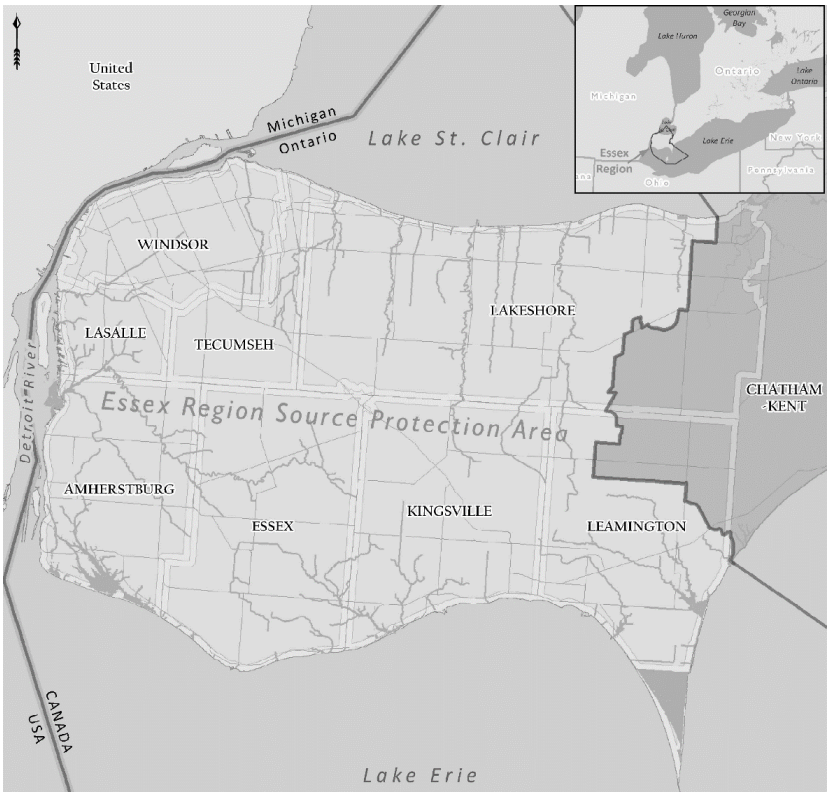
2022 ERSPA Source Protection Annual Progress Report | 1 May 2023

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, 2022, and highlights the actions taken from January 1 to December 31, 2022.



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 &/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. The Committee notes that we are now able to meet in person as the Covid-19 restrictions have passed and the members are not reluctant to gather as a group. I would like to acknowledge that the Committee has continued to remain engaged in both the virtual and in person meetings as we work together to revise our policies. We are pleased that the RMOs have been persistent with uncooperative and/or absentee business owners and have resolved those issues. As we did last year, a detailed supplemental Risk Management report is available online.

The Committee is aware that the blue-green algae bloom was less severe in 2022, likely because of less favorable environmental conditions for algal growth. The situation in Lake Erie and Lake St Clair regarding blue-green algae continues to be a concern for our water treatment systems there. Monitoring for the toxins produced by algal blooms continues to inform our assessment of its potential as a drinking water issue. This work and the comprehensive Section 36 update have been delayed by about 6 months pending the now available revised Director's rules. We acknowledge the hard work that MECP DWSP technical staff undertook to develop this updated document.

The Committee did note some concerns regarding the 7 of 11 municipalities that are still in the process of completing updates to their Official Plan (OP) and Zoning by-laws. At this time, we have decided to score this activity as having Limited Progress as there has been no change to the status of OP updates. We do acknowledge that changes as a result of Bill 23 may have required some major changes to the drafts that these municipalities have been considering. However, we are encouraging them to consult the SPA regarding the necessary updates required to bring their documents into conformity with the Essex Region Source Protection Plan.

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 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

Of the 44 policies in the Essex Region SPP that address SDWTs, 38 (86%) are now fully implemented and 4 (9%) are considered in progress. The remaining four policies have been reviewed and it has been determined that no further action is required.

Three of the policies that remain in progress use s.58 (risk management plans) in specific vulnerable areas to manage SDWTs. The RMO has conducted a review and is working with municipal staff to confirm that there are no existing SDWTs in these areas (none expected). Any new potential SDWTs are captured during the Section 59 screening process. One (1) in progress policy requires Windsor, Lakeshore and Amherstburg to prohibit sewage treatment tanks in IPZ-1s. This policy is implemented in Windsor and Lakeshore and will be included in Amherstburg's next Official Plan update. Importantly, this activity is also prohibited using a Prescribed Instrument policy and there are no existing threats.

Nine (9) policies moved from 'in-progress' to 'implemented' in 2022. These policies use either s.57 (prohibit) or s.58 (risk management plans) and are implemented by the Risk Management Official (RMO). The RMO completed an extensive review of the vulnerable areas and determined that there were no existing SDWTs that met the criteria of the s.57 policies (Policy 20-25) and two of the s.58 policies (Policy 27 and 28). The last remaining existing large fuel tanks were issued risk management plans by Order, which completed the implementation of Policy 31. Please see the Essex Region Source Protection Area 2022 Risk Management Official Annual Progress Report for more detail.

