

## WHAT IS OUR WATERSHED'S KEY ISSUE?



Historically, the Lake Erie watershed was largely comprised of tallgrass prairie, wetlands, and mature forests. Through settlement and urbanization, much of this habitat has been lost, leaving a fragmented landscape and affecting species distribution and diversity. The degradation of these ecosystems, in combination with increased urbanization/industrialization and intensive farming practices have contributed to increased run-off and erosion, and subsequently increased sedimentation and nutrient loading.

Kettle Creek is a tributary of Lake Erie. As a result, Kettle Creek's water quality directly impacts the nearshore water quality of Lake Erie. While Lake Erie's health suffers from multiple issues such as climate change and invasive species, nutrient loading of phosphorus is seen as a key issue of concern. Over the last five years, 97.9% of the phosphorus samples collected across the KCCA watershed exceeded the Provincial Water Quality Objective. High levels of phosphorus can contribute to harmful algae blooms, low oxygen conditions and overall habitat loss and degradation.

These issues have been well documented in the Great Lakes Water Quality Agreement, and the many reports that describe the urgent need to increase the scale, scope and intensity of current efforts to address phosphorus. Lake Erie's deteriorating health serves as a warning to landowners, environmental agencies and governments on both sides of the border that Great Lakes restoration and protection must be a top priority.

Kettle Creek Conservation Authority is currently working collaboratively with Conservation Ontario, local, provincial and federal government agencies, and community organizations to help improve local conditions with programs that are based in science, provide technical support and leverage funding dollars for measurable success.

For more information on how this Watershed Report Card will inform programming to improve the health of the Kettle Creek watershed and Lake Erie visit [www.kettlecreekconservation.on.ca](http://www.kettlecreekconservation.on.ca).

## OUR ACCOMPLISHMENTS

The Watershed Report Card provides a snapshot of current conditions in the Kettle Creek watershed and helps to identify environmental issues that need to be protected, restored or managed. Over the past five years, Kettle Creek Conservation Authority has been working with landowners, municipalities, government agencies and community groups to improve the health of the Kettle Creek watershed.

### HIGHLIGHTS INCLUDE:

#### Water Quality

- Completed 130 stewardship projects across Elgin County through the Elgin Clean Water Program with total project costs exceeding \$1,600,000.
- Implemented two large-scale stream restoration projects on Beaver Creek, one of the watershed's only cool water streams.

#### Forestry

- Celebrated planting the one-millionth tree from 2001-2013. Since then, KCCA has planted an additional 200,000 trees in the watershed.
- Partnered with the Thames Valley District School Board to green the grounds of five local schools, and hosted a variety of community plantings with other partners.

#### Wetlands

- Created/restored 19 wetlands from 2013-2017 with the support of partners such as Ducks Unlimited, Elgin Stewardship Council, the Dorothy Fay Palmer Estate and Ontario Power Generation.

#### Education and Awareness

- Led the Green Your Ravine project - a campaign to promote, protect and improve the health of the ravine systems of St. Thomas.
- Launched a community-based social marketing campaign to encourage St. Thomas residents to use phosphorus free fertilizers.
- Hosted the St. Thomas-Elgin Children's Water Festival in 2014 and 2017, teaching over 7,000 elementary students about the importance of water to their lives and communities.
- The Carolinian Forest Festival celebrated its 10th anniversary in 2017, educating over 13,000 grades 6 and 7 students since its inception about the Carolinian Life Zone and our local forest resources.



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## Kettle Creek WATERSHED 2018 Report Card



Kettle Creek Conservation Authority has prepared this report card as a summary of the state of your forests, wetlands, and water resources using data collected from 2013 to 2017.



## WHERE ARE WE?



### What is a Watershed?

A watershed is an area of land drained by a creek or stream into a river which then drains into a body of water such as a lake or pond. Everything in a watershed is connected. Our actions upstream can affect conditions downstream.

### Why Measure?

Measuring helps us better understand our watershed. We can target our work where it is needed and track progress. We measured:



Groundwater Quality



Surface Water Quality



Forest Conditions



Wetland Conditions

### GRADING

**A** Excellent

**B** Good

**C** Fair

**D** Poor

**F** Very Poor

Insufficient Data

### What is a watershed report card?

Ontario's Conservation Authorities report on watershed conditions every five years. The watershed report cards use Conservation Ontario guidelines and standards developed by Conservation Authorities and their partners.





## GROUNDWATER QUALITY

Groundwater is the water found beneath the earth's surface in layers called aquifers. Once an aquifer is contaminated, it is often very difficult to repair, making groundwater a precious resource.

### What Did We Find?

- Nitrate and chloride concentrations are better than the drinking water guidelines in all monitored wells (A grade).
- Groundwater quality results are limited to the aquifer from which the sample was taken. The quality of your well water may vary from that of the monitoring wells.

Regardless of the excellent grades, groundwater quality still has the potential to be negatively impacted by human actions. Optimizing fertilizer application, regular maintenance of septic systems, decommissioning unused wells and the reduction in use of ion exchange water softeners can help to reduce the potential degradation of water quality resources.



## SURFACE WATER QUALITY

Phosphorus loading is the biggest issue impacting surface water quality in the Kettle Creek watershed. In the last five years, 97.9% of the phosphorus samples collected have exceeded the Provincial Water Quality Objective of 0.02 mg/L.

### What Did We Find?

- Surface water quality in the watershed is a D grade, or poor.
- This low grade is due primarily to phosphorus concentrations consistently exceeding the PWQO and poor benthic invertebrate Family Biotic Index results.
- *E.coli* concentrations throughout the watershed are fair (C grade).

Our actions on the land impact the quality of our water. Surface water moves through the Kettle Creek watershed, outletting to Lake Erie at Port Stanley. Surface water can be impaired by fertilizers, pesticides, sedimentation and erosion, heavy metals, petroleum products and chemicals.



## FOREST CONDITIONS

Environment Canada recommends 30% forest cover in a watershed to support wildlife species. The current forest cover in the Kettle Creek watershed is 14.07%.

### What Did We Find?

- Forest Conditions Grades range from D to C (poor to fair).
- Forest cover is being lost faster than it can be replaced.
- Restoration and protection of natural habitats, particularly the existing large forest patches, should be encouraged to ensure ecosystem integrity is maintained.

Percent forest cover is the percentage of the watershed that is forested. Based on 2015 aerial photography, the watershed is losing 7.32 hectares of forest per year. Forestry programs offered by Kettle Creek Conservation Authority are critical to the watershed's overall health. Planting an average of 50,000 trees per year is barely keeping pace with the current rate of deforestation.



## WETLAND COVER

Environment Canada recommends 10% wetland cover in a watershed to support wildlife species. Only 1.34% of the entire Kettle Creek watershed is wetland habitat.

### What Did We Find?

- Wetland cover in the KCCA watershed is a F grade (very poor).
- The Dodd Creek subwatershed has the least wetland cover with less than half a percent of wetland cover and should be an area of priority for restoration and wetland creation work.

Percent wetland cover is the percentage of the watershed that is wetland habitat. Wetlands play an important role in the ecological health of a watershed by filtering toxins, controlling flood waters, groundwater recharge and acting as nursery areas for many types of aquatic wildlife.

