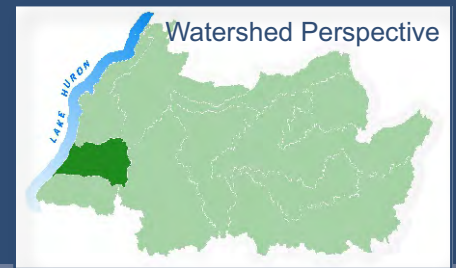




WATERSHED REPORT CARD



Penetangore River Watershed



The Penetangore River consists of two major tributaries, the North and Main Penetangore Rivers, as well as two intermediate tributaries; Millarton and Kincardine Creeks. The system drains 192 square kms, falling 12.5 metres in 51.2 kms, with an average gradient of 2.2 metres per km.

The topography of this watershed is generally smooth with gentle sloping areas. It is predominantly agricultural (83%). The Town of Kincardine and the communities of Bervie and Millarton also exist here.



Working to Keep Your Future Green

Staff work with partners and organizations in implementing projects that aim to improve the local environment. Research, lab and field work, data analysis, observations,

testing, and so much more, is completed by staff in helping to determine the best and most applicable environmental measures to apply in each sub-watershed.

**Watersheds are complex systems
where everything is connected.
We all live downstream.**



Saugeen Conservation is a proud member of Conservation Ontario



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Alternative formats of this report are available upon request.

General Information

Area

192 sq. km

Municipalities

Municipality of Kincardine, Township of Huron-Kinloss, Municipality of Brockton

Physiography

43% till plain (undrumlinized), 27% till plain (bevelled), 15% sand plain, 9% till moraine, 5% beaches and shorecliffs

Soils

61% clay loam, 18% fine to moderately coarse sandy loam, 10% silty loam, 9% other (may include small percentages of alluvium, breypan, bottomlands etc), 2% organic material

Dams

There are no dams in the watershed

Sewage Treatment Facilities

Kincardine

Woodlot Size

Limited forest cover along the lakeshore and at the back of farm lots

Land Use

83% agriculture; 11% forested; 3.9% urban

Provincially Significant Natural Areas - none

Groundwater Aquifer Sources

Detroit River Group; Onondage Formation

Stream Flow (mean)

Mean annual flow - 1.63 cubic metres per second (cms)

