

Lower North Sydenham

SUBWATERSHED

Report Card 2018



The St. Clair Region Conservation Authority has prepared this series of 14 subwatershed report cards as a summary of the state of the forests, wetlands, and water resources in the St. Clair Region.





LOWER NORTH SYDENHAM SURFACE WATER QUALITY

C GRADE

Surface Water Quality

Using a provincial grading system, the three surface water quality indicators score one A grade and two D grades, producing an overall grade of C for the Lower North Sydenham subwatershed. Total phosphorus (TP) levels are slightly below the average for the St. Clair Region but are still elevated at four times the provincial guideline. Maintaining TP levels below the Interim Provincial Water Quality Objective is intended to control excessive plant growth in rivers and streams and to protect aquatic life. *Escherichia coli* (*E. coli*) levels are the lowest for the St. Clair Region and are within the provincial guideline for safe recreational use of water. The TP and *E. coli* concentrations may be influenced by dilution at the sampling site from the St. Clair River waters backflowing into the lower North Sydenham River. The stream health grade measured by sampling benthic invertebrate communities is worse than the average for the St. Clair Region and suggests that substantial organic pollution is likely and water quality is fairly poor.

Local Actions to Improve Water Quality

- Develop an Environmental Farm Plan and implement agricultural Best Management Practices;
- Plant and maintain vegetated streamside buffers on one side of municipal drains and along both sides of other watercourses to stabilize the banks, shade the water, and capture nutrients;
- Fix faulty septic systems and establish a septic maintenance plan;
- Create or restore wetlands to trap nutrients, mitigate flooding, and improve habitat.

INDICATOR	LOWER NORTH SYDENHAM			ST. CLAIR REGION AVERAGE	PROVINCIAL GUIDELINE	INDICATOR DESCRIPTION
	2001-2005	2006-2010	2011-2015	2011-2015		
Total Phosphorus (mg/L)	0.15 D	0.13 D	0.12 D	0.15 D	0.03 B	Phosphorus is found in products such as detergents, fertilizers, and pesticides. Phosphorus contributes to excess algae growth and low oxygen levels in streams and lakes.
Bacteria (CFU <i>E. coli</i> /100ml)	No data	No data	23 A	211 C	100 B (recreational use)	<i>Escherichia coli</i> (<i>E. coli</i>) bacteria is found in human and animal (e.g., livestock, wildlife) waste. Its presence in water indicates fecal contamination and is a strong indicator that other disease-causing pathogens are present in the watercourse.
Benthic Score (FBI)	6.62 F	6.30 D	5.95 D	5.73 C	<5.00 B (unofficial)	Benthic invertebrates are small animals without backbones that live in stream sediments. The pollution tolerances of taxa present in benthic samples are used to calculate the Family Biotic Index (FBI). The FBI ranges from 0 (excellent water quality) to 10 (very poor water quality).
Overall Grade	D	D	C	D		



LOWER NORTH SYDENHAM FOREST CONDITIONS

D GRADE

Forest Conditions

For the Lower North Sydenham subwatershed, the three forest conditions indicators score two D grades and an F grade, producing an overall grade of D. The percent forest cover (9.6%) is below the average for the St. Clair Region and is one-third of the recommended cover needed to support natural species diversity and water quality. The percent forest interior (1.3%) is among the lowest in the St. Clair Region and is considered very poor as it is one-eighth of the recommended value. This indicates that most woodlots are too narrow to support area-sensitive species, such as Scarlet Tanager and Ovenbird. The Environment Canada guideline for southern Ontario is 10% forest interior. The percentage of the riparian zone that is forested (14.0%) is below the average for the St. Clair Region, and is one-quarter of the 50% target.

Any changes in forest cover, either from forest loss or reforestation efforts, is visible using aerial photography. Although there have been a significant number of recent tree planting projects in this subwatershed, forests grow slowly, and young trees are not considered to be forests until they are at least 3 m tall and are developing a canopy.

Local Actions to Improve Forest Conditions

- Establish and enlarge woodlots using a variety of native species to reduce the impact of aggressive insects and extreme weather events on tree health;
- Woodlot owners should prepare and follow Woodlot Management Plans;
- Connect woodlots by planting shelterbelts, windbreaks, and buffers along fields and watercourses to enhance wildlife habitat, protect against soil erosion, and improve water quality.

