

DRINKING WATER

A-

OUR DRINKING WATER QUALITY IS EXCELLENT, BUT PLANS TO PROTECT DRINKING WATER SOURCES FROM CONTAMINATION ARE NEEDED.



AQUATIC HABITATS

B

DEVELOPMENT HAS DAMAGED FISH AND WILDLIFE HABITATS. GEORGIAN BAY IS EXPERIENCING SIGNIFICANT CHANGES DUE TO INVASIVE SPECIES.



ECOSYSTEM PROTECTION

A-

50 PER CENT OF THE WATERSHED IS PROTECTED FROM DEVELOPMENT, BUT THERE IS LITTLE PROTECTED LAND IN THE CENTRAL PART OF THE WATERSHEDS.



STEWARDSHIP ACTIVITIES

A-

MUNICIPALITIES HAVE INTRODUCED MORE STRINGENT DEVELOPMENT CONTROLS, AND MANY LAKE ASSOCIATIONS ARE UNDERTAKING MONITORING AND STEWARDSHIP PROGRAMS.



HOW CAN WE IMPROVE OUR WATERSHED GRADES?

THE HEALTH OF MUSKOKA'S ENVIRONMENT IS FACING UNPRECEDENTED CHALLENGES, BUT WE CAN TAKE THE FOLLOWING STEPS TO MAKE THINGS BETTER:

- Protect shoreline vegetation
- Reduce hardened surfaces
- Protect significant wetlands
- Reduce habitat fragmentation
- Maintain large natural areas
- Remediate degraded sites
 - Contain urban sprawl
- Reduce carbon emissions

DEVELOPMENT IMPACTS

C

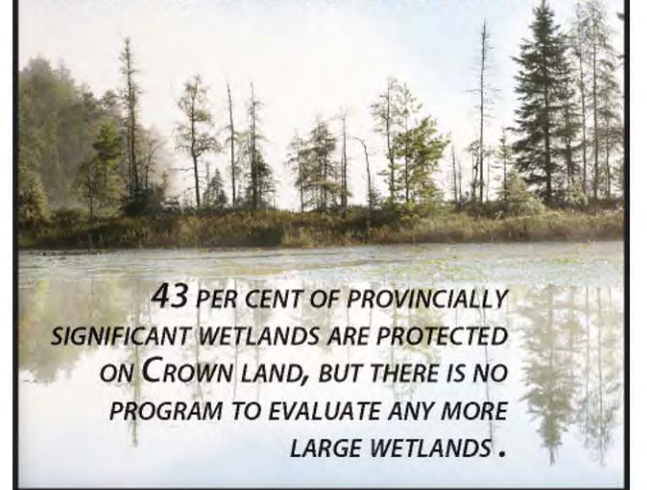
URBAN AREAS NEED PLACES WHERE STORMWATER CAN SOAK INTO THE GROUND. SHORELINE VEGETATION NEEDS TO BE MAINTAINED.



WETLAND PROTECTION

C

43 PER CENT OF PROVINCIALLY SIGNIFICANT WETLANDS ARE PROTECTED ON CROWN LAND, BUT THERE IS NO PROGRAM TO EVALUATE ANY MORE LARGE WETLANDS.



RECREATIONAL WATER

A-

GENERALLY, OUR LAKES ARE IN GOOD TO EXCELLENT CONDITION. HOWEVER, DEVELOPMENT, ACID RAIN AND CHANGING CLIMATE PATTERNS ARE HAVING SIGNIFICANT IMPACTS.



AIR QUALITY

D

THERE ARE 10 TO 30 DAYS OF POOR AIR QUALITY A YEAR. ACID RAIN HAS NOT BEEN REDUCED ENOUGH TO SEE A FULL RECOVERY OF NATURAL ECOSYSTEMS.



ECOSYSTEM PROTECTION

A

C+ PROTECTION OF SOME PART OF ALL ECOSYSTEMS

50 per cent of the watershed is protected but not all ecosystems are represented. Protection relies on Crown land and provincial parks.

