



# Drinking Water Source Protection

Lake Networking Group Fall Meeting  
October 11, 2023



— Quinte —  
CONSERVATION

# What is Source Water?

**Source water** is untreated **surface water** (rivers, lakes) and **groundwater** (aquifers) that people use to supply drinking water systems.



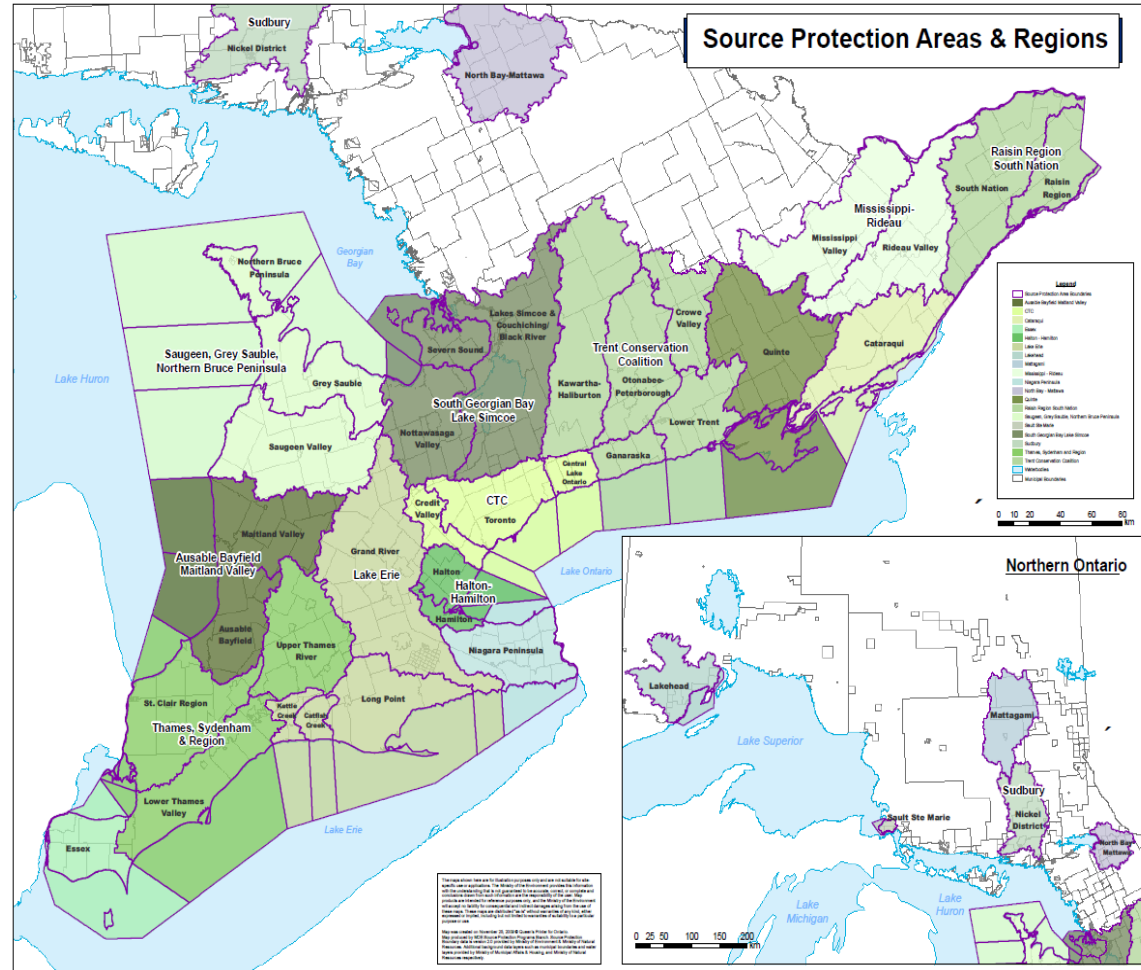
# Source Water Protection Goals

- **To protect public health**
- To avoid the cost and need to clean up contaminated water
- To reduce the cost of water treatment
- To eliminate the need to search for new drinking water sources when existing ones become contaminated or depleted
- To ensure a long-term supply of clean water
- To ensure an adequate supply for economic growth.



