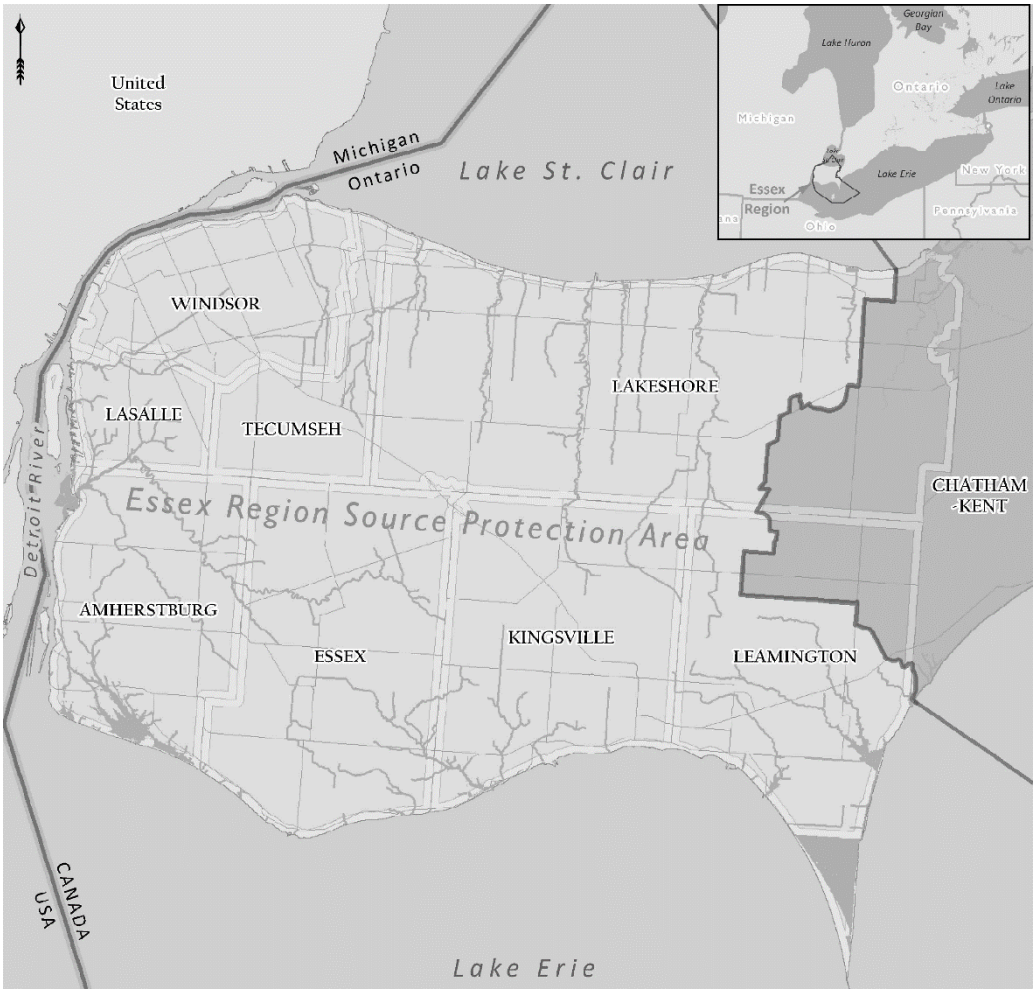
I. Introduction

This annual progress report outlines the progress made toward implementing the policies in the Essex Region Source Protection Plan (SPP) for the Essex Region Source Protection Area (ERSPA), as required by the Clean Water Act and its Regulations. Our policies work by either eliminating or managing activities that could be considered a threat to our sources of drinking water and are based on the foundational knowledge that the actions we take on land have an impact on our local waterways and ultimately our sources of drinking water. Following an extensive process that included broad public input, the Essex Region SPP came into effect on October 1, 2015. This report highlights progress made toward implementation up to December 31, 2020, and highlights the actions taken from January 1 to December 31, 2020.



II. A message from your local Source Protection Committee

Our progress score on achieving source protection plan objectives this reporting period:

P: Progressing Well/On Target

The Essex Region Source Protection Committee has reviewed this report and it is our unanimous opinion that implementation of the policies in the Essex Region Source Protection Plan is progressing well. Further, the Committee notes that the Covid-19 pandemic has caused progress to be reevaluated in light of the circumstances. The Committee acknowledges the efforts of municipalities to incorporate Source Water Protection into their business practices and looks forward to the finalization of their Official Plan and Zoning Bylaw updates. The Committee is pleased with the pace of implementation of Part IV policies. Risk Management Plans for a handful of remaining properties is taking longer than expected due to complex issues including unique circumstances (oil pumping wells) and lack of response from absentee owners (cannabis operations). The Risk Management Official is continuing to work with landowners and enforcement procedures are being developed. A detailed supplemental Risk Management report is also available online and will be circulated to municipalities for whom ERCA provide Risk Management Services.

