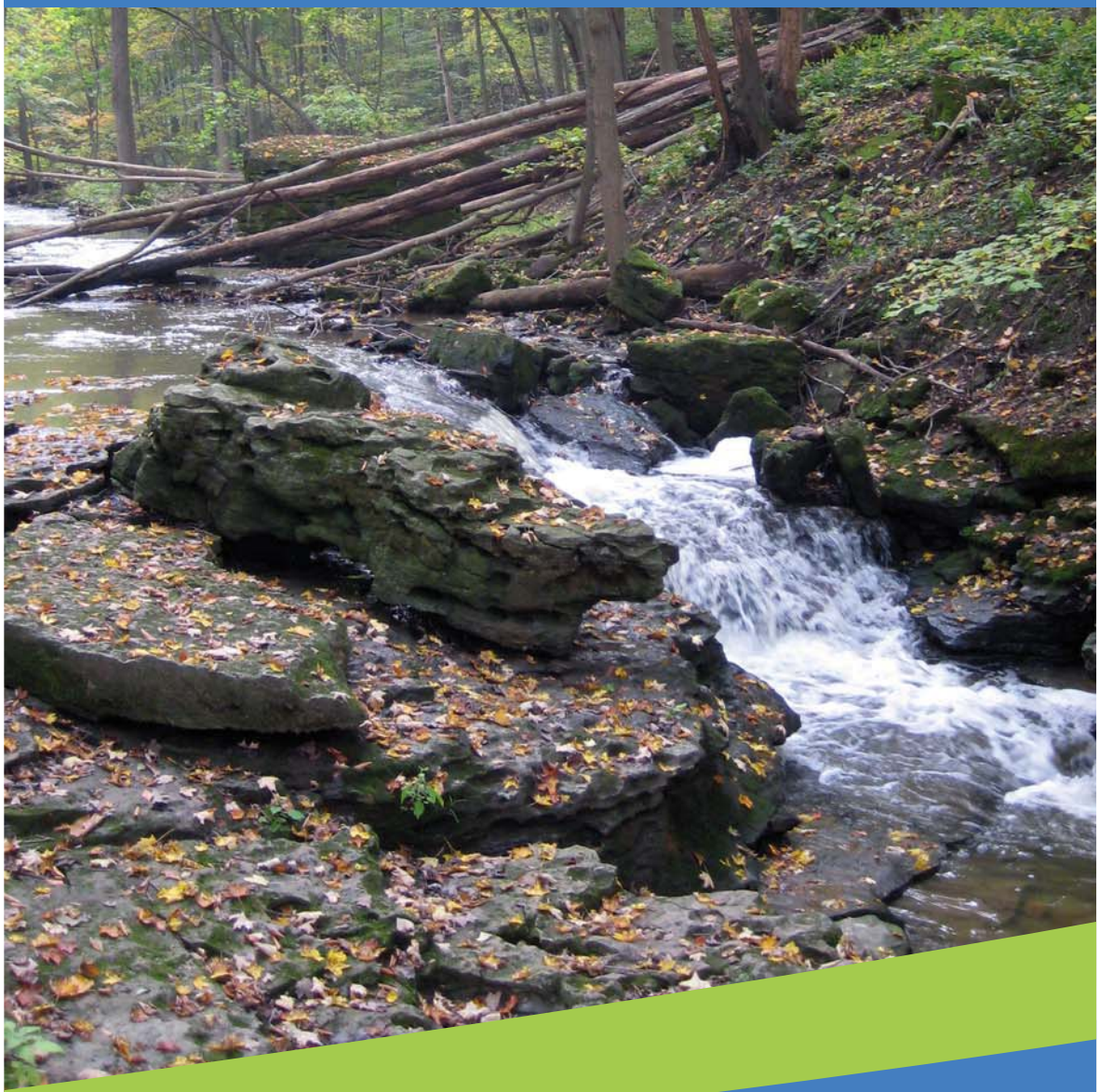
NIAGARA PENINSULA CONSERVATION AUTHORITY

WATERSHED Report Card 2012



The Niagara Peninsula Conservation Authority has prepared this report card as a summary on the state of our forests, surface water, and ground water resources.

Where Are We?

