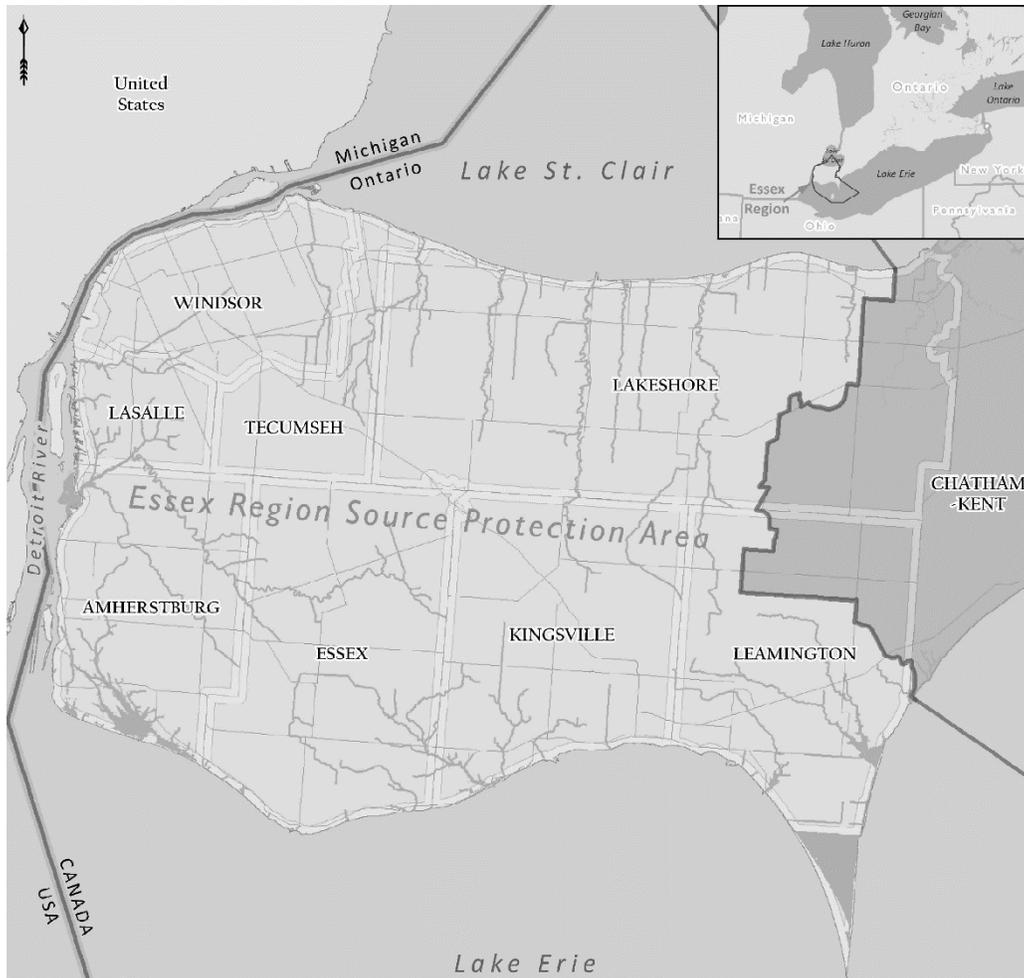


Source Protection Annual Progress Report | 05/01/2020

I. Introduction

This annual progress report outlines the progress made toward implementing the policies in the Essex Region Source Protection Plan (SPP) (Essex Region Source Protection Area), as required by the Clean Water Act and 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, 2019, and highlights the actions taken from January 1 to December 31, 2019.



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 majority of the source protection plan policies have been implemented and/or are progressing.
- S : Satisfactory** – Some of the source protection plan policies have been implemented and/or are progressing.
- L : Limited progress** – A few of source protection plan policies have been implemented and/or are progressing.

The 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 continued vigilance must be maintained to ensure the policies noted as 'in progress' are fully implemented within the expected time frames. The Committee acknowledges the efforts of municipalities to incorporate Source Water Protection into their business practices and sees progress toward finalization of their Official Plan updates. The Committee recognizes the work toward establishment of Risk Management Plans and is of the opinion that the target date of October 1, 2020 to address all identified existing threats is achievable. A detailed supplemental Risk Management report is also available online.

While there are international, federal and provincial initiatives ongoing to address harmful algal blooms in our local lakes, these blooms continue to impact our local drinking water sources, and we must continue local efforts to reduce factors favorable to cyanobacteria growth that influences our intakes. Proposed changes to the Technical Rules may aid in this effort. The Committee notes the importance of ongoing monitoring for microcystin and urges the Ministry to continue to support municipalities' efforts through the Drinking Water Surveillance Program, particularly where it has been identified as a Drinking Water Issue.

The Committee would stress the importance of this program and the evolution of the Source Protection Plan to ensure its continued relevance to our Source Protection area. It would recommend that the Ministry develop, at least, a base funding strategy to ensure the local program is able to deliver results that are effective.

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, 57% (25) are now fully implemented, and 39% (17) are in progress and on target to be fully implemented within the time frame set out in the Essex Region SPP. 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 policies 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.

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 Planning Act review.

The County of Essex, Town of Essex, and the Town of LaSalle have completed their required Official Plan conformity exercises. The remaining municipalities (8 of 11) are in the process of amending their Official Plan to conform with the policies in the Essex Region SPP, with completion expected in 2020.

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.

3. Septic Inspections

Not applicable to the ERSPA. There are currently no policies 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 or not existing activities identified in the Source Protection Plan meet the criteria to be considered a SWDT (the handling & storage of fuel).

In 2019, 34 RMPs to address existing threats were established in the ERSPA and 44 RMPs remain outstanding. A total of 48 RMPs have been established since our SPP took effect and RMPs for all existing threats must be established by October 1, 2020.