The Committee is encouraged that scientific studies are in progress regarding blue-green algae and the factors that encourage its growth in the Great Lakes. Harmful algal blooms and the toxins produced by them continue to be an issue for our local water treatment plants, with increased monitoring and treatment necessary during peak bloom season. We encourage the MECP to continue to support municipalities in this important work. We also encourage the MECP to continue to examine protections for non-municipal systems that serve some communities that are not currently captured under the Clean Water Act.

III. Our Watershed

The Essex Region Source Protection Area (ERSPA) is approximately 1681 km2 and coincides with the watershed boundaries of the Essex Region Conservation Authority (ERCA). The ERSPA is comprised of 28 smaller sub-watersheds, flowing northward into Lake St. Clair, westward into the Detroit River, or southward into Lake Erie. The area predominantly consists of a flat clay plain with the exception of some sandy areas, primarily in the southern portion of the Region. The predominant land use in the watershed is agriculture, due to the region's excellent farmland and growing conditions.

Municipal drinking water supplies in the Essex Region Watershed are drawn from surface water intakes in the Great Lakes system - Lake Erie, Lake St. Clair and the Detroit River. There are seven municipal Water Treatment Plants (WTPs) in the ERSPA, and one WTP outside of the ERSPA in Wheatley serving part of the Municipality of Leamington. Stoney Point and Lakeshore (Belle River) WTPs have their water intakes located in Lake St. Clair; the A. H. Weeks (Windsor) and Amherstburg WTPs have their intakes in the Detroit River; and the Harrow-Colchester South, Union, Pelee Island West Shore and the Wheatley WTPs have their intakes in Lake Erie. These municipal WTPs serve over 95 percent of the population in the ERSPA. The remaining population, less than five percent, depends on groundwater or hauled water.

In the ERSPA, the handling and storage of large volumes of liquid fuel (>15,000 L) was identified as a significant drinking water threat (SDWT). Modeling exercises showed that a spill of this volume of fuel close to any body of water could result in contamination of the source water at our drinking water intakes. This resulted in the delineation of an extensive Event Based Area (EBA) in which large volumes of fuel are considered a threat to our drinking water. To mitigate these threats, Risk Management Plans (RMPs) that show actions are being taken to prevent spills are required to be established in consultation with a Risk Management Official.

To learn more about Source Protection in the Essex Region, please visit our website: https://essexregionconservation.ca/source-water-protection/

IV. At a Glance: Progress on Source Protection Plan Implementation

1. Source Protection Plan Policies and Addressing Significant Risks

P: Progressing Well/On Target

Of the 44 policies in the Essex Region SPP that address SDWTs, 61% (27) are now fully implemented, and 35% (15) are in progress and on target to be fully implemented in 2021. Of the remaining policies, one has been reviewed and it has been determined that no further action is required, and one has not yet been addressed. The outstanding policy is related to the use of airplane de-icer chemicals and is applicable in areas where these chemicals are not used. All section 57 and 58 policies remain 'in progress' as existing threats continue to be addressed. Section 59 polices are considered to be 'implemented' because there are processes in place to screen building permits and planning applications for activities that could be a SDWT. Two policies moved from 'in-progress' to 'implemented' in 2020. These include a policy for livestock grazing in Lakeshore IPZ-1 and the creation of a fuel tank inventory for emergency planning purposes.

2. Municipal Progress: Addressing Risks on the Ground

P: Progressing Well/On Target

All of the 11 municipalities in the ERSPA have vulnerable areas where SDWT policies apply. Municipalities are required to ensure that their planning and building decisions conform with the Essex Region SPP and must also ensure that their Official Plan conforms with the SPP upon the next Panning Act review.

The County of Essex, Town of Essex, and the Town of LaSalle completed their required Official Plan conformity exercises prior to 2020. The Town of Kingsville completed their OP conformity exercise in 2020. The remaining municipalities (7 of 11) are in the process of amending their Official Plan to conform with the policies in the Essex Region SPP. Municipalities have been undergoing this process for several years and ERSPA have had the opportunity to review some draft OP revisions, but it is unknown when the revisions will be complete.