We are one of 36 Conservation Authorities across Ontario under the umbrella organization of Conservation 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

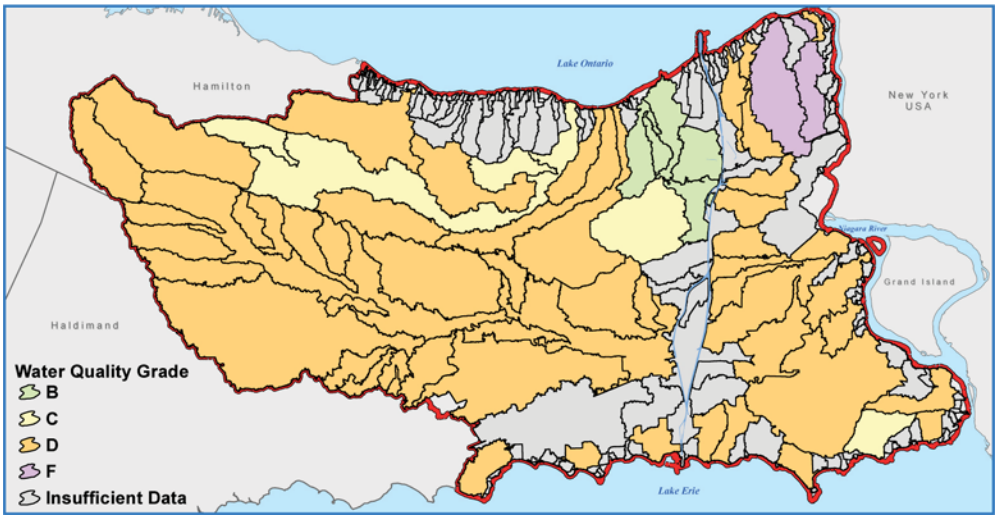
The standards used in this report card were developed by Conservation Authorities to ensure consistent reportings across the Province of Ontario and are intended to provide watershed residents with information to protect, enhance and improve the precious resources that surround us.

Surface Water Quality

D

Surface water quality is graded using three indicators:

- Phosphorus (contributions from excessive fertilizer use and effluent discharge)
- Escherichia coli bacteria (found in the intestines of humans and other animals)
- Benthic macroinvertebrates (small animals without a backbone that live at the bottom of streams)



Findings

The majority of the watershed report cards scored D or poor water quality due to high phosphorus concentrations and low benthic indicator scores. Of the 44 individual report cards, 1 scored a B, 3 scored a C grade, 38 scored a D grade and 2 scored an F. The highest surface water quality report card score was found in the Lower Twelve Mile Creek watershed owing to the large volume of Lake Erie water transported by the Welland Canal and Lake Gibson system. The lowest water quality grade scores were found in the Niagara-on-the-Lake watershed and these included Two Mile Creek and Four Mile Creek. More detailed information is available at http://www.npca.ca/watershed-management/watershed-report-cards/ where you can read or download the report cards.

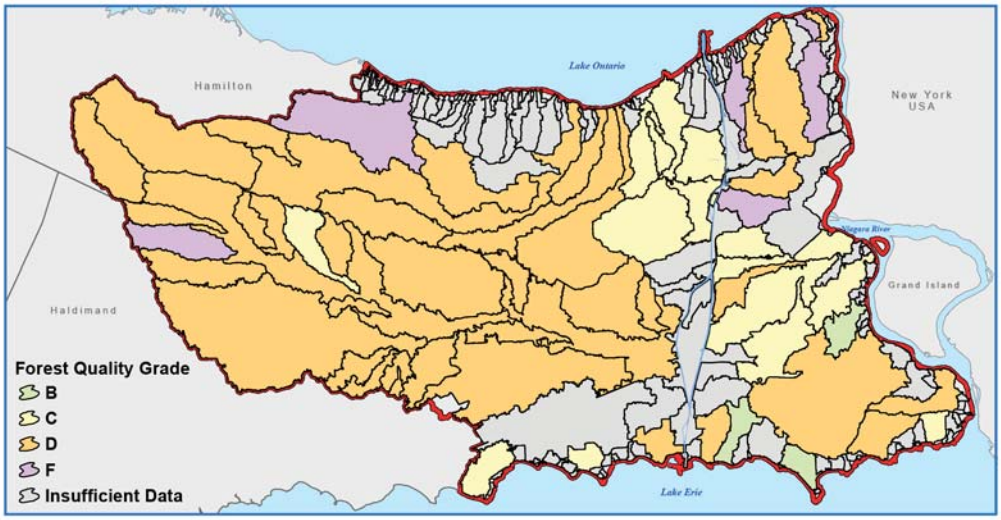
Nutrient and bacteria contamination as well as other water quality stressors from non-point sources (agricultural/livestock runoff, faulty septic systems) and point sources (combined sewer overflow, urban stormwater) continue to be the major causes of impairment in the NPCA watershed.

