

Shoreline Sub-basin WATERSHED Report Card 2013

This report describes the conditions of the rivers, forests, wetlands and groundwater in the Shoreline Sub-basin watershed. It is one component of the Maitland Valley Conservation Authority's (MVCA) overall watershed report card that assesses the same indicators. The Shoreline Maitland River is one of seven major sub-basins that comprise the Maitland watershed.



Watershed Description

The Shoreline sub-basin is 450.5 square km in size. It is made up of four regions:

- Eighteen Mile River watershed (109.4 km in area)
- North Shore (152.4 km in area)
- Mid-Shore (117.4 km in area)
- South Shore (71.2 km in area)

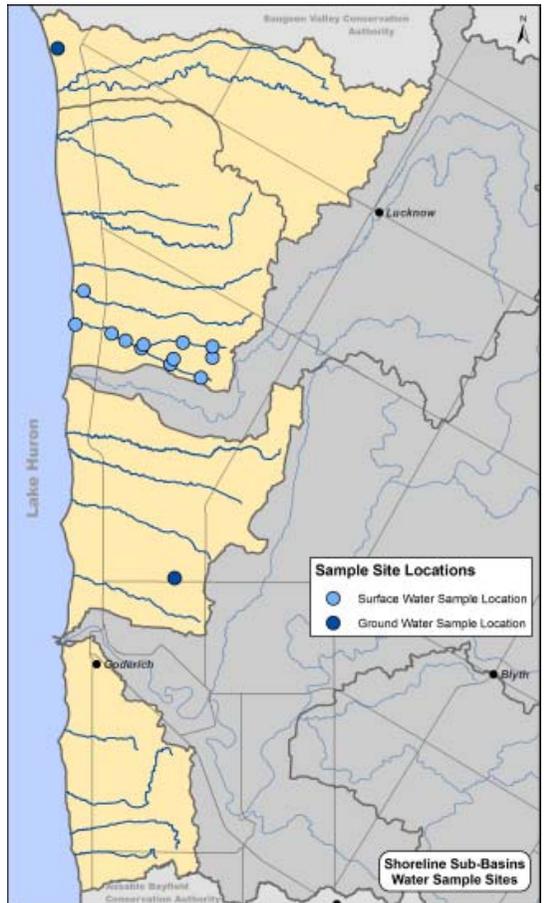
The headwaters of the Eighteen Mile River are in Bruce County, west of Lucknow. The river outlets into Lake Huron south of Amberley. Amberley Beach is a dune area. Great Lakes dunes are amongst the most vulnerable ecosystems in Canada. Dune areas are dynamic beach environments where wind and waves can shift sands to the extent that developing too close to the active dunes can present a hazard.

Actively eroding clay bluffs make up much of the Lake Huron shoreline within the jurisdiction of the MVCA. Bluff erosion is affected by geology, waves and weather. All three factors vary widely in the MVCA Shoreline sub-basin, so bluff erosion can range from zero to more than half a metre per year.

There are over 100 small streams that empty into Lake Huron in the Shoreline sub-basin. Research and water sampling efforts suggest that these streams have a significant impact on near-shore water quality. These streams often create actively eroding gullies at the point where they empty into the lake. Gullies aren't affected by wave action but they do erode due to surface water runoff and groundwater seepage from the slopes. Whether a gully is actively eroding or relatively stable, conditions can change quickly, especially if vegetation is removed from the slopes or surface drainage is altered. Local climate changes, including an increase in isolated intense rainstorms, is also increasing the potential for gully erosion. This may place infrastructure such as building, roads, culverts and bridges at risk.

The Shoreline sub-basin has been extensively cleared resulting in very low forest cover, particularly in the North Shore area.

A band of intensive cottage development is found along the lakeshore, west of Highway 21, while agriculture is the main land use for the remainder of the sub-basin.



Water Quality Results

Surface Water Indicators	Shoreline 2007-2011 Results	Shoreline Grade 2007-2011	Overall MVCA Grade 2007-2011
Phosphorus	0.0386 mg/L	C	B
Benthics	6.45	D	B
E.coli	202,499 cfu/100ml	C	C

Groundwater Indicators	Middle Maitland 2007-2011 Grades	Overall MVCA Grade 2007-2011
Nitrate + Nitrite	A	A
Chlorid	A	A

Forest and Wetland Results



Forest Condition Indicators	Shoreline 2007-2011 Results	Shoreline Grades 2007-2011	Overall MVCA Grades 2007-2011
Forest Cover	12.47 %	D	C
Forest Interior	2.12 %	F	D
Riparian Cover	34.78 %	C	C

Wetland Indicator	Shoreline Grade 2007-2011	Overall MVCA Grade 2007-2011
% of area identified as wetland	D	C

Sub-basins are Unique

There are several sub-basin characteristics that have an impact on the health of a given area. These include:

- Geology and landform - permeability of the soil, slope, geology below soil, elevation
- Drainage modifications
- Land use/land management - activities occurring on the land
- Sensitive areas - areas with highly erodible soils, steep slopes, high water tables are more likely to contribute sediments and nutrients to watercourses

There are significant differences between the sub-basins that make up the Maitland watershed. The unique nature of each sub-basin means that comparing report card results is not particularly useful. Instead the focus of the MVCA's report card process is on monitoring trends over time to determine if conditions within the sub-basin are improving

Improving Watershed Health

The health of the Shoreline watershed will be improved by:

- Creating more natural infrastructure including forested areas, buffer strips, windbreaks and wetlands to protect the land from extremes of heat, wind and runoff.
- Understanding that bluffs and gullies are naturally eroding and ensure that vegetation is maintained. Trees help stabilize bluffs and gullies, offer habitat to wildlife and keep soils from becoming over-saturated with water. Trees are your erosion defence.
- Avoiding trampling or removing dune vegetation. Without protective plants, the dunes will be open to wind erosion.
- Keeping development in appropriate areas. The shoreline is a regulated area. Call the MVCA before undertaking any building project.
- Planting trees. The scores for forest cover and forest interior are very poor. Expansion of woodlots will help improve these scores as well as providing much needed wildlife habitat.
- Ensuring proper storage and applications of manure, fertilizers and pesticides. Increasing residue cover and organic matter on fields.
- Incorporating rural stormwater management into farm planning to keep topsoil and nutrients on the land and protect water quality.

Notes on Report Card Scores

Due to financial and staffing constraints comprehensive sampling is not done for every indicator in every sub-basin. In some cases only base information is collected. As a result the indicators and grades generalize watershed conditions. Local conditions may be worse or better than the grades suggest. There are some regional concerns that are not factored into the report card including:

- High nitrate and nitrite levels in surface water
- Algal fouling of beaches
- Poorly managed forests
- Soil erosion

The report card information gives us a glimpse of current watershed conditions. The real value of the report cards will come in the future as we look for trends in indicator scores. This information will help the MVCA to target services in priority areas and be more proactive in addressing emerging trends. The next edition of the report card will cover the period from 2012 to 2016 and it will be released in 2017.

More information on the report card sampling and data analysis is available on the MVCA website



1093 Marietta Street
 Box 127, Wroxeter, ON N0G 2X0
 [T] 519-335-3557 [W] www.mvca.on.ca
 [E] maitland@mvca.on.ca

