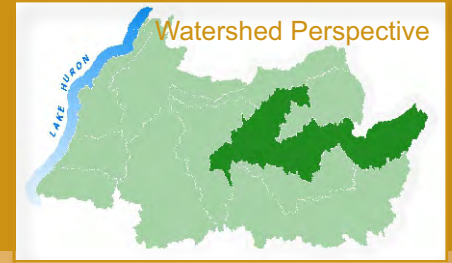




# WATERSHED REPORT CARD



## Upper Main Watershed



This watershed drains 782 sq. kms. The river is 116 kms in length in this section with an average gradient of 1.67 metres per km. Main tributaries include Habermehl and Camp Creek as well as the Styx River.

This watershed is predominantly agricultural. It includes the main communities of Hanover, Durham and Priceville.



## 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*

1078 Bruce Rd. 12, P.O. Box 150, Formosa ON N0G 1W0 Tel. 519-367-3040 Email: [publicinfo@svca.on.ca](mailto:publicinfo@svca.on.ca) [www.svca.on.ca](http://www.svca.on.ca)



Alternative formats of this report are available upon request.



# General Information

## Area

782 sq. km

## Municipalities

Municipality of Brockton, Town of Hanover, Municipality of West Grey, Municipality of South Bruce, Township of Chatsworth, Township of Southgate, Municipality of Grey Highlands, Township of Melancthon

## Physiography

40% spillway, 30% till plain (drumlinized), 13% kame moraine, 6% drumlin, 4% till moraine, 4% peat and muck, 1% esker, 1% water

## Soils

38% medium to moderately fine loam, 27% silty loam, 15% organic material, 12% fine to moderately coarse sandy loam, 4% other (may include small percentages of alluvium, breypan, bottomlands etc), 3% coarse sandy loam and loamy sand, and 0.2% clay loam

## Dams

In total there are 56 dams in the watershed, of which 13 are considered large dams (greater than 3 metres in height).

## Sewage Treatment Facilities

Hanover, Durham

## Woodlot Size

Many large forests with forest interior conditions

## Land Use

58% agriculture; 35% forested; 1.4% urban

## Provincially Significant Natural Areas

Saugeen Kame Terrace, Allan Park Crevasse Fillings, Allan Park Ice - Marginal Delta, Hatherton Esker, Harrison Lake Fen, Beaver Meadow, Camp Creek, Louise-Boyd-McDonald Lakes, Maxwell, McLean Lake, Mountain Creek, Turner-Gilles -Wilcox Lakes, Welbeck Wetland, Proton Staion, Portlaw Fen

## Groundwater Aquifer Sources

Guelph Formation, Salina Formation, Catfish Creek Till Formation, Glaciolacustrine Formation

## Stream Flow (mean)

mean annual flow - 34.7 cubic metres per second (cms)

