

What Are We Doing?

Some of the programs administered by the Lakehead Region Conservation Authority (LRCA) include:

Source Water Protection: Under the *Clean Water Act*, 2006 the Lakehead Source Protection Authority administered the creation of the Lakehead Source Protection Plan, which came into effect on October 1, 2013. The Plan sets out policies to protect sources of municipal drinking water (i.e. Bare Point, City of Thunder Bay and Rosslyn Village, Municipality of Oliver Paipoonge).

Watershed Planning: The LRCA provides comments to their Member Municipalities related to natural hazards on all Planning Act applications. Each year the Authority undertakes a Watershed Assessment of an area stream to document conditions at the time of study.

Flood Forecasting and Warning: The LRCA monitors local conditions daily and issues Flood Messages to our Member Municipalities during riverine flooding events.

Water/Snow Monitoring: The LRCA conducts bi-monthly snow surveys at three locations; monitors groundwater level and quality at nine groundwater wells; monitors surface water quality on five area watercourses; monitors streamflow at eight sites; and monitors precipitation at nine locations.

Neebing-McIntyre Floodway: The LRCA owns and maintains the Neebing-McIntyre Floodway which provides flood protection up to the regional storm level to the residents and businesses in the lower Neebing River and Intercity area.

Development Regulations: The LRCA administers regulations which regulate development in areas susceptible to flooding and erosion, hazardous lands and within wetlands.

Environmental Education: The LRCA provides environmental education programs to school age children and to the general public throughout the year focusing on: spring water awareness, importance of the natural environment, conservation, etc.

Land Management: The LRCA owns and maintains eight Conservation Areas, five of which provide access to Lake Superior, and three forest management properties. The Areas provide a variety of amenities including: trails, bird viewing, nature appreciation, pavilions, interpretative signage, etc.



What Can You Do?

Be a Watershed Steward!

Making small changes in our everyday lives can go a long way for the environment. If every person in the Lakehead Region did one thing to help protect our watershed, that would be over 100,000 positive changes made! Listed below are some things you, your friends and your family can do to help make a difference in our watershed's health.

- Practice the 3 R's! Reduce, reuse and recycle. Also try setting up a composter for organic waste.
- Plant native grasses and trees along open and exposed shorelines to improve shade, slow soil erosion and filter pollutants.
- Repair or replace faulty septic systems and ensure they are properly maintained.
- Conserve water - use it wisely in your home by installing a rain barrel, only watering your lawn during dry periods and only running the dishwasher and washing machine with full loads.
- Use phosphate-free soaps and detergents. Don't fertilize your lawn, but if you must, use phosphorous-free fertilizers.
- Avoid using substances, near or around wells and shorelines, that could affect water quality including paint, chemicals or manure.
- Properly use, store and dispose of toxic products such as fuel, pesticides, cleaners and manure.
- When participating in water recreation, remember to wash the hull of your boat, exercise caution when refuelling on the water, and never dump live bait into water ways.
- Apply for work permits from the appropriate agencies before you begin work in or around water or wetlands. Start with the Lakehead Region Conservation Authority. We can help you!
- By caring for the land and water and surrounding landscape you can ensure that it will be conserved, enhanced and sustained for future generations.



Lakehead Region Conservation Authority

Conserve today...for a better tomorrow

Lakehead Region Conservation Authority

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Our Member Municipalities include:

- | | | | |
|---------------------|-------------------------|----------------------------------|-------------------------|
| City of Thunder Bay | Municipality of Neebing | Municipality of Oliver Paipoonge | Municipality of Shuniah |
| Township of Conmee | Township of Dorion | Township of Gillies | Township of O'Connor |



Lakehead Region WATERSHED Report Card 2013



Where Are We?

We are one of 36 Conservation Authorities across Ontario.



What Does This Report Card Measure?



Surface Water Quality



Forest Conditions



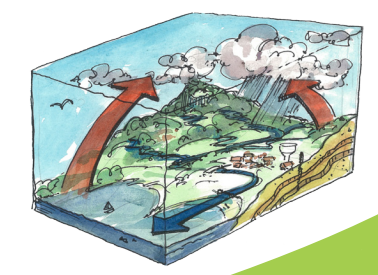
Groundwater Quality

Why Measure?

Measuring helps us better understand our watershed. It helps us to focus our efforts where they are needed most and track progress. It also helps us to identify healthy and ecologically important areas that require protection or enhancement.

What is a Watershed?

A watershed is an area of land drained by a river or stream. Similar to the branch of a tree, creeks empty into streams, which then empty into larger streams, eventually forming one main trunk. Within this system, everything is connected to everything else. In other words, actions which take place at the top of the system can and do affect those downstream.