# Source Protection Overview

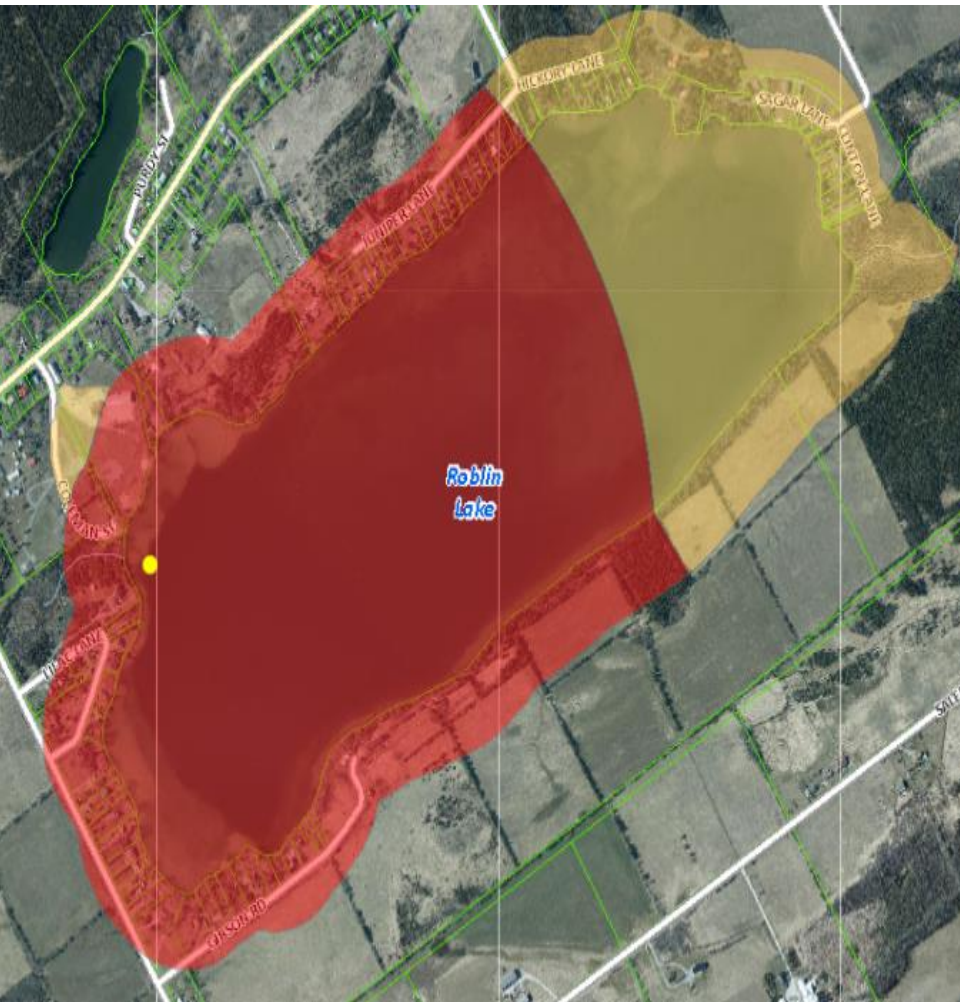
- Provincial initiative to protect existing and future sources of drinking water
- Locally-led, science-based initiative under the *Ontario Clean Water Act, 2006*
- Focus on **municipal** drinking water systems.





- Walkerton Tragedy, 2000
- *Clean Water Act, 2006*
- Focus on municipal water systems
- Source Protection Committee, 2007
- Terms of Reference, 2009
- Science and consultation, 2005-2013
- Source Protection Plan, 2014
- Implementing the Plan, 2015 –
- Source Protection Plan Update, 2019 -

# Vulnerable Areas



Intake Protection Zones



Wellhead Protection Areas

# Threats to Water Sources

## Prescribed Drinking Water Threat Activity

The establishment, operation or maintenance of a waste disposal site within the meaning of Part V of the *Environmental Protection Act*.

The establishment, operation or maintenance of a system that collects, stores, transmits, treats, or disposes of sewage.

The use of land as livestock grazing or pasturing land, an outdoor confinement area or a farm animal yard.

The application of agricultural source material to land.

The storage of agricultural source material.

The management of agricultural source material.

The application of non-agricultural source material.

The handling and storage of non-agricultural source material.

The application of commercial fertilizer to land.

The handling and storage of commercial fertilizer.

The application of pesticide to land.

