2014 MUSKOKA WATERSHED REPORT CARD

Dreamhav

Wadis Creek

LAKE OF BAYS SUBWATERSHED

The Lake of Bays Subwatershed is 38,446 hectares in area and is in the eastern portion of The District Municipality of Muskoka. Lake of Bays itself has a surface area of approximately 75 km².

Less than 5% of the subwatershed is developed and 24% of the land is Crown land. Portions of the villages of Baysville, Dwight and Dorset lie within the subwatershed and rural and shoreline residential development comprise most of the land use. 1% of the subwatershed is protected through provincial parks, crown nature reserves, or local land trusts. There are 25 other lakes over 8 hectares in size in the subwatershed.

There is one dam in the Lake of Bays Subwatershed located at Baysville but there is no power generation. There are two automatic water level gauges and one flow gauge on the system.



GRADES	
Land	Vulnerable
Water	Vulnerable
Wetlands	Not Stressed
Biodiversity	Vulnerable

Roundaboutlake

Tom Lake

Wolfkin Lake

Paint Lak

Pup Luke

Spaniel Creek

Seventeen Mile Lake

Fifteen Mile Lo

Rookery

Cod Lake

Shoe ake

Art Lake / /

IGHLAND

coal La

Otter

Sixteen Mile

Cotter Lake

Lake Docker

Dwight

Cooper

een Mile Lake

Steeple Lake Spaniel Lake

Eastell

Lake McReynolds

Rhodes

Lee Lake

TOWNSHIP OF

AKE OF BAYS

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

Stewardship Works!

Dunn Lake

Lake

Schufelt Lake





Not Stressed
Vulnerable
Stressed

The Lake of Bays Subwatershed is moderately sized dominated by the lake itself with several smaller lakes feeding into it. Mixed forest dominates the subwatershed with development focused in the waterfront areas. 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 purify the air, maintain good water quality and provide a carbon sink.





75% 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 is 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	Lake of Bays Subwatershed		Muskoka Watershed		Description	
	Value	Grade	Value	Grade		
Size of Natural Areas	67%	Vulner- able	79%	Vulner- able Areas of natural cover that are 200 ha or areater		
200 - 499 ha	3%		7%		Natural cover includes forest, lakes, rock barrens and	
500 - 9,999 ha	38%]	52%		wetlands.	
10,000 ha +	26%		20%			
Interior Forest	52%	Not Stressed	58%	Not Stressed	Interior forest is a forested area with a 100-metre for- ested buffer surrounding it.	
Road Density	0.66 km/km²	Vulner- able	0.51 km/km ²	Vulner- able	Road density is a measure of the degree of fragment tion of the landscape. Roads are a primary cause of death of many species, especially turtles and snakes.	
Level of Development	<5%	Not Stressed	5.4%	Level of development is the percent of the watershed vulner- able in urban or rural development. When more than 10% of a watershed is developed, lake and stream health more be impacted.		
Shoreline Density	<13 lots/km	Not Stressed	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%	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 tha may otherwise damage a healthy lake.		



O Not Stressed

😈 Vulnerable

O Stressed

Indicator	Lake of Bays Subwatershed		Muskoka Watershed		Description		
	# Lakes	Grade	# Lakes	Grade			
Total Phosphorus Concentration	19	Vulner- able	129	Vulner- able	The amount of total phosphorus in a lake is a measure		
< BG + 30%	11		73		of recreational water quality as phosphorus is generally		
BG + 30% to BG + 50%	4		27		the limiting nutrient in algae production.		
> BG + 50%	4		29				
Algae		Not Stressed		Not Stressed	The propensity for algal blooms is the percentage of lakes with TP greater than 15 μ g/L and are over threshold.		
Fish Habitat (% Unaltered)	>90%	Not Stressed	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 site			
Calcium Levels	40	Vulner- able	377	Vulner- able	Calcium is an important nutrient for the development of bones and exoskeletons. As a result of acid precipita-		
< 1.5 mg/L	7		161		tion, calcium has been leeched out of the forest soils		
1.5 - 2.0 mg/L	22		138		watershed threatening the continued presence of im-		
> 2.0 mg/L	11		78		portant lake species.		

The Lake of Bays Subwatershed receives water from the headwater lakes in Algonquin Park and the undeveloped Crown portion of Algonquin Highlands. The lake itself supports a healthy cold water fishery.

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. Four lakes are Over Threshold in the Lake of Bays Subwatershed.

Shoreline vegetation protects water bodies 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. On average less than 10% of the shorelines in the Lake of Bays Subwatershed have been altered.

As a result of acid deposition, calcium has leached out of many lakes across Muskoka. In the Lake of Bays Subwatershed 7 lakes have less than 1.5 mg/L of calcium, which is the critical level for survival for several species.

Wetlands:

Not StressedVulnerableStressed

Over 6% of the Lake of Bays Subwatershed is comprised of 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



Subwatershed Name	% Wetlands	Comment	Grade
Lake of Bays	6.25	The Lake of Bays Subwatershed is approximately 25% Crown and protected lands with less than 5% development. It is not close to a developing community and significant develop- ment is not planned for the area.	Not Stressed
		Shoreline development has impacted some wetland areas. Wetlands in this watershed are in good condition.	



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 of Bays Subwatershed		Muskoka Watershed		Description	
	# Species	Grade	# Species	Grade		
Species at Risk Habitat	19	Vulnerable	22	Vulnerable	The number of different types of spe-	
Endangered	4		5		Subwatersheds with habitat for more	
Threatened	5		7		types of species at risk are more vulner-	
Species Concern	10		10		able to development or other stressors.	
Alien Invasive Species*	2	Stressed	10	Stressed	Maintaining the diversity of native spe- cies is important to a healthy water- shed. Invasive species often out-com- pete 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 mini- mize 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.

