

Otonabee Conservation Watershed Report Card 2023



Otonabee Conservation has prepared this report card as a summary of the state of your forests, wetlands, and water resources.



WHO WE ARE & WHAT WE DO



Trent-Severn Waterway at Thompson Bay | City of Peterborough

About Us

Otonabee Conservation is a locally focused, community-based environmental agency that protects, restores, and manages natural resources within the Otonabee Region watershed.

The Otonabee Region watershed supports a population of nearly 120,000 people in both rural and urban areas.

Municipalities in the watershed include:

- City of Peterborough
- City of Kawartha Lakes
- Municipality of Trent Hills
- Township of Asphodel-Norwood
- Township of Cavan Monaghan
- Township of Douro-Dummer
- Township of Otonabee-South Monaghan
- Township of Selwyn

We work closely with our eight member municipalities to create a healthy, environmentally diverse watershed that improves the quality of life for residents, makes our area more appealing to visitors and new businesses, and helps to ensure a more vibrant regional economy.

Distinct Physiographic Regions

The Otonabee Region watershed is comprised of five distinct physiographic regions. At the southern boundary, the region starts at the Oak Ridges Moraine and Rice Lake. It then transitions from an area dominated by agriculture to the rocky, forested lands of the Canadian Shield at the northern boundary, interspersed with drumlins, watercourses, and wetlands.

Programs & Services

Otonabee Conservation delivers programs and services that support the sustainability of the environment, within the physical and economic context of the watershed and in consideration of the social, cultural, and economic aspirations of our residents. These programs and services aim to:

- Safeguard people and property from flooding and other natural hazards.
- Contribute to the maintenance of a healthy and resilient environment.
- Provide recreational opportunities in the natural environment.
- Build awareness and understanding of the value of the natural environment.

WHERE ARE WE?



Otonabee Conservation was established in 1959 and is a member of Conservation Ontario. There are 36 conservation authorities across the province that protect the environment on a watershed basis.

Land and water resources are interconnected, so managing these resources on a watershed basis is recognized as the best way to protect the environment.

What is a Watershed?

A watershed is an area of land drained by a creek or stream into a river, which then drains into a body of water such as a lake or pond. Everything in a watershed is connected. Our actions upstream can affect conditions downstream. Data from 12 subwatersheds with the Otonabee Region watershed was used to report on the indicators below.

Why Measure?

Measuring helps us better understand our watershed. We can target our work where it is needed and track progress. We measured:



Groundwater Quality



Surface Water Quality



Forest Conditions



Wetland Conditions

GRADING

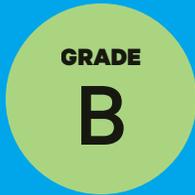
A Excellent
B Good
C Fair
D Poor
F Very Poor
Insufficient Data

What is a Watershed Report Card?

Ontario's Conservation Authorities report on watershed conditions every five years. The watershed report cards use Conservation Ontario guidelines and standards developed by Conservation Authorities and their partners.



Otonabee Conservation SURFACE WATER QUALITY



Surface water is found in our lakes, rivers, creeks, streams, and wetlands. It is a key component of our environment and contributes to human health, wildlife habitat, and the economy.

Two indicators were used to assess surface water quality: phosphorus and benthic macroinvertebrates (small aquatic organisms living in bottom sediments).

