

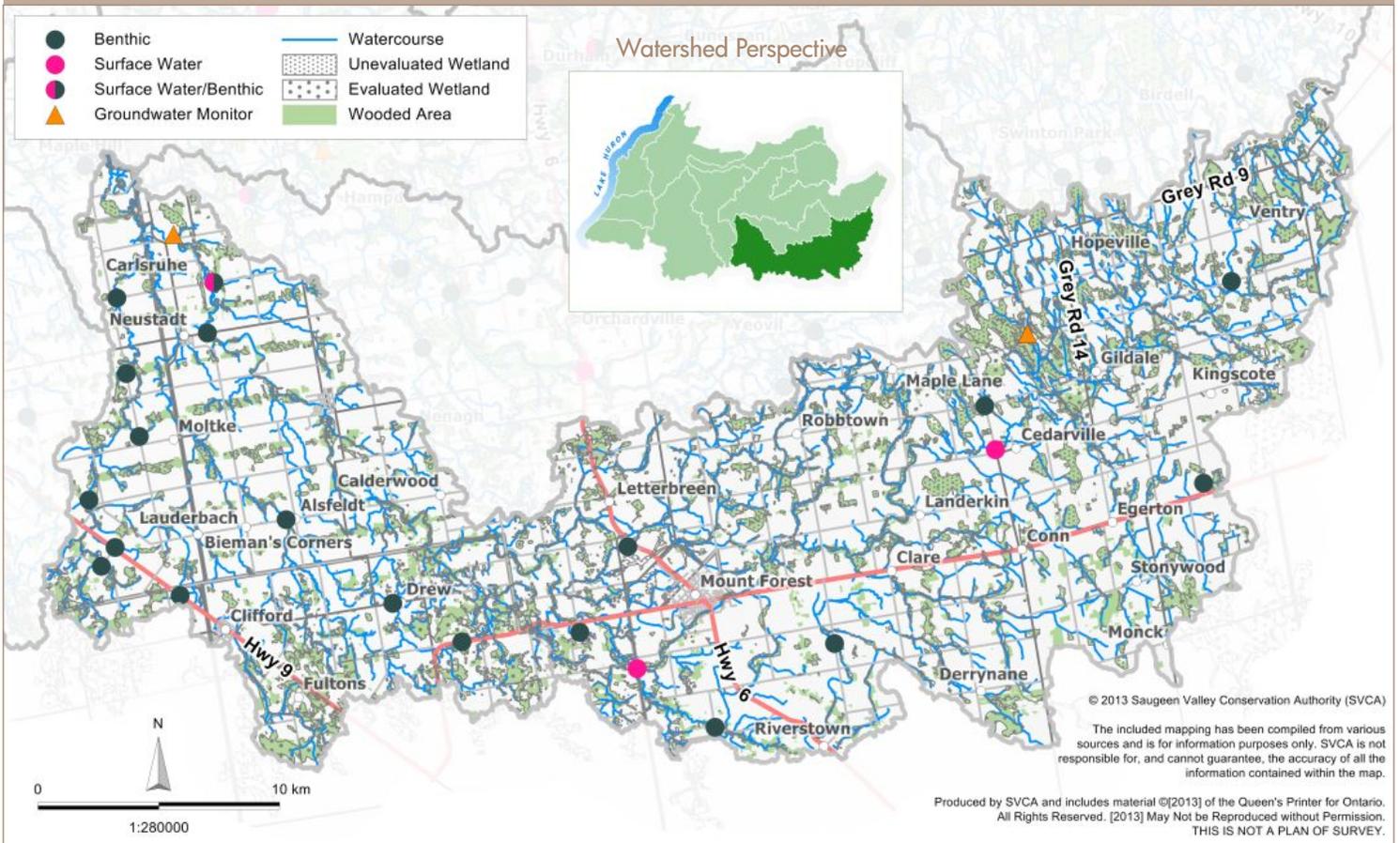


2007-2011

# South Saugeen River Watershed REPORT CARD

A report on the general condition of the South Saugeen River Watershed

2013



**AVERAGE GRADES**

- C Forest Conditions
- A Wetland Conditions
- C Surface Water Quality
- A Groundwater Quality

The South Saugeen River is a tributary of the Main Saugeen River, draining 798 square kilometres. It is 97 kilometres in length with an average gradient of 1.48 metres per kilometre. Tributaries of the South Saugeen River are Carrick Creek, Meux Creek, Bell's Creek, Fairbanks Creek and numerous other small unnamed streams. The South Saugeen River drains into the Main Saugeen River south of Hanover.