INDICATOR	LOWER NORTH SYDENHAM			ST. CLAIR REGION AVERAGE	PROVINCIAL GUIDELINE	INDICATOR DESCRIPTION
	2001-2005	2006-2010	2011-2015	2011-2015		
Percent Forest Cover (%)	9.4 D	9.8 D	9.6 D	12.0 D	30.0 B	Percent forest cover is the percentage of the watershed that is forested. Forests are necessary to produce oxygen, store carbon, and offer many ecological services that are essential to the well-being of both humans and wildlife.
Percent Forest Interior (%)	1.1 F	1.4 F	1.3 F	2.1 F	10.0 B	Percentage of the watershed that is forest interior. Forest interior is the core area inside a woodlot that is more than 100 m from the edge. The outer 100 m is 'edge' habitat and is prone to high predation, sun/wind damage, and alien species invasion.
Percent Forested Riparian Buffer (%)	No data	14.1 D	14.0 D	23.1 D	50.0 B	Percent forested riparian buffer is the percentage of forest cover within a 30 m zone along both sides of all open watercourses. Natural cover in this zone prevents sediment and nutrients from entering the water.
Overall Grade	D	D	D	D		



LOWER NORTH SYDENHAM WATERSHED FEATURES

Area	253 km ² , 6.1% of the St. Clair Region watershed
Municipalities	St. Clair (159 km ² , 63%), Chatham-Kent (49 km ² , 19%), Dawn-Euphemia (45 km ² , 18%)
Physiography	62% bevelled till plains; 37% clay plains; 1% sand plains
Soil Type	93% silt and clay; 3% loam; 2% bottom land and beach; 1% sand loams; 1% not mapped; 1% silt and clay loams; <1% water
Streamflow	The river bottom is at lake level throughout this subwatershed, therefore, flow is heavily influenced by lake levels and wind effects. Water levels are monitored at the McKeough Dam and in Wallaceburg.
Precipitation	The average annual precipitation at Wallaceburg from 2002-2015 was 871 mm. From 2011-2015, the annual precipitation varied widely around this value ranging from 657 to 1,226 mm. The previous period, 2006-2010, was wetter with the values close to or above the mean ranging from 848 to 1,022 mm.
Air Temperature	The average annual temperature at Wallaceburg from 2002-2015 was 10.4°C. From 2011 to 2015, average annual temperatures ranged more widely from 9.4 to 12.2°C than during the previous period, 2006-2010, which experienced more stable temperatures ranging of 10.1 to 11.4°C.
Tile Drainage	23% not tiled; 8% randomly tiled; 70% systematically tiled
Watercourse Length and Type	Total length: 277 km Watercourse type: 13% natural, 74% municipal drain, 12% unclassified
Dams and Barriers	Two dams, including the McKeough Dam – a public dam that remains open during normal conditions.
Sewage Treatment	Rural residents are serviced by private septic systems.
Fisheries Resources	Fifty-six fish species recorded; game fish include Yellow Perch, Walleye, and Large and Smallmouth bass. Seven freshwater mussel species have been documented, including Deertoe, Fatmucket, Giant Floater, Fragile Papershell, Lilliput, Spike and Paper Pondshell.