Stream Flow (low) *

7Q10 flow¹ - 0.1 cms 7Q20 flow² - less than 20 years of data

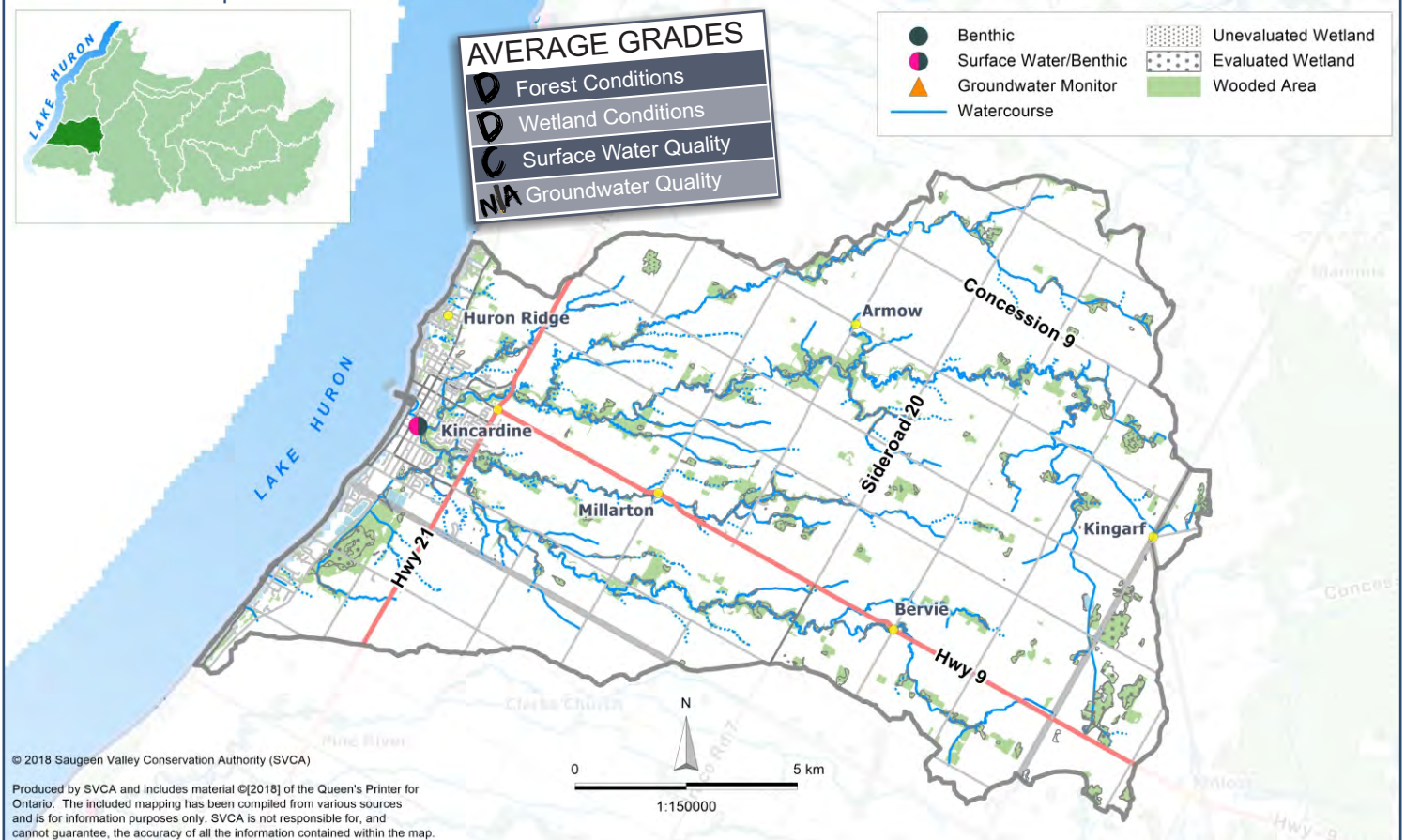
Rare Species (obtained from the National Heritage Information Centre (NHIC) Website)

Clamp-tipped Emerald, Beaked Spike-rush, Great Lakes Sand Reed, Great Lakes Wild Rye, Snapping Turtle, Eastern Meadowlark, Ram's Head Lady Slipper, Round Goby, Sand Dune Wild Rye, Bobolink

* ¹ 7Q10 - the lowest mean flow for seven consecutive days that has a 10-year recurrence interval period, or a 1 in 10 chance of occurring in any one year.

² 7Q20 - the lowest mean flow for seven consecutive days that has a 20-year recurrence interval period, or a 1 in 20 chance of occurring in any one year.

Watershed Perspective



	Indicators	2002 - 2006	2007 - 2011	2012 - 2016	Indicator Description
Forest Conditions	Forest Cover (% of Area)	D 11.3	D 10.8	D 10.8	Forest cover is the percentage of the watershed that is forested or wooded. <i>Environment Canada suggests that 30% forest cover is the minimum required to support healthy wildlife habitat.</i>
	Forest Interior (% of Area)	F 1.3	F 1.0	F 0.8	Forest interior refers to the protected core area found inside a woodlot. It is the sheltered, secluded environment away from forest edges and open habitats. <i>Environment Canada recommends that a minimum of 10% of a watershed should be interior forest cover to sustain healthy plant and animal species.</i>
	Riparian Cover (% of Area)	B 49.0	C 29.8	C 36.3	Riparian Cover is the percentage of forested habitat along a given waterway. <i>Environment Canada guidelines suggest that at least 75% of stream length should have 30 metre naturally vegetated buffers. Forested vegetation represents about two-thirds with the rest being marsh, meadow, and shrub thicket.</i>
	Average Grade	D	D	D	Grade D indicates poor ecosystem conditions and overall improvements are necessary.
Wetland Condition	Wetland Cover	No Data	D 4.0	D 4.0	Wetland cover is the percentage of existing wetland in a watershed. <i>Environment Canada suggests that 10% wetland cover is the minimum needed for a healthy watershed. Grade D indicates poor ecosystem conditions and overall improvements are necessary.</i>