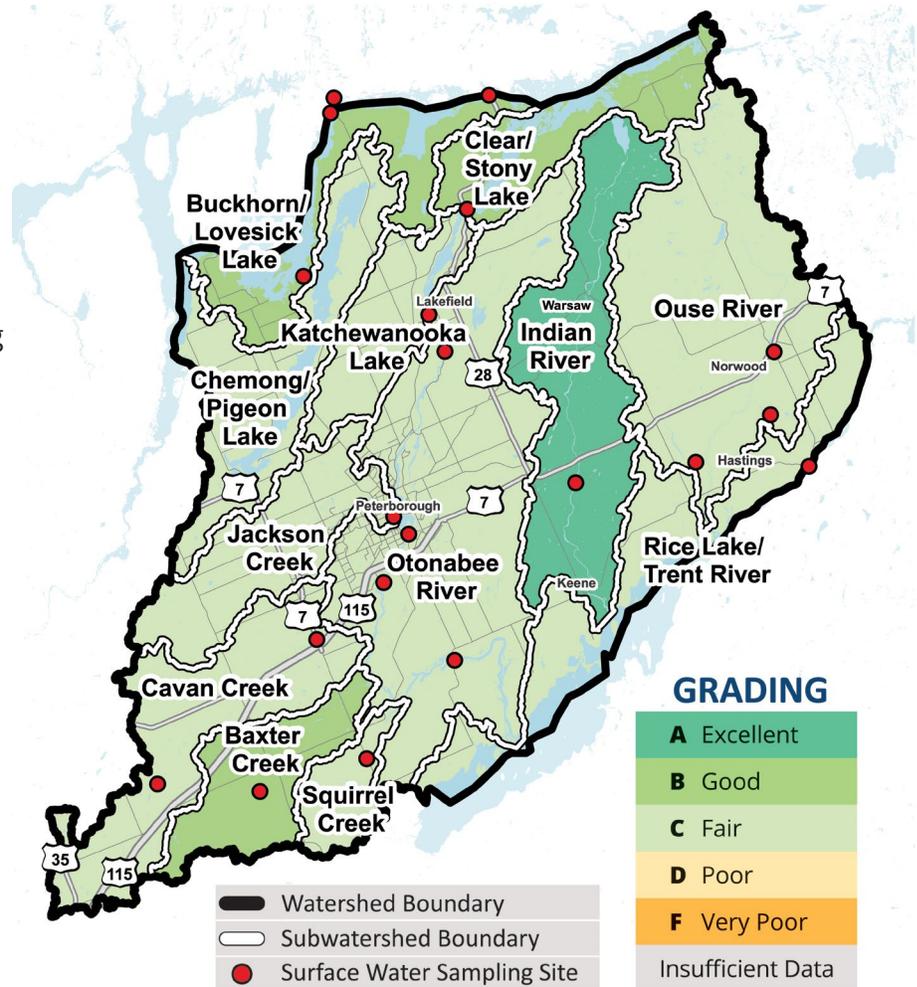
Phosphorus is a nutrient that occurs both naturally and from human activities. At high levels it can trigger algae blooms, choke waterways with plants, and deplete oxygen levels in water.

Benthic macroinvertebrates have different tolerances to water quality conditions, making them good indicators of long-term aquatic health.

Otonabee Conservation has been involved in monitoring surface water quality since 1964 and is an active partner in the Provincial Water Quality Monitoring Network (PWQMN) and the Ontario Benthos Biomonitoring Network (OBBN).

What Did We Find?

- Grades range from A to C indicating excellent to fair water quality.
- More developed subwatersheds received lower grades, indicating that urbanization may be impacting surface water quality.
- Changes in water quality were identified in four subwatersheds; grades in Buckhorn/Lovesick Lake and Indian River improved, while grades for Cavan Creek and Ouse River decreased from good to fair since the 2018 Report Card.
- An overall B grade indicates good water quality.





Otonabee Conservation FOREST CONDITIONS

GRADE
B

Forests provide many benefits including habitat, clean air and water, reduced flooding and erosion, and outdoor recreation opportunities. Forests also make watersheds more resilient to climate change impacts. Forest health can be negatively impacted by urbanization, agriculture, invasive species, and disease.

Three indicators were used to assess forest conditions: forest cover, forest interior, and forested riparian (shoreline) cover.