## Stream Flow (low) \*

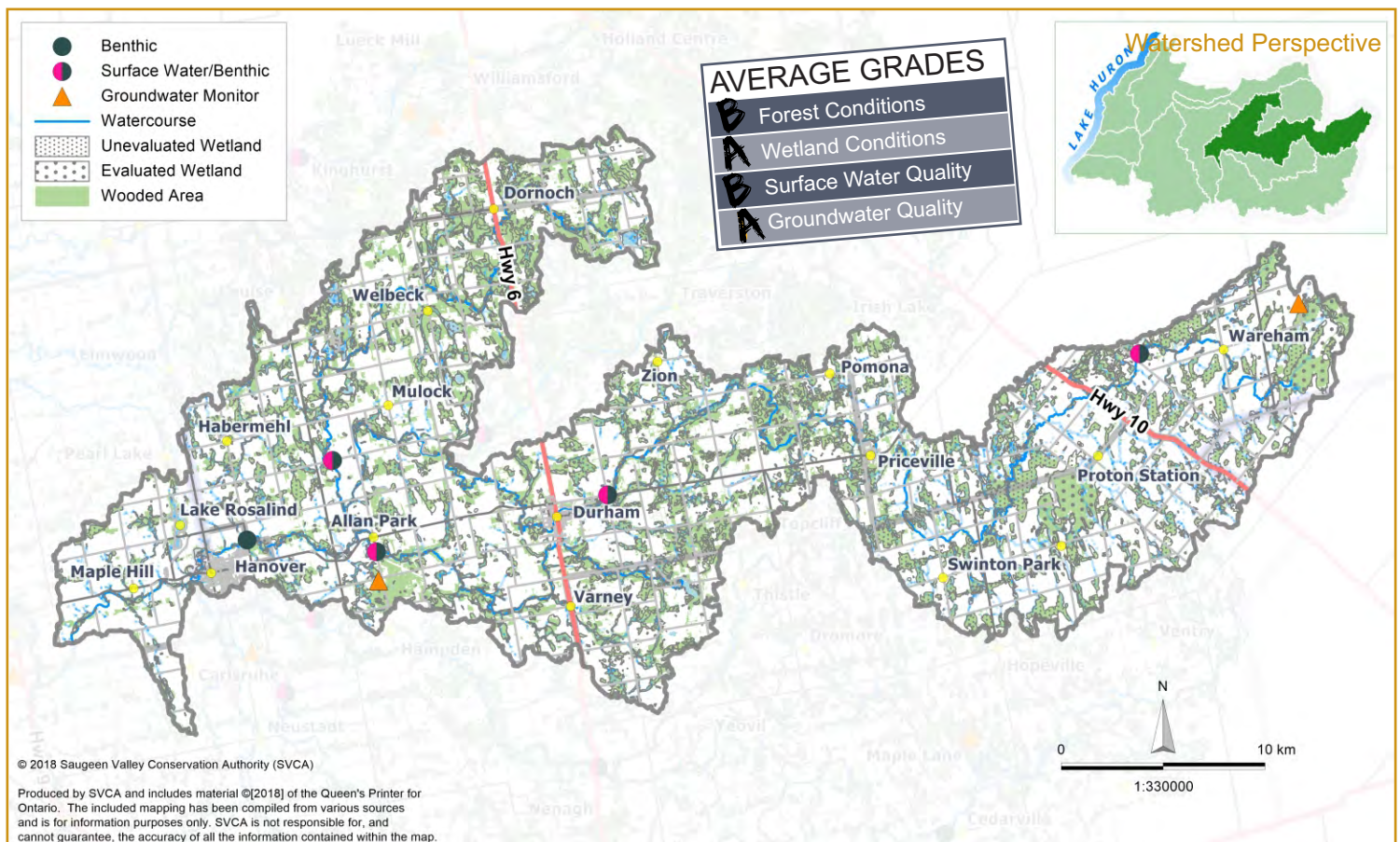
7Q10 flow<sup>1</sup> - 4.37 cms 7Q20 flow<sup>2</sup> - 3.93 cms

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

American Badger, Ebony Boghaunter, Redside Dace, Clamp-tipped Emerald, Eastern Small-footed Bat, Eastern Ribbonsnake, Harlequin Darner, Hart's-tongue Fern, Milksnake, Northern Long-eared Bat, Scarlet Beebalm

\* <sup>1</sup> 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.

<sup>2</sup> 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.





	Indicators	2002 - 2006	2007 - 2011	2012 - 2016	Indicator Description
Forest Conditions	Forest Cover (% of Area)	B 34.6	A 35.9	<b>A 35.9</b>	Forest cover is the percentage of the watershed that is forested or wooded. <b>Environment Canada suggests that 30% forest cover is the minimum required to support healthy wildlife habitat.</b>
	Forest Interior (% of Area)	C 7.3	C 7.8	<b>C 7.5</b>	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. <b>Environment Canada recommends that a minimum of 10% of a watershed should be interior forest cover to sustain healthy plant and animal species.</b>
	Riparian Cover (% of Area)	B 43.0	B 43.6	<b>B 44.6</b>	Riparian Cover is the percentage of forested habitat along a given waterway. <b>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.</b>
	Average Grade	B	B	<b>B</b>	Grade B indicates good ecosystem conditions. Some areas may require enhancement.
Wetland Conditions	Wetland Cover	No Data	A 23.7	<b>A 23.7</b>	Wetland cover is the percentage of existing wetland in a watershed. <b>Environment Canada suggests that 10% wetland cover is the minimum needed for a healthy watershed. Grade A indicates excellent ecosystem conditions and protection may be required. Some areas may require enhancement to maintain this level of quality.</b>