The watershed is predominantly agricultural (72%). It includes the communities of Mount Forest, Ayton, Clifford and Neustadt.

The landscape of the watershed is post glacial in nature with dominant landforms including drumlinized till plains, kame moraines and spillways along the major tributaries and numerous drumlins in the headwater areas.

## Forest Conditions

The South Saugeen River Watershed continues to fall short of meeting the Environment Canada guidelines of 30% forest cover scoring an *average* grade of 'C'. The forest interior grade remained at a 'D'. Riparian forest cover scored a 'C' grade. The recommendation is that 50% of the 30 metre wide riparian zone should have forest cover. The South Saugeen River Watershed has only 32.3% of the riparian zone forested. Tree planting along riparian zones and on marginal farmland should be considered to ensure the forest conditions are improved. From 2007-2011 there were 52,075 trees planted in this watershed through the Grey Bruce Forestry Service.

## Wetland Conditions

This report card summarizes the conditions of both 'evaluated' and 'unevaluated' wetlands. Since the last set of report cards summarized only the 'evaluated' wetlands the present results cannot be compared to the previous report card. When considering the presence of all wetlands, the South Saugeen Watershed scores an 'A' grade with 17.6% wetland cover. Existing wetlands should be protected to maintain this grade.



## Surface Water Quality

The South Saugeen River scores an *average* grade of 'C' for surface water quality, falling from the 'B' grade in the last set of report cards.

Both the total phosphorus and *E. coli* grades stayed the same at a 'B' grade. The *average* total phosphorus concentration is below the provincial water quality objective of 0.03 mg/L. *E. coli* as well continues to fall below the recreational guidelines of 100 CFU/100mL.

The grade for benthic invertebrates dropped from a 'B' to a 'C'. Changes in the benthic invertebrate community are seen as early indicators of deterioration in water quality that might not be seen in the chemistry results. Increased efforts should be made to encourage landowners and the agricultural community to preserve and enhance natural land cover. Current stressors such as climate change and invasive species could pose significant threats in this watershed, therefore, efforts should 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 two bedrock aquifers and one overburden aquifer. 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. Different types of aquifers exist throughout the region and the quality of individual wells on private property may vary from that of the provincial monitoring wells in this report. There have been no exceedences of the Ontario Drinking Water Standards during this study period.

### GRADE DESCRIPTION

- A** = Excellent ecosystem conditions. Some protection and enhancement may be required.
- B** = Good ecosystem conditions. Some areas may require enhancement and/or improvements.
- C** = Ecosystem conditions that warrant general improvements.
- D** = Poor ecosystem conditions. Overall improvements necessary.
- F** = Degraded ecosystem. Conditions in need of considerable improvement.

# South Saugeen River Watershed

	Indicators	2002-2006 % of AREA	2007-2011 % of AREA	2007-2011 Grade	Trend ★	Indicator Description
Forest Conditions	Forest Cover	22.4	22.3	C	↔	Forest cover is the percentage of the watershed that is forested or wooded. <i>Environment Canada suggests that 30% forest cover is the minimum needed to support healthy wildlife habitat.</i>
	Forest Interior	4	3.5	D	↔	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 plant and animal species.</i>
	Riparian Cover	**	32.3	C		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. The equivalent target is 50% of the riparian zone in forest cover.</i>
	Average Grade	C	C		↔	Grade C indicates ecosystem conditions that need to be enhanced.
Wetland Conditions	Wetland Cover	**	17.6	A		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.</i>
	Grade	-	A			Grade A indicates excellent ecosystem conditions and protection may be required. Some areas may require enhancement to maintain this level of quality.

	Indicators	2002-2006 Result	2007-2011 Result	2007-2011 Grade	Trend ★	Indicator Description
Surface Water Quality	Benthic Invertebrates	4.53	5.29	C	↓	Benthos or benthic macroinvertebrates are large 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 range from 1 (healthy) to 10 (degraded).</i>
	Total Phosphorus	0.020 (mg/L)	0.021 (mg/L)	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. <i>The Provincial Water Quality Objective is 0.03 mg/L.</i>
	<i>E. coli</i>	46 (CFU/ 100 mL)	50 (CFU/ 100 mL)	B	↔	<i>E. coli</i> originate from the wastes of warm blooded animal, 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	B	C		↓	Grade C indicates ecosystem conditions that need to be enhanced.
Groundwater Quality	Nitrite + Nitrate	0.05 (mg/L)	0.09 (mg/L)	A	***	Nitrates are present in water as a result of decay of 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	4.3 (mg/L)	5.0 (mg/L)	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	A	A		***	Grade A indicates excellent ecosystem conditions and protection may be required. Some areas may require enhancement to maintain this level of quality.