The application of road salt.

The handling and storage of road salt.

The storage of snow.

The handling and storage of fuel.

The establishment and operation of a liquid hydrocarbon pipeline

The handling and storage of a dense non-aqueous phase liquid or DNAPL.

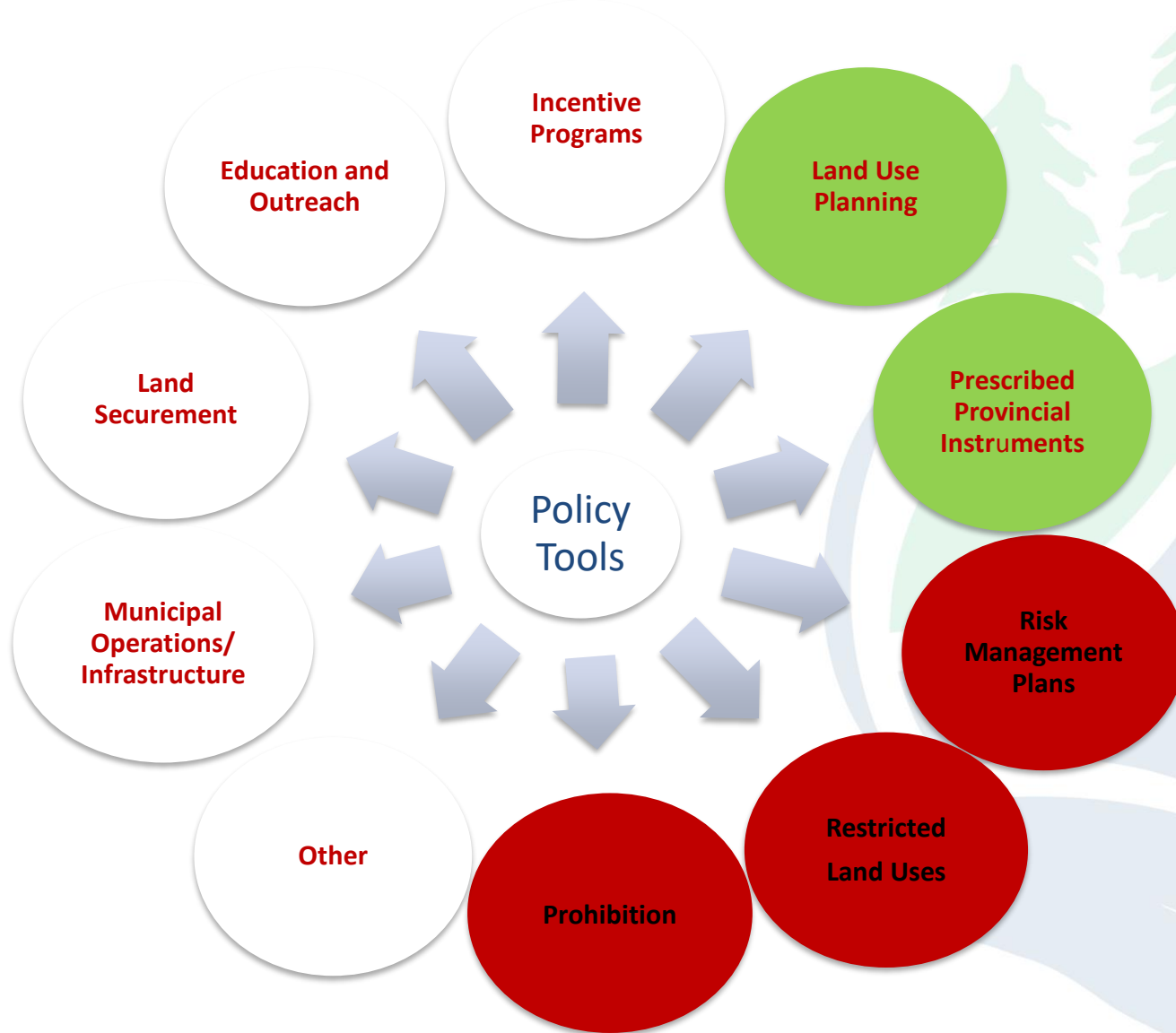
The handling and storage of an organic solvent.

The management of runoff that contains chemicals used in the de-icing of aircraft.

**WATER QUANTITY THREAT:** An activity that takes water from an aquifer or a surface water body without returning the water taken to the same aquifer or surface water body.