Grading

- A** Excellent
- B** Good
- C** Fair
- D** Poor
- F** Very Poor

The standards used in this report card were developed by Conservation Authorities to ensure consistent reporting across the Province of Ontario and are intended to provide watershed residents with information to protect, enhance and improve the precious resources that surround us. Updates to standards are being developed to better represent Northern Ontario's environment.

LRCA has prepared this report card as a summary on the state of our forests, surface water and ground water resources.



Lakehead Region Conservation Authority
Conserve Today...For A Better Tomorrow





Surface Water Quality

Surface water quality is based on water chemistry and the species that live within the aquatic ecosystem. Many factors can influence this including: climate and precipitation, soil type, geology, vegetation, groundwater and human impacts.

B



Forest Conditions

Forest cover is a good indicator of ecosystem health, supporting biodiversity and contributing to water quality. As a part of Northern Ontario, the Lakehead Watershed falls into the Boreal forest region of the province. Many species in the Boreal region require large un-fragmented areas of forest.

A



Groundwater Quality

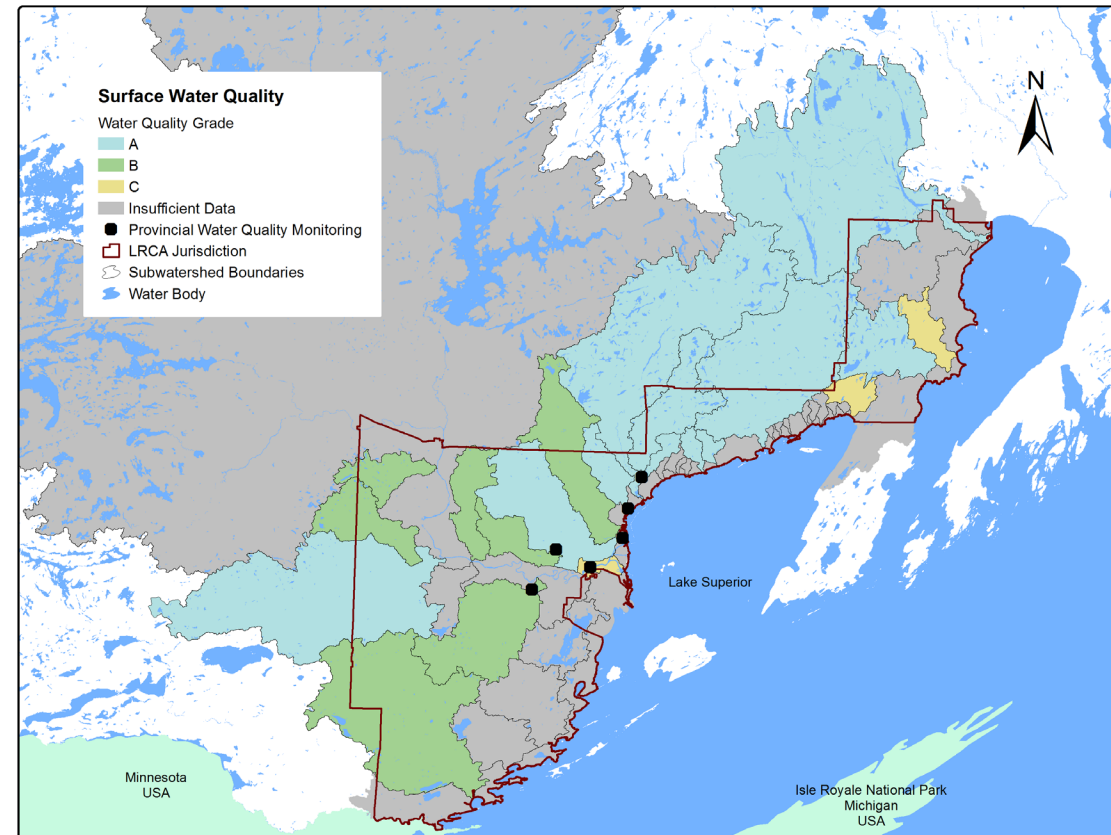
Groundwater is found below the earth's surface in soil and aquifers. The natural quality of groundwater is determined by the geology of the area. Human impacts such as road salting, agricultural practices and storm water runoff can alter the water quality. Groundwater can carry contaminants to nearby surface water, harming life in the ecosystem. It can also contaminate drinking water wells, causing unpleasant tastes and odours as well as illness.