	Indicators	2002 - 2006	2007 - 2011	2012 - 2016	Indicator Description
Surface Water Quality	Benthic Invertebrates (FBI)	A 4.09	C 5.46	<b>C 5.48</b>	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. <b>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).</b>
	Total Phosphorus (mg/L)	B 0.02	A 0.016	<b>A 0.010</b>	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. <b>The Provincial Water Quality Objective is 0.03 mg/L.</b>
	<i>E. coli</i> (cfu/100mL)	B 48	B 39	<b>A 25</b>	<i>E. coli</i> originate from the wastes of warm blooded animals, including humans, livestock, wildlife, pets and waterfowl. <b>The Ontario Recreational Water Quality Guidelines suggest that waters with less than 100 CFUs/100mL are safe for swimming.</b>
	Average Grade	B	B	<b>B</b>	Grade B indicates good ecosystem conditions. Some areas may require enhancement.
Groundwater Quality	Nitrite + Nitrate (mg/L)	No Data	A 0.61	<b>A 0.87</b>	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. <b>The Ontario Drinking Water Standard for nitrite + nitrate is 10 mg/L.</b>
	Chloride (mg/L)	No Data	A 1.67	<b>A 1.85</b>	While chloride can be naturally occurring, the presence of elevated chloride may indicate contamination from road salt, industrial discharges, or landfill leachate. <b>The Ontario Drinking Water Standard for chloride is only for aesthetic purposes with an objective of 250 mg/L.</b>
	Average Grade	No Data	A	<b>A</b>	Grade A indicates excellent ecosystem conditions and protection may be required. Some areas may require enhancement to maintain this level of quality.





## Forest Conditions

The Upper Main Saugeen River Watershed scores an average grade of 'B' which is the same as the last report card. Forest cover exceeds the Environment Canada guidelines of 30% forest cover but falls short of the guidelines for forest interior and forested riparian cover scoring 'C' and 'B' grades, respectively. The recommendation is that 50% of the 30 metre wide riparian zone should have forest cover. The Upper Main Saugeen River Watershed has 44.6% of the riparian zone forested. Tree planting along riparian zones and on marginal farmland should be considered to ensure the forest conditions are improved.

## Wetland Conditions

This report card summarizes the conditions of both 'evaluated' and 'unevaluated' wetlands. Looking at all of the wetlands the Upper Main Saugeen Watershed scores an 'A' grade with 23.7% wetland cover in the watershed. Existing wetlands should be protected to maintain this grade.

*The wetland evaluation system was created to protect important wetlands valued at a provincial scale. Under the Planning Act, provincially significant wetlands are protected from development and alteration.*

## Surface Water Quality

The Upper Main Saugeen River scores an average grade of 'B' for surface water quality. The overall grade is the same as the last report card. The average total phosphorus concentration is below the Provincial Water Quality Objective of 0.03 mg/L. *E. coli* continues to fall below the recreational guidelines of 100 CFU/100mL and improved from a 'B' to an 'A' grade. The grade for benthic invertebrates remained at a 'C'. Increased efforts should be made to encourage landowners and the agricultural community to preserve and enhance natural land cover. In addition to managing current land use practices, climate change and invasive species pose significant threats and efforts will need to be made to address these stressors to maintain or improve the current scores.

## Groundwater Quality

The groundwater quality in the three monitoring wells in this area continues to score an 'A' grade. The wells monitor three overburden aquifers. It should be noted that groundwater aquifers do not conform to watershed boundaries but rather flow in an east to west direction through the watershed. There have been no exceedences of the Ontario Drinking Water Standards during this study period.

### Ecosystem Grade Description

<b>A</b>	Excellent conditions.
<b>B</b>	Good conditions. Some areas may require enhancement and/or improvements.
<b>C</b>	Conditions that warrant general improvements.
<b>D</b>	Poor conditions. Overall improvements necessary.
<b>F</b>	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 145,043 trees were planted in this watershed during this report period.
- ✓ The **Ministry of Natural Resources and Forestry (OMNRF)**, has stocked brown trout, completed habitat restoration projects and assigned fishing sanctuary designations to sections of this river.
- ✓ The **OMNRF in partnership with the Ontario Steelheaders**, monitor fish that are radio chipped to determine the success of rainbow trout in successfully migrating beyond the fishway at Maple Hill Power Dam.
- ✓ 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 (the latter of which is held in this watershed).
- ✓ 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.
- ✓ Saugeen Conservation established a **2.5 acre Tall Grass Prairie** at Allan Park Conservation Area. Funding from Hydro One was received as part of the Bruce to Milton Biodiversity and Enhancement project.
- ✓ The **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.
- ✓ **Saugeen Nature** is active in the Saugeen Watershed through education and other partnerships. They promote the wide use and conservation of natural resources and encourage the preservation of wild species and natural areas in Grey and Bruce counties.
- ✓ **Environmental self assessments** are 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.

## Recognizing our Important Partners

