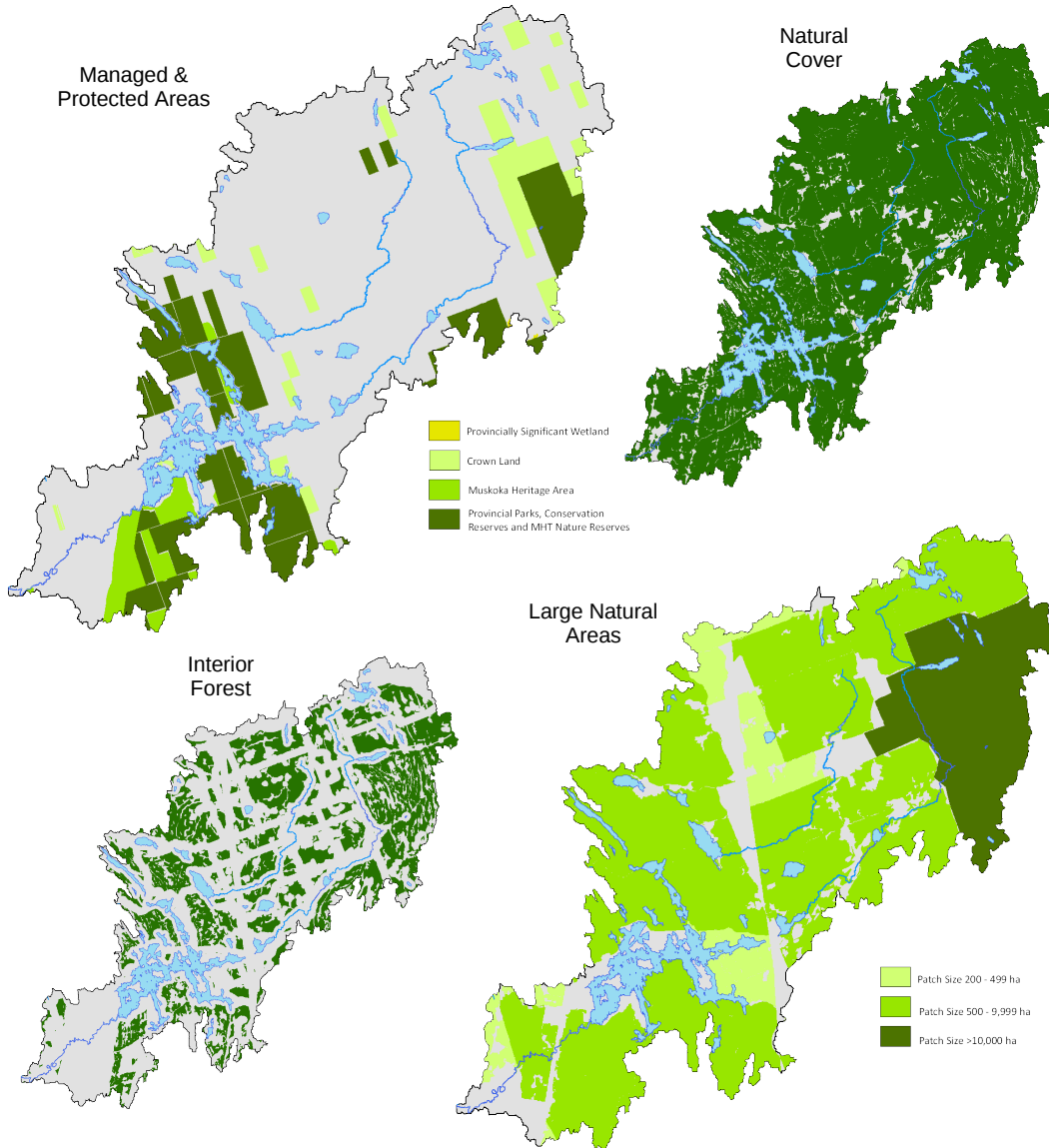
There are no major urban areas within the subwatershed and rural and shoreline residential development comprises most of the land use. 11% of the subwatershed is protected through provincial parks, crown nature reserves, or local land trusts.



This report card describes the health of the land, water and wetlands of the Kahshe Lake subwatershed and is part of the larger report **The 2010 Muskoka Watershed Report Card** that is posted on the MWC website www.muskokaheritage.org/watershed.

Land

Grade **B**



The Kahshe Lake subwatershed is moderately sized and Kahshe Lake is the largest lake in the catchment. Mixed forest dominates the subwatershed with development focused along shorelines, the highway 11 corridor and in the rural area along roads. The development pattern has resulted in a fragmented landscape with reduced interior forest habitat which is an important landscape feature that supports local biodiversity. Natural areas are also important to help support local biodiversity, purify the air, maintain good water quality and provide a carbon sink.

