

Lake St. Clair Tributaries

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.





LAKE ST. CLAIR TRIBUTARIES SURFACE WATER QUALITY

D GRADE

Surface Water Quality

Using a provincial grading system, the three surface water quality indicators score one B grade, one D grade, and one F grade, producing an overall grade of D for the Lake St. Clair Tributaries subwatershed. Total phosphorus (TP) levels are below the average for the St. Clair Region but are still elevated at over three 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 second 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 Lake St. Clair waters backflowing into its tributaries. The stream health grade measured by sampling benthic invertebrate communities is the worst in the St. Clair Region and suggests that very substantial organic pollution is likely and water quality is 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;
- Create or restore wetlands to trap nutrients, mitigate flooding, and improve habitat;
- Properly store chemicals and dispose of them through household hazardous waste days or drop-off locations.

INDICATOR	LAKE ST. CLAIR TRIBUTARIES			ST. CLAIR REGION AVERAGE	PROVINCIAL GUIDELINE	INDICATOR DESCRIPTION
	2001-2005	2006-2010	2011-2015	2011-2015		
Total Phosphorus (mg/L)	0.08 D	0.09 D	0.10 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	39 B	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)	6.90 F	7.01 F	7.06 F	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	D	D		



LAKE ST. CLAIR TRIBUTARIES FOREST CONDITIONS

F GRADE

Forest Conditions

For the Lake St. Clair Tributaries subwatershed, the three forest conditions indicators score a D and two F grades, producing an overall grade of F. This subwatershed has the largest woodlot in the St. Clair Region at 353 ha. The majority of the woodlands, including the largest woodlots in the St. Clair Region, are concentrated on First Nation lands. The percent forest cover (5.4%) is the second lowest for the St. Clair Region and is one-sixth of the recommended cover needed to support natural species diversity and water quality. The percent forest interior (1.8%) is below the average for the St. Clair Region and is considered very poor as it is one-sixth 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 (3.3%) is the lowest in the St. Clair Region, and is less than one-tenth 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 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;
- 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	LAKE ST. CLAIR TRIBUTARIES			ST. CLAIR REGION AVERAGE	PROVINCIAL GUIDELINE	INDICATOR DESCRIPTION
	2001-2005	2006-2010	2011-2015	2011-2015		
Percent Forest Cover (%)	5.8 D	5.4 D	5.4 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 (%)	1.7 F	1.8 F	1.8 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	3.0 F	3.3 F	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	F	F	D		



