



WATERSHED REPORT CARD



Lower Main Watershed



The Saugeen River downstream of Walkerton drains 908 square kms. This section of the river is 76 kilometres in length with an average gradient of 0.88 metres per kilometre. The main tributaries include Mill, Burgoyne, Snake, Vesta, Pearl, Deer, Otter, Willow and Silver Creeks as well as numerous smaller unnamed streams.

The watershed is predominantly agricultural and also includes the main communities of Southampton, Mildmay, Paisley and Walkerton.



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

908 sq. km

Municipalities

Town of Saugeen Shores, Municipality of Arran-Elderslie, Municipality of Brockton, Municipality of South Bruce, Howick Township, Municipality of West Grey, Township of Chatsworth, Municipality of Kincardine, Town of South Bruce Peninsula

Physiography

23% till plain (undrumlinized), 23% clay plain, 19% till plain (drumlinized), 12% sand plain, 11% till moraine, 5% spillway, 3% kame moraine, 2% drumlin, 1% beaches and shorecliffs, 1% water

Soils

33% silty clay, 23% medium to moderately fine loam, 16% fine to moderately coarse sandy loam, 12% silty loam, 6% other (may include small percentages of alluvium, breypan, bottomlands etc), 5% clay loam, 3% organic material, 1% coarse sandy loam and loamy sand

Dams

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

Sewage Treatment Facilities

Paisley, Port Elgin, Walkerton, Mildmay (Southampton has a plant that discharges directly to Lake Huron)

Woodlot Size

Small and fragmented forests are largely limited to the back of farm lots, many connected by corridors - also some areas with larger forests providing forest interior conditions

Land Use

76% agriculture; 20% forested; 1.2% urban

Provincially Significant Natural Areas

- Murray's Bog, Glamis Bog, Kinghurst West, Edengrove Wetland, Nutley Fen, Otter Creek, Saugeen Creek

Groundwater Aquifer Sources

Guelph Formation, Salina Formation, Bass Island Formation, Bois Blanc Formation; Oriskany Formation, Detroit River Group; Onondage Formation, Dromore Swamp Complex

Stream Flow (mean)

Mean annual flow - 59 cubic metres per second (cms)