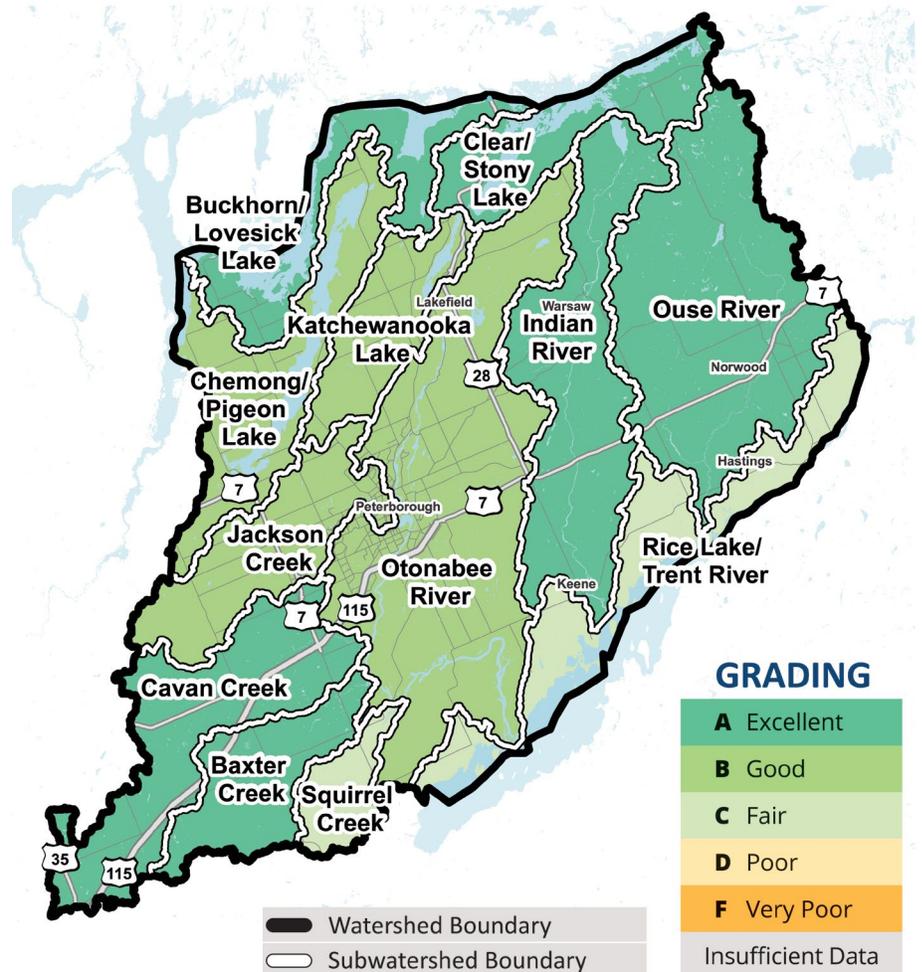
Environment Canada recommends a minimum of 30% forest cover to sustain the natural biodiversity and environmental services that forests provide.

Forest interior is the area located 100 metres or more from the forest edge, providing shelter for sensitive species - a minimum of 10% is recommended.

Forested riparian areas (shoreslines) keep the water cool, prevent erosion, and provide wildlife habitat. A vegetated buffer at least 30 metres wide is recommended along 75% of the length of a stream.

What Did We Find?

- Forest condition grades across the watershed range from A to C indicating excellent to fair conditions.
- The Otonabee Region watershed has 42% forest cover, 14% forest interior and 58% forested riparian cover.
- 50% of subwatersheds received an A grade for forest conditions.
- An overall B grade indicates good forest conditions.





Otonabee Conservation GROUNDWATER QUALITY

*** NOT
GRADED**

Groundwater is precipitation that has infiltrated the ground to fill spaces and cracks in soil, sand, gravel, and rock. It is found beneath the earth's surface within saturated layers of porous rock or sediment called aquifers, which are an important source of drinking water. Groundwater plays an important ecological role by replenishing wetlands, creeks, streams, rivers, and lakes.