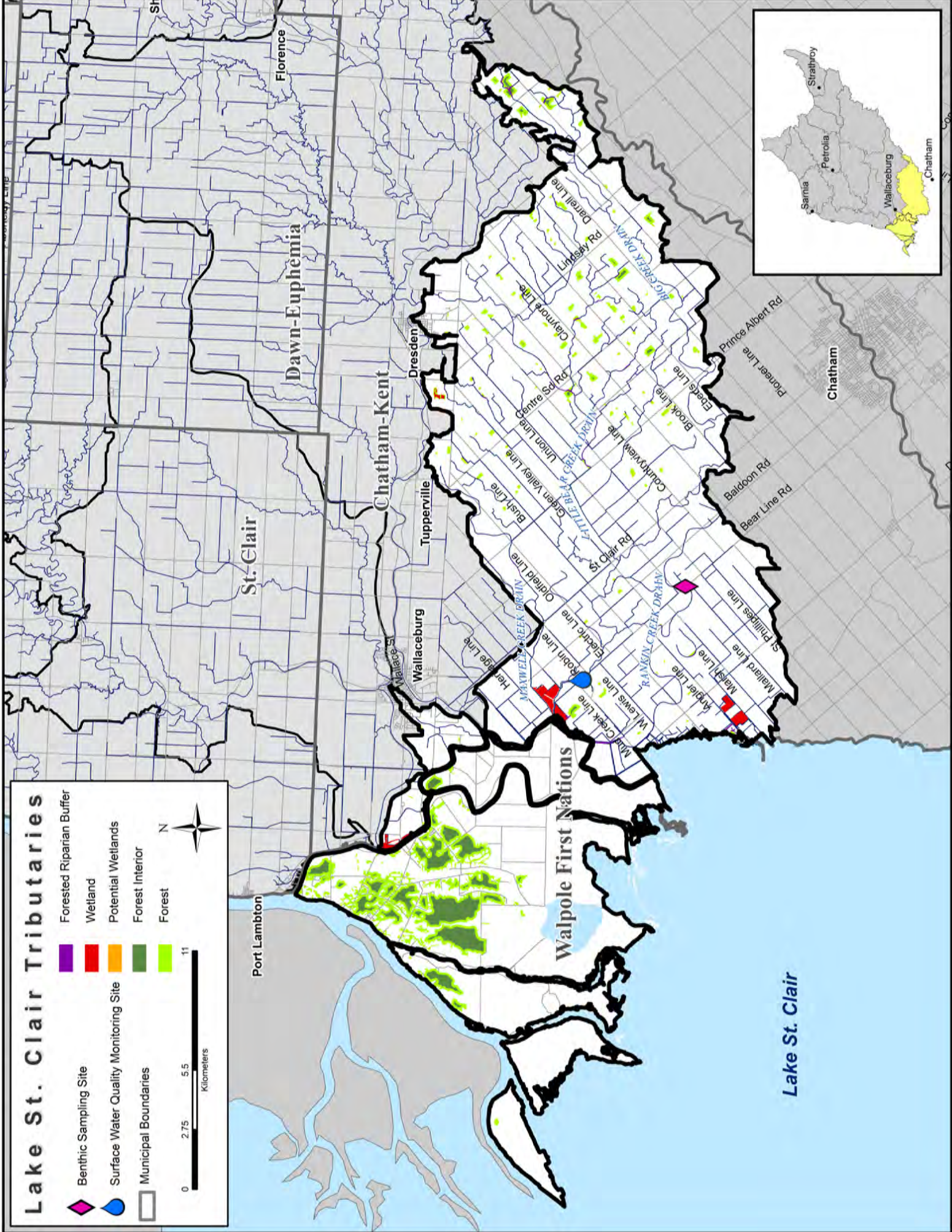
LAKE ST. CLAIR TRIBUTARIES WATERSHED FEATURES

Area	484 km ² , 11.7% of the St. Clair Region watershed
Municipalities	Chatham-Kent (338 km ² , 70%)
First Nations	Walpole Island First Nation (147 km ² , 30%)
Physiography	62% sand plains; 36% clay plains; 2% peat and muck
Soil Type	36% sand loams; 31% silt and clay; 17% organic; 7% silt and clay loams; 6% loam; 4% not mapped; <1% fine sand; <1% water
Streamflow	Most of this subwatershed is at or below the normal level of Lake St. Clair. The watercourses in this subwatershed are municipal drains and flows are regulated by controlled pumping systems.
Precipitation	The average annual precipitation at Wallaceburg from 2002-2015 was 871 mm. From 2011 to 2015, the annual precipitation varied widely around this value ranging from 657 to 1,226 mm. The previous period, 2006 to 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 to 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 to 2010, which experienced more stable temperatures ranging of 10.1 to 11.4°C.
Tile Drainage	37% not tiled; 6% randomly tiled; 57% systematically tiled
Watercourse Length and Type	Total length: 521 km Watercourse type: 0% natural, 84% municipal drain, 16% unclassified
Dams and Barriers	One private dam and four municipal dams on various watercourses including Rankin Creek.
Sewage Treatment	Mitchell's Bay Sewage Lagoon System releases treated effluent to Rankin Creek Drain below Main Street.
Fisheries Resources	Seventy-five fish species recorded; game fish include Northern Pike, Walleye, Yellow Perch, and Smallmouth and Largemouth Bass. Five freshwater mussel species have been recently documented including Wabash Pigtoe, Eastern Pondmussel, Fatmucket, Threeridge, and Rainbow.