78% of the subwatershed is privately owned and it is important to encourage a strong private land stewardship program to ensure that the long-term health of the subwatershed is maintained as development occurs. Private land stewardship activities such as participation in MFTIP, CLTIP, and donations to land trusts are encouraged to maintain the values enjoyed in this subwatershed.

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

Indicator	Kahshe Lake		Muskoka Watershed		Indicator Description
	%	Grade	%	Grade	
Natural Cover	95	A	94	A	Natural cover is defined as lakes, wetlands, forests, rock barrens and other natural systems.
Large Natural Areas	83	A	79	B	Areas of natural cover that are 200 ha or greater.
200 - 499 ha	8		7		
500 - 9,999 ha	60		52		
>10,000 ha	15		20		
Interior Forest	54	B	58	C	Interior forest is defined as a forested area with a 100-metre forested buffer surrounding it.
Managed & Protected Areas	28	D	48	A	Protected areas are defined as lands within national or provincial parks, Crown conservation reserves, Crown land, and land held by land trusts. Managed areas are defined as lands under the Managed Forest Tax Incentive Program or Conservation Land Tax Incentive Program, or have a conservation easement held by a reputable conservation organization.
Parks & Protected Areas	16		17		
Crown Land	6		26		
Private Stewardship	6		5		
Riparian Area	No Data	—	68	B	Riparian area is defined as the shoreline of a lake or river plus an area 20 metres inland from the shore.

In Muskoka there are no notable point sources of industrial contamination in lakes and rivers. Most industrial contamination is generally a result of air pollutants traveling long distances and being deposited in local lakes. In inland lakes on the Canadian Shield, mercury in fish is the most significant contaminant.

Mercury levels in lakes does not pose a significant human health threat, however, wildlife like loons are more sensitive. Loons eat fish that are 4 to 10 centimeters in size. If fish in a particular lake do not reach the 0.033 ppm standard until the fish is over 10 centimeters, then loons will not be impacted. Otherwise, there could be a possible neurological impact. All four indicator fish species meet the mercury standard in the Kahshe Lake subwatershed.

The Kahshe Lake subwatershed is located in the south portion of Muskoka. Access to the area was available earlier than other areas of the District and many of the lakes have been developed since the late 1800's and early 1900's.

Total phosphorus is an indication of the nutrient level of waterbody. A background or undeveloped level of total phosphorus has been determined for each lake. Scientists indicate that a lake may become unhealthy with an increase in phosphorus greater than 50% from that background level. This is considered the threshold for that lake. There are no lakes that are Over Threshold in the Kahshe Lake subwatershed for a total of 0% of the total water surface area in the subwatershed.

Shoreline vegetation protects waterbodies from nutrients and toxic chemicals that can contribute to water quality issues. It also protects the lake edge from erosion caused by waves and ice. The shoreline zone provides critical habitat for fish and other animals, helping to maintain a natural balance in sensitive aquatic ecosystems. 10% of the shoreline of lakes in the Kahshe Lake subwatershed have been altered.

Indicator	Kahshe Lake		Muskoka Watershed		Indicator Description
	%	Grade	%	Grade	
% Surface Area Over Threshold	0	A	4.9	B	This is a measure of recreational water quality as phosphorus is generally the limiting nutrient in algae production.
% Natural Shoreline	90	B	91	B	This is a measure of fish habitat. Many fish species require overhanging vegetation, rock shoals, and aquatic vegetation found in undisturbed sites.
Mercury Levels in Fish Less Than 10 cm in Size	N/A	A	N/A	B	Mercury levels in lakes do not pose a significant human health threat, however, wildlife like loons are less tolerant to mercury and may be impacted in some cases.

