

Cow and Perch Creeks

Watershed Report Card 2013

This report card summarizes surface water quality and forest condition in the Cow and Perch Creeks watersheds within the St. Clair Region Conservation Authority jurisdiction from 2001 to 2010. The summary is intended to provide citizens, community groups, municipalities, industries and agencies with information so they can take actions to protect or enhance the environmental features of the watershed. The ongoing monitoring will be reported on a five-year cycle which will help local people manage their local environment. This card uses the 2011 guidelines and updated grading system for Conservation Authority Watershed Report Cards. These new province-wide standards have a more stringent grading system and result in generally lower grades in the intensely developed regions of southwestern Ontario.

This report card is part of a larger report entitled the St. Clair Region Conservation Authority Watershed Report Card (2013) available at www.scrca.on.ca. Further information including methodology, comparisons with the other 13 St. Clair Region watersheds, regional maps and summary tables are also found in that document.

SURFACE WATER QUALITY

Declining

D

Indicator	Cow and Perch Creeks		St. Clair Region 2010	Provincial Guideline	Indicator Description
	2005	2010			
Total Phosphorus (mg/L)	0.15	0.24 F Declining	0.13 D	0.03	<i>Phosphorus is found in products such as detergents, fertilizer and pesticides, and contributes to excess algae and low oxygen in streams and lakes.</i>
Bacteria (#E. coli/100mL)	No data	No data	169 C	100 (recreational use)	<i>Fecal bacteria are found in human and animal (livestock/wildlife) waste. Their presence in water indicates fecal contamination and is a strong indicator that other disease-causing organisms are in the watercourse.</i>
Benthic Score (FBI)	5.7	6.0 D Declining	5.9 D	None	<i>Benthic invertebrates are small animals without backbones that live in stream sediments. The Family Biotic Index (FBI) scores each taxa according to its pollution tolerance and ranges from 1 (healthy) to 10 (severely degraded).</i>

FOREST CONDITION

F

Indicators	Cow and Perch Creeks		St. Clair Region 2010	Indicator Description
	2005	2010		
Forest Cover %	8.9	8.0 D	11.4 D	<i>Forest Cover is the percentage of a watershed that is forested. Environment Canada recommends that 30% of a watershed should be forest and other natural cover to sustain native plants and animals.</i>
Forest Interior %	0.9	1.1 F	2.0 F	<i>Forest Interior is the core area inside a woodlot that some bird species need to breed successfully. The outer 100 m perimeter of a woodlot is prone to high predation, sun and wind damage, and alien species invasion.</i>
Forested Riparian Buffer %	No data	12.3 F	21.2 D	<i>Forested Riparian Buffer is the 30 m area that is forested on both sides of an open watercourse. Natural cover in this area aids in sediment and nutrient removal.</i>

The changes in forest condition percentages between the two time periods may reflect more accurate mapping, rather than an actual gain or loss of forest cover.

Forest Condition

F

The three forest condition indicators score a D, F and F, producing an overall grade of F. This watershed has poor forest cover, very poor riparian cover and very poor forest interior. The majority of the woodlands are less than 5 hectares in size. The percent forest cover (8.0%) is one of the lowest in the St. Clair Region and too low for sustainability. The target for southern Ontario is 30% forest cover. The percent forest interior (1.1%) is low indicating that most woodlots are too narrow to support area sensitive species such as Scarlet Tanager and Ovenbird. The target for southern Ontario is 10% forest interior. The percentage of the riparian zone that is forested (12.3%) is one of the lowest in the St. Clair Region, and much lower than the target of 50%.

Although there have been tree-planting projects in this watershed, forests grow very slowly, and recent reforestation efforts are not likely to be visible in aerial photography. Young trees are not considered to be forests until the trees are at least 3 m tall and a canopy is developing. Forest loss from land use changes will be visible from above.

Local Solutions to Improve Forest Condition

- Conserve woodlands and wetlands through designations in Official Plans, support the woodlands and tree conservation bylaws and provide incentives and education for landowners
- Natural vegetation cover can be increased in urban areas by naturalizing public parks and open spaces
- Plant native species such as dogwood and wild rose for landscaping along the shoreline, to help prevent shoreline erosion without introducing exotic species



Highlights Since 2005

- Private landowners completed 12 stewardship projects including wetland enhancement and extensive tree and shrub plantings
- Lambton Wildlife Inc. helped to conserve, protect and restore natural areas and to share their appreciation of nature with others
- Sarnia Urban Wildlife Committee helped maintain public natural areas within Canatara Park
- Waste Management Canada worked with abutting landowners and the SCRCA to naturalize native habitats at Blackwell Trails Park

Surface Water Quality

D
Declining

The surface water quality indicators score F and D producing an overall grade of D (using the provincial grading system).