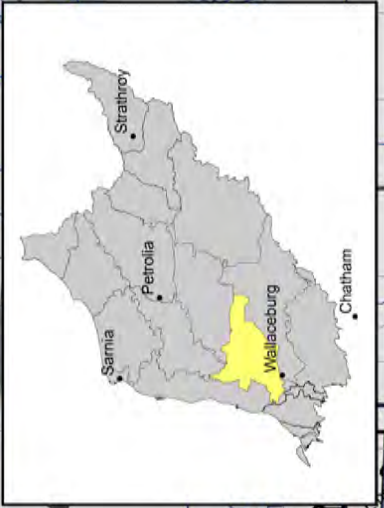
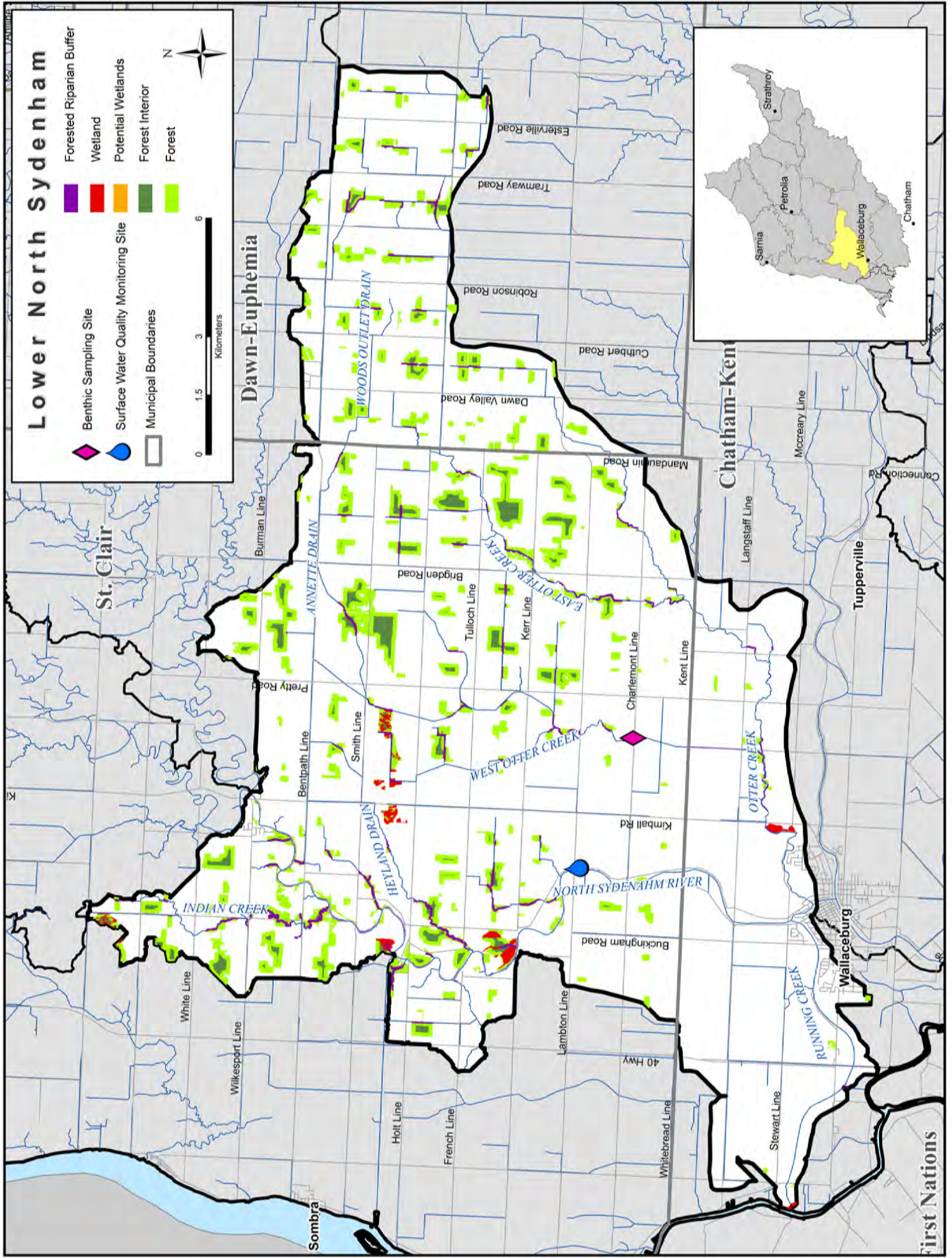


