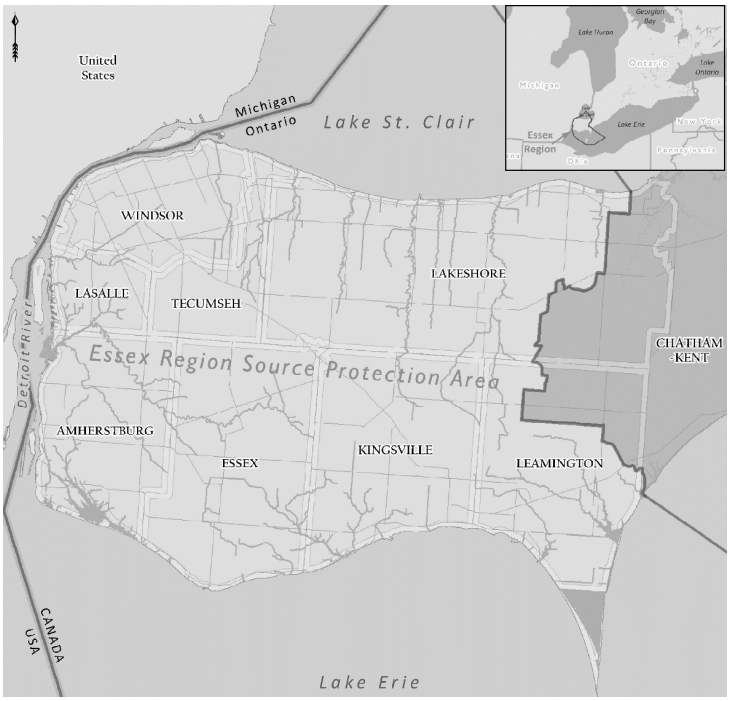
2021 ERSPA Source Protection Annual Progress Report 05/01/2022

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 impact 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, 2021, and highlights the actions taken from January 1 to December 31, 2021.



Scoring for certain elements of the Annual Progress Reports is based on the following options:

Progressing Well/On Target (P) – Most of the policies have been implemented and/or are progressing.
Satisfactory (S) – Some of the policies have been implemented and/or are progressing.
Limited progress (L) – A few of policies have been implemented and/or are progressing.

II. A message from your local Source Protection Committee

Overall Score: P – Progressing Well

The Essex Region Source Protection Committee has reviewed this report and it is again 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 is still affecting progress, but to a much lesser degree as staff from all Implementing Bodies have become accustomed to a hybrid work model. We would like to acknowledge that the Committee continues to remain engaged in spite of the virtual environment. The Committee has achieved quorum at all meetings and engages in productive conversation during virtual meetings. We have congratulated the SPA and Risk Management staff in their persistence, even to the extent of developing and implementing an enforcement process to deal with uncooperative absentee business owner leadership in the negotiation of Risk Management Plans. A detailed supplemental Risk Management report is also available online.

The Committee is aware of the growing concern over harmful algal blooms in Lake St. Clair, and has begun the process of identifying microcystin as a drinking water issue for the Stoney Point and Belle River intakes. This work and the comprehensive section 36 update have been delayed by about 6 months pending the now available revised Director Technical Rules. We acknowledge the hard work that MECP DWSP technical staff undertook to develop this updated document.

We also acknowledge the MECP's effort to continue to provide resources that can be useful to communities that have drinking water systems that are not included in the Source Protection Program. Their web resource, https://www.ontario.ca/document/best-practices-source-water-protection, will help those communities take advantage of knowledge gained through MECP Source Water Protection Branch and SPA efforts.

The Committee and SPA staff members also contributed to a road sign video that became available in the fall of 2021. No Oscar nominations, but it was a worthy effort and has garnered attention locally and across the Province. We look forward to seeing future videos from other Source Protection Regions and Areas to help raise awareness of the work we all do to protect our sources of drinking water!