A PROTECTION OF A FEW VERY LARGE AREAS

There are two 10,000+ ha areas in the Muskoka River Watershed and two in the Black/Severn River Watershed.

A PROTECTION OF SMALLER AREAS ACROSS THE WATERSHED

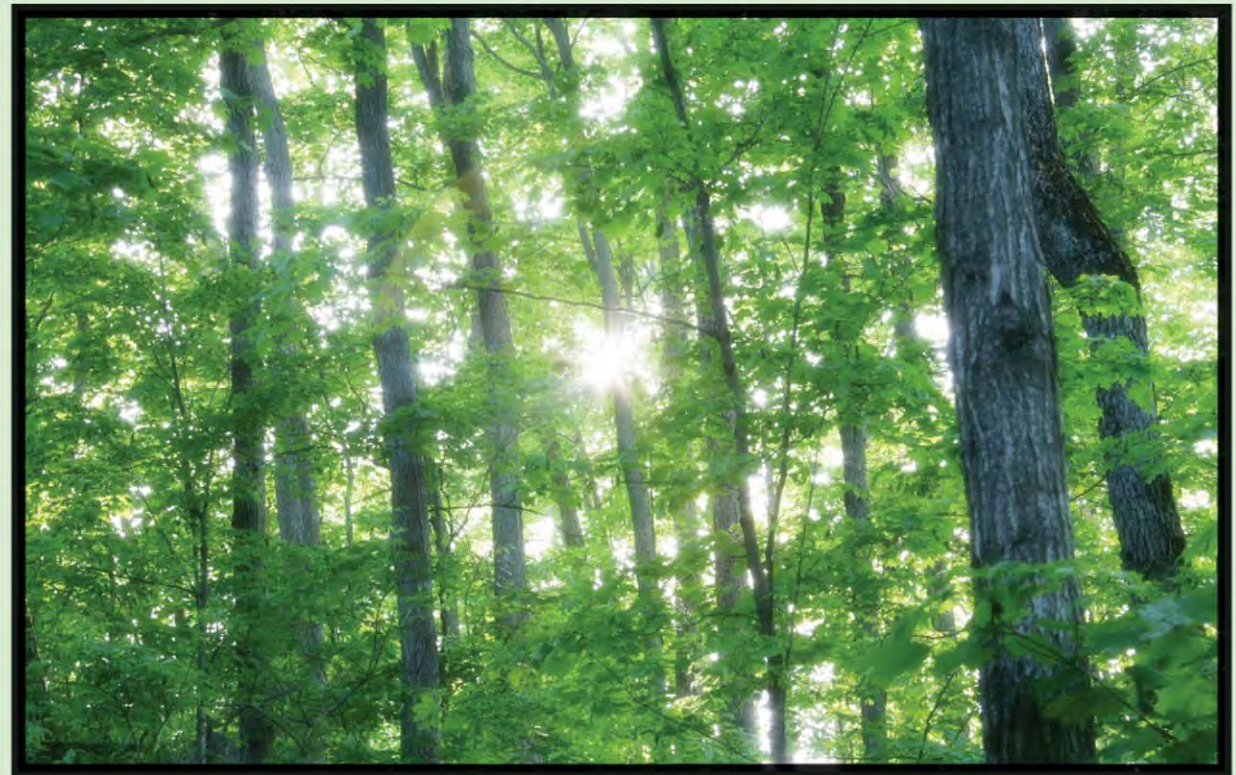
Not all sub-watersheds have 200 ha natural areas and all rely on Crown land for protection. Very little private land benefits from any long-term protection.

A MAINTENANCE OF NATURAL COVER

All sub-watersheds have more than 80 per cent natural cover.

B DEVELOPMENT OF A NATURAL AREAS STRATEGY

There is no comprehensive system of protected areas and steps need to be taken now to ensure that areas do not become more fragmented.



DEVELOPMENT IMPACTS

C

D HARDENED AREAS

Municipalities should encourage new development or redevelopment to incorporate alternative storm-water techniques that limit hardened surfaces.