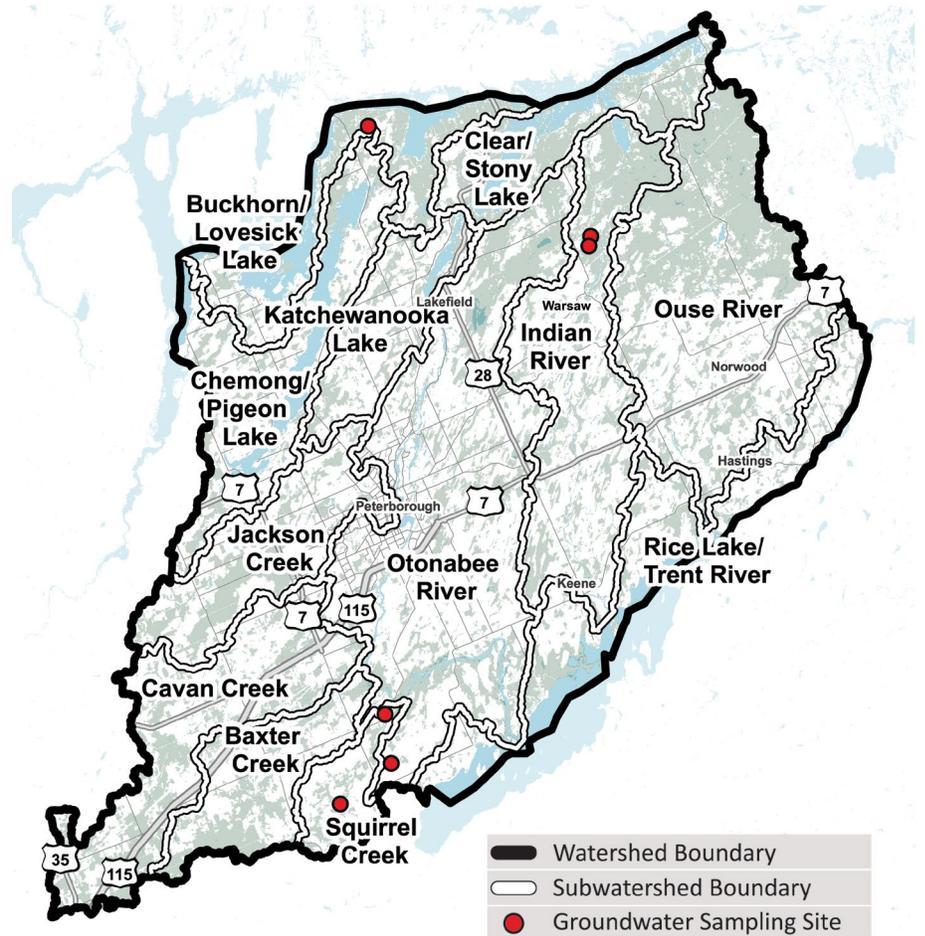
Groundwater quality is assessed by measuring concentrations of several indicators including nitrate, nitrite, and chloride, which can have an impact on human health. Otonabee Conservation collects samples at six Provincial Groundwater Monitoring Network (PGWMN) wells throughout the watershed.

Nitrogen occurs naturally in groundwater as nitrate and nitrite. Additional sources of nitrogen can include septic systems and fertilizer. The Ontario Drinking Water Quality Guideline for nitrate and nitrite (as nitrogen) is 10 mg/L.

Chloride can also be found in groundwater and elevated levels may be due to anthropogenic sources such as road salt or water softeners. The Canadian Drinking Water Quality Guideline for chloride is less than or equal to 250 mg/L.

What Did We Find?

- Levels of nitrate, nitrite, and chloride meet the Ontario Drinking Water Quality Standard and the Canadian Water Quality Standard from 2017-2021 at all six wells in the Otonabee Region Watershed.