A

Watershed Features

The Lakehead Region Conservation Authority (LRCA) administers programs within its area of jurisdiction, which is based on the municipal boundaries of its eight Member Municipalities. This includes an area of 2,718 square kilometres, including approximately 200 kilometres of Lake Superior shoreline, excluding islands. There are 36 subwatersheds within the boundaries of the LRCA area of jurisdiction. The scientific watershed, which is 11,526 square kilometres, is based on the flow of water contained within the portion of the watershed that would eventually pass through the LRCA jurisdiction and reach Lake Superior.

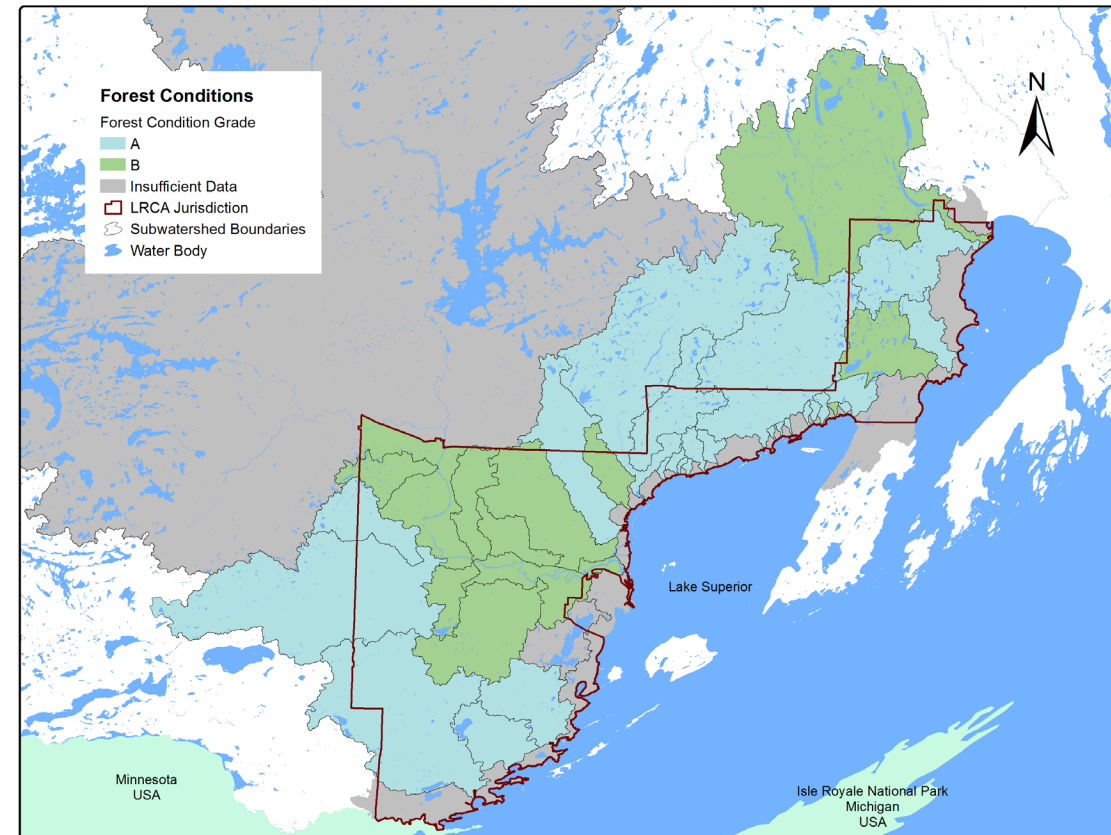
The Lakehead Watershed has many wetlands within its boundaries, including swamps, bogs, fens and marshes. There are 13 Provincially Significant Wetlands (PSW) within the Lakehead Watershed covering an area of 38.5 square kilometres. There are seven coastal PSW's located along the shoreline of Lake Superior. These wetlands aid in shoreline stabilization and water purification, provide habitat for many species in the area and places to enjoy recreational activities.



The surface water quality within the Lakehead Region, was graded based on phosphorus and *Escherichia coli* (*E. coli*) levels. Benthic invertebrate data was not used during this assessment due to a lack of available data. Phosphorus is a nonmetallic mineral that occurs naturally in surface waters, but can occur in excess from the addition of soaps, detergents, pesticides and fertilizers. High concentrations of phosphorus contribute to excessive algae growth and low oxygen levels, which can have negative impacts on other plants and animals. *E. coli* are bacteria found in human and animal waste, which can cause illness if ingested.