In 2019, 1 RMP was established for a future (new) fuel threat(s) through s.59 municipal screening processes. Since the SPP took affect, 6 RMPs have been established through s. 59 procedures. 70 inspections were carried out by the RMO for regulated activities in 2019. There have been no cases of non-compliance with the established RMPs. Please refer to the supplementary [Part IV 2019 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.

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. 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. No new SDWTs were identified in 2019 that required a PI.

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) is installing signs on provincial roads near Drinking Water Protection Zones, while municipalities have 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. In total, there are 62 signs located across the region, 3 of which were installed in 2019.

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.

8. Source Water Quality: Monitoring and Action

Harmful algal blooms (HABs) are an annual occurrence in the nearshore areas of Lake St. Clair and Lake Erie. The organisms that cause HABs are cyanobacteria, also known as blue-green algae (e.g. microcystis) that produce toxins (e.g. microcystins), which can be harmful to human health. HABs in Lake Erie have increased in size and severity in recent years and have resulted in the closure of beaches throughout the western basin, and of Water Treatment Plants (WTPs) on Pelee Island and in Ohio. In response to the growing concerns related to HABs, microcystin-LR (a specific congener of microcystin) was identified as a drinking water Issue for Lake Erie intakes in the ERSPA.

All of the ERSPA's WTPs conduct weekly monitoring of raw and treated water. This was previously conducted through support from the Provincial Drinking Water Surveillance Program (DWSP), but is now the responsibility of individual municipalities at their own cost. The Province supported the Township of Pelee with these expenses in 2019. During a HAB, sampling frequency increases to daily. Between 2012 and 2018, total microcystins in our source water were usually below the maximum allowable concentration for drinking water of 1.5 µg/L, however, there were still regular occurrences of concentrations well above this value that required WTPs to implement additional treatment measures.

The harmful algal bloom severity index is scored from 0-10; this reflects the size of the bloom (biomass), not its toxicity. The predicted severity score is based on a known relationship with total bioavailable phosphorus (TBP) loads from the Maumee River. The National Oceanic and Atmospheric Administration (NOAA) tracks spring TBP loads from the Maumee River to create a prediction of HAB severity in Lake Erie. NOAA also tracks the HAB throughout the season to report on actual observed severity. They predicted a HAB with severity of 7.5/10 and released their seasonal assessment on October 31, 2019, stating that the 2019 bloom had an actual severity of 7.3. This is considered to be a relatively severe bloom, compared to a 3.6 in 2018, but not as bad as 2011 (10) or 2015 (10.5). The bloom developed quickly and reached its peak in August with maximum areal coverage of 700 square miles. Thanks to the high winds experienced in 2019, the bloom dissipated by early October.

The Essex Region didn't observe much of a bloom on the shores of Lake Erie as the strong flow from the Detroit River acted as a barrier to keep the nutrient and bloom rich waters in the southern portion of the western basin. Pelee Island did have some bloom events, but nothing out of the ordinary to report. Lake St. Clair had a substantial bloom in late August causing the WTPs to report high levels of microcystin, which required additional source water treatment measures. The Thames River also experienced a harmful algal bloom in September, which is only the second time the River itself has had a bloom.

HABs are an international issue, and in 2018, the Canadian and Ontario governments, and the United States federal and state governments released Domestic Action Plans that will lead to the target of 40% reduction of phosphorus to Lake Erie. While the monitoring, and education and outreach policies in the Essex Region SPP related to microcystin-LR are non-legally binding, ERCA is committed to implementing relevant actions to reduce phosphorous in our region. ERSPA and ERCA staff are key partners in several projects, conduct our own research and monitoring, and have fully integrated information related to phosphorus and HABs into our education and outreach programs. HABs are a persistent problem in Lake Erie and Lake St. Clair and it will take several years of international effort to see marked improvements.

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.

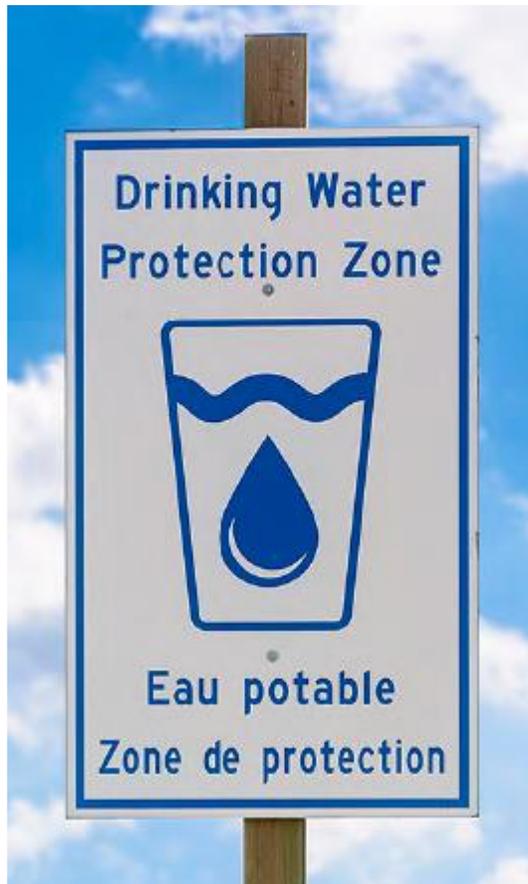
In 2019, the RMO/I recorded several instances where the implementation of Risk Management Plans have led to upgrades and the servicing of fuel storage tanks. Properties are requesting inspections by *certified technicians* and have completed or are currently undergoing tank upgrades based on recommendations set out in the technician's final inspection report(s).

The RMO/I has also recorded instances where 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 oil in the future.



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.