

Tecumseh Council Meeting. 25 June 2024

Source Water Protection



- Following the Walkerton tragedy in 2000, safeguards were put into place to protect municipal drinking water sources as part of the *Clean Water Act, 2006*
- The CWA fulfills 12 of the 121 recommendations in the Walkerton Inquiry report and is part of a multi-barrier approach
- Objective is to establish a collaborative, <u>locally</u> driven, science-based, multi-stakeholder process to protect sources of <u>municipal residential</u> drinking water.
- Key players: Source Protection Committee, Source Protection Authority, Implementing Bodies



Essex Region Source Protection



Implementation date October 1, 2015



Microcystin-LR (toxin produced by blue green algae) is a drinking water issue

The storage of large volumes of liquid fuel identified as a SDWT in the EBA

Annual Progress Reports



- Annual Progress Reports are required by May 1st each year
- Reports are generated from data collected from Implementing Bodies, received by February 1
- The Report covers progress toward implementation cumulatively from October 1, 2015 (effective date) to December 31, 2023
- Progress in 2023 is highlighted
- Reports are produced using a template provided by MECP
- The first Annual Progress Report was produced in 2017 and all reports are available online

Scoring in Annual Progress Report

- **P** Progressing Well
- S Satisfactory
- L Limited progress
- Overall Score P
- Implementation Progress P
 - 45 of 50 policies fully implemented
- Provincial Progress P
 - All policies implemented, new projects screened
- Municipal Progress L
 - 6 of 11 municipalities have NOT completed OP conformity
- Risk Management Plans P
 - All existing threats are managed, new threats are addressed







Municipal Progress

Score since 2018: **P – progressing well** Score in 2022/23: **L – Limited Progress**

Municipalities have:

- Delegated Part IV to ERCA agreement extended to December 2024
- Have screening mechanisms in place for s.59 policies
- Completed or working on road sign installation
- County of Essex, Town of Essex, Town of Tecumseh, Town of LaSalle, Municipality of Kingsville have completed OP conformity
- Remaining municipalities have not completed OP conformity
- Only one municipality has completed Zoning By-Law conformity

*Municipalities self report on progress

Official Plan



• To ensure that decisions on planning matters meet the requirements of the *Planning Act*, they must be consistent with 2.2.1(e) of the PPS

2.2.1 Planning authorities shall protect, improve or restore the *quality and quantity of water* by:
e) implementing necessary restrictions on *development* and *site alteration* to:
1. protect all municipal drinking water supplies and *designated vulnerable areas*;
2. protect, improve or restore *vulnerable* surface and ground water, *sensitive surface water features* and *sensitive ground water features*, and their *hydrologic functions*.

- At a minimum ALL vulnerable areas (IPZ, EBA, SGRA, HVA) are to be included in the OP both in text and as maps
- Can be an issue-specific amendment under s.17, or under the mandatory comprehensive five-year review of the OP under s.26 of the *Planning Act*
- Tecumseh completed conformity in 2021. *The SPP is under review so the next OP may include some revisions



CLI-ECA Highlighting Success

- The MECP introduced the Consolidated Linear Infrastructure process for ECAs for stormwater and sanitary sewers
- Includes a section for Source Water requiring a 'SDWT assessment report for Proposed Alterations
- MECP provided a guidance document to municipalities, however it was still not clear to municipalities or to Source Water Project Managers how this was to be completed
- Town of Tecumseh staff contacted ERCA staff
- Through collaborative efforts, draft template documents have been produced and provided to the MECP for review
- Following review, these template documents will be shared with other local municipalities and with PMs across Ontario

Risk Management Progress

Score since 2018: P – progressing well

- Essex Region Source Protection Authority was delegated by all municipalities to provide Risk Management Services
- RMO/I implements all policies under Part IV of the CWA in the Essex Region and parts of the Thames-Sydenham and Region
- The RMO reviews s.59 applications and determines whether a RMP is required and establishes RMPs on an accelerated timeline when they are needed

Summary

- **384** threats identified in the Assessment Report
 - **96** properties required a RMP for existing threats
 - **3** RMPs for new threats established in 2023 (all in Learnington)
 - 117 RMPs established overall (Existing + New)

All new threats are for greenhouse construction or crude oil and brine operations



Municipal Training



- Municipalities screen for new threats through s.59 policy following the Written Direction.
- Municipalities are given the opportunity to receive annual refresher training. Training video is now also available online: <u>bit.ly/SWP-Workshop2022</u>



Town of Tecumseh Event Based Area (EBA)





- Two (2) existing fuel tanks have RMPs established
- There have been no new fuel tanks installed that require RMPs since 2016

http://gisweb.countyofessex.on.ca/svlerca25/Viewer.html?Viewer=Public

Risk Management in 2024



- Continue compliance procedures with established risk management plans to ensure compliance with RMP
- Continue to review Section 59 Applications
- Deliver municipal training sessions on Section 59 processes
- Respond to requests from developers, consultants and municipal staff during pre-planning for sites identified through Section 59 processes
- Continue working with local businesses and landowners on negotiating and establishing Risk Management Plans; continue to assist and provide guidance to those affected by Part IV policies
- Renegotiate agreement to continue providing Risk Management Services