III. Our Watershed

The Essex Region Source Protection Area (ERSPA) is approximately 1681 km^2 and coincides with the watershed boundaries of the Essex Region Conservation Authority (ERCA). The ERSPA is comprised of 28 smaller sub-watersheds, flowing north into Lake St. Clair, west into the Detroit River, or south 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

Of the 44 policies in the Essex Region SPP that address SDWTs, 29 (66%) are now fully implemented and 13 (30%) are in progress and on target to be fully implemented in 2022. The remaining two policies have been reviewed and it has been determined that no further action is required. 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 new activities that could be a SDWT.

Two policies moved from 'in-progress' to 'implemented' in 2021. These two policies were directed at the City of Windsor to address combined sewer discharge. One policy required the City to initiate the development of a sewer and stormwater management plan, and the other policy required the City to initiate a research program to characterize CSOs to provide input to the sewer master plan. In 2021, the Sewer and Coastal Flood Management Plan was approved by City Council along with the 2021-2028 implementation plan. In addition, the West Windsor RTB has been put forward for funding under Infrastructure Canada. These actions satisfy the intent of the above named policies. The airplane de-icer policy was moved from 'No progress made' to 'Implemented – policy outcome evaluated; no further action required' as commercial airports are not a permitted use in the identified vulnerable areas.

2. Municipal Progress: Addressing Risks on the Ground

P – Progressing Well

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 Plans conform with the SPP upon the next Planning Act review. The Committee acknowledges the challenge in completing Official Plan updates due to the challenges faced by Covid-19 restrictions. Public consultation is an important part of the Official Plan update process and it is challenging to complete this effectively through virtual meetings. The Committee acknowledges the efforts made by municipalities in spite of these difficulties.

The County of Essex, Town of Essex, Town of LaSalle and Town of Tecumseh have completed their required Official Plan conformity exercises. The remaining seven municipalities are in the process of amending their Official Plan to conform with the policies in the Essex Region SPP. Municipalities have been undertaking this process for several years and ERSPA staff have had the opportunity to review some draft OP revisions, but it is unknown at this time 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 2022.

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

P – Progressing Well

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). Of these, 96 were identified to be SDWTs, and 94 have been managed with Risk Management Plans (RMPs) since our SPP took effect. RMPs for all existing threats were required to be established by October 1, 2020.

In 2021, seven (7) RMPs were established to address existing threats, and two (2) RMPs remain outstanding. Of the seven RMPs established, four (4) were completed by Order. These were cannabis operations where the landowner had been unresponsive. The remaining two properties are Petroleum Wells and the process for establishing RMPs is nearing completion.

In 2021, 8 RMPs were established for future (new) fuel threats through s.59 municipal screening processes. Since the SPP took affect, 16 RMPs have been established through the s. 59 process for new threats. Ten (10) inspections were carried out by the RMO for regulated activities in 2021. The inspections that were carried out resulted in the Notice of Intent and RMO Official Order to Establish a Risk Management Plan for four properties with cannabis operations. There have been no cases of non-compliance with the established RMPs.

Please refer to the supplementary Part IV 2021 Risk Management Services Report for further information and details.

5. Provincial Progress: Addressing Risks on the Ground

P – Progressing Well

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 on the date the SPP came into effect (October 1, 2015) and existing threats were to be addressed by October 1, 2020. All of these policies have been fully implemented since 2018.

As of December 2018, all 38 of the existing PIs were reviewed and five were considered to be SDWTs where the PI was sufficient and no additional conditions were required to mitigate the SDWT. In 2018, Ontario ministries implemented a screening mechanism for new applications and PIs are amended as needed to address any new SDWTs. In 2021, Provincial Ministries examined three (3) applications for wastewater/sewage works in vulnerable areas of the Essex Region; all were determined not to be a SDWT. Since 2016, a total of 33 new applications for PIs have been reviewed in the ERSPA. No new SWDTs have been identified through this process.

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, while municipalities coordinated installation on local municipal and county roads. The MTO installed 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. In 2021, four new signs were placed in Kingsville in addition to existing signs.

The 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 standardized signs throughout Ontario 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 the handling and storage of 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 in 2022. Please refer to Section 1 - Source Protection Plan Policies and Addressing Significant Risks for more information on policies that are considered be In Progress.