2. Municipal Progress: Addressing Risks on the Ground

L – Limited Progress

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, Town of LaSalle and Town of Tecumseh have completed their required Official Plan conformity exercises. 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, in some cases multiple times. With the advent of Bill 23, OP revisions are likely to be further delayed and it is unknown when they will be complete. Importantly, the overall status of OP revisions is unchanged from the previous annual report with limited progress since the Essex Region SPP came into effect. For these reasons, the Committee unanimously choose to lower the score on Municipal Progress in 2022. The Committee encourages municipalities to incorporate the necessary information to bring their Official Plans into conformity with the Essex Region SPP as soon as possible.

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. Municipalities are encouraged to review this process annually to ensure its use and efficacy. 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 2023.

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 or not 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.

In 2022, two (2) RMPs were established to address the last remaining existing threats, both of which were completed by Order after a breakdown in communication with the land owner/operator. Both properties are Petroleum Wells. A total of 96 RMPs have been established for existing threats since our SPP took effect. Six (6) applications were reviewed in 2022 resulting in one (1) RMP being established for a future (new) fuel threat and (1)

RMP being dissolved through s.59 municipal screening processes. Since the SPP took affect, 17 RMPs have been established through the s.59 process for new (future) threats.

The RMO began conducting compliance reviews for individuals with existing Risk Management Plans issued under a s.58 (existing threats). A compliance checklist is being used as a self-assessment to allow the RMO to ensure that all documents are up to date and that properties with significant drinking water threat activities continue to implement appropriate Risk Management Measures. All compliance checks completed in 2022 were deemed successful and confirmed that property owners comply with the established Risk Management Plans. All properties remain in good standing.

Please refer to the supplementary Part IV 2022 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 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 have been considered to be fully implemented since 2018.

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 2022, Provincial Ministries examined four (4) applications for wastewater/sewage works and one (1) application for an aggregate license in vulnerable areas of the Essex Region, all were determined not to be a SDWT so no actions were required. Since 2016, 37 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 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 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. Signs continue to be replaced as needed.

These 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 signs 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 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. To learn more about these road signs in the Essex Region, check out our video! https://www.youtube.com/watch?v=MwO3V1zsUAs

7. Source Protection Plan Policies: Summary of Delay

There have been no significant delays in the implementation of the Essex Region Source Protection Plan.

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. The Essex Region SPC determined that microcystin was a drinking water issue for Lake Erie intakes in 2014, and for Lake St.Clair intakes in 2021. The data will be reviewed for both water bodies in 2023 and the SPP and Assessment Report will be updated according to the findings of that review.

The Source Protection Plan includes 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.

Notably, ERCA was a partner in the Provincial ONFARM program and Federal Living Lab programs, which were both multi-year projects ending in March 2023. These programs allowed ERCA to work directly with agricultural partners as well as researchers to develop and execute research and monitoring, and to deliver knowledge transfer events in our own watersheds. From this monitoring we learned that, like most agricultural watersheds, phosphorus tends to be highest during precipitation events in the non-growing season when runoff over bare fields moves nutrients off of the landscape and into nearby waterbodies. This information helps us to communicate the most appropriate best management practices (BMPs) for this region - cover crops or continuous cover and 4R nutrient management strategies – to help reduce phosphorus losses.

This is in contrast to our findings in the greenhouse influenced streams in Leamington and Kingsville where phosphorus is highest during baseflow conditions in the summer months when greenhouses are using highly concentrated nutrient feed water to grow their crops. Phosphorus is diluted in these streams during rain events, which indicates that nutrients are contributed by point sources rather than overland runoff. Importantly, water quality downstream of newly built greenhouses has quickly degraded with increasing trends in phosphorus associated with increasing greenhouse growth. In addition, nutrient concentrations in greenhouse influenced streams continue to be higher than those in non-greenhouse influenced streams. The method of entry to the environment from these closed loop facilities will need to be examined.

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 2022, the predicted severity score of the HAB was 4 – 5.5. In November 2023, NOAA released a seasonal assessment announcing that the actual bloom severity received a score of 6.8, making it a moderately severe bloom and more severe than 2021. 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.

This year's bloom was longer than most, lasting well into October due to the hot, dry weather conditions experienced in the summer and fall. The HAB covered a large area, mainly in US waters. The algal bloom only made its ways to the shores of Essex a few times in 2022, including a sighting and report made by a local Lake Erie Water Keeper in early November. This individual was taking his routine sample and observation at his assigned location and made the report to the Spills Action Centre which was confirmed by NOAA satellites. This is an excellent example of Citizen Scientists' contribution to this ongoing issue. If you observe what you suspect to be a harmful algal bloom (classic description is that it looks like green paint and often has a white/yellow scum on top), please take photos and report it to the Ministry of the Environment's Spills Action Centre.

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. The formal consultation process on new and amended policies will begin mid-2023.

10. More from the Watershed

Source Water Protection continues to be an integral program for the Essex Region and has been identified as a mandatory activity for Conservation Authorities. There continues to be a strong relationship with the Ministry of Environment, Conservation and Parks with assurances of continued financial support. The ERSPA staff have strengthened relationships with municipal staff through open dialogue and reciprocal support for new and ongoing activities including addresses drinking water issues and consulting on policy implementation and amendments. In 2023, the SPC and ERSPA will be finalizing our comprehensive review and updates to the Essex Region Source Protection Plan and Assessment Report. This will involve consultation with both the MECP and municipalities, as well as the public. The relationships that have been built and strengthened will be key to the success of this initiative.

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

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 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.