Levels of phosphorus have increased to eight times the Ministry of the Environment (MOE) guideline. They have deteriorated significantly since 2005 when they were still elevated, but at five times the MOE guideline.

Bacteria readings are not available for this watershed.

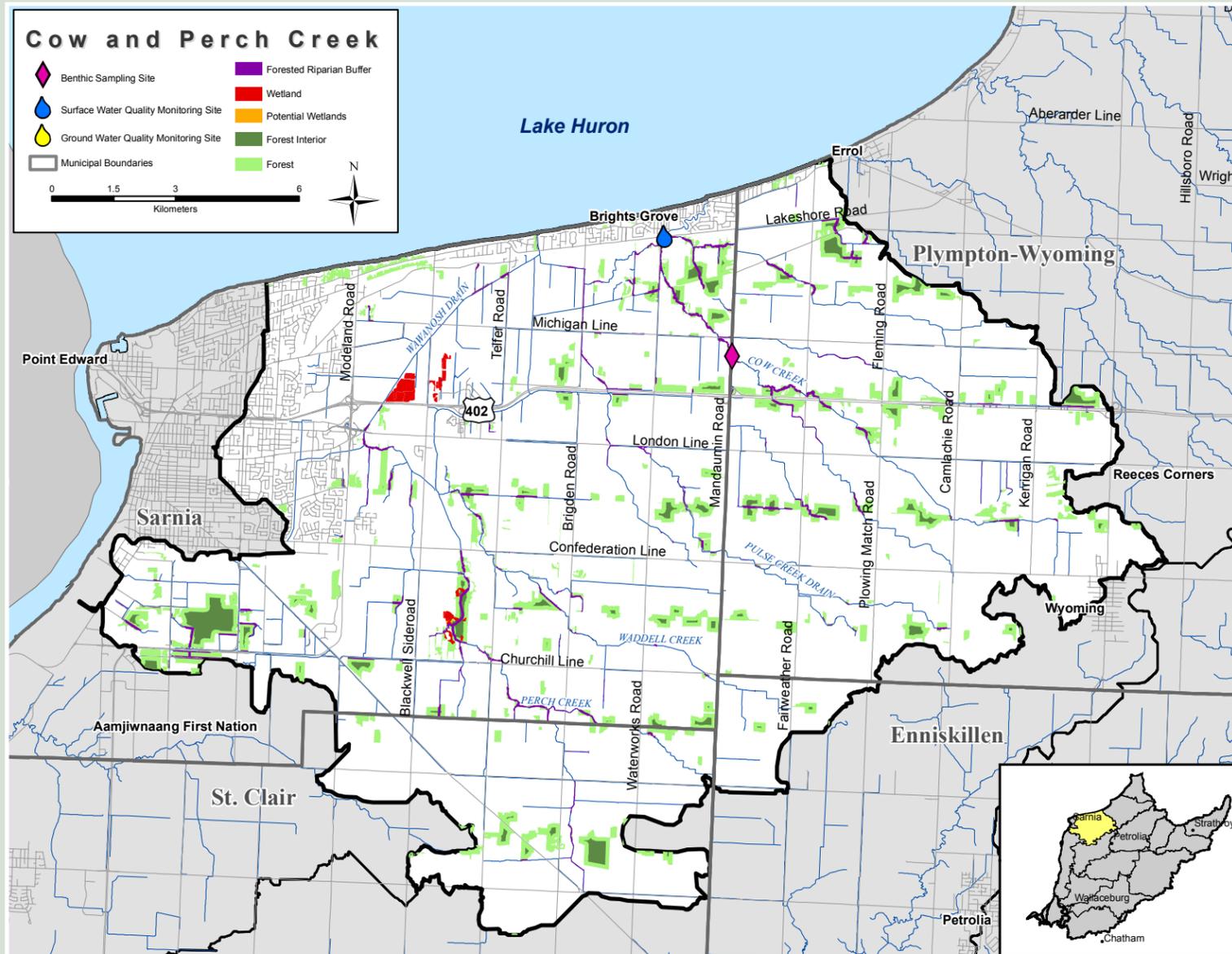
Water quality based on benthic scores have also deteriorated since 2005

Local Solutions to Improve Water Quality

- Develop and maintain streamside buffers along one side of all watercourses, especially municipal drains. Follow OMAF recommendations along open watercourses for grassed buffer strips or drop-tube inlets for sediment control, and erosion protection at all tile outlets. Limit use of equipment on sensitive areas like shorelines and stream banks
- Implement environmental practices on golf courses, such as the Audubon Sanctuary Program
- Organize beach cleanups and consider applying for Blue Flag Beach or Green Flag Beach designation

Impacts of Climate Change

- We can expect more severe weather: more storms with intense rainfall or snow; and more extended droughts.
- We can expect flooding conditions more often throughout the summer.
- Warmer temperatures will result in shifts in species diversity and will put pressure on species at risk.
- Less predictable weather increases the need to carry out stewardship projects and improved stormwater management to help protect watersheds.



Cow and Perch Creeks

Watershed Features

Area	266 km ² , 6.4% of the St. Clair Region watershed					
Municipalities	Sarnia (141 km ²), Plympton-Wyoming (86 km ²), St. Clair (33 km ²), Enniskillen (6 km ²)					
First Nations	Aamjiwnaang First Nation (1 km ²)					
Physiography	84% bevelled till plain; 6% peat and muck; 5% sand plain; 4% till plain; 1% beach and shore cliff; 1% not mapped					
Soil Type	91% silt and clay; 3% sand loam; 3% silt and clay loam; 1% bottom land and beach; 1% organic; 1% loam					
Streamflow	The mean annual flow is 0.82 cubic metres per second (cms) measured in Perch Creek at London Road west of Michigan Side Road. The watercourse is a channelized municipal drain throughout that reach. From 2006-2010, annual flows varied widely from the mean, ranging from 0.67 to 1.27 cms. The previous period, from 2003-2005, annual flows were below the mean, with 0.63, 0.67 and 0.54 cms.					
Precipitation	The average annual precipitation at Sarnia from 2002-2010 was 837 mm. From 2006-2010, levels varied widely from this value, and ranged from 640 to 1080 mm. The previous period, from 2002-2005, was closer to the mean, ranging from 707 to 980 mm.					
Air Temperature	The average annual temperature at Sarnia is 8.7°C. From 2006 to 2010, average annual temperatures were close to the normal, ranging from 8.0 to 9.8°C. The previous period of record, 2002-2005, ranged from 7.6 to 9.1°C.					
Tileage	14% randomly tiled; 49% systematically tiled; 38% unknown drainage					
Watercourse Length & Type	Total length: 369 km Watercourse type: 10% natural; 53% open municipal drain; 5% buried; 32% unclassified					
Dams and Barriers	No dams					
Sewage Treatment Plants	The Brights Grove wastewater lagoons discharge treated effluent seasonally to McIntyre Drain which is a tributary of Cow Creek.					
Fisheries Resources	19 fish species have been recorded. Game fish include Yellow Perch. No freshwater mussel species have been documented, but more sampling is needed.					
Species at Risk	Plants: Riddell's Goldenrod Birds: Bobolink Reptiles: Butler's Gartersnake Insects: Rusty-patched Bumble Bee					
Stewardship Projects	12 stewardship projects were completed in this watershed from 2006 to 2010, including the planting of 23,130 trees and shrubs. Memorial Forest and Conservation Area tree planting from 1988 to 2012 includes an additional 2 projects (59,945 trees and shrubs).					
Groundwater	There is a shallow overburden aquifer along the lake front in the sand plain east of Sarnia that is of reasonable quality and quantity. Farther inland the only aquifer is deep, has high sodium and chloride and is of limited quantity. Most residents are supplied by municipal water that is piped from Lake Huron.					
Wetland Cover	59 ha (0.2% of the watershed) are identified as wetlands by MNR. One additional hectare is identified by SCRCA as potential wetlands.					
Woodlot Size	Size Category	Number of Woodlots	% of Woodlots	Total Woodland Area (ha)	% of Total Woodland Area	Largest Woodlot (ha) 133
	<5 ha	170	63	312	15	
	5-10 ha	39	14	284	13	
	10-30 ha	50	19	919	43	
	>30 ha	11	4	629	29	
	Total	270		2,145		