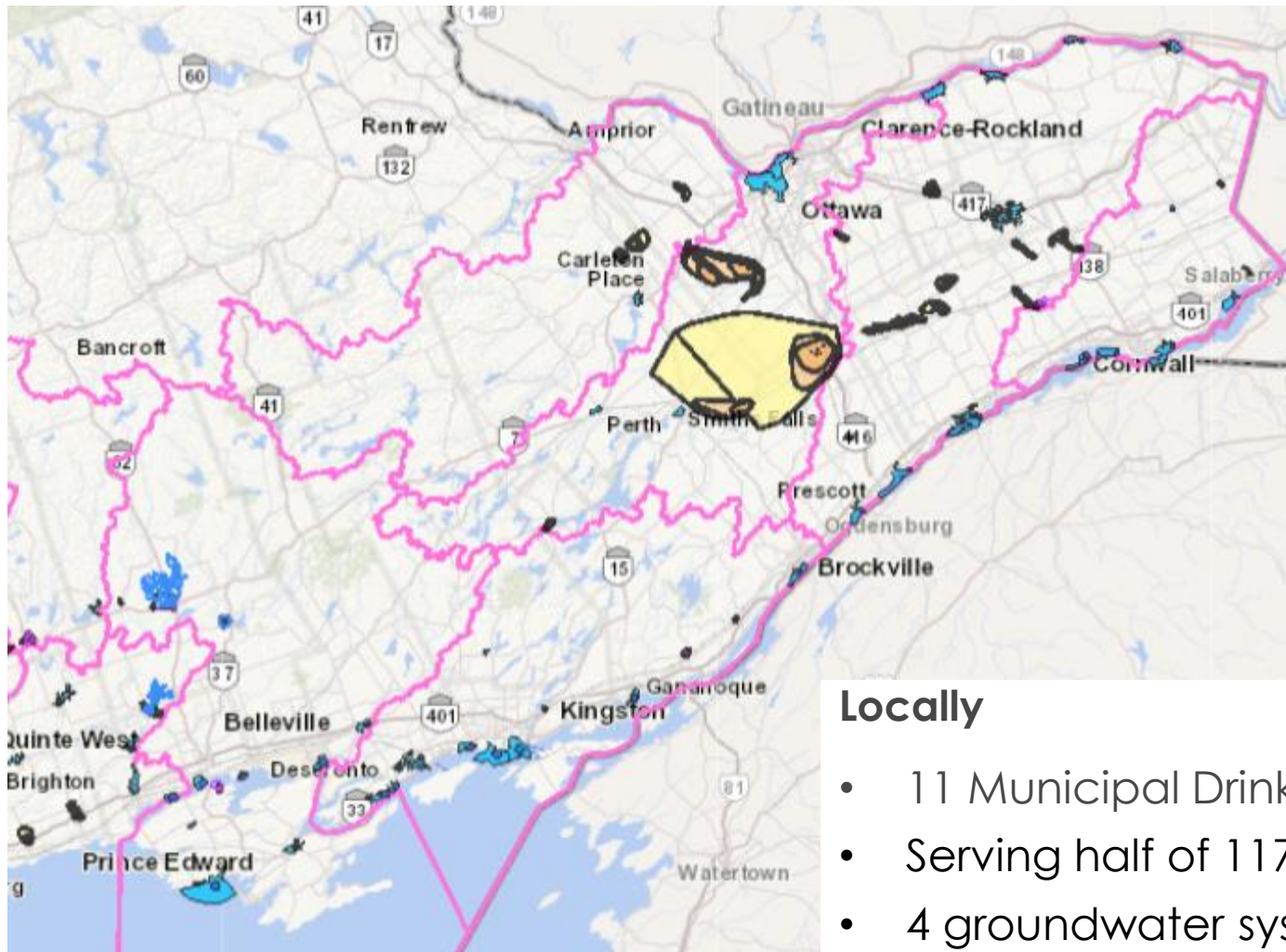
**WATER QUANTITY THREAT:** An activity that reduces the recharge of an aquifer.

# Policy Tools





# Eastern Ontario



## Locally

- 11 Municipal Drinking Water Systems
- Serving half of 1 17,000 residents
- 4 groundwater systems
- 7 surface water systems

# Source Water Concerns for 'Other Systems'