B+ NATURALLY VEGETATED SHORELINES

31 per cent of the land between the residence and the water has been significantly altered. In urban areas, the per cent of altered shoreline increases to about 45 per cent.

PROTECTION OF WETLANDS

C

D WETLAND EVALUATION

Relatively few wetlands have been evaluated. There is no program to evaluate additional wetlands.

A- PROVINCIAL SIGNIFICANT WETLANDS

43 per cent of provincially significant wetlands are protected through Crown land regulation. 38 per cent of provincially significant wetlands are protected as part of a Crown land conservation reserve. Additional private land stewardship is required to ensure protection of wetlands on private land.

C INCOMPATIBLE WETLAND USES

Planning policy provides protection through the development process. More education and stewardship are needed to secure wetlands where there is no development application.

WE NEED TO:

PROTECT WETLANDS

- Wetlands are the kidneys of the watershed and clean water before it reaches our lakes.
- There are 30 provincially significant wetlands in the watershed but there is no program to identify any additional significant wetlands.
- Wetlands are protected through the development process but there is no protection if there is no development application.

WE NEED TO:

PROTECT FORESTED AREAS

- Forests sequester carbon and can offset greenhouse gas emissions.
- Natural areas provide people with food; they control floods, moderate climate, and limit the spread of disease.
- Our forests support our multi-million dollar tourism and recreation-based economy.

WE NEED TO:

CONTROL STORMWATER

- Unmanaged stormwater impacts natural systems by reducing the water that supports plant life and replenishes aquifers used for drinking water.
- Stormwater can impair water quality by washing nutrients, bacteria, sediment, chemicals and other pollutants into lakes and rivers.

WE NEED TO:

MAINTAIN LARGE NATURAL AREAS

- Much of the forested area in our watershed is fragmented by roads and does not support the full range of ecological services and functions.
- Development pressures, climate change and logging can damage natural areas.
- Protecting large natural areas is important if ecological function is to be maintained and people are to continue to benefit from natural areas.
- Natural areas need to be connected to allow species to survive and move from place to place.
- Land acquisition by local land trusts of large natural areas or smaller areas that can be added together to make larger holdings is vital to protect some remaining natural areas.

WE NEED TO:

REDUCE HARDENED SURFACES

- Hardened surfaces include such urban features as roads, parking lots, and rooftops. They increase stormwater volume and velocity, and reduce water quality.
- Urban areas need to reduce the number of hardened surfaces so that stormwater is able to soak into the ground to be cleaned and cooled. It would also then be available for plants and animals, and it would replenish groundwater supplies.

Strengthening nature's capacity to cope with change

As we increase our understanding of the health of our watersheds and the factors that impact their condition, we have more questions than answers. Increasing amounts of research and analysis provide more detailed perspectives, revealing more complex relationships than previously appreciated. For example, the recently completed Muskoka Inventory Project provides new insight into the current condition of the land and its contribution to the overall health of the watershed.

For over two decades, measures of the health of the watersheds of Muskoka focused on the quality of the water in lakes and rivers. A more recent and broader view of watershed health considers not only the state of the water, but the quality of surrounding terrestrial and aquatic habitats such as forests and wetlands, and the air in which they function.

Recent thought challenges us to understand the importance of the local, regional and global interconnectedness of the natural systems. While natural evolutionary change occurs



regardless of human activity, people cause other kinds of change. At the global level we're seeing effects of climate change, acid deposition, and invasive species. At the local level we see changes to natural habitats resulting from forestry practices and the way that development is influenced and controlled.

The primary objective of this 2007 Watersheds Report Card is to evaluate change in ecosystem condition and the impact of human actions against a standard of a healthy, functioning and

sustainable watershed.

The best insurance against loss of the natural, scenic, economic and intrinsic watershed values that are important to the people of Muskoka is to maintain our watersheds in as natural a condition as possible, buffering whatever stresses they face now and in the future.

Several recent studies confirm that protecting, maintaining and enhancing the health and the diversity of ecosystems is essential to long-term sustainability of watersheds that will be threatened by the changing climate.

Simply put, as a community, we need to strengthen nature's ability to cope with change.