LOWER NORTH SYDENHAM WATERSHED FEATURES

<p>Species at Risk</p>	<p>Birds: Acadian Flycatcher, Bank Swallow, Barn Swallow, Bobolink, Cerulean Warbler, Chimney Swift, Eastern Meadowlark, Least Bittern, Prothonotary Warbler, Yellow-breasted Chat</p> <p>Fishes: Blackstripe Topminnow, Channel Darter, Eastern Sand Darter, Lake Sturgeon, Pugnose Minnow, Spotted Sucker</p> <p>Mammals: American Badger, Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis</p> <p>Mulloscs: Fawnsfoot, Kidneyshell, Mapleleaf Mussel, Northern Riffleshell, Rayed Bean, Round Hickorynut, Round Pigtoe, Salamander Mussel, Snuffbox, Wavy-rayed Lampmussel</p> <p>Plants: American Chestnut, American Ginseng, Blue Ash, Butternut, Climbing Prairie Rose, Common Hop-tree, Eastern Flowering Dogwood, False Hop Sedge, Goldenseal, Kentucky Coffee-tree, Purple Twayblade, Shumard Oak, Spoon-leaved Moss, Swamp Rose-mallow</p> <p>Reptiles: Blanding's Turtle, Butler's Gartersnake, Eastern Foxsnake, Eastern Hog-nosed Snake, Spiny Softshell</p>					
<p>Groundwater</p>	<p>The only aquifer is at the interface between the overburden and the bedrock, and is known as the Fresh Water Aquifer. It has high sodium and chloride and has limited quantity. Therefore, most of the residents are supplied by municipal piped water from Lake Huron intakes. Wallaceburg residents have a municipal intake on the Chenal Ecarte.</p>					
<p>Wetland Cover</p>	<p>79 ha or 0.3% of the subwatershed is identified as wetlands by the Ministry of Natural Resources and Forestry. Screening by the St. Clair Region Conservation Authority (SCRCA) did not identify any other potential wetlands. Wetlands are vital to the landscape as they reduce flooding and filter water. Environment Canada recommends a minimum of 6% wetland cover at a subwatershed scale.</p>					
<p>Woodlot Size</p>	<p>Size Category</p>	<p>Number of Woodlots</p>	<p>% of Woodlots</p>	<p>Total Woodland Area (ha)</p>	<p>% of Total Woodland Area</p>	<p>Largest Woodlot (ha)</p>
	<p><5 ha</p>	<p>137</p>	<p>55</p>	<p>312</p>	<p>13</p>	
	<p>5-10 ha</p>	<p>41</p>	<p>15</p>	<p>311</p>	<p>13</p>	
	<p>10-30 ha</p>	<p>51</p>	<p>21</p>	<p>857</p>	<p>36</p>	<p>79</p>
	<p>>30 ha</p>	<p>20</p>	<p>9</p>	<p>934</p>	<p>39</p>	
	<p>Total</p>	<p>249</p>		<p>2,414</p>		

Lower North Sydenham

-  Benthic Sampling Site
-  Surface Water Quality Monitoring Site
-  Municipal Boundaries
-  Forested Riparian Buffer
-  Wetland
-  Potential Wetlands
-  Forest Interior
-  Forest



First Nations

LOWER NORTH SYDENHAM HIGHLIGHTS

Highlights and Progress Since 2011

- There were 31 landowner stewardship projects completed in the Lower North Sydenham subwatershed from 2011 to 2018. These projects included the restoration of wetlands, creation of tall grass prairie habitat, and the planting of trees, windbreaks and riparian buffers. More than 61,200 trees were planted and the total value of all the projects was \$281,600 (65% grants).
- In 2012, with the assistance of many local partners, the SCRCA acquired the 11-hectare Peers Wetland east of Wallaceburg (left photo). Peers Wetland is the only sizeable wetland that remains along the lower reaches of Otter Creek and is a popular place for nature lovers. In 2013, 5,000 trees and shrubs and 0.5 hectares of tallgrass prairie were planted adjacent to the wetland to provide a more diverse habitat.



- On an SCRCA-owned property adjacent to the North Sydenham River, a 4-tiered, 2.4-hectare wetland was created on the agricultural field where a large gully had been forming. A riparian buffer was also established – these important structures provide natural filtration of surface run-off and act as critical habitat for local Species at Risk.
- The SCRCA performs annual snake population surveys and enhances habitat by installing artificial snake nesting boxes on private and Authority-owned lands, targeting Species at Risk such as the Eastern Foxsnake. From 2015 to 2017, highschool student, Brandon Jordan, made valuable contributions to the program by volunteering to maintain and monitor these structures (right photo: Eastern Gartersnake).
- Through surveys of the Reid Conservation Area in 2012, 373 plant species were identified including 11 that are rare for Ontario and 74 plant species that are rare for Lambton County. Provincially rare plants included Shellbark Hickory, Cuckoo Flower and Rue-anemone. Eighty-four animal species were recorded including 11 regionally significant bird species, such as Northern Waterthrush and Scarlet Tanager.