	Indicators	2002 - 2006	2007 - 2011	2012 - 2016	Indicator Description
Surface Water Quality	Benthic Invertebrates (FBI)	D 6.02	D 5.97	D 5.83	Benthos or benthic invertebrates are bottom dwelling insects, crustaceans, worms, mollusks, and related aquatic animals that live in watercourses. They are good indicators of water quality, responding quickly to environmental stressors such as pollutants. <i>The Modified Family Biotic Index (FBI) using New York State tolerance values provide stream health information and values ranging from 1 (healthy) to 10 (degraded).</i>
	Total Phosphorus (mg/L)	B 0.030	C 0.034	C 0.031	Total phosphorus is indicative of nutrient levels within a watercourse. Phosphorus is required for the growth of aquatic plants and algae, however, concentrations above the Provincial Water Quality Objective may result in unhealthy stream conditions. <i>The Provincial Water Quality Objective is 0.03 mg/L.</i>
	<i>E. coli</i> (cfu/100mL)	C 148	B 81	C 124	<i>E. coli</i> originate from the wastes of warm blooded animals, including humans, livestock, wildlife, pets and waterfowl. <i>The Ontario Recreational Water Quality Guidelines suggest that waters with less than 100 CFUs/100mL are safe for swimming.</i>
	Average Grade	C	C	C	Grade C indicates ecosystem conditions that need to be enhanced.
Groundwater Quality	Nitrite + Nitrate (mg/L)	N/A	N/A	N/A	Nitrates are present in water as a result of decaying plant or animal material, the use of fertilizers, domestic sewage or treated wastewater, as well as geological formations containing soluble nitrogen compounds. <i>The Ontario Drinking Water Standard for nitrite + nitrate is 10 mg/L.</i>
	Chloride (mg/L)	N/A	N/A	N/A	While chloride can be naturally occurring, the presence of elevated chloride may indicate contamination from road salt, industrial discharges, or landfill leachate. <i>The Ontario Drinking Water Standard for chloride is only for aesthetic purposes with an objective of 250 mg/L.</i>
	Average Grade	N/A	N/A	N/A	There are no monitoring wells located within this watershed, however, other monitoring wells in the vicinity have good water quality achieving an A grade.



Surface Water Quality

The Penetangore River scores an average grade of 'C' for surface water quality. The overall grade has stayed the same since the previous report cards. The average total phosphorus concentration is above the Provincial Water Quality Objective of 0.03 mg/L. E. coli is now above the recreational guidelines of 100 CFU/100mL, having changed from a 'B' to a 'C'. At this new rating, the river would be considered unsafe for swimming.

The benthic invertebrate grade stayed the same at a 'D'. Changes in aquatic organisms or the benthic invertebrate community are seen as early indicators of changes in water quality. Efforts must continue to encourage landowners and the agricultural community to preserve and improve natural land cover.

Groundwater Quality

There are no groundwater monitoring wells located within this watershed.

Forest Conditions

This watershed falls short of meeting the Environment Canada guidelines of 30% forest cover, with an average grade of 'D'. Forest cover and forest interior grades did not change with a 'D' and an 'F', respectively. There are a limited number of small, fragmented forests, many of which exist along the banks of streams. Riparian forested cover scored a 'C' grade. The recommendation is that 50% of the 30 metre wide riparian zone should have forest cover. The Penetangore River Watershed has only 36.3% of the riparian zone forested. Tree planting along riparian zones and on marginal farmland should be considered to improve forest conditions and existing forests should be protected.