\* For the 2007-2011 report cards the grading system has changed. To be able to compare the results, the scores from the 2002-2006 report cards were included. The new grading system was applied to these former scores and it was then determined whether the grades have stayed the same ↔, improved ↑, or declined ↓.

\*\* The data was calculated differently for the previous set of report cards so it is not possible to compare to the 2007-2011 data.

\*\*\* Insufficient data to establish trends.

**Surface water data** used for this interpretation were obtained through the Provincial Water Quality Monitoring Network (PWQMN), the Ontario Benthos Biomonitoring Network (OBBN) and Saugeen Conservation's Water Quality Monitoring Network.

**Groundwater data** used for this interpretation were obtained through the Provincial Groundwater Monitoring Network (PGMN). 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.

# South Saugeen River Watershed General Information

## Area

798 sq. km

## Municipalities

Municipality of South Bruce, Municipality of Brockton, Municipality of West Grey, Township of Southgate, Town of Minto, Township of Wellington North, Township of Howick, Township of Melancthon, Town of Hanover

## Physiography

58% till plain (drumlinized), 18% spillway, 15% kame moraine, 3% peat and muck, 2% esker, 2% drumlin, 1% till moraine

## Soils

46% silty loam, 29% medium to moderately fine loam, 11% organic material, 9% fine to moderately coarse sandy loam, 5% other (may include small percentages of alluvium, breypan, bottomlands etc), 0.5% coarse sandy loam and loamy sand, and 0.1% clay loam

## Dams

In total there are 21 dams in the watershed, of which 7 are considered large dams (greater than 3 metres in height).

## Sewage Treatment Facilities

Neustadt, Mt. Forest, Clifford

## Woodlot Size

Small fragmented forests at the back of farm lots providing little forest interior habitat

## Land Use

72% agriculture; 22% forested; 0.9% urban

## Areas of Natural and Scientific Interest (ANSI)

- Mount Forest Bog, Pike Lake, Drew Bog and Swamp, Drew Swamp West, Fultons Swamp, South Saugeen River, Egerton Esker, Keldon Esker, Riverstown Esker Twins

## Groundwater Aquifer Sources

Salina Formation, Guelph Formation, Bass Island Formation

## Stream Flow (mean)

Mean annual flow - 10.2 cubic metres per second (cms)

## Stream Flow (low) \*

7Q10 flow<sup>1</sup> - 0.60 cms 7Q20 flow<sup>2</sup> - 0.6 cms

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

Southern Twayblade, Hill's Pondweed, Redside Dace, Clamp-tipped Emerald, Blanding's Turtle, Butternut, Easter Ribbonsnake, Forcinate Emerald, Massasauga Rattlesnake, Milksnake, Mottled Darner, Scarlet Beebalm, Schweinitz's Sedge, Twin-stemmed Bladderwort

\* <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.

## Environmental Initiatives from 2007-2011

- **Saugeen Conservation** through its various programs continually monitors watershed and subwatershed conditions. From 2007 to 2011 conservation efforts included water quality monitoring and the planting of **52,075** trees.
- The **Wellington County Rural Water Quality Program** encourages farms to complete upgrades to improve water quality, that include, cattle exclusion, manure storage, well upgrades and more. This initiative is funded by the County of Wellington and the City of Guelph. The program is run through the Grand River Conservation Authority, but is delivered locally by all six Conservation Authorities.
- The **County of Wellington** and **Wellington County Stewardship Council** have a **Water Stewardship Program** directed at on-the-ground improvements to water quality. Projects included inline pond removal, dam removal, reforestation along watercourses, streambank stabilization, channel rehabilitation, erosion control, surface water runoff management, retirement of marginal farmland, decommissioning of tile drains on retired farmland, wetland creation, wetland buffering, and wetland function improvements. Go to [www.wellington.ca](http://www.wellington.ca) for more information.
- **Grey County Forest Stewardship Council** endeavoured to foster education and new initiatives to promote natural resource sustainability within Grey County. The main focus was to initiate and support stewardship projects and demonstrations of sustainable resource management practices.



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For more information about the report card process, indicators and how grades were calculated, please refer to the **Background** document.

Alternative formats of this report are available upon request.