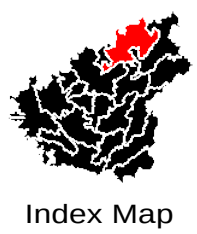
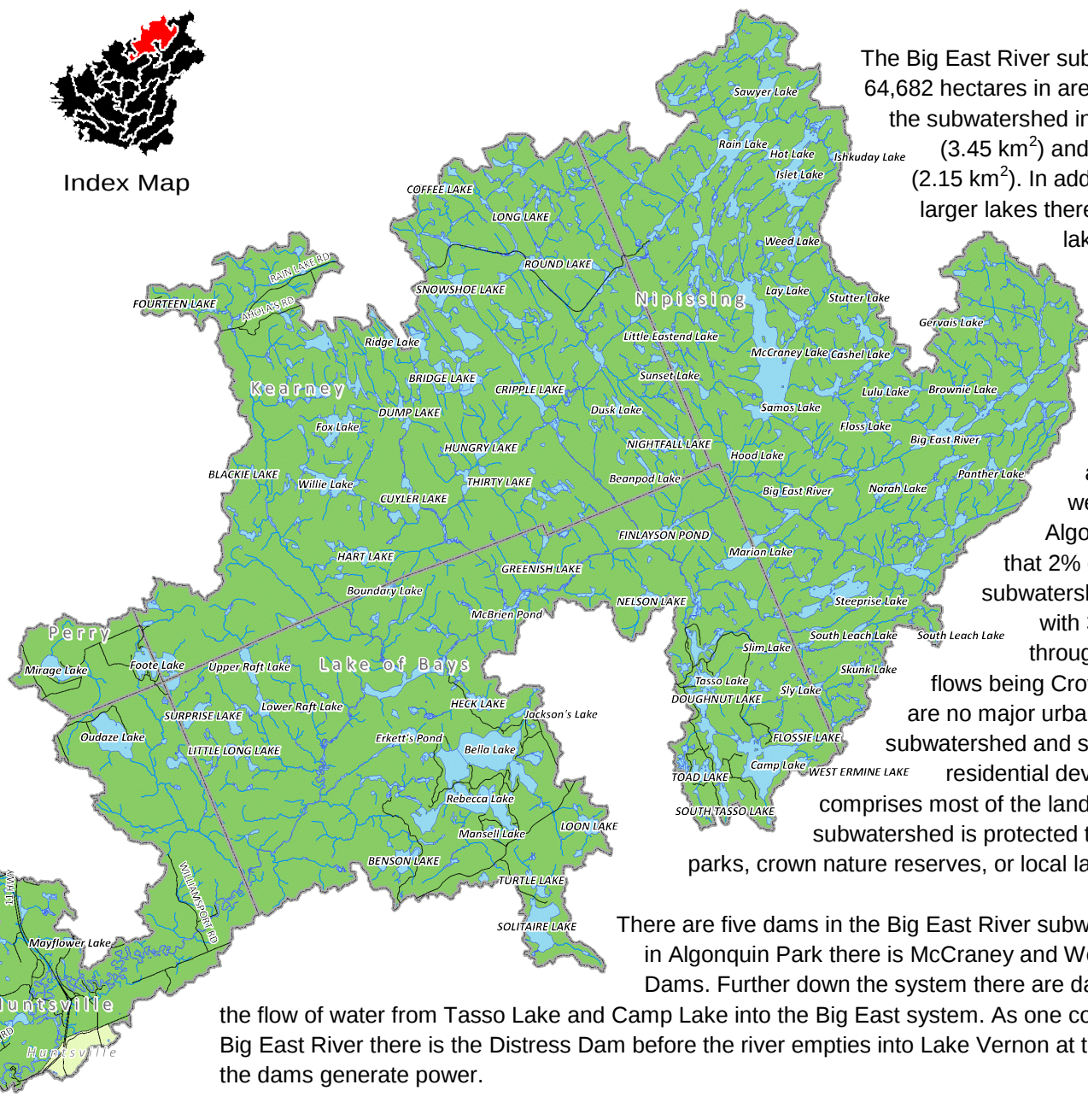


**BIG EAST RIVER SUBWATERSHED**

**Grades**  
 Land: **A**    Water: **A**    Wetland: **—**



The Big East River subwatershed is 64,682 hectares in area. Major lakes in the subwatershed include Bella Lake (3.45 km<sup>2</sup>) and Rebecca Lake (2.15 km<sup>2</sup>). In addition to these larger lakes there are 47 other lakes over 8 hectares in size.



