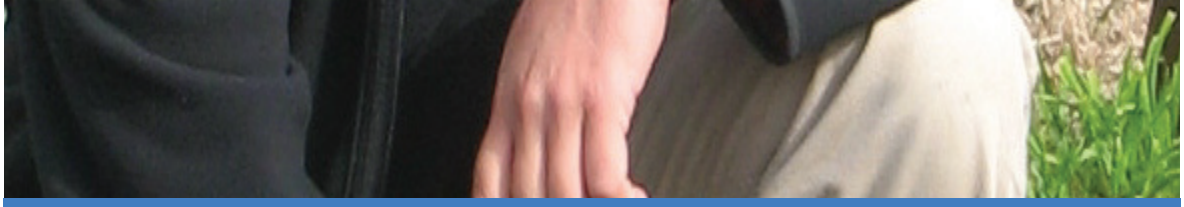


Lower Thames Valley

WATERSHED
Report Card 2013

Lower Thames Valley Conservation Authority has prepared this report card as a summary on the state of our forests, surface water, and ground water resources.

Member of Conservation Ontario Natural Champions

Lower Thames Valley Conservation Authority

Where Are We?

What Does This Report Card Measure?

Surface Water Quality

Forest Conditions

Groundwater Quality

Why Measure?

Measuring helps us better understand our watershed. It helps us to focus our efforts where they are needed most and track progress. It also helps us to identify healthy and ecologically important areas that require protection or enhancement.

What is a Watershed?

A watershed is an area of land drained by a river or stream.

Similar to the branch of a tree, creeks empty into streams, which then empty into larger streams, eventually forming one main trunk.

Within this system, everything is connected to everything else. In other words, actions which take place at the top of the system can and do affect those downstream.

Grading

A	Excellent
B	Good
C	Fair
D	Poor
F	Very Poor

The standards used in this report card were developed by Conservation Authorities to ensure consistent reportings across the Province of Ontario and are intended to provide watershed residents with information to protect, enhance and improve the precious resources that surround us.

What Are We Doing?

• Stewardship initiatives engage landowners, community partners and others in activities that ensure clean, sustainable water and healthy agricultural lands, while protecting important ecological features such as wetlands, forests, natural lands, wildlife and birds. The reforestation efforts of the Lower Thames Valley Conservation Authority (LTVCA) are targeted at the subwatersheds with the most need or lowest grades. The annual reforestation rate in these areas is approximately 50,000 to 80,000 trees per year. In 2012, nearly 70,000 trees were planted into windbreaks and woodlots on private lands, memorial forests and conservation area nurseries with the help of local landowners and organizations including Trees Ontario, Ontario Power Generation - Natural Areas Grant Restoration Program, Union Gas Spectra Energy and TD Canada Trust Friends of the Environment Foundation. In addition, the "Greening Partnership" is an agreement between the Municipality of Chatham-Kent, the LTVCA, St. Clair Region Conservation Authority and Stewardship Kent to green Chatham-Kent through tree plantings, tall grass prairie and wetland restoration.

• Through the Ontario Drinking Water Source Protection program, funding was available to landowners in certain areas near municipal well supplies and surface water intakes for septic tank inspection and upgrade, runoff and erosion protection and additional best management practices.

• The LTVCA has protected environmentally sensitive lands, wetlands, culturally unique features and significant biological, ecological and scenic qualities through its conservation lands program. This program helps preserve wildlife habitat as well as improves water quality. Healthy natural areas are also critical for preserving and building local environmental resilience, helping us to adapt to climate change.

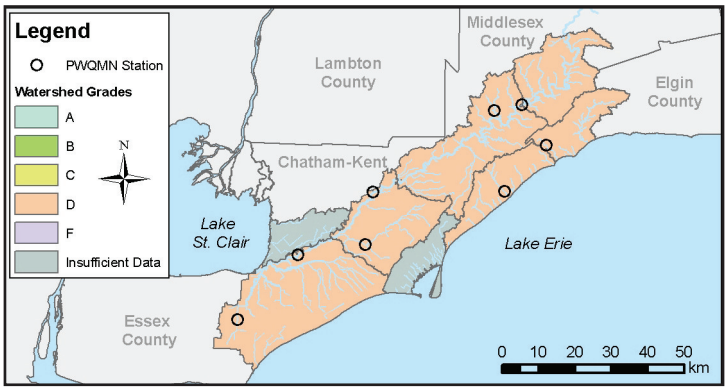
• The LTVCA samples inland surface water at 11 locations and nine groundwater sites in the watershed to assess the current and long term water quality under a Provincial monitoring program.

• Our Conservation Areas and Conservation Education Programs provide healthy outdoor activities and help people to learn about the importance of the environment to their own health.

Surface Water Quality

D

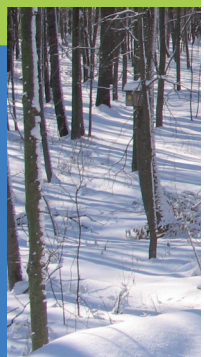
Surface water is the water that makes up our rivers, lakes and streams. Water is critical to all aspects of our lives and it is important that we ensure there is a safe and reliable source of water for all our uses - now and in the future. The quality of water is influenced by many factors including land use, climate and vegetation.



Many Conservation Authorities assess the quality of water bodies by measuring water chemistry (phosphorous, oxygen, etc.) and benthic organisms that live in the sediment at the bottom of streams and rivers.

The indicators used to assess surface water quality in the Lower Thames Valley Conservation Authority (LTVCA) watershed are total phosphorus and Escherichia coli (E. coli). Large amounts of phosphorus in surface water lead to the growth of nuisance plants like algae, which negatively impact aquatic ecosystems. The southwestern portion of Lake Erie is prone to large algal blooms in warm months. Phosphorus may be due to wastewater plant discharge, agricultural runoff and faulty septic tanks. E. coli indicates the presence of fecal matter in the water, the sources of which may be human, animal or both. Sources of pollution to the watercourses must be effectively managed so that the health of the watershed can improve. The LTVCA has not the capacity to sample the water bodies for organisms that live in the sediment at the bottom of streams and rivers (benthics). This data would be beneficial in order to build on our knowledge and understanding of our watershed. The presence of benthic organisms are indicators of the water quality of our streams and rivers.

Surface Water Data Source Partners:
Ontario Ministry of the Environment – Provincial Water Quality Monitoring Network



Forest Conditions

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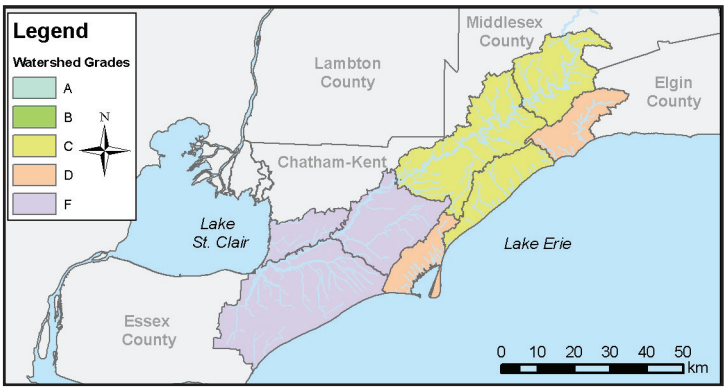
Forests provide habitat and shade; they help to clean our air and water and they protect the soil which promotes water infiltration and reduces both erosion and flooding. Forests also help to cool the land and air - nature's air conditioner!



Conservation Authorities assess the area of their watersheds covered by forest and the amount of forest "interior" which provides critical habitat for many species including songbirds. This indicator is made up of % forest cover, % forest interior and % riparian zone forested. Percent forest cover is the percentage of the watershed that is forested or wooded. Forest interior is that portion of a woodlot that remains after removing a 100 metre buffer from the outside edge. The riparian zone is the area adjacent to watercourses (30 metres on each side) which helps stream water quality and protects important, specialized habitat.

Trees reduce energy consumption by lowering heating and cooling costs. Forest cover is extremely valuable for water purification, soil erosion control and air quality. Tree cover is especially important in large blocks or along drainage corridors, as a vital element to ecosystems that thrive there. The World Health Organization states that for an area to be healthy and ecologically sustainable, it should have a minimum of 12% forest cover. Environment Canada indicates as much as 30%, for survival of some interior forest bird species.

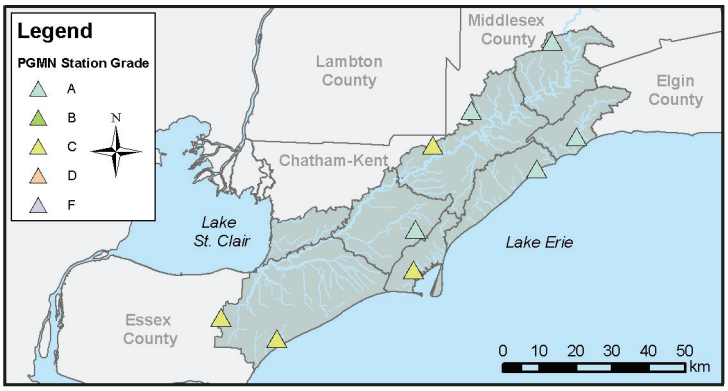
The Lower Thames Valley watershed currently has an average forest cover of 10%, with an estimation of 4.9 % forest cover in the Municipality of Chatham-Kent.

Forest Cover Data Source Partners:
Essex Region Conservation Authority, Upper Thames River Conservation Authority, Middlesex County

Groundwater Quality

Groundwater is the water found beneath the earth's surface, in water bearing layers known as aquifers. Groundwater is difficult if not impossible to clean once contaminated, so it is critical to protect areas of groundwater recharge.

B



Conservation Authorities monitor groundwater chemistry (nutrients, metals, chloride and nitrates). Groundwater is generally considered to be a naturally protected source of water. However, pollution can also affect groundwater through improperly closed wells, faulty septic tanks, etc. and by the migration of pollutants through soil to the groundwater below. Pollution can migrate as well where surface water and groundwater interact, such as in natural springs, groundwater fed streams supporting flows in dry seasons, GUDI wells, or groundwater recharge by water bodies.

Groundwater flow does not always respect watershed boundaries, so it can be difficult to ascertain whether any individual site is representative of the (sub)watershed. The sampling wells have been individually graded and rolled into a single grade for the entire Lower Thames Valley Conservation Authority. Two groundwater quality indicators were examined: nitrate and chloride. Elevated levels of nitrate are due to causes such as faulty septic tanks and the excessive application of fertilizers and manure to land. Chloride may be naturally elevated in groundwater. Chloride levels may increase in the winter months due to road salt application.

Ground Water Data Source Partners:
Ontario Ministry of the Environment – Provincial Groundwater Monitoring Network

Lower Thames Valley Conservation Authority Subwatersheds

This watershed report card provides a snapshot of current conditions in the Lower Thames Valley Conservation Authority (LTVCA) watershed. Conservation Authorities address issues and concerns identified in watershed report cards through local programs, often in partnership with landowners, other agencies, community groups and municipalities or other government agencies. Watershed report cards help us to identify environmental problems and issues within local subwatersheds, identifying specific areas we need to protect, restore or manage. Below is a map highighting the subwatersheds of the LTVCA.

Low Grades vs. High Grades ?

Low grades show landowners and stakeholders the need for remediation and link land use practices to the larger watershed. Stresses and changes within local environments are inevitable. Low grades may be a function of historical land use practices which can take a long time to improve. Stewardship programs, tree planting partnerships with municipalities, naturalization projects in urban areas, conservation bylaws and regulations, natural heritage strategies and watershed management planning, all play a role in improving the grade. It is therefore important to maintain improvements and realize the benefits of long term programs.

Farmers across Ontario have voluntarily developed a comprehensive Environmental Farm Plan, approved by their peers and implemented in partnership with Conservation Authority stewardship programs. These programs provide technical assistance and funding to help farmers improve crop production, water, soil, fish and wildlife habitat, livestock manure handling and storage and nutrient management. This willingness of the agriculture community to implement Beneficial Management Practices on their lands is resulting in improvements to water quality, by reducing soil erosion and nutrient loading into waterways.

Climate change is introducing new stresses on our lands and waters. Extended periods of drought and flash flooding have an impact on water quality, as well as the larger socio-economic impacts. Heat waves and milder winters with minimal snowfall and fewer days with below freezing temperatures can aid in the introduction and spread of disease and invasive insects. Enhancing and maintaining forest cover slows climate warming and assists with adaptation by preventing the release and improving the capture of CO2 from the atmosphere.

The Lower Thames Valley Conservation Authority needs to continue to build on our knowledge and understanding of our watershed region and how it is changing by sustaining and expanding our monitoring programs. Watershed monitoring will help us better understand problem areas, focus natural resource management actions where they are needed most and track progress over time. *You can have an impact on the health of the lower Thames River watershed.*

What You Can Do

Be a Watershed Steward!

- Create a more natural and diverse habitat by using a variety of native plant species that are better adapted to the local climate and pests.
- Minimize use of fertilizers and utilize the municipal hazardous waste disposal program.
- Repair or replace faulty septic systems and ensure proper maintenance.
- Homeowners with wells should understand the condition of their well and risks to their water supply.
- Sample private wells each spring and fall.
- Keep contaminants such as fuel, pesticides, manure/waste away from your well area.
- Decommission abandoned wells according to Ministry of the Environment standards.
- Conserve woodlands, wetlands and other natural areas.
- Protect and enhance stream habitat.
- Keep rivers, streams and all waterways clean of garbage, compost, chemicals and other pollutants.
- Connect the existing river-side woodlands and meadows with additional plantings to create a continuous wildlife corridor.
- Increase forest interior by making woodlots larger and less fragmented.
- Connect woodlots by planting shelterbelts, windbreaks and buffers along fields and watercourses, which will also protect against soil erosion and improve water quality.
- Woodlot owners can improve the quality of the wildlife habitat by installing bird nesting boxes, controlling invasive plant species and keeping livestock and unauthorized motorized vehicles out.
- Implement agricultural Best Management Practices in manure storage and spreading, soil conservation, fertilizer and pesticide storage, application and fuel storage and restricting livestock access to watercourses.
- Complete and follow Environmental Farm Plans and Nutrient Management Plans.
- Utilize grants and expertise from the Lower Thames Valley Conservation Authority and government agencies..

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