Hamilton Conservation Authority

Watershed Report Card 2023

Watershed Report Card

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

Hamilton Conservation Authority

A Healthy Watershed for Everyone

Member of Conservation Ontario

WHERE ARE WE?

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. Each of the streams or creeks within a watershed have their own sub-watersheds. Everything in a watershed is connected. Our actions upstream can affect conditions downstream.

Why Measure?

Measuring helps us better understand our watershed. We can target 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.

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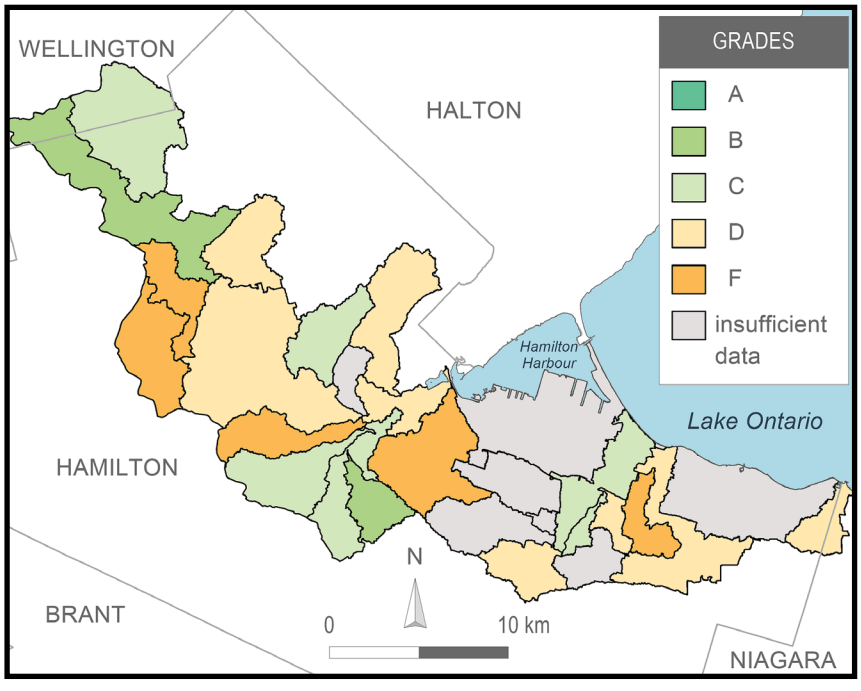
SURFACE WATER QUALITY

Monitoring stream-water quality can help us understand the impacts of land-use activities on water quality, enabling us to make informed decisions about managing and protecting our water resources. We measured three indicators that reflect key issues related to surface water quality across the province: nutrients (total phosphorous), bacteria/waste (E. coli), and aquatic health (benthic macroinvertebrates).

Twenty-one subwatersheds within the greater Hamilton watershed had sufficient water quality indicator data in order to be included in this Watershed Report Card. This is a increase over the 2018 Watershed Report Card and is a result of increased monitoring efforts over the last several years.

What Did We Find?

- Subwatersheds with higher grading tend to be in areas with more natural cover, including higher amounts of forest cover.
- Subwatersheds with lower grades tend to be in more urban or suburban areas due to reduced natural vegetation and a high level of impervious or paved surfaces.
- Grades for subwatersheds are as follows: two grade 'B', six grade 'C', eight grade 'D' and five grade 'F'.
- Five subwatersheds increased their grade from 2018, ten experienced a decrease and two remained the same.
- In some instances, the reported change in water quality could relate to the expansion of water quality and benthic monitoring programs to encompass more data than was contained within the 2018 Watershed Report Card, as well as improvements made to stormwater infrastructure and Low Impact Development initiatives.