8. Source Water Quality: Monitoring and Actions

Harmful algal blooms (HABs) are an annual occurrence in Lake Erie and Lake St.Clair. 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 1.5 ug/L. 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 zero to 10, and indicates the amount of bloom biomass over the peak 30 days of the bloom. These models are not currently able to predict the toxicity of the bloom. In 2021, the predicted severity score of the HAB was 3.0. On 1 November, 2022, NOAA released a seasonal assessment announcing that the actual bloom severity received a score of 6.0, making it a moderate bloom and more severe than 2020. Bloom severity seems to be highly correlated to weather conditions, with more severe blooms in years with wetter springs. Although May and June were dry, July was unseasonably wet, leading scientists to investigate the influence of this later delivery of nutrients on algal growth. The HAB in 2021 was particularly slow growing, lasting well into October due to sustained warm temperatures. The HAB covered a large area, mainly in US waters, but it was less dense and less toxic than in severe bloom years like 2017 and 2019. It is not yet possible to declare any trend in bloom severity, nor to determine whether on-the-ground actions are responsible for lowering bloom severity.

While Lake Erie tends to be the focus for Harmful Algal Blooms, Lake St.Clair also experiences annual HABs in the nearshore areas on the north shore of the Essex Region, affecting the Stoney Point and Belle River drinking water intakes. In 2021, Lake St.Clair experienced a severe enough bloom to trigger a response from the MECP, and it was necessary for Water Treatment Operators to modify treatment to account for the algal toxins in the water. In October, the SPC held a meeting where they heard presentations from local researchers and Water Treatment Operators speaking about the severity of HABs in Lake St.Clair and treatment options. The SPC also discussed a report outlining the analysis of microcystin data for the Stoney Point and Belle River drinking water intakes. Following the necessary lines of evidence, the SPC determined that microcystin should be identified as a drinking water issue for Lake St. Clair intakes as part of our comprehensive update to the Source Protection Plan and Assessment Report. This will be included in public consultation when all updates are completed. This is expected to occur in 2023 and the report will be updated with any new data collected prior to consultation.

ERCA continues its many monitoring programs to track phosphorus in our local watersheds. ERCA is also working on a regional Phosphorus Management Plan. 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. Science-based Assessment Reports: Work Plans

The Essex Region SPA continues to make progress towards completing our s.36 update with a goal of finalizing the update by the end of 2023. Technical work that was planned for 2021 was pushed to 2022 due to a delay in publication of the 2021 Director Technical Rules, which were finalized in December 2021. The Director Technical Rules are the instructions for completing technical work.

10. More from the Watershed

In 2021, the Essex Region Source Protection Committee participated in a Province wide campaign to increase awareness and understanding of Drinking Water Protection Zone road signs. The SPC along with ERPA staff created a YouTube video that features signs located all around the Essex Region. The video can be viewed on ERCA's YouTube channel: https://www.youtube.com/watch?v=MwO3V1zsUAs. The video was been widely viewed online and is played at the John R. Park Homestead where thousands of Windsor-Essex residents visit. The road signs are an important piece of the Source Protection program as they are highly visible reminders to the public of the vulnerable areas that surround our sources of drinking water. Even though these signs are found all over the province, there had been little communication or education about what they meant. In the fall of 2021, Conservation Ontario co-developed a communication strategy in partnership with Source Protection staff. The end result was a three week social media campaign that included a unique song and a new online mapping tool showing the location of road signs around Ontario. For more information and to view the map, visit this website: https://storymaps.arcgis.com/stories/06e315c7de6c4b289993e01534104a2e.

In addition to sharing information about road signs, the DWSP Communication team also prepares content for social media year round focussing on different seasonal topics that are relevant to Source Water Protection. ERSPA staff participate on this committee and have helped to co-develop content specifically related to contamination from urban and agricultural runoff. ERCA shares this content on Twitter, Facebook and Instagram and finds that engagement rates on these posts is above average. The SPC is excited to see so much interest in Source Water Protection and is planning ahead for our next viral video!

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

Have you see 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 the handling and storing of liquid 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 Centre at 1-800-268-6060.