Wetland Conditions

This report card summarizes the conditions of all wetlands within this watershed, which score a 'D' grade at only 4.0% wetland cover. This is below the Environment Canada recommendation of 10% as the minimum standard. Almost all of the wetlands have been cleared for agricultural land. It would be highly recommended to allow low lying or wet areas to naturalize and to protect existing ones. These are key areas in terms of overall watershed health.

The wetland evaluation system was created to inform Ontario land use planning process. Under the Planning Act, provincially significant wetlands are protected from development and alteration.

Ecosystem Grade Description

A	Excellent conditions.
B	Good conditions. Some areas may require enhancement and/or improvements.
C	Conditions that warrant general improvements.
D	Poor conditions. Overall improvements necessary.
F	Degraded conditions, in need of considerable improvement.



What is being done in this Watershed?

- ✓ **Saugeen Conservation** aims to improve watershed health through virtually all its programs.
- ✓ **Saugeen Conservation** is a key player in providing assistance and technical expertise to local groups, committees, ministries etc. that work to improve the local environment.
- ✓ Through **Saugeen Conservation's tree planting efforts and Ontario's 50 Million Tree Program**, a total of 45,100 trees were planted in this watershed.
- ✓ The **Penetangore Watershed Group** (established in 2011), plants approximately 3,000 trees each year in this watershed. This group is also involved in habitat development as well as habitat rehabilitation and invasive species removal. Their focus is to increase tree cover in the watershed, especially along local waterways to help improve water quality.
- ✓ The **Huron Fringe Field Naturalists** work to preserve wildlife and natural habitat and to promote public interest and knowledge of the natural history in this area. In so doing, they conduct public hikes and workshop, participate in tree planting efforts, bird house construction and bird counts.
- ✓ The **Ontario Steelheader's Association and the Lake Huron Fishing Club** release adult rainbow trout into this river system on an annual basis. (This was discontinued in 2016.)
- ✓ Saugeen Conservation works closely with **local agricultural organizations** to provide ongoing workshops and seminars for farmers on a variety of different conservation topics.
- ✓ **Grey Bruce Sustainability Network** works closely with Saugeen Conservation on several different environmental and educational projects.
- ✓ The **Bruce Grey Woodlands Association** hosts various workshops and tours on forestry related topics.





What is being done in this Watershed?

- ✓ The **Forest Health Collaborative** helps to educate municipalities and the public on forest health issues.
- ✓ **Stewardship Grey Bruce** offers funding and technical support for landowners in the watershed interested in completing habitat enhancement projects.
- ✓ The **Lake Huron Fishing Club** (with funding from Bruce Power), works with local schools in setting up fish aquariums to educate students about the importance of a healthy fishery.
- ✓ Saugeen Conservation offers over **50 different hands-on environmental programs** to over 10,000 children annually, including the Grey Bruce Children's Water Festival and the Bruce Grey Forest Festival.
- ✓ Staff have implemented the **Yellow Fish Road Program**, (a program of Trout Unlimited Canada), which educates students and the public about storm drains and how they are corridors to local rivers and streams.
- ✓ **Grey-Bruce ALUS** program recognizes land stewardship and assists farmers in implementing and funding projects to produce ecosystem services. ALUS aims to improve the biodiversity on the agricultural landscape.
- ✓ **Environmental self assessments** are now available for the rural non-farm landowner with the release of The Rural Landowner Stewardship Guide for the Lake Huron Watershed. This guide provides a framework for landowners to evaluate their property and help determine best management practices.
- ✓ The **Lake Huron Centre for Coastal Conservation** initiates a number of programs aimed at protecting and restoring Lake Huron's shoreline's coastal environment and promoting a healthy coastal ecosystem



Recognizing our Important Partners