**Not assigned a letter grade due to data limitations.*



Otonabee Conservation WETLAND COVER

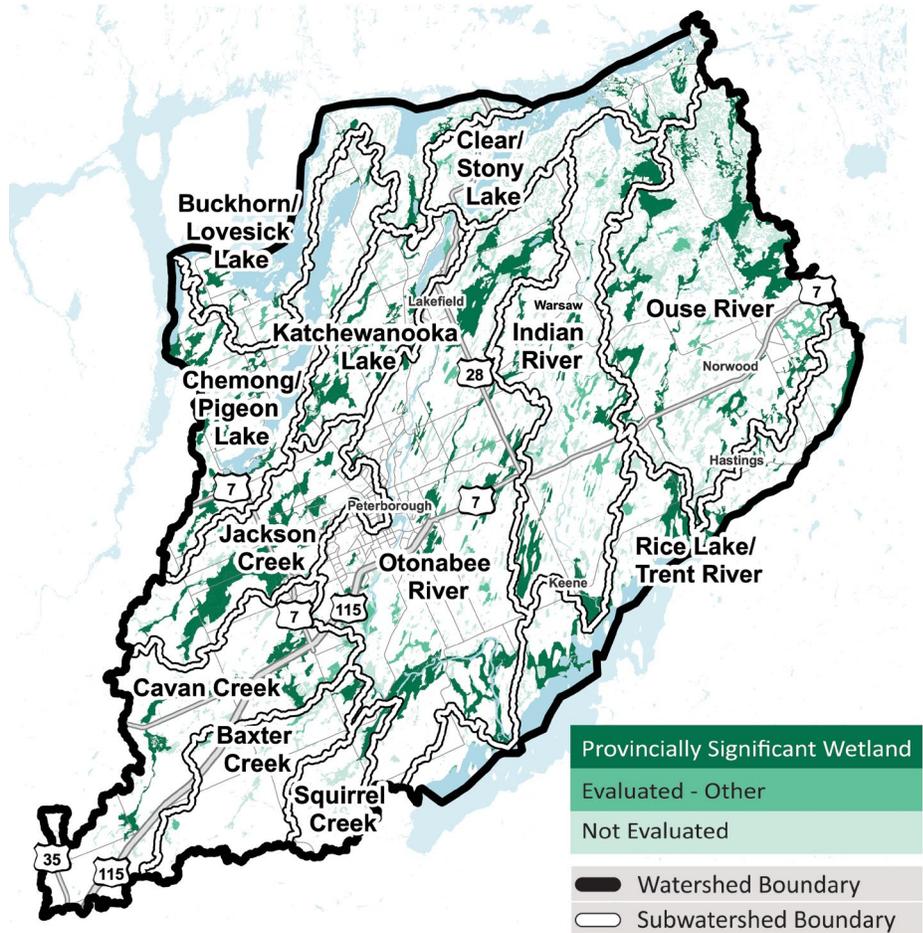
*** NOT
GRADED**

Wetlands are a critical component of a healthy watershed that is resilient to climate change. They contribute to a healthy watershed by providing habitat for birds, amphibians, and reptiles, including Species at Risk. Wetlands are nature's sponges, helping to reduce flooding by storing water and releasing it slowly during dry periods. Wetland plants also act as filters to improve water quality by removing contaminants from water.

Wetlands throughout the Otonabee Region watershed are determined using Provincial data and air photos. Wetlands are evaluated with criteria from the Ontario Wetland Evaluation System, which is a standardized, science-based ranking system used to determine their significance.

What Did We Find?

- The Otonabee Region Watershed has 11% Wetland Cover; Environment Canada recommends maintaining a minimum 10%.
- Otonabee Conservation owns over 2,500 hectares of wetland including 17 different Provincially Significant Wetlands.
- There are over 60 Provincially Significant Wetlands in our watershed, covering an area of over 17,000 hectares.
- There are nearly 40,000 hectares of wetland in the watershed, including those that are Evaluated, Not Evaluated, and Provincially Significant.