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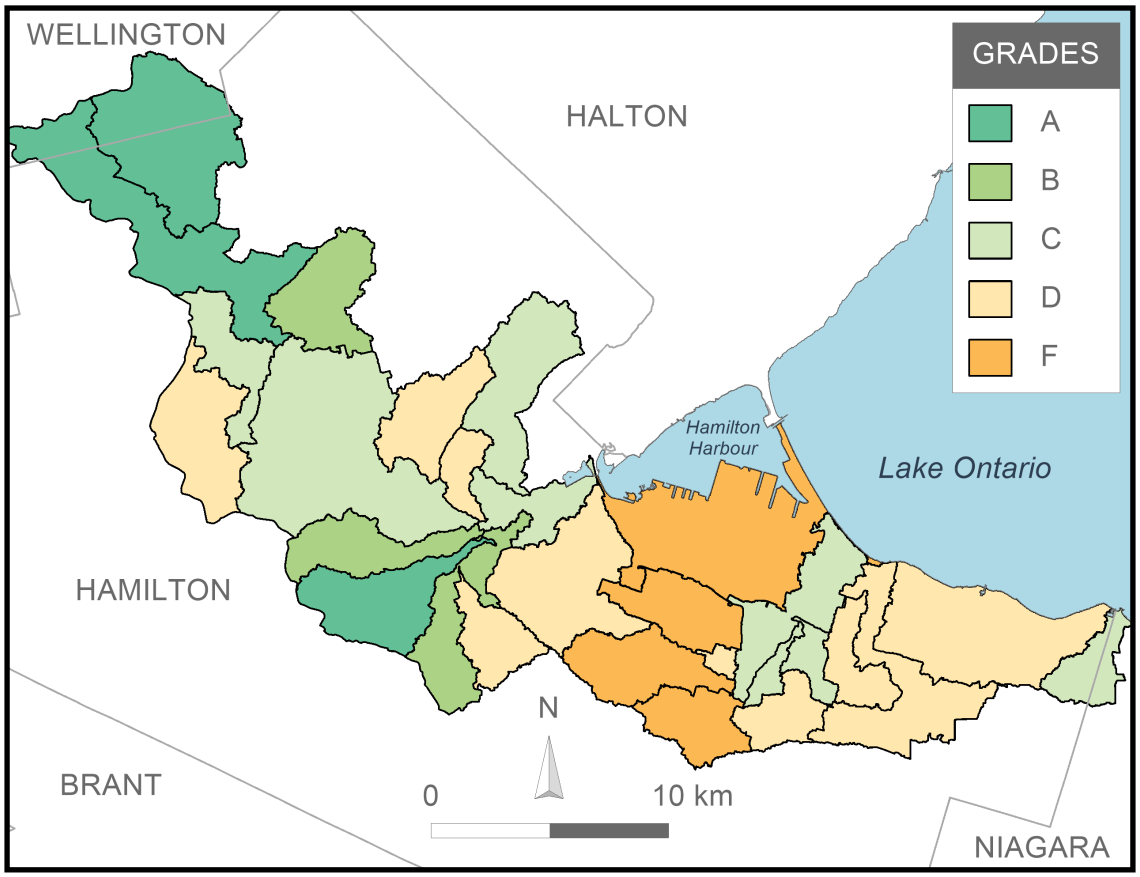
FOREST CONDITIONS

Forests help to clean our air and water, provide habitat and shade, improve water infiltration, and help to reduce both erosion and flooding. Percentages of forest cover, forest interior (100m from the forest edge), and streamside cover were measured based on an analysis of aerial photographs using Geographic Information Systems (GIS) and combined to provide a grade for twenty-eight subwatersheds. Windbreaks, street trees, shrublands, thickets, early successional woodlands and young plantations do not count as forest cover in this report card.

What Did We Find?

- Large tracts of forest cover can be found in the areas of Dundas Valley, upper Flamborough and Puslinch.
- Subwatersheds with lower grades tend to be in urban, urbanizing and agricultural subwatersheds.
- Grades for subwatersheds are as follows: three grade 'A', three grade 'B', eight grade 'C', ten grade 'D' and four grade 'F'.



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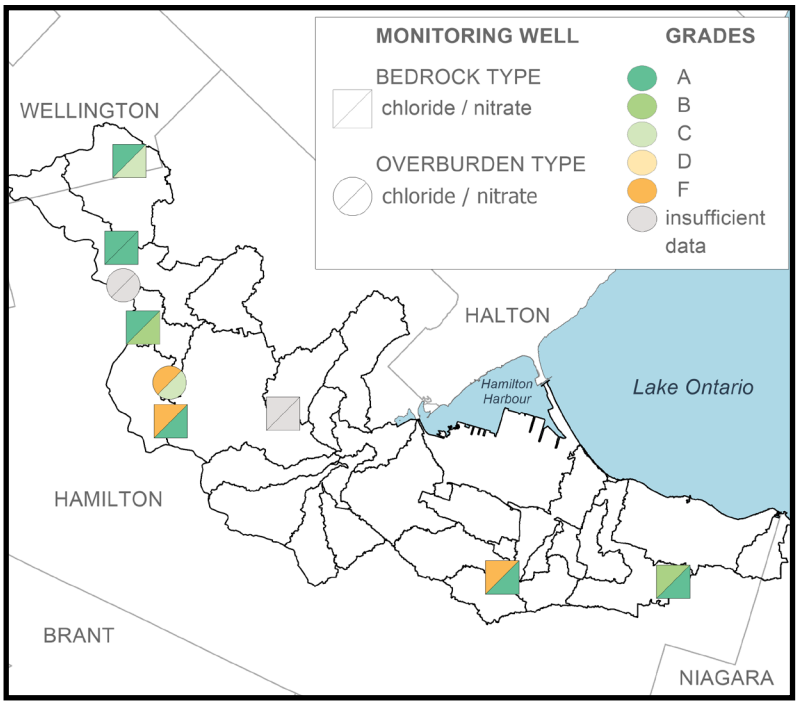
GROUNDWATER QUALITY