How is this best accomplished? The 2007 Report Card focuses on four primary dimensions of watershed health where we can make a difference: water, air, land and climate.

— Deb Cumming
Chair of The Muskoka Watershed Council

WATER B

WE NEED TO:

MAINTAIN NATURAL WATERSHEDS

- Our lakes and rivers are in good to very good condition for recreational use.
- Phosphorus is the nutrient that controls the growth of algae in a lake. Municipalities work with local lake associations to control and reduce phosphorus loading to lakes.
- Although there has been a gradual increase in long-term phosphorus levels over the undeveloped standard, improvement is occurring and over the last twenty years levels in over 60 per cent of the lakes in Muskoka have remained constant or decreased.

WE NEED TO:

PROTECT DRINKING WATER

- Neither public nor private sources of drinking water are subject to significant water quality threats.
- No municipal system has exceeded provincial standards for contaminant levels.
- Municipalities are beginning to develop plans to protect drinking water sources, but there are no programs to develop plans to protect private sources of drinking water.

WE NEED TO:

PROTECT SHORELINE VEGETATION

- The shoreline zone is the last line of defense against the forces that damage otherwise healthy lakes and rivers.
- A naturally vegetated shoreline filters run-off, removing harmful chemicals and nutrients. Shoreline vegetation prevents erosion and provides critical aquatic habitat.

WE NEED TO:

PREPARE REMEDIAL ACTION PLANS

- Municipalities and lake associations want to take steps early to ensure continued excellent water quality.
- 41 lakes have been identified as having slightly elevated levels of phosphorus and many lake associations are developing remedial action plans to reduce the human sources of phosphorus.

AQUATIC HABITATS

B

C FISH HABITAT

Significant human-related damage has occurred to various fish habitats on inland lakes. Increased human stress is impacting lake trout habitat, including stocking practices, fishing pressures and development. The Georgian Bay ecosystem is under change and not stable. The introduction of invasive species has stressed the Severn Sound Area.

A- SHORELINE HABITAT

Although surveys indicate that most shorelines support natural vegetation, a dramatic loss of shoreline vegetation is still being experienced on some individual lots. In other areas, landowners are renaturalizing shorelines.

STEWARDSHIP ACTIVITIES

A-

B+ LAKE ASSOCIATIONS

Over 15 lakes have or are developing lake plans. All large and many moderate and small lake associations undertake monitoring programs. The District of Muskoka assists over 20 lake associations with ecosystem monitoring.

A- MUNICIPAL ACTION

Planning documents encourage large setbacks and maintenance of vegetation. All municipalities participate in local stewardship programs and sit on the Muskoka Watershed Council. Several municipalities have taken action to improve urban shorelines. Policies for urban areas that reduce hardened surfaces are needed.

RECREATIONAL WATER QUALITY

A-

A- NUTRIENT ENRICHMENT

Most lakes do not have enough phosphorus to support nuisance algae growth. Improved development standards have decreased the impact of development on recreational water quality. Of a total of 183 lakes in Muskoka with data, 142 meet the stringent local water quality standard.

A WATER CLARITY

Water clarity has remained the same or improved on 90 per cent of lakes.

A- BACTERIA

Lakes generally have low levels of bacteria that can be naturally expected. Some highly developed areas experience higher concentrations.

B ACID DEPOSITION

Real improvement has been realized over the last decade. Annual load has not been reduced enough that all lakes in the watershed will recover.

DRINKING WATER

A-

A MUNICIPAL WATER

Rigorous training of staff and extensive monitoring has meant that contaminants have not exceeded acceptable levels.

A- PRIVATE SYSTEMS

Shoreline policy protects surface water sources. Septic re-inspection programs protect wells and surface water. A "Well Aware" program would help private homeowners.

A- MUNICIPAL SOURCE WATER

This is a new program and considerable work is required to develop and implement plans. Existing policy in the Muskoka Official Plan protects municipal intakes from incompatible uses. All waste disposal plants have tertiary treatment and most have UV disinfectant.