**Not assigned a letter grade due to data limitations.*

DID YOU KNOW?



Miller Creek Wildlife Area - Provincially Significant Wetland | Selwyn Township



Surface Water

- Subwatersheds across the Otonabee Region watershed, such as Cavan Creek, Baxter Creek, and Ouse River support cold-water habitat, making them less resilient to climate change and other disturbances.
- Winter maintenance products such as road salt contain chlorides and may negatively impact surface water quality. Public safety on roads and sidewalks during the winter is important and must be carefully balanced with the protection of our aquatic environments.



Groundwater

- The quality of your well water may vary from that of monitoring wells, so well water should be tested regularly.
- Approximately 35% of the residents in the Otonabee Region watershed are dependent on groundwater for drinking water.
- In the Otonabee Region watershed, groundwater feeds cold-water streams that provide habitat for trout and other cold-water species.



Forests

- Our watershed's forests are healthy, however urbanization, climate change and other factors such as invasive species can impact forest health.
- Continued effort is required to enhance and maintain healthy forests. To achieve this, Otonabee Conservation and partners planted over 100,000 trees in the watershed from 2017-2021.
- Forests grow slowly, but environmental benefits begin as soon as trees are planted. Changes in forest cover will be noticed in five years or more.



Wetlands

- There are different types of wetlands including bogs, marshes, swamps, and fens.
- Visit Imagine The Marsh or Miller Creek Wildlife Area to observe local wetland species in the Otonabee Region watershed.

HOW CAN WE ENHANCE THE WATERSHED?



Tree Planting | Township of Otonabee-South Monaghan

What Can You Do?

Taking action and working together makes a difference. Human health and environmental health are closely linked, so a healthy watershed benefits everyone. Here are some examples of things you can do to help enhance the watershed.

Drinking Water Source Protection

- Find out where your drinking water comes from and how to protect it.
- If you own a well, make sure it is in good condition with regular inspections.
- Be salt smart during winter months by only using necessary amounts.
- Ensure your septic system is properly maintained and inspected.

Land Stewardship

- Participate in a community clean up or tree planting event.
- Help stop the spread of invasive species.
- Plant native species of trees, shrubs, and wildflowers in your garden to enhance habitat and increase biodiversity.

Explore Your Watershed

- Become a citizen scientist and learn about local species and habitats.
- Get outside and visit a Conservation Area, park, or local natural area.
- Reduce your carbon footprint by supporting local businesses or using alternative transportation.

CLIMATE CHANGE & PUBLIC HEALTH



Meade Creek | City of Peterborough

Climate Change

Climate change introduces stressors on our watershed including drought, flooding, disease, invasive species, and more frequent extreme weather events.

The four indicators measured in this watershed report card are affected by climate change in some of the following ways:



Surface Water

Increased frequency and magnitude of storms causing flooding, erosion, damage to trees, buildings, and infrastructure like power lines, culverts, and roads.



Forest Conditions

Changes in average temperatures creating conditions for invasive species to thrive; increased carbon dioxide levels creating ideal conditions for nuisance species like poison ivy and ragweed to increase in size and abundance.



Groundwater

Increased periods of drought resulting in dry wells and low stream flow.



Wetlands

Changing water levels causing a risk of wetlands drying out or being flooded, impacting many species.

Public Health

Healthy ecosystems are essential for human health and provide many benefits.

Ecosystems such as forests, wetlands, lakes, and rivers contribute to protecting water quality, help to clean the air, cool the environment, and provide opportunities for recreation and contact with nature to enrich our lives.

It is widely known that we gain physical and mental health benefits from having access to natural areas and biodiversity. Otonabee Conservation's programs support resilient ecosystems and contribute to healthy forests, water, wetlands, and people.



*Do you have questions not answered by this summary document?
Please contact us for more information:*

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The Watershed Report Card is available online and in other formats upon request.