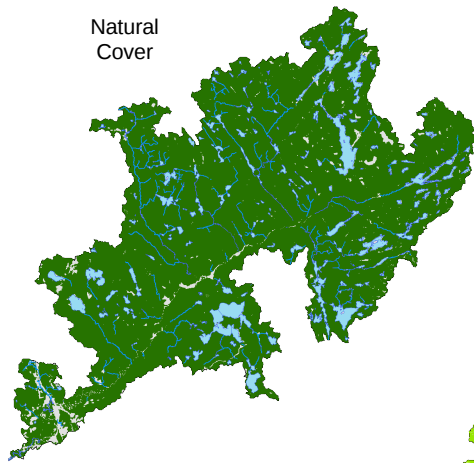
The headwaters of the Big East River subwatershed are located in the western portion of Algonquin Park. Less than 2% of the subwatershed is developed with 39% of the land through which the river flows being Crown land. There are no major urban areas within the subwatershed and shoreline residential development comprises most of the land use. 34% of the subwatershed is protected through provincial parks, crown nature reserves, or local land trusts.

There are five dams in the Big East River subwatershed. Starting in Algonquin Park there is McCraney and West Harry Lake Dams. Further down the system there are dams that control the flow of water from Tasso Lake and Camp Lake into the Big East system. As one continues along the Big East River there is the Distress Dam before the river empties into Lake Vernon at the delta. None of the dams generate power.

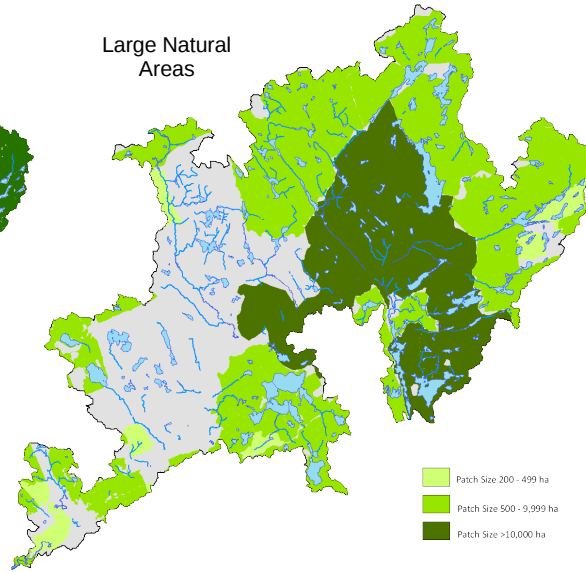
This report card describes the health of the land, water and wetlands of the Big East River subwatershed and is part of the larger report **The 2010 Muskoka Watershed Report Card** that is posted on the MWC website [www.muskokaheritage.org/watershed](http://www.muskokaheritage.org/watershed).

# Land

Grade **A**

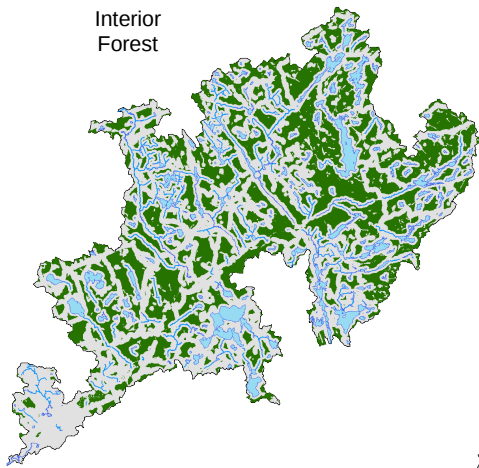


Natural Cover

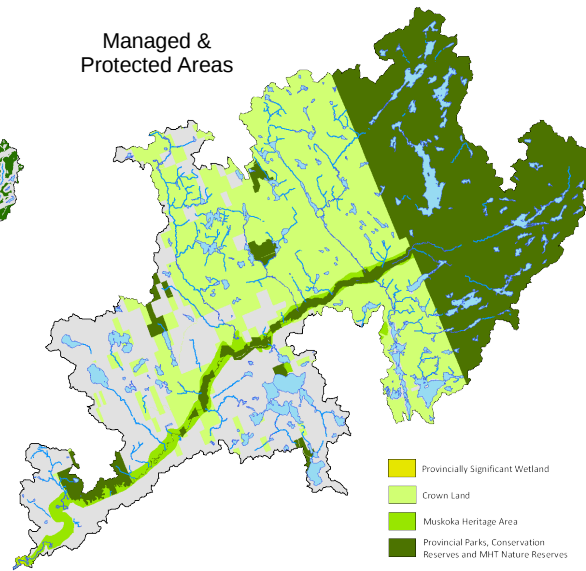


Large Natural Areas

■ Patch Size 200 - 499 ha  
■ Patch Size 500 - 9,999 ha  
■ Patch Size >10,000 ha



Interior Forest



Managed & Protected Areas

■ Provincially Significant Wetland  
■ Crown Land  
■ Muskoka Heritage Area  
■ Provincial Parks, Conservation Reserves and MHT Nature Reserves

The Big East River subwatershed is relatively large and is dominated by the river itself with several small lakes distributed throughout the watershed. The subwatershed contains mixed forest vegetation with little development. The development pattern has resulted in a large undisturbed area that supports many of the large mammals native to Muskoka, such as bear and moose. These natural areas are also important to help purify the air, maintain good water quality and provide a carbon sink.