Forest Conditions

D

Forest Conditions is graded using three indicators:

- % forest cover (proportion of watershed that is forested)
- % forest interior (forest area excluding 100 m outer perimeter)
- % forested riparian zone (30 m zone next to watercourses)



Findings

The majority of the watershed report cards scored D or poor forest conditions due to the lack of forest interior found throughout the watershed. Of the 44 individual report cards, 3 scored a B, 10 scored a C grade, 25 score a D grade and 6 scored an F. The highest forest condition scores were found in the Lake Erie North Shore (Beaver Dams Drain and Point Abino Drain), and South Niagara Falls (Bayer Creek). The lowest report card score for forest conditions were found in the Niagara-on-the-Lake watershed (Two Mile Creek and Eight Mile Creek), Upper Welland River watershed (Buckhorn Creek & Welland River Binbrook), Twelve Mile Creek (Beaver Dams Creek) and Lake Ontario South Shore (Forty Mile Creek).

Forest conditions are stressed because the NPCA watershed is located in a highly developed part of south-western Ontario where only 18% forest cover remains. Most of the woodlands in Niagara are small, narrow and do not contain interior forest habitat. Woodlands need to be over 200m in length and width (4 ha in area, assuming a square shape) to contain forest interior and this is lacking in NPCA watersheds.

You can read the complete watershed report cards at : http://www.npca.ca/watershed-management/watershed-report-cards/

Groundwater Quality

The NPCA monitors groundwater quality and water levels in locally significant hydrogeologic areas as part of the Ministry of Environment (MOE) Provincial Groundwater Monitoring Network (PGMN).

Summary

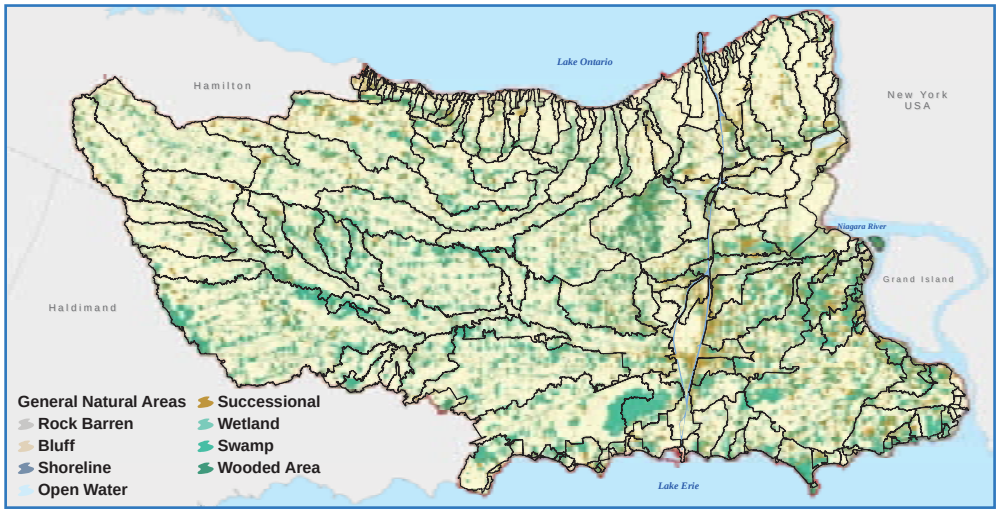
Although most of the NPCA watershed is serviced by drinking water from the Region of Niagara, there are areas in the watershed where residences obtain their drinking water through private wells. Private well owners are expected to make sure the well is up to standards and to have the water tested regularly.

The water quality at most Provincial Groundwater Monitoring Network (PGMN) wells is good but some wells did exceed Ontario Drinking Water Standards. Most PGMN well exceedances were attributed to natural bedrock conditions, while exceedances for nitrate at two PGMN wells were attributed to adjacent landuse sources. Nitrate exceedances were studied by the NPCA,Niagara Public Health and MOE and these exceedances were localized to the PGMN wells only.

Groundwater levels at most PGMN wells vary seasonally with their highest water levels being observed during the late-winter and spring but drop during the dry summer months.