Stream Flow (low) *

7Q10 flow¹ - 8.19 cms 7Q20 flow² - 7.71 cms

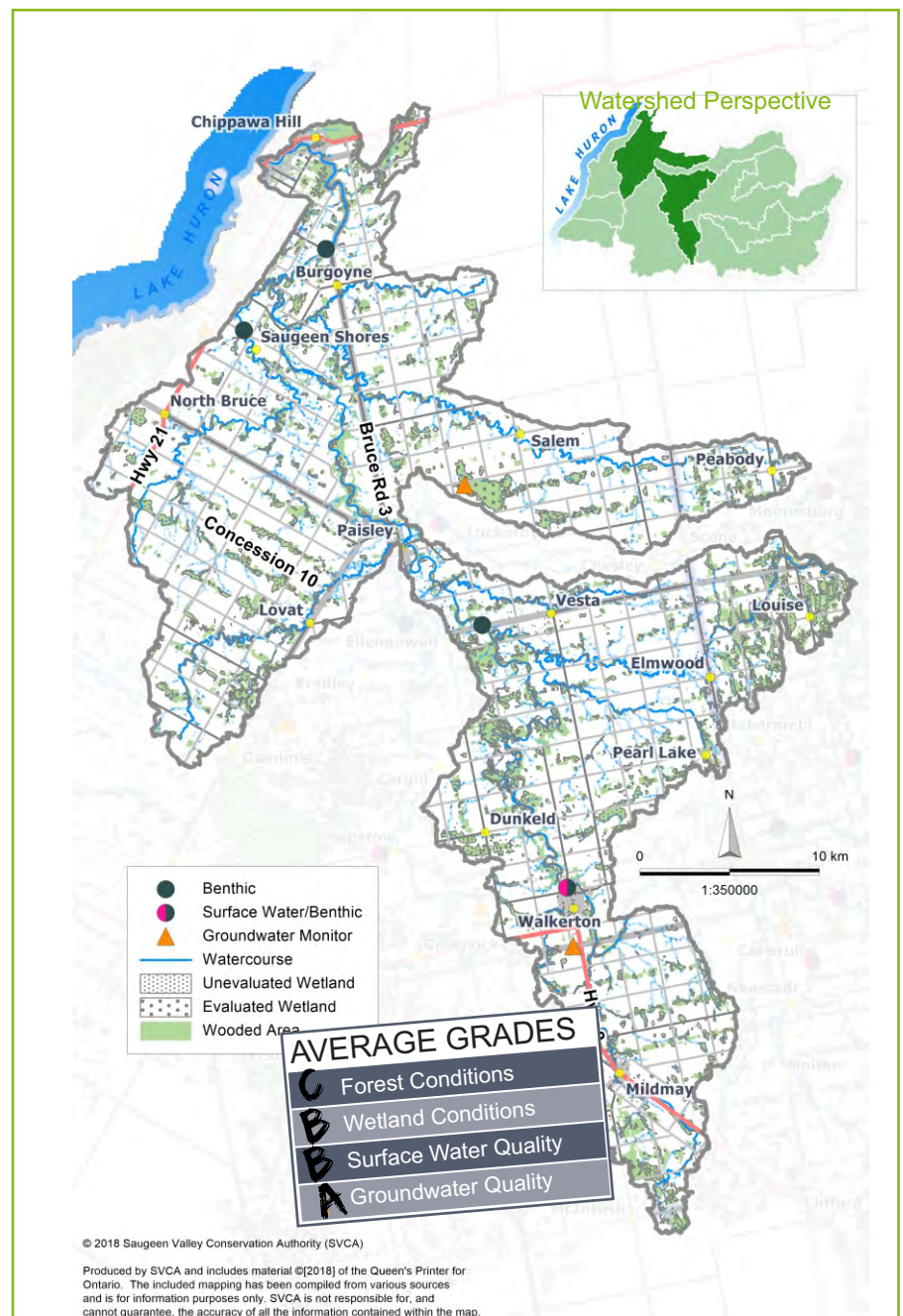
Rare Species (obtained from the National Heritage Information Centre (NHIC) Website)

Hungerford's Crawling Beetle, American Badger, American Beach Grass, Barn Swallow, Beach-dune Tiger Beetle, Beaked Spikerush, Black Meadowlark, Bobolink, Brush-tipped Emerald, Lake Sturgeon, Least Bittern, Loggerhead Shrike, Butternut, Dwarf Lake Iris, Eastern Ribbon Snake,

Elfin Skimmer, Golden Redhorse, Grass Carp, Great Lakes Sandreed, Greene's Rush, Green-striped Darner, Low Nutrush, Massasauga Rattlesnake, Eastern Milksnake, Northern Brook Lamprey, Northern Map Turtle, Ocellated Darner, Pugnose Shiner, Rainbow Mussel, Rainbow Smelt, Ram's-head Lady Slipper, Red-shouldered Hawk, Redside Dace, Rigid Sedge, Sand-dune Wildrye, Scarlet Beebalm, Tuberous Indian-plaintain, Stiff Gentian, Short-eared Owl, Snapping Turtle, Shortnose Cisco, Southern Twayblade, Sphagnum Sprite

