# Lower East Sydenham
## Watershed Report Card 2013

This report card summarizes surface water quality and forest condition in the Lower East Sydenham watershed 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

Improving **C**

| Indicator | Lower East Sydenham | | St. Clair Region | Provincial Guideline | Indicator Description |
|---|---|---|---|---|---|
| | 2005 | 2010 | 2010 | | |
| **Total Phosphorus (mg/L)** | 0.13 | **0.08 D Improving** | 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 (#*E. coli*/100mL)** | 86 | **50 B Steady** | 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)** | 5.5 | **5.5 C 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 ranges from 1 (healthy) to 10 (severely degraded).* |

## FOREST CONDITION

**F**

| Indicators | Lower East Sydenham | | St. Clair Region | Indicator Description |
|---|---|---|---|---|
| | 2005 | 2010 | 2010 | |
| **Forest Cover %** | 5.9 | **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 %** | 0.4 | **0.4 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 | **12.3 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.**

## Forest Condition

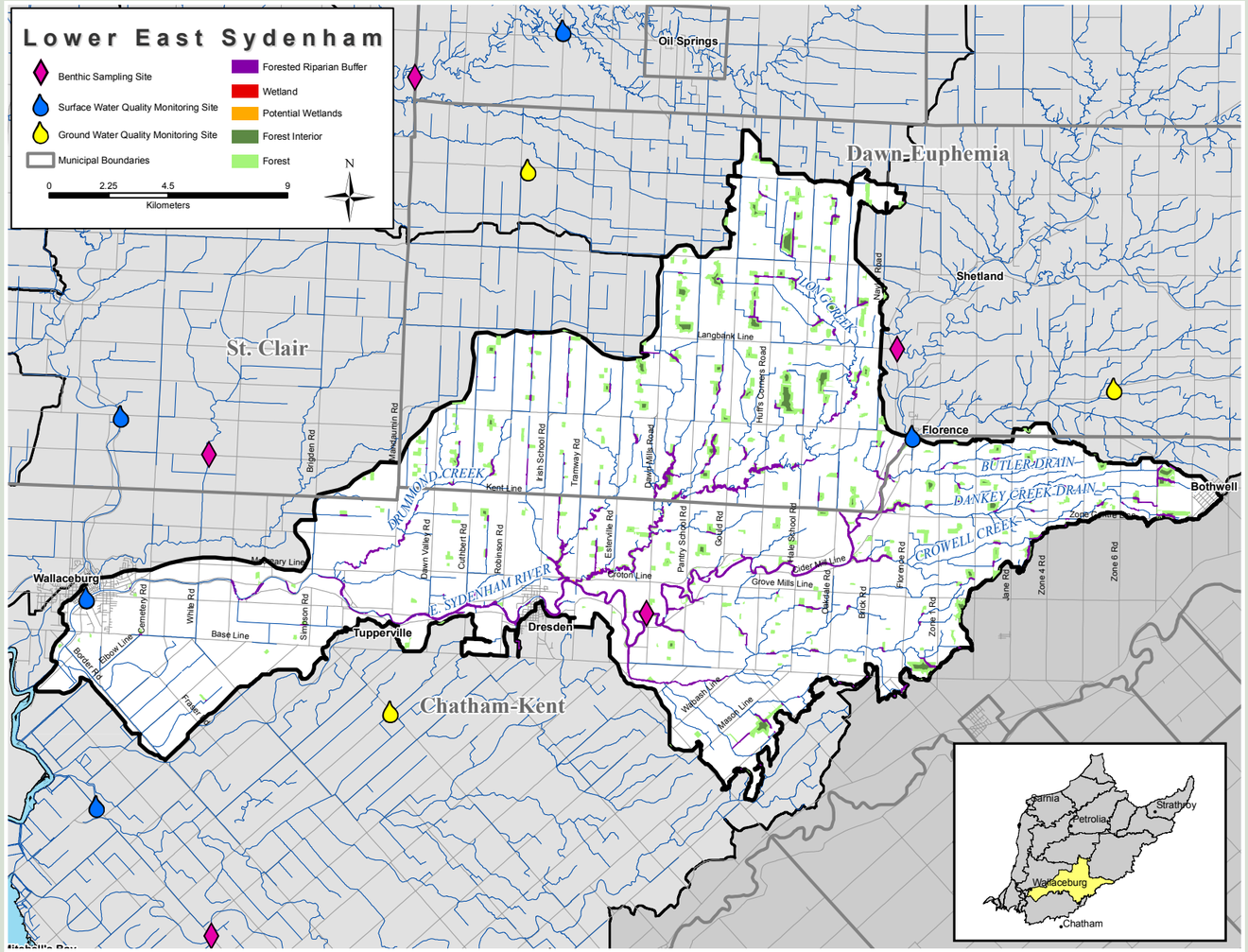
**F**

The three forest condition indicators score a D, F and F, producing an overall grade of F. This watershed has poor forest cover, poor riparian cover and very poor forest interior. The majority of the woodlands are less than 5 hectares in size. The percent forest cover (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 (0.4%) is very low indicating that the few existing 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 the second lowest in the St. Clair Region and much lower than the target of 50%.

The forest condition is very poor, with indicator values at less than half of the average for the St. Clair Region. Even the largest woodlot is small by regional standards. 80% of the watershed's forest cover is provided by woodlots smaller than 30 ha. Tree plantings have largely been linear windbreaks, rather than areas of sufficient acreage to support woodland values.