Lake Erie HAB Bulletin



- NOAA produces bulletins predicting the severity of HABs in the Spring
- During the HAB, bulletins show current and forecast conditions
- Season forecast will be released June 27, 2024

https://www.glerl.noaa.gov/res/HABs and Hypoxia/bulletin.html

IN ATMOSP



Cumulative Total Bioavailable Phosphorus



Microcystin as a Drinking Water Issue

- Total microcystin vs microcystin-LR
- Typically identifying an Issue results in an Issue Contributing Area, SDWTs and legally binding policies
- In our case an ICA can't be defined (because they're so big!) so SPP policies are not legally binding
- BUT identifying the issue is still important
 - Acknowledges that HABs are an ongoing, pervasive problem
 - Informs higher levels of government
 - Provides opportunity to participate in science and decision making



Issue evaluation methodology



Data

- Interviews
- DWSP/Municipal Monitoring*

Schedule 2 Parameters

- Operating Authority Concerns
- Flag at or above Half MAC
- Exclude single occurrences

Considerations

- At MAC or above
- Trending to MAC
- Frequency of occurrence
- Duration of occurrence
- Treatment plant capability
- Operating Authority opinion

Operating Authority concerns and opinions



- Operating Authority's (OA) all indicated that they consider microcystin to be an operational concern (Stoney Point, Belle River, Windsor, Amherstburg, Harrow-Colchester, Union and Pelee Island)
- The MECP has a requirement for microcystin monitoring in municipal drinking water licenses in Schedule C, section 6.0
- All OAs employ a seasonal monitoring program for HABs usually daily visual inspection and weekly lab testing for microcystin
- Other measurements/observations include:
 - weather, satellite imagery, pH, phycocyanin, turbidity, changes within the WTP (filter run times, chlorine demand and residual, clarifier build up)
- All WTPs have treatment options including:
 - changes to chlorination, increased and additional filtration, increase coagulant, increase filter backwash and removal of settling basin sludge, increase ozone, constant monitoring, prepared to reduce plant production or shut down and use reserve water

Data Analysis



- Up until 2018, the MECP provided data for most intakes through DWSP. Since 2019, it is a municipal responsibility. DWSP data was used if both data sources were available
- Challenges: Comparability, format, confidence, data management, data gaps
- Suggestion: Better oversight either at a local or Provincial level



DRINKING WATER SOURCE PROTECTION Our Actions Matter

Data Analysis

- Monthly average total microcystins concentrations were calculated and plotted for all years for which data were available between 2011 and 2022
- Annual average total microcystins concentration were calculated and plotted for all years for which data were available between 2011 and 2022.
 Data between July and October were used
- The total number of occurrences of data points above the MAC* or ½ MAC were recorded for each year
- Graphical results were presented to the SPC for each intake for discussion and decision

Lakeshore – Belle River

Monthly Average Total Microcystins - Belle River



2

Average Total Microcystins July - October - Belle River



•••••• MAC

>MAC
 > 1/2 MAC

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Trending to MAC

At MAC or above

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DRINKING WATER

ROTECTION Our Actions Matter

2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022



Harrow-Colchester

ke 🕂 DRINKING WATER **Our Actions Matter** Trending to MAC

2020

2021

2022



Average Total Microcystins July - October - Harrow Colchester





Proposed Policies

- 1. Education and Outreach
 - ERCA is the lead, applies to the entire Essex Region
 - Includes a variety of outreach tools and opportunities to reduce phosphorus
- 2. Monitoring suggested additions <u>underlined</u>
 - <u>All drinking water treatment plants in the Essex Region shall continue to conduct existing</u> water quality sampling (both raw and treated water) and to share information and data with other interested parties where resources are available. <u>The Ministry of the</u> <u>Environment, Conservation and Parks should assist municipal and operating authorities</u> with this monitoring program to ensure a consistent and reliable source of information.
 - Municipalities with combined sewer overflows should continue to monitor these events.

*Participation in these programs is dependent on adequate resources (including funding and staff capacity) being available.

Total Phosphorus





Routine

Event

Tributary Comparison



Reported results based on 5-year average for Canada (2018-2022 WY; 2300 MTA)

Tributary	Watershed Size (km ²)	2008WY Annual TP Load (MTA)	TP Load (MTA)	Annual Contribution to Lake Erie (%)	Annual FWMC (mg/L)	
Thames River	5708	196	523	22.8	0.22	0.09kg/km ²
Sydenham River	2747	48	205	9.0	0.21	0.075kg/km ²
Leamington Tributaries	58	-	36	1.6	3.64	0.62kg/km ²

Source Water in 2024



- Comprehensive review and update to Source Protection Plan and Assessment Report
- New and amended policies to align with 2021 Director Technical Rules under review
 - All policies have been amended, some new policies written
 - Potential for identification of new threat activities
- Consultation on updated documents is expected late 2024

More from the SPC



- The SPC and ERCA staff created a new video to help explain signage in vulnerable areas: <u>https://www.youtube.com/watch?v=MwO3V1zsUAs</u>
- To learn more about our source protection region/area: <u>https://essexregionconservation.ca/source-water-protection/</u>