Wetlands

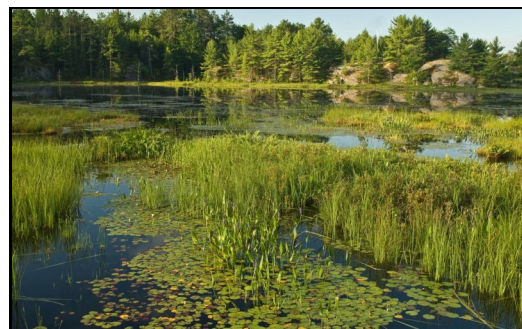
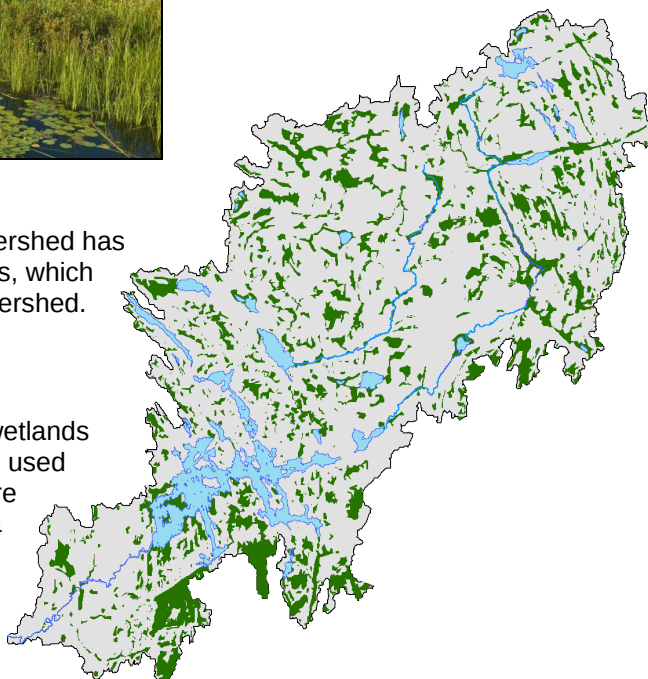
No Grade

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;
- Provides fish populations;
- Provide active and passive recreational opportunities, including canoeing, bird watching, hunting and fishing.

The Kahshe Lake subwatershed has 4,650 hectares of wetlands, which covers 19% of the subwatershed.

A value of no net loss of wetlands from the 2010 level will be used as the benchmark. In future report cards, wetland area will be measured as a deviation from current



A changing climate

The biggest unknown in watershed health is the impact of climate change. What will climate change mean in Muskoka?

Warmer summers will see increased evaporation of water from lake surfaces and increased transpiration of water by wetlands and forests, meaning less runoff, less water, lower lake levels, and longer periods of drought. Warmer winters will see more winter thaws and winter rains potentially leading to more flooding. If the snowpack is reduced due to mid-winter thaws then less snow pack remains for the spring run-off, which could result in an earlier onset of drought and lower water levels.

Warmer lakes will likely lead to:

- less habitat for lake trout
- more algae blooms and possibly blue-green algae blooms

Warmer temperatures will likely:

- allow a greater range of insects and disease in our forests, such as the Mountain Pine Beetle
- allow more invasive species, such as ticks that carry lyme disease
- result in more smog days and result in human health impacts
- eliminate winter recreation although summer recreation may be enhanced
- extend the growing season

More severe weather events will likely:

- damage large tracts of commercially important forests
- overload municipal infrastructure
- result in more damage to agricultural crops

Drier conditions will likely lead to more drought.

Rapid change in habitat conditions will likely reduce biodiversity.



Get involved and be a watershed steward

When all is said and done, the fate of sustainable management of a watershed lies in the hands of grass-roots residents as they go about their day-to-day business. It is the citizens of the watershed who must generate the interest and enthusiasm to create, continue and expand local projects which lead to positive actions and results.



1. Maintain large natural areas

- Practice sustainable forestry
- Use existing roads and rights of way for access and utility corridors
- Reduce cleared areas in the rural area

2. Retain shorelines in a natural state

- Maintain a wide natural buffer of plants and trees around shorelines of lakes, rivers and streams
- Obey speed signs in erosion sensitive low wake areas
- Reduce grassed lawns in the waterfront area and minimize the use of fertilizer
- Pick up after pets
- Plant native species

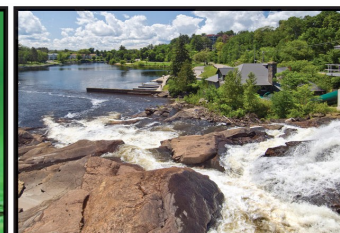
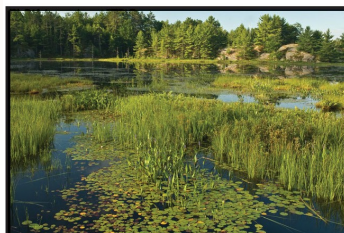


3. Protect wetlands

- Leave wetlands alone
- Keep recreational vehicles out of wetlands
- Learn about wetland values

4. Reduce your carbon footprint

- Plant native trees
- Reduce your use of electricity
- Improve energy efficiency of your home and vehicle
- Reduce waste



Muskoka
WATERSHED COUNCIL

The Muskoka Watershed Report Card is produced by the Muskoka Watershed Council. The mission of the Muskoka Watershed Council is to *champion watershed health*.

For the full background report, visit www.muskokaheritage.org/watershed.