All lower tier municipalities are responsible for day-to-day land use planning and building permit decisions and have integrated source protection requirements to ensure that their planning and building decisions conform with the policies in the Essex Region SPP. The Essex Region Conservation Authority has been delegated by all of these municipalities to implement Part IV policies on their behalf. At the request of municipalities, ERSPA will deliver additional training to municipal staff in 2021.

3. Septic Inspections

Not applicable to the ERSPA. There are currently no polices in the Essex Region SPP that require mandatory septic inspections. However, the Committee notes that high levels of E.coli remain a concern for our local waterways and beaches. Landowners are encouraged to have their septic systems inspected and maintained regularly.

4. Risk Management Plans (RMPs)

P: Progressing Well/On Target

As of January 2019, threat verification inspections were carried out in accordance with the Clean Water Act by the RMO/I for all 384 existing properties originally identified in the ERSPA to determine whether existing activities identified in the Source Protection Plan meet the criteria to be considered a SWDT (the handling & storage of fuel).

In 2020, 40 RMPs to address existing threats were established in the ERSPA and nine (9) RMPs remain outstanding. A total of 89 RMPs have been established for existing threats since our SPP took effect. RMPs for all existing threats were required to be established by October 1, 2020. The remaining nine properties are either Petroleum Wells or Cannabis operations and the process for establishing RMPs remains ongoing. All RMPs for existing threats will be in place in 2021.

In 2020, 2 RMPs were established for future (new) fuel threat(s) through s.59 municipal screening processes. Since the SPP took effect, 8 RMPs have been established through s. 59 procedures for new (future) threats. Thirty-five (35) inspections were carried out by the RMO for regulated activities in 2020. There have been no cases of non-compliance with the established RMPs.

Please refer to the supplementary Part IV 2020 Risk Management Services Report for further information and details.

5. Provincial Progress: Addressing Risks on the Ground

P: Progressing Well/On Target

The Essex Region SPP includes 17 policies that use Provincial Instruments (e.g. Environmental Compliance Approvals) to address future (new) and existing SDWTs. Screening for future threats became mandatory the date the SPP came into effect (October 1, 2015). Ontario ministries have a screening mechanism in place for new applications and they amend Prescribed Instruments (PI) as needed to address any new SDWTs. Our policies set out a timeline of 5 years (October 1, 2020) to review and make necessary changes to previously issued PIs to address existing SDWTs. All of the identified existing threats have been addressed and there is a procedure in place to address any new threats. As a result, all of the policies that use Provincial Instruments in the Essex Region SPP are considered to be fully implemented.

As of December, 2018, all 38 of the existing PIs were reviewed. Five of these were considered to be SDWTs where the PI was sufficient and no additional conditions were required to mitigate the SDWT. In 2020, Provincial Ministries examined one (1) application for fuel handling and storage and seven (7) applications for wastewater/sewage works in vulnerable areas of the Essex Region, all were determined not to be a SDWT. To date, no new SDWTs have been identified through these policies.

6. Source Protection Awareness and Change in Behaviour

Road signs have been installed across the ERSPA as part of a provincial awareness initiative. The Ontario Ministry of Transportation (MTO) installed signs on provincial roads near Drinking Water Protection Zones, while municipalities coordinated installation on local municipal and county roads. Our municipalities have either completed road sign installation, are in the process of installation, or have determined that no signage is necessary. The MTO installed a total of five signs in the Essex Region in 2017 and 2018 on Hwy 401, Hwy 77 and Hwy 3, and there are over 60 signs on municipal roads.

The new road signs identify sections of road where accidental spills could contaminate our sources of drinking water. As part of the Essex Region Source Protection Plan implementation, emergency responders have been notified about these zones so that our sources of drinking water can be protected in the event of a spill. The use of a standardized sign throughout Ontario will help to raise public awareness about the importance of protecting our local sources of drinking water.

The main risk to drinking water in our local area has been identified as liquid fuel. If a spill is observed, residents are advised to contact the Spills Action Center at 1-800-268-6060.

7. Source Protection Plan Policies: Summary of Delay

All policies in the Essex Region Source Protection Plan are on track to be fully implemented by the dates specified in the Plan. Please view the supplementary Part IV 2020 Risk Management Services Report for specific details regarding delays in establishing Risk Management Plans for specific properties.