60% 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 7% of the land is currently under active private land stewardship, there has been an increase in participation in MFTIP and CLTIP and donations to land trusts.

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

Indicator	Big East River		Muskoka Watershed		Indicator Description
	%	Grade	%	Grade	
Natural Cover	98	<b>A</b>	94	<b>A</b>	Natural cover is defined as lakes, wetlands, forests, rock barrens and other natural systems.
Large Natural Areas	69	<b>C</b>	79	<b>B</b>	Areas of natural cover that are 200 ha or greater.
200 - 499 ha	4		7		
500 - 9,999 ha	41		52		
>10,000 ha	24		20		
Interior Forest	62	<b>A</b>	58	<b>C</b>	Interior forest is defined as a forested area with a 100-metre forested buffer surrounding it.
Managed & Protected Areas	80	<b>A</b>	48	<b>A</b>	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	34		17		
Crown Land	39		26		
Private Stewardship	7		5		
Riparian Area	No Data	—	68	<b>B</b>	Riparian area is defined as the shoreline of a lake or river plus an area 20 metres inland from the shore.





Grade **A**

# Water

The Big East River subwatershed flows from McCraney Lake in Algonquin Park into Lake Vernon just west of the urban area of Huntsville.

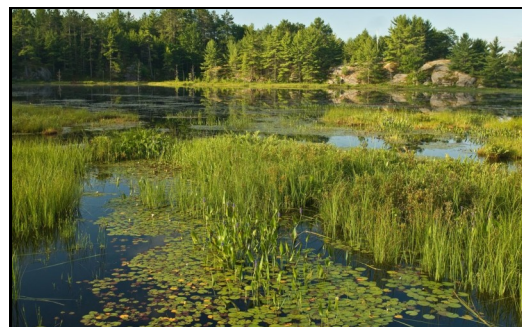
Total phosphorus is an indication of the nutrient level of waterbody. A background or undeveloped level of total phosphorus has been determined for each lake. Scientists indicate that a lake may become unhealthy with an increase in phosphorus greater than 50% from that background level. This is considered the threshold for that lake. There are no lakes that are Over Threshold in the Big East River 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. Only 5% of the shoreline of lakes in the Big East River subwatershed have been altered.

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. There are insufficient data available to determine the impact of mercury on fish in the Big East River subwatershed.

Indicator	Big East River		Muskoka Watershed		Indicator Description
	%	Grade	%	Grade	
% Surface Area Over Threshold	0	<b>A</b>	4.9	<b>B</b>	This is a measure of recreational water quality as phosphorus is generally the limiting nutrient in algae production.
% Natural Shoreline	95	<b>A</b>	91	<b>B</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	<b>No Data</b>	N/A	<b>B</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.

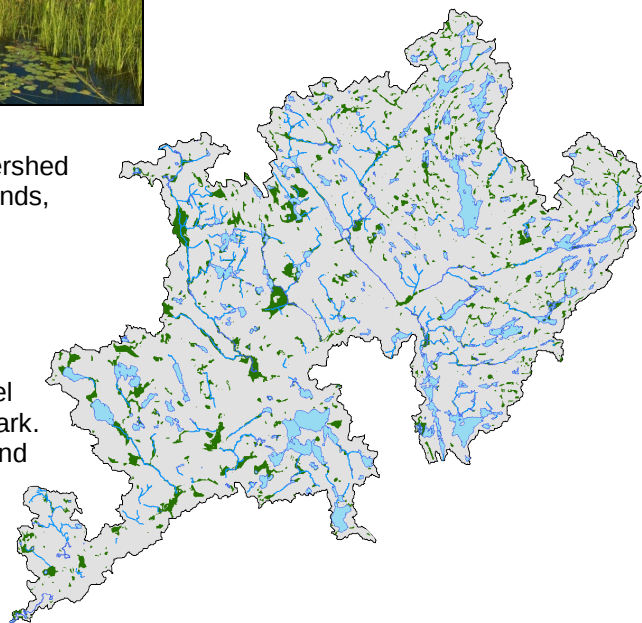


No Grade

# Wetlands

The Big East River subwatershed has 5,400 hectares of wetlands, which covers 8.4% 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 wetland area.



## 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.

# 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

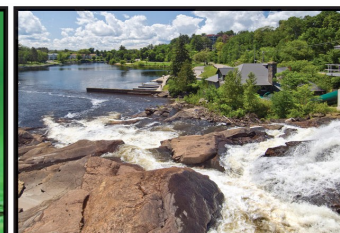
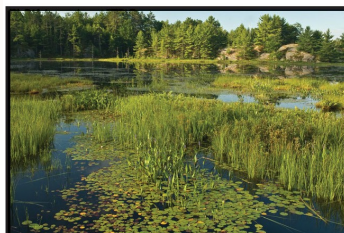


### 3. Protect wetlands

- 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](http://www.muskokaheritage.org/watershed).