Data was obtained through surface water sampling in 19 subwatersheds. Six subwatersheds are sampled in partnership with the Ministry of Environment's Provincial Water Quality Monitoring Network (PWQMN) and is based on five years of sampling data. The remaining 13 subwatersheds were sampled during the completion of LRCA watershed assessments, conducted annually between 2003 to 2013. Data is based on one sampling year for each subwatershed, as only one is focused on each year.

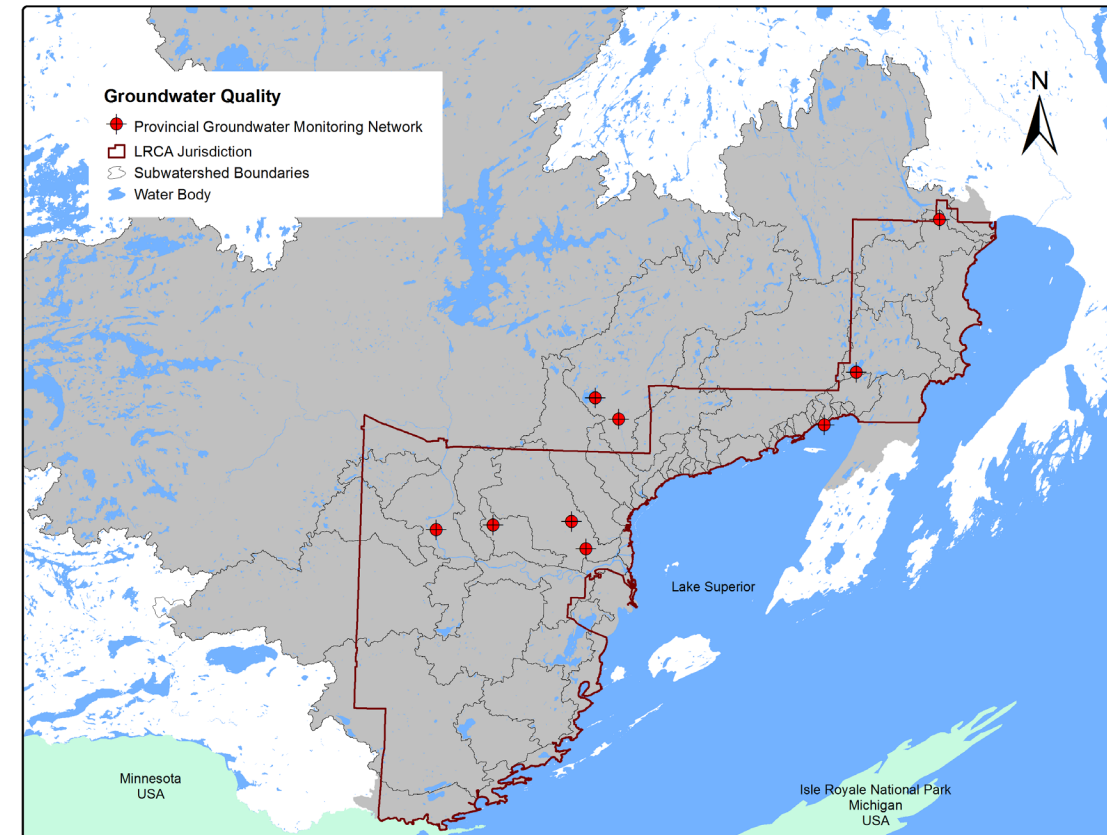
The Lakehead Region received an overall grade of B based on the subwatershed grades which ranged from A to C. This indicates that the surface water quality within the Lakehead Region is healthy. As a community, efforts should continue to be made to maintain and improve our water quality.



Forest habitat is evaluated by the amount of cover, interior habitat and riparian areas that are forested. Considerable forest cover is required to sustain a healthy level of biodiversity within a watershed. Forest interior is important, as it provides significant habitat for those species that require undisturbed, deep forest habitat, 100 metres or more, from the forest edge. The riparian zone is measured as all forested area 30 metres adjacent to open water. It helps to improve water quality by slowing flow, filtering and absorbing contaminants, providing habitat for wildlife and shade for aquatic species, as well as preventing streambank erosion.