Watershed Features

Established in 1959, the Niagara Peninsula Conservation Authority (NPCA) serves approximately 500000 people and covers an area of 2424 square kilometers, encompassing the entire Niagara Region, 21% of the City of Hamilton and 25% of Haldimand County. The driving force behind the Conservation Authority movement was its grassroots land stewardship focus and its involvement with water programs.



The NPCA watershed currently has 30% of its landbase in some form of natural cover

- 9% of the landbase is in upland forest cover
- 10% of the landbase is in forested wetland cover (swamp)
- 2% of the landbase is in other types of wetland cover (marsh, bog, fen)
- 7% of the landbase is in successional cover (thicket, meadow)
- 2% of the landbase is in unique vegetation community types of cover (rock barren, alvar, cliff)
- Based on recent analysis of natural heritage data, the watershed meets 56% of ecological sustainability targets set on the best available science
- Over 2200 species of plants and animals live in Niagara. Unfortunately, nearly 10% of these species are considered to be rare or at risk due to habitat loss, urban sprawl, invasive species competition, pollution, and climate change
- Over 93% of the land in Niagara is privately owned. Protecting and preserving wildlife and their habitats is everyone's responsibility

What Are We Doing?

Land Management

- The NPCA's Land Management Department is entrusted with the management and operation of 37 properties acquired by the Authority since 1961. These properties total more than 7200 acres (2920 hectares) and are protected and maintained for both their natural heritage features and for recreational value including camping and public access to various watercourses.

Water Management

- Monitors stream flow (including dam operations), rainfall and other meteorological information at locations across the watershed for the purposes of flood forecasting.
- Collect water samples at 70 surface water stations throughout the watershed.
- Monitor groundwater resources as part of the Provincial Groundwater Monitoring Network.
- Develop action plans to deal with water quality monitoring results.
- Provide a comprehensive stewardship program through the implementation of a cost-sharing projects, offering landowners financial incentives to implement water quality and habitat improvement projects on their properties.
- Between 2007-2011, over 300 stewardship projects were completed.
- Provide landowners with funding grants to decommission their unused water wells.
- Provide member municipalities with environmental input into planning and development proposals.
- Review and provide advice on stormwater management proposals.
- Provide policies to protect drinking water sources

Outreach and Education

- The Ball's Falls Centre for Conservation hosts many special events, including workshops, exhibits and school programs.
- The Ball's Falls Thanksgiving Festival has run annually for 38 years, drawing over 20 000 visitors each year.
- The Hawkwatch Open House at Beamer Memorial Conservation Area attracts more than 600 visitors for learning activities and the chance to view hawks, eagles and other raptors.
- The Children's Water Festival engages more than 90 schools and 5000 students annually from across Niagara, focusing on water conservation, water protection and water related technology.
- Annual fishing events are held at Binbrook and St. John's Conservation Areas.
- Anglers can also participate in data gathering on the local fishery through the angler's diary program.
- School and service groups participate in Yellow Fish Road, Envirothon, Canopies for Kids, and other planting events.
- Volunteer conservation efforts are recognized annually at the NPCA's Conservation Achievement Awards Ceremony.

What You Can Do

Conserve Water

Conserve water by using low flow showers and toilets, high efficiency clothes washers and dishwashers and rain barrels to collect water for use around your yard. Water can also be conserved by landscaping with native plants and by changing behavior, such as shortening watering times and not running the faucet while brushing teeth.

Protect Water Quality

Runoff, flooding and erosion are natural processes that contribute to degradation of water quality and are exacerbated by human activities. Impacts can be lessened by avoiding building in the floodplain, or other regulated areas, maintaining buffers and avoid straightening, altering or hardening a natural watercourse.

Increase Species and Habitat Diversity

Species and habitats for those species are under constant threat by human activities. Impacts can be lessened by decreasing the amount of manicured lawns and gardens which provide few habitat improvement opportunities. Protect wetlands that act as natural water filters. Plant trees as the average tree cleans 150 kilograms of carbon dioxide annually. Remove invasive species and do not plant them. Create wildlife habitat, especially where there are few natural habitat areas left.

NIAGARA PENINSULA CONSERVATION AUTHORITY

Niagara Peninsula Conservation Authority
250 Thorold Rd. West; 3rd Floor
Welland, Ontario L3c 3W2
P: 905.788.3135 **F:** 905.788.1121
E: info@npca.ca
www.npca.ca