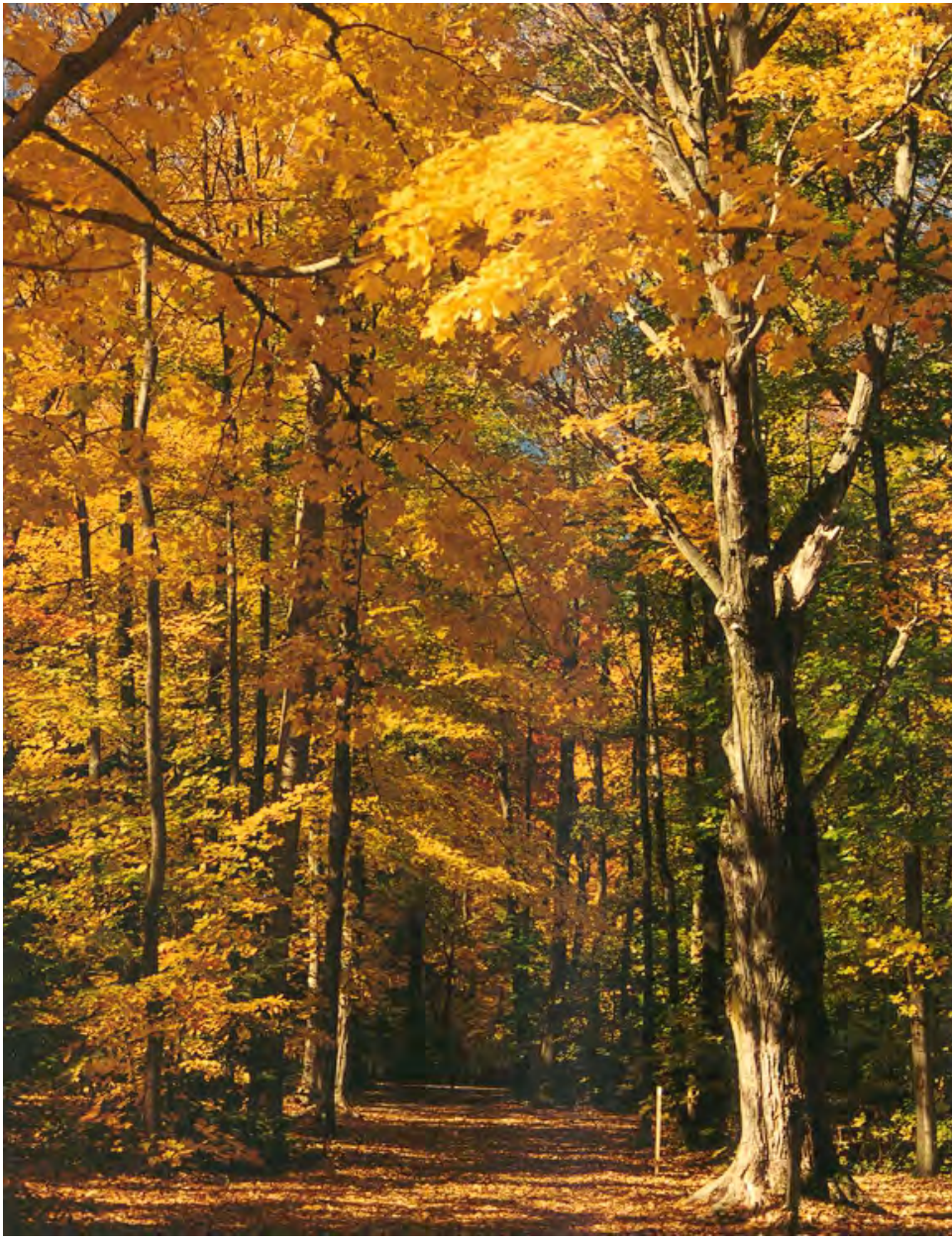
¹ 7Q10 - the lowest mean flow for seven consecutive days that has a 10-year recurrence interval period, or a 1 in 10 chance of occurring in any one year.

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.



	Indicators	2002 - 2006	2007 - 2011	2012 - 2016	Indicator Description
Forest Conditions	Forest Cover (% of Area)	C 19.0	C 19.5	C 19.4	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)	D 3.4	D 3.5	D 3.3	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)	C 29.0	D 24.4	C 29.8	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	C	D	C	Grade C indicates ecosystem conditions that need to be enhanced.
Wetland Condition	Wetland Cover	No Data	B 9.1	B 9.1	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 B indicates good ecosystem conditions. Some areas may require enhancement.</i>