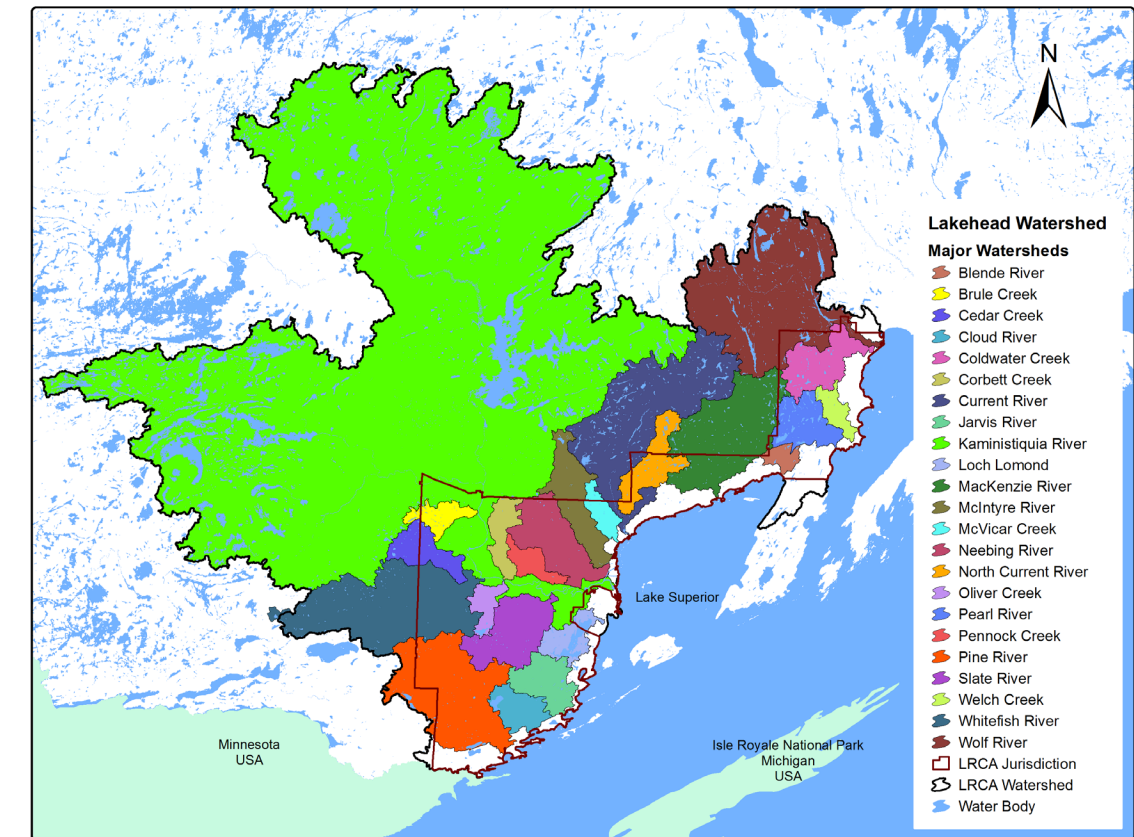
The LRCA GIS data used to assess forest conditions reveals that our watershed supports substantial forest cover, with 79% of the land being forested. Interior forest comprises 53% of the forest cover, providing the large unfragmented plots of forest required by moose, black bear and songbirds. Within the Lakehead Region Watershed, 56% of the riparian zone is forested assisting with erosion control and water quality.

A grade of A was given to Forest Conditions due to good overall forest cover, with only some fragmentation evident from the interior forest values, and approximately half of the riparian zone being forested. The subwatershed's individual scores ranged from A to B.



The groundwater quality is based on nitrate+nitrite and chloride levels; bacteriological quality was not considered due to an absence of data. Nitrate+nitrite are forms of nitrogen found naturally in the environment. Other sources of these compounds are fertilizers, septic systems and pesticides. High nitrate levels in drinking water can cause illness. Chloride is a naturally occurring element in groundwater. Elevated levels can occur due to the surrounding rock type or due to human impacts such as landfill leachate, road salt and water softeners. Chloride is generally not harmful to humans, unless on a sodium restricted diet, but the water can have a salty taste when levels are above the Aesthetic Objective of 250 mg/L.

The data used for this report card was collected in partnership with the Ministry of Environment, through the Provincial Groundwater Monitoring Network (PGMN) at nine wells located throughout the Lakehead Watershed. At this time the data is insufficient to identify trends in the state of the watershed's groundwater, as the data only represents the water within a small number of wells and therefore not representative of the entire watershed. Currently, a general statement can be made that the groundwater quality is excellent in the majority of the sampled monitoring wells, scoring As in all but one well, which scored a C, due to elevated nitrate+nitrite.



A Superior Lake

Lake Superior is the largest freshwater lake in the world by surface area and third largest by volume, holding 9% of the world's fresh water. It's watershed is 127,700 km² with over 200 rivers that drain into it. Lake Superior remains the cleanest of the five Great Lakes. It also has the least developed shoreline, with the Lakehead Watershed holding the largest population, on the Canadian shores of Lake Superior.

Doing our part in protecting our water and forests will help maintain a healthy Lake Superior.

