Lake St. Clair Trib Watershed Report Card 2013

This report card summarizes surface water quality and forest condition in the Lake St. Clair Tributaries 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

Indicator	Lake St. Clair Tributaries		St. Clair Region	Provincial	Indicator Description	
	2005	2010	2010	Guideime		
Total Phosphorus (mg/L)	0.08	0.09 D Steady	0.13 D	0.03	Phosphorus is found in products such as detergents, fertilizer and pesticides, and contributes to excess algae and low oxygen in streams and lakes.	
Bacteria (# <i>E.</i> <i>coli</i> /100mL)	No data	No data	169 C	100 (recreational use)	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.	
Benthic Score (FBI)	7.2	7.0 F Steady	5.9 D	None	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 rangi from 1 (healthy) to 10 (severely degraded).	

FOREST CONDITION

Indicators	Lake St. Clair Tributaries		St. Clair Region	Indicator Description	
	2005	2010	2010		
Forest Cover %	5.8	5.4 D	11.4 D	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.	
Forest Interior %	1.7	1.8 F	2.0 F	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.	
Forested Riparian Buffer %	No data	3.0 F	21.2 D	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.	

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.



Steady

Forest Condition

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, including the largest woodlot in the St. Clair Region, is concentrated on First Nation lands. The percent forest cover for the watershed (5.4%) is 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 (1.8%) 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 (3.0%) is well below the target of 50%.

F

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

- Support woodlot owners through landowner incentives and education
- Conserve natural areas including wetlands, woodlands and prairie remnants
- Connect woodlots by planting windbreaks and buffers along fields and watercourses, which will also protect against soil erosion and improve water quality





Highlights Since 2005

- Landowners completed 7 stewardship projects
- Over 5,000 trees and shrubs were planted on private properties
- The Municipality of Chatham-Kent continued to work toward their goal of 10% tree cover , and financed Greening Partnerships to support this goal



Surface Water Quality

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

D Steady

Levels of phosphorus remain elevated at three times the Ministry of the Environment (MOE) guideline. They have not changed significantly since 2005.

Fecal bacteria values are not available for this watershed.

Water quality based on benthic scores remained steady since 2005 at F.

Local Solutions to Improve Water Quality

- Implement Environmental Farm Plans, particularly for fertilizer and nutrient management, to reduce nutrient loss
- Maintain erosion protection for all tile outlets
- Develop and maintain streamside buffers along one side of all watercourses, especially municipal drains. Planting and protecting buffers will stabilize the banks and filter runoff

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.



Lake St. Clair Tributaries

Watershed Features

Area	484 km², 11.7% of the St. Clair Region watershed											
Municipalities	Chatham-Kent (338 km ²)											
First Nations	Walpole Island First	Nation (146 km ²)										
Physiography	62% sand plain; 36% clay plain; 2% peat and muck											
Soil Type	36% sand loam; 31% silt and clay; 17% organic; 7% silt and clay loam; 6% loam; 4% not mapped											
Streamflow	Most of this watershed is at or below the normal level of Lake St. Clair. The watercourses in this watershed are municipal drains and flows are regulated by controlled pumping systems.											
Precipitation	The average annual precipitation at Wallaceburg from 2002-2010 was 887 mm. From 2006-2010, levels were usually below this value, and ranged from 848 to 1022 mm. The previous period, from 2002-2005, was at or below the mean, ranging from 749 to 963 mm.											
Air Temperature	The average annual temperature at Wallaceburg is 10.3°C. From 2006 to 2010, average annual temperatures were close to the normal, ranging from 10.1-11.4°C. The previous period of record, 2002-2005, was cooler with a range of 9.2 to 10.5°C.											
Tileage	7% randomly tiled; 57% systematically tiled; 36% unknown drainage											
Watercourse Length & Type	Total length: 521 km Watercourse type: 0% natural; 83% open municipal drain; 1% buried; 16% unclassified											
Dams and Barriers	1 private dam and 4 municipal dams on various watercourses including Rankin Creek											
Sewage Treatment Plants	Mitchell's Bay wastewater lagoons release treated effluent to Rankin Creek Drain below Main Street.											
Fisheries Resources	18 fish species have been recorded. Game fish include Northern Pike and Largemouth Bass. No freshwater mussel species have been documented, but more sampling is needed.											
Species at Risk	Plants: Climbing Prairie Rose, Common Hoptree, Dense Blazingstar, Eastern Prairie White-fringed Orchid, Gattinger's Agalinis, Kentucky Coffee-tree, Pink Milkwort, Purple Twayblade, Riddell's Goldenrod, Showy Goldenrod, Skinner's Agalinis, Small White Lady's-slipper, Swamp Rosemallow, White Prairie Gentian, Willowleaf Aster Reptiles: Butler's Gartersnake, Northern Map Turtle, Blanding's Turtle, Snapping Turtle, Spiny Softshell Turtle Birds: Black Tern, Bobolink, King Rail, Least Bittern, Northern Bobwhite Fish: Channel Darter, Grass Pickerel, Lake Chubsucker, Pugnose Minnow, Pugnose Shiner, Silver Chub, Spotted Sucker Mussels: Kidneyshell, Fastern Pondmussel, Round Hickorynut, Round Pintoe											
Stewardship Projects	7 stewardship projects have been completed in this watershed from 2006 to 2010, including the planting of 5,150 trees and shrubs.											
Groundwater	Both deep (bedrock) and shallow (overburden) aquifers are found in this watershed. The bedrock formation water has elevated levels of salt (sodium) and often has natural gas deposits which can be dangerous in wells. The shallow aquifers which are found here are vulnerable to above-ground activities and to drought. Most residents use piped water from the Chatham-Kent Intake on Lake Erie near Wheatley. First Nation residents are supplied by piped water from a St. Clair River intake.											
Wetland Cover	335 ha (0.7% of the watershed) are identified as wetlands by MNR. Screening by the SCRCA did not identify any potential wetlands.											
	Size Category	Number of Woodlots	% of Woodlots	Total Woodland Area (ha)	% of Total Woodland Area	Largest Woodlot (ha)						
	<5 ha	153	71	315	12	353						
Woodlot Size	5-10 ha	23	11	161	6							
	10-30 ha	21	10	360	14							
	>30 ha	17	8	1,803	68							
	Total	214		2,638								



St. Clair Region Conservation Authority 205 Mill Pond Crescent, Strathroy ON N7G 3P9 E-mail: scrca@scrca.on.ca Web site: www.scrca.on.ca Phone (519) 245-3710