B PRIVATE SOURCE WATER

Significant areas of Crown land and undeveloped private land provide good protection for private drinking water sources but there is no comprehensive plan to protect private drinking water in the future.

WATERSHEDS:

A watershed is the land area that drains into a particular water body such as a lake or river and includes all the natural and human communities found there.

The Watersheds Report Card looks at the health of the Muskoka and Black/Severn River Watersheds that flow from Algonquin Park through Muskoka, Haliburton, Simcoe and Parry Sound into Georgian Bay.

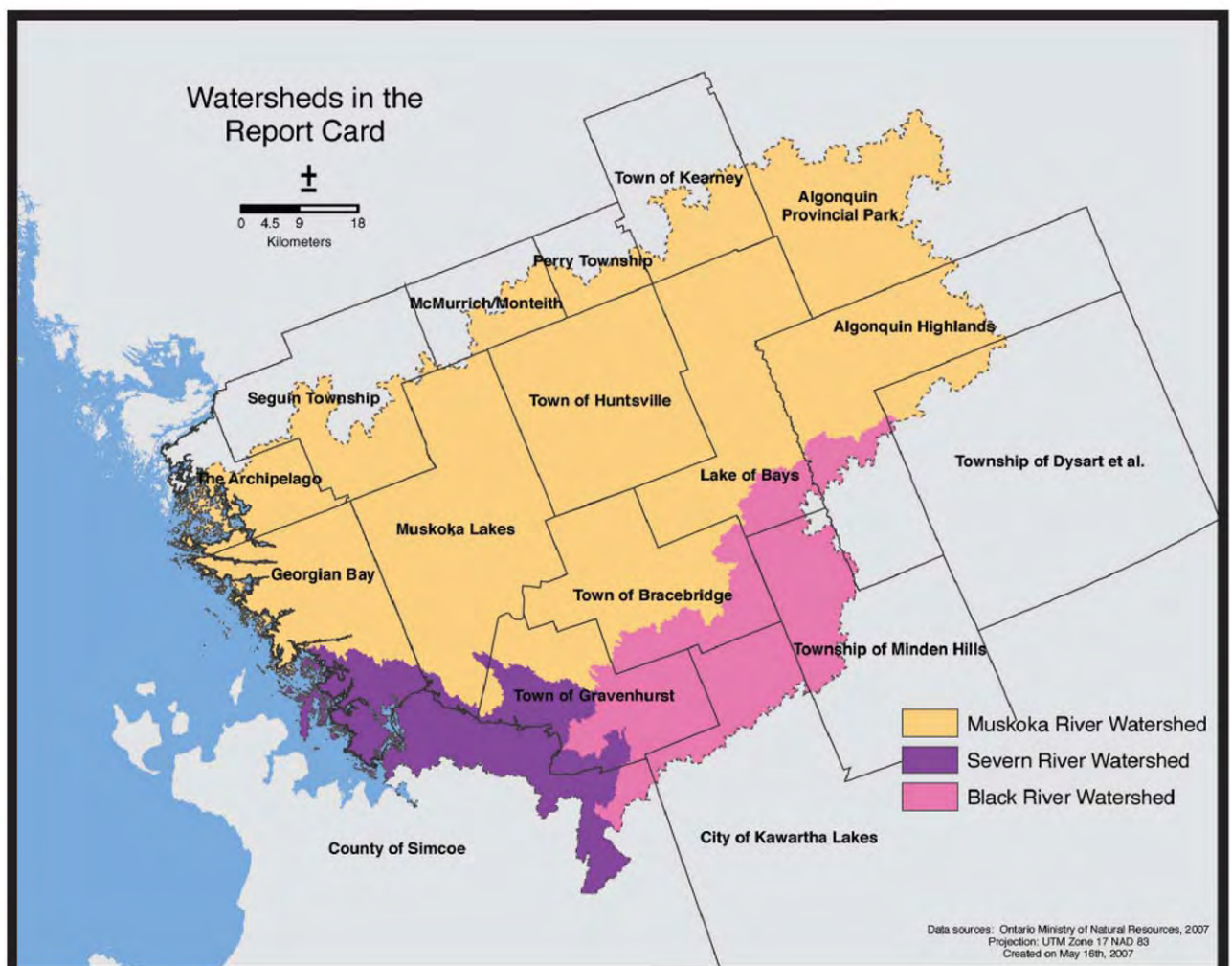
EACH INDICATOR HAS BEEN GRADED USING THE FOLLOWING SCALE:

A= VERY GOOD

B= GOOD

C= NEEDS SOME IMPROVEMENT

D= NEEDS A LOT OF IMPROVEMENT



AIR C

WE NEED TO:

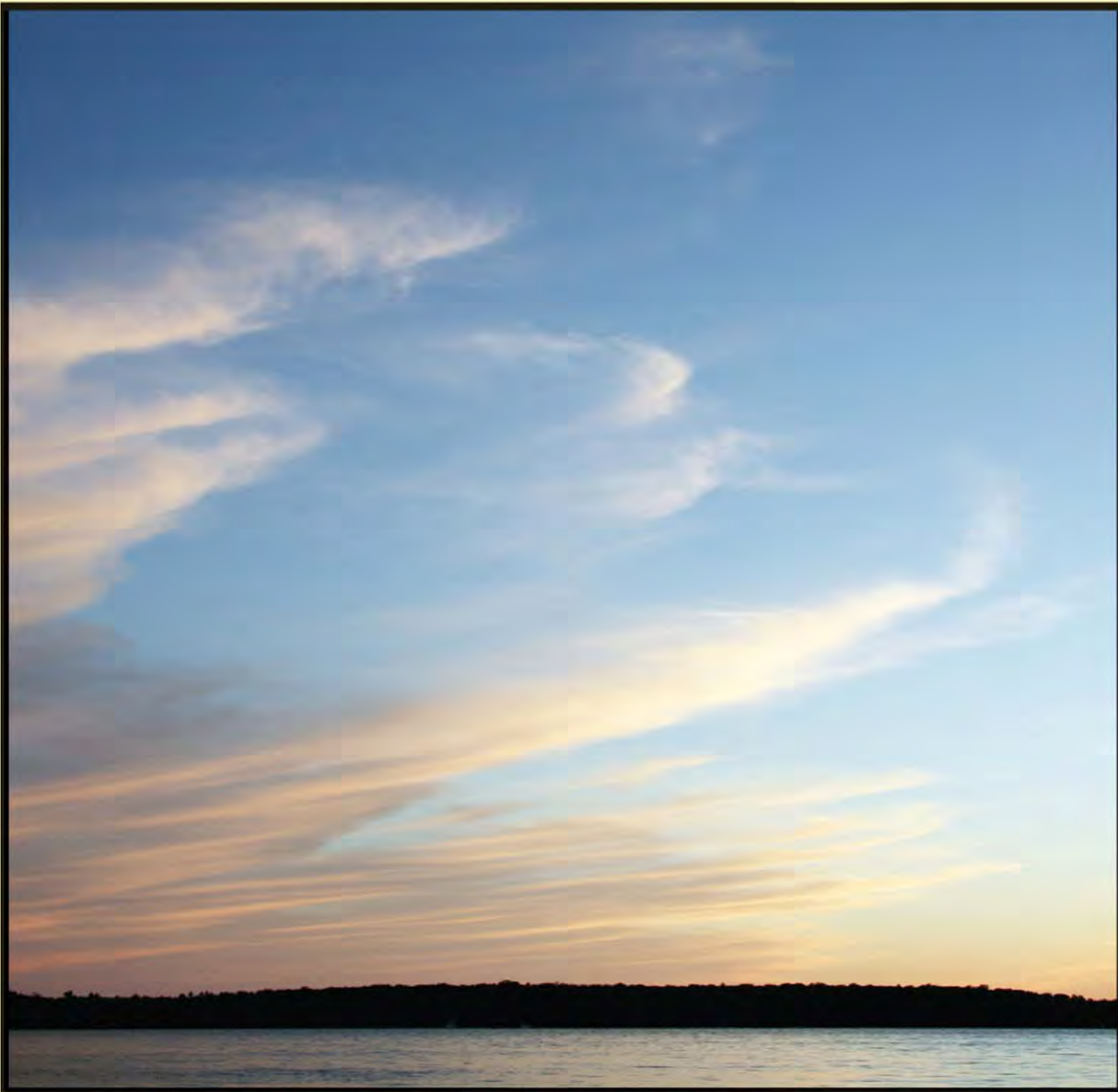
REDUCE ENERGY CONSUMPTION

- Components of air pollution come from various sources including industry, power generation, vehicle emissions, and forest fires.
- Reduction in the electricity use and consumption of goods will reduce the demand for and need to produce these goods and services.
- Reducing one's own energy consumption is an easy way to contribute to watershed health.

WE NEED TO:

MAKE GOVERNMENTS ACT NOW

- There has been an improvement in some components of air quality over the last twenty years. Further improvements in Ontario's air quality will depend on higher emission standards provincially and nationally, and a negotiated agreement with the United States for higher emission controls.



TRANSBOUNDARY AIR POLLUTION C

- D** **SMOG COMPONENTS**
Pollution from the Ohio Valley is a major contributor to our poor air quality on days when advisories have been issued.
- B** **ACID RAIN**
Real reductions in sulphate have been achieved but deposition will remain above critical levels on several lakes.

AIR QUALITY READINGS C-

- D** **OZONE**
Ozone levels in eastern Canada are above the Canada-wide standard of 65 parts per billion.
- B** **FINE PARTICULATE MATTER**
Not a major cause of air quality advisories.
- D** **AIR QUALITY ADVISORIES**
There are 4 to 6 air quality advisories each year representing 10 to 30 days a summer.

CLIMATE CHANGE

CLIMATE CHANGE WILL BE A SIGNIFICANT STRESS ON THE WATERSHED IN THE FORESEEABLE FUTURE. INDICATORS OF CHANGE INCLUDE THE IMPACT ON COLD WATER FISH AS OUR LAKES GET WARMER AND LOSS OF NATIVE SPECIES LIKE THE GREY JAY AS HABITATS CHANGE. MANY SPECIES AND ECOSYSTEMS WILL NOT BE ABLE TO ADAPT AND IT