Groundwater chemistry data is measured in order to protect groundwater sources. Concentrations of nitrate + nitrite as well as chloride were measured at seven Ontario Ministry of the Environment, Conservation and Parks groundwater monitoring wells.

An important factor in assessing the results of a wells water quality is its depth. The Hamilton Conservation Authority differentiates its wells into two different categories; overburden and bedrock. Shallow overburden wells are generally underlain by bedrock, whereas bedrock wells are drilled deep below the ground into the underlying bedrock. Of the seven wells assessed in this Watershed Report Card, six are below bedrock and one is within the overburden. These wells are used for monitoring purposes only.

What Did We Find?

- No change from 2018 grades.
- For nitrate + nitrite concentrations: four wells grade 'A', one well grade 'B' and two wells grade 'C'.
- For chloride concentrations: three wells grade 'A', one well grade 'B' and three wells grade 'F'.
- The overburden well near the former Beverley School received the lowest overall grade.
- The well with the best overall grade was in the heavily vegetated area of Beverley Swamp.
- Chloride concentrations at some monitoring wells approached or exceeded the drinking water standard or guideline.
- Although road salt is a commonly known source for chloride in groundwater, other sources are weathering of soils and salt-bearing geological formations.



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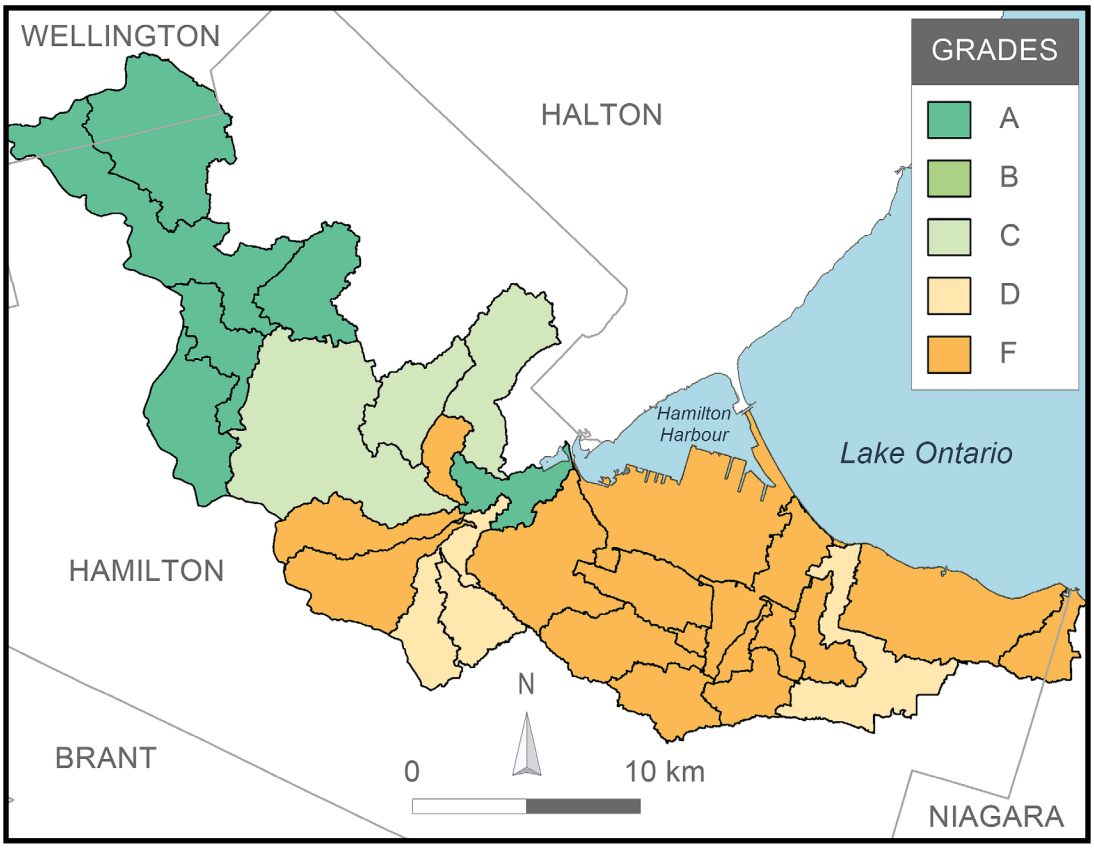
WETLAND COVER