	Indicators	2002 - 2006	2007 - 2011	2012 - 2016	Indicator Description
Surface Water Quality	Benthic Invertebrates (FBI)	C 5.68	D 5.97	D 5.86	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)	C 0.04	B 0.026	A 0.018	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)	B 81	B 50	B 31	<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	B	Grade B indicates good ecosystem conditions. Some areas may require enhancement.
Groundwater Quality	Nitrite + Nitrate (mg/L)	No Data	A 0.06	A 0.04	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)	No Data	A 1.0	A 1.8	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	No Data	A	A	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 forest conditions of the Lower Main Saugeen River Watershed improved from a 'D' to a 'C'. However, forest cover still falls short of meeting the Environment Canada guidelines of 30%. Forest interior grades did not change with a grade of 'D'. Forested riparian cover improved from a 'D' to a 'C' grade. The recommendation is that 50% of the 30 metre wide riparian zone should have forest cover. The Lower Main Saugeen River Watershed has only 29.8% 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 all wetlands. This watershed scores a 'B' grade with 9.1% wetland cover. This is just below the Environment Canada recommendation of 10% as the minimum required for a healthy watershed. It would be advisable to allow low lying or wet areas to naturalize. These are key areas for overall watershed health. It is also important to restore previously drained wetlands, where possible. Existing wetlands should be protected.

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

This watershed scores an average grade of 'B' for surface water quality, an improvement from the last report card. The average total phosphorus concentration is below the Provincial Water Quality Objective of 0.03 mg/L and has improved from a 'B' to an 'A' grade. E. coli continues to fall below the recreational guidelines of 100 CFU/100mL maintaining a 'B' grade. The grade for aquatic organisms or benthic invertebrates continues to be a 'D'. 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 two wells in this area continues to score an 'A' grade. 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. Note: there have been exceedences of the Ontario Drinking Water Standards for sodium and fluoride during this study period.

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 75,923 trees were planted in this watershed area during this study period.
- ✓ **SauGREEN for the Environment** is a local environmental community group focused in the Saugeen Shores area. They focus on various environmental initiatives including waste diversion, rain barrels, tree planting, Tall Tree Initiative and other eco-friendly projects. Together Saugeen Conservation and SauGREEN installed a rain garden at Fairy Lake.
- ✓ Saugeen Conservation partnered with **Trout Unlimited Canada** and the Southampton Shoreline Residents Association to implement the **Yellow Fish Road Program** in Southampton. Yellow Fish Road is a nation-wide environmental education program to help Canadians understand that stormdrains are corridors to our rivers, lakes and streams.
- ✓ In 2016, the **Hamel Dam in Mildmay** was removed along Otter Creek. Aquatic life can now freely access an additional two km of coldwater stream.
- ✓ 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.) The Steelheader's also operate a fish ladder (in conjunction with the MNRF), at Denny's Dam to help native fish access spawning habitat upstream.
- ✓ 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. Within this watershed, programs include WaterWORKS, which includes hands-on activities for high school students in promoting careers in related fields and facilitating appreciation of water quality issues.



What is being done in this Watershed?

- ✓ The **Bruce Grey Woodlands Association** hosts various workshops and tours on forestry related topics.
- ✓ 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.
- ✓ **Lake Huron Fishing Club** actively stocks steelhead salmon in the Saugeen River. The club operates two hatcheries (Kincardine and Port Elgin), rearing young fish for the School Salmon Hatchery which has grown from 10 schools in 2012 to 47 Schools by 2016. All reared salmon are released into the Saugeen or Penetangore Rivers (fully funded by Bruce Power).
- ✓ **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.
- ✓ 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 **Brockton Fisheries Task Force** (of which Saugeen Conservation is a part), works closely with several partners to educate the general public about the local fisheries resource and to help ensure sustainability along the Saugeen River.
- ✓ 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.
- ✓ **Ducks Unlimited Canada** supported a wetland creation project in the Lower Main watershed partnering with a private landowner to allow a marginally farmed area to revert back to a wetland.
- ✓ **Healthy Lake Huron** is an initiative of local environmental organizations, including Saugeen Conservation. Together they coordinate actions to protect and improve overall water quality along the southeast shores of Lake Huron.

Recognizing our Important Partners