IS LIKELY THAT SOME WILL BE LOST. ECONOMICALLY THERE WILL ALSO BE CHANGES, AS THE WINTER RECREATION SEASON GETS SHORTER AND THERE IS AN INCREASE IN SEVERE WEATHER EVENTS. WITH THESE MULTIPLE STRESSORS AFFECTING OUR WATERSHEDS, MAINTAINING NATURAL, INTACT ECOSYSTEMS IS THE BEST INSURANCE AGAINST WIDESPREAD DEGRADATION.

WE NEED TO:

ADAPT TO THE REALITY OF CLIMATE CHANGE

Climate change impacts on our watershed are likely to be subtle and gradual. Global climate models indicate a warming of our watershed by 2.2 degrees to 4 degrees Celsius, accompanied by an increase in precipitation of one to 16 per cent. The results could include the following:

- Decreased water levels on Georgian Bay.
- Increased temperatures of inland lakes, resulting in a negative impact on coldwater fish like lake trout.
- Increased forest fires and insect infestations.
- Increased severe weather events.
- Increased health costs due to poorer air quality.
- Milder winters with a negative impact on winter recreation activities.
- Loss of traditional native species.

WE NEED TO:

LOBBY GOVERNMENTS FOR ACTION

- Individuals can reduce their carbon emissions by reducing their use of electricity, improving the energy efficiency of their homes and buying fuel efficient vehicles.
- Governments need to develop comprehensive alternative energy sources and energy conservation programs.
- Incentive programs need to be developed to encourage innovation in sustainable technologies.
- Regulations that reduce industrial emissions are required.
- Individuals need to write their members of parliament requesting immediate action be taken.

The Muskoka Watersheds Report Card would not have been possible without the participation of these partners:



MUSKOKA HERITAGE FOUNDATION



design-photos by scott turnbull & miranda britton