There are many benefits to wetlands including groundwater recharge and discharge. They filter water and store floodwaters during rain events. Wetlands are also areas of high biodiversity and productivity, providing habitat and food to many plant and animal species. Percentages of wetland cover was measured based on an analysis of aerial photographs using Geographic Information Systems (GIS) to provide a grade for twenty-eight subwatersheds.

What Did We Find?

- There are large wetland systems in the western portion of HCA's Watershed, such as some subwatersheds of Spencer Creek and Fletcher Creek.
- Subwatersheds with lower grades tend to be in urban, urbanizing and agricultural subwatersheds.
- Grades for subwatersheds are as follows: six grade 'A', zero grade 'B', three grade 'C', three grade 'D' and sixteen grade 'F'.



WHAT IS OUR WATERSHED'S KEY ISSUE?

Changing Climate

- In the Hamilton area, records show that our climate has changed over the last 40 years.
- Scientists attribute increasing temperatures to the burning of fossil fuels, such as gasoline from cars.
- The warmer atmosphere causes shifts in normal climate patterns and these changes can result in more severe weather and larger storms.
- With changing climate conditions there is potential for increased flooding along area watercourses and the Lake Ontario Shoreline.
- Climate change is impacting our local ecosystems and the wildlife within them. Extended drought, heat waves and milder winters with minimal snowfall and below freezing temperatures can result in the introduction of disease and invasive species.

Urban Land Uses and Stormwater Runoff

- Water from rain or snow (known as stormwater) runs off hard surfaces, like buildings and pavement, into nearby sewers or streams.
- Stormwater runoff causes streams to become "flashy", where stream flow quickly rises and falls because of urbanization.
- The high stream flows associated with stormwater result in streambank erosion.
- Stormwater is associated with poor water quality because it carries sediments and contaminants, such as road salt directly into streams.
- Flooding can occur as a result of overburdened municipal infrastructure.

Invasive Species

- Invasive species are terrestrial or aquatic plants, animals, diseases or pests that threaten, harm or out-compete native species when introduced outside of their natural environment. Invasive species threaten Canada's ecosystems, economy and society.
- Invasive species can come from across the country or across the globe.
- Invasive species have been increasing and are recognized as one of the greatest threats to biodiversity.

HOW CAN WE ENHANCE THE WATERSHED?

What can you do?

Support the need for:

- More natural areas like forests, wetlands, meadows, hedgerows, living fencerows, urban trees and parks to help provide recreation opportunities and improved mental health benefits for people, and to reduce stormwater runoff, flooding and erosion.
- Local environmental monitoring programs and ecological restoration initiatives on public and private lands.
- Inclusion of ecological linkages and stormwater low impact development in new and existing developments.
- Protection of existing natural areas like woodlots, thickets, shrublands, fields, valleys, streams, floodplains.

Reduce:

- Stormwater runoff on your property by redirecting stormwater to permeable surfaces such as lawns and gardens.
- Nutrients entering streams by adopting agricultural best management practices.
- The amount of waste your household creates by purchasing products with limited packaging, re-using, composting and recycling.

Take action by:

- Contacting the Hamilton Conservation Authority and the municipality to learn about services and programs for private property owners to help you manage your property in an ecologically conscious way.
- Never dumping anything down a storm drain.
- Properly disposing of harmful pollutants – check with the municipality for more information.
- Using alternatives to road salt and pesticides.
- Learning to identify and control invasive species on your property.
- Planting locally native trees, shrubs, and flowers in your property.
- Donating to the Hamilton Conservation Foundation.
- Getting involved and attending community meetings, joining groups and staying informed.
- Making your voice count and advocating for the environment.

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Do you have questions not answered by this document?
*Visit **conservationhamilton.ca** or contact us for more information:*

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