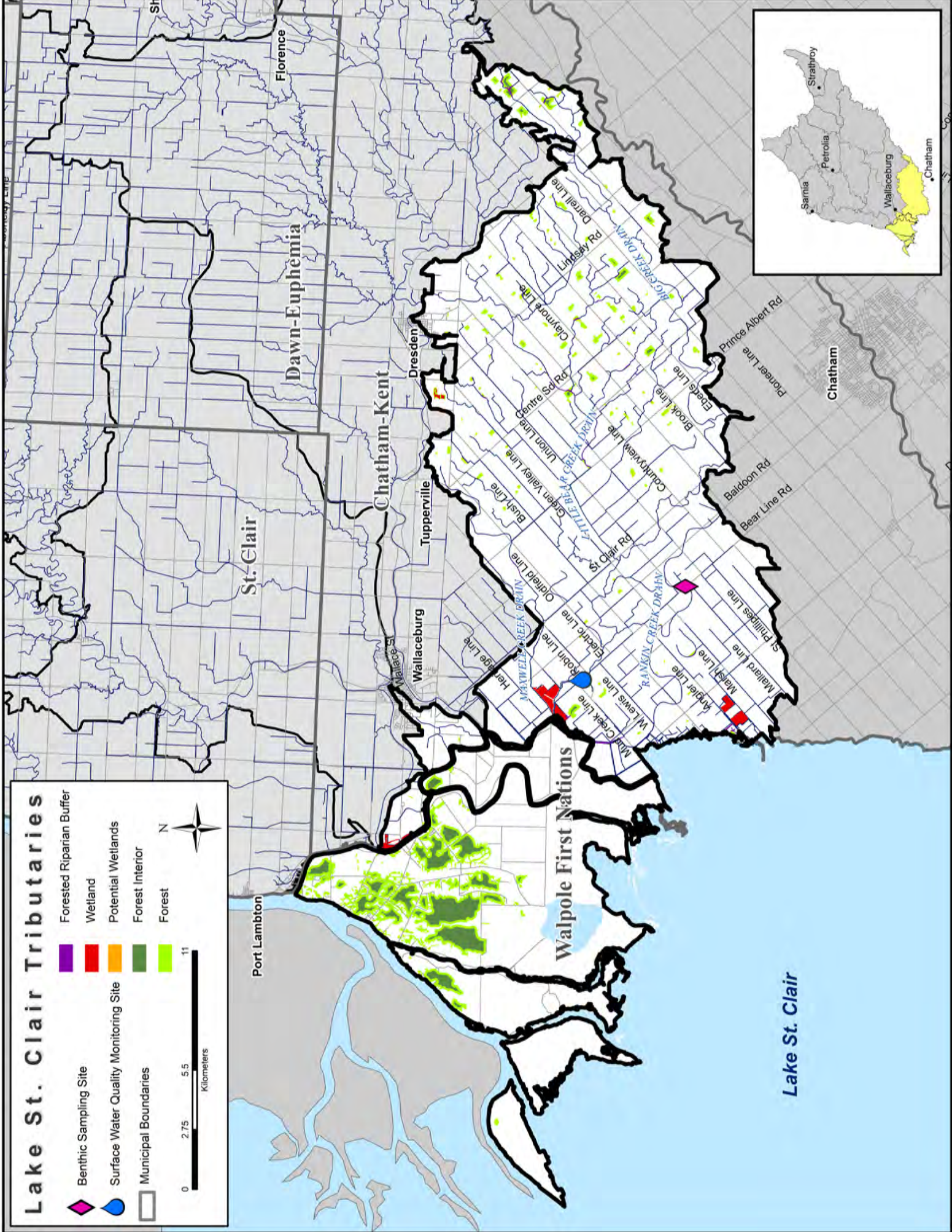
LAKE ST. CLAIR TRIBUTARIES WATERSHED FEATURES