### Local Solutions to Improve Forest Condition

- Plant trees as windbreaks for erosion control
- Consider joining the Lambton County Woodlot Owners Association, to tour local woodlands and meet woodlot owners
- Volunteer with local citizens to plant and maintain native trees on public properties in Wallaceburg and Dresden


## Highlights Since 2005

- Dresden Horticultural Society increased appreciation of native trees and the Sydenham River through maintaining native trees and the Trillium Trail in Dresden
- Sydenham Field Naturalists worked with Chatham-Kent to protect and manage public woodlands
- Private landowners in the watershed completed 13 stewardship projects, including a wetland restoration

## Surface Water Quality

**C** Improving

The surface water quality indicators score D, B and C producing an overall grade of C (using the provincial grading system). This grade is better than the St. Clair Region average and has improved since the last report card. The improved Surface Water Quality values may be due to increased dilution from increased precipitation in the region, and from the St. Clair River waters entering the lower Sydenham via Running Creek.

Levels of phosphorus have improved significantly since 2005, although they remain high at almost three times the Ministry of the Environment (MOE) guideline.
Fecal bacteria have decreased slightly since 2005, and continue to indicate ongoing contamination from human and animal waste.

Water quality based on benthic scores has remained consistent since 2005. The score continues to be a C grade, which is better than the St. Clair Region average.

### Local Solutions to Improve Water Quality

- Implement Environmental Farm Plans, particularly for fertilizer and nutrient management, to reduce nutrient loss
- Fix faulty septic systems and establish a septic maintenance plan
- Municipalities should use Best Management Practices along municipal drains to reduce sediment loss, shade the watercourse and hold on to soil and nutrients

### 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.

# Lower East Sydenham
## Watershed Features

| | |
|---|---|
| Area | 397 km$^2$, 9.6% of the St. Clair Region watershed |
| Municipalities | Chatham-Kent (245 km$^2$), Dawn-Euphemia (150 km$^2$), St. Clair (2 km$^2$) |
| First Nations | None |
| Physiography | 42% bevelled till plain; 37% sand plain; 21% clay plain |
| Soil Type | 63% silt and clay; 18% sand loam; 7% loam; 6% silt and clay loam; 4% bottom land and beach; 2% not mapped |
| Streamflow | The mean annual flow in the Sydenham at the top of this watershed was 12.61 cms in Florence and from 2006-2010, annual flows varied widely from 7.46 to 19.6 cms. The river bottom is at lake level by Dawn Mills therefore flow at Dresden and downstream is influenced by lake levels and wind effects. The mean annual flow measured at Dresden is 16.80 cms and ranged widely, from 8.33 to 27.30 cms from 2006-2010. The previous period, from 2003-2005, flows were usually below the means, with 8.57, 11.9 and 12.2 cms at Florence and 11.40, 11.1 and 22.3 cms at Dresden. |
| 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 to 11.4°C. The previous period of record, 2002-2005, was cooler with a range of 9.2 to 10.5°C. |
| Tileage | 22% randomly tiled; 59% systematically tiled; 19% unkown drainage |
| Watercourse Length & Type | Total length: 594 km<br>Watercourse type: 18% natural; 68% open municipal drain; 1% buried; 13% unclassified |
| Dams and Barriers | 2 dams, including 1 public dam |
| Sewage Treatment Plants | An environmental assessment has been started for a municipal treatment system for Florence. The Dresden Wastewater Treatment Plant (WWTP) outlets treated effluent to the Sydenham River at the downstream end of Dresden. The Wallaceburg WWTP outlets treated effluent to the Sydenham River at the downstream end of Wallaceburg. |
| Fisheries Resources | 51 fish species and 26 freshwater mussel species have been recorded. Game fish include Northern Pike, Largemouth and Smallmouth Bass, and Walleye. |
| Species at Risk | Plants: Butternut, Dense Blazingstar, Kentucky Coffee-tree, Purple Twayblade, Eastern Flowering Dogwood<br>Reptiles: Northern Map Turtle, Eastern Spiny Softshell Turtle, Snapping Turtle<br>Birds: Bobolink<br>Fish: Pugnose Minnow, Blackstripe Topminnow, Eastern Sand Darter, Spotted Sucker<br>Mussels: Kidneyshell, Mudpuppy Mussel, Northern Riffleshell, Rayed Bean, Round Hickorynut, Round Pigtoe, Snuffbox, Mapleleaf, Threehorn Wartyback |
| Stewardship Projects | 13 stewardship projects have been completed in this watershed from 2006 to 2010, including the planting of 3,170 trees and shrubs. Memorial Forest and Conservation Area tree planting from 1988 to 2012 includes an additional project (84 trees and shrubs). |
| Groundwater | The groundwater that occurs at the bedrock interface is very patchy in distribution and has elevated sodium levels. There are some shallow wells in the scattered sand lenses. Most of the area is serviced by municipal piped water from the Lake Huron intake at Sarnia. Wallaceburg has an intake on the Chenal Ecarte. Dresden and Tupperville are supplied by the Chatham-Kent intake on Lake Erie. |
| Wetland Cover | No wetlands are identified in this watershed by MNR. 4 ha (0.01% of the watershed) are 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) |
|---|---|---|---|---|---|
| **<5 ha** | 209 | 63 | 446 | 21 | 60 |
| **5-10 ha** | 60 | 18 | 433 | 20 | |
| **10-30 ha** | 54 | 16 | 824 | 39 | |
| **>30 ha** | 10 | 3 | 436 | 20 | |
| **Total** | **333** | | **2,139** | | |

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