8. Source Water Quality: Monitoring and Action

Harmful algal blooms (HABs) are an annual occurrence in Lake Erie. HABs are largely made up of a species of blue-green algae (or cyanobacteria) called microcystis. The cyanobacteria produce a neurotoxin called microcystin, which is released into water when the cell wall breaks. Microcystin is a parameter listed on Schedule 2 of the Ontario Drinking Water Quality Standards and has a standard of 0.0015 mg/L (MAC). In 2014, the SPC reviewed microcystin concentration data for the raw water at the intakes of our Lake Erie water treatment plants and determined that microcystin should be identified as a drinking water issue pursuant to rule 115.1 in the Technical Rules associated with the *Clean Water Act*. Because the data were not sufficient to support the delineation of an Issue Contributing Area, no Significant Drinking Water Threats nor associated policies could be written. However, the Source Protection Plan does include a policy to continue monitoring for phosphorus and microcystin as well as a regional education and outreach policy related to phosphorus, microcystin as a drinking water issue and algae blooms in general. These policies are not legally binding. However, ERCA continues to be a leader in phosphorus monitoring and research, and has integrated HABs into all of our educational programs directed at a variety of target audiences including youth, special interest groups and the agricultural community.

Each spring, NOAA releases an estimate for the severity of the Harmful Algal Bloom that will occur the following summer. These predictions are made using a suite of sophisticated models that incorporate weather variables (e.g. precipitation; temperature) as well as phosphorus loads from the main contributing tributaries like the Maumee River in Ohio. The severity index ranges from 0 to 10 and indicates the amount of bloom biomass over the peak 30 days of the bloom. These models do not predict the toxicity of the bloom. In 2020, the predicted severity score of the HAB was 4-5. On 29 October 2020, NOAA released a seasonal assessment announcing that the actual bloom severity received a score of 3, making it a mild bloom and substantially less severe than 2019. At this point, bloom severity seems to be highly correlated to weather conditions, with more severe blooms in years with wetter springs. It is not yet possible to declare any trend in bloom severity, nor to determine whether on-the-ground actions are responsible for low bloom severity.

ERCA's Kingsville Leamington Nutrient project, which includes the monitoring of greenhouse and non-greenhouse influenced streams, has been in place since 2012. In 2020, two additional sites in the Ruscom River were added to monitor the influence of the growing greenhouse sector in Leamington. On-farm Applied Research & Monitoring (ONFARM) is the continuation of the work established under Great Lakes Agricultural Stewardship Initiative (GLASI), which researches priorities identified by Ontario's Soil Health and Conservation Strategy. ONFARM is a four-year research initiative developed by OMAFRA and delivered by OSCIA with many partners, including ERCA. The project is based upon three pillars: Engagement, Water Quality and Soil Health. Lastly, ERCA is working on a regional Phosphorus Management Plan, in part to fulfill ECCC's commitment under the Canada-Ontario Lake Erie Action Plan to identify phosphorus sources and develop phosphorus reduction management strategies for selected tributaries in the Lake Erie watershed (Action A1.3). The objectives of this project are to establish priorities for the application of phosphorus reduction measures, including the most appropriate best management practices (BMPs) for this region. This work will contribute to the identification of critical nutrient source areas and implementation of BMPs to achieve phosphorus load targets for this priority region.

9. More from the Watershed

To learn more about our source protection region/area, visit our homepage:
https://essexregionconservation.ca/source-water-protection/

The above-grade handling and storage of fuel is considered a SDWT in the ERSPA when located in vulnerable areas of municipal drinking water intakes. Risk Management Plans (Section 58) under the *Clean Water Act* are set out in the Source Protection Plan as tools used to manage these threats and protect source water from contamination.

The RMO/I has recorded several instances where the implementation of Risk Management Plans have led to upgrades and the servicing of fuel storage tanks. Properties are requesting inspections by *certified technicians* and have completed or are currently undergoing tank upgrades based on recommendations set out in the technician's final inspection report(s).

The RMO/I has also recorded instances were greenhouse operations have decommissioned and/or removed unused fuel oil storage tanks. Some storage tanks were replaced with new double walled tanks with capacities below risk threshold (e.g. fuel tank <15, 000 L), and some tanks were removed, with no plans to store fuel in the future.


Example of above-grade fuel oil storage tank


Before


After

Risk Management Plans (The Handling and Storage of Fuel)

All photos (including the before and after photo) were taken by the ERSPA RMO/I during site inspections.

Have you seen this Drinking Water Protection Sign?

These signs are appearing across Ontario to raise awareness about the vulnerability of our municipal drinking water sources. Governments at the local and provincial level are placing signs along roadways where a pollution spill could have a negative impact on our drinking water sources. The main risk to drinking water in the Essex Region Source Protection Area has been identified as fuel. These signs indicate areas where a spill of a large volume of liquid fuel could impact one of our drinking water intakes. If a spill is identified, residents should contact the Spills Action Center at 1-800-268-6060.