<p>Species at Risk</p>	<p>Birds: Acadian Flycatcher, Bank Swallow, Barn Swallow, Black Tern, Bobolink, Chimney Swift, Eastern Meadowlark, King Rail, Least Bittern, Prothonotary Warbler</p> <p>Fishes: Brindled Madtom, Channel Darter, Ghost Shiner, Grass Pickerel, Lake Chubsucker, Lake Sturgeon, Northern Madtom, Pugnose Minnow, Pugnose Shiner, Silver Chub, Spotted Sucker</p> <p>Mammals: American Badger, Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis</p> <p>Mulloscs: Eastern Pondmussel, Kidneyshell, Rayed Bean, Round Hickorynut, Round Pigtoe, Wavy-rayed Lampmussel</p> <p>Plants: American Chestnut, Bitternut, Climbing Prairie Rose, Common Hop-tree, Dense Blazing-star, Eastern Flowering Dogwood, Eastern Prairie Fringed Orchid, Gattinger's False Foxglove, Goldenseal, Kentucky Coffee-tree, Pink Milkwort, Purple Twayblade, Riddell's Goldenrod, Skinner's False Foxglove, Swamp Rose-mallow, White Prairie Gentian, Willow-leaved Aster</p> <p>Reptiles: Common Five-lined Skink, Eastern Foxsnake, Northern Map Turtle, Snapping Turtle, Spiny Softshell</p>					
<p>Groundwater</p>	<p>Both deep (bedrock) and shallow (overburden) aquifers are found in this subwatershed. 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 found here are vulnerable to above-ground activities and drought. Most residents used 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.</p>					
<p>Wetland Cover</p>	<p>732 ha or 1.5% 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>157</p>	<p>71</p>	<p>311</p>	<p>12</p>	
	<p>5-10 ha</p>	<p>26</p>	<p>11</p>	<p>189</p>	<p>7</p>	
	<p>10-30 ha</p>	<p>19</p>	<p>8</p>	<p>338</p>	<p>13</p>	<p>353</p>
	<p>>30 ha</p>	<p>17</p>	<p>7</p>	<p>1,801</p>	<p>68</p>	
	<p>Total</p>	<p>219</p>		<p>2,639</p>		



Lake St. Clair Tributaries

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



LAKE ST. CLAIR TRIBUTARIES HIGHLIGHTS

Highlights and Progress Since 2011

- There were 10 landowner stewardship projects completed in the Lake St. Clair Tributaries subwatershed from 2011 to 2018. These projects included tree and windbreak plantings. More than 7,700 trees were planted and the total value of all the projects was \$25,200 (84% grants).
- For the 2010-2012 Lambton Natural Heritage Study, regionally rare birds or plants were noted at every survey site, stressing the importance of maintaining and enhancing even small natural areas.
- The SCRCA participated in the development of the province's Domestic Action Plan aimed to reduce phosphorus levels and combat algal blooms in Lake Erie.



- The SCRCA participated in the organization of the Lake St. Clair Conference in 2015. The Lake St. Clair conference, held every two years, provides a binational forum to exchange information on Lake St. Clair's changing environment as well as the actions and tools needed to manage these changes.
- In 2018, the SCRCA co-hosted a Soil Health Conference in Chatham with the Lower Thames Valley Conservation Authority that was attended by over 180 people (left photo). The conference offered farmers an opportunity to hear the latest findings from experts across North America as well as the practical experiences of local farmers on a variety of soil health topics.
- Each year the SCRCA participates in the educational Chatham-Kent & Lambton Children's Water Festival that attracts 1,800 students over the three-day event.
- In 2018, the SCRCA partnered with the Lower Thames Valley and Essex Region Conservation Authorities to create an interactive Healthy Great Lakes display tent at the International Plowing Match in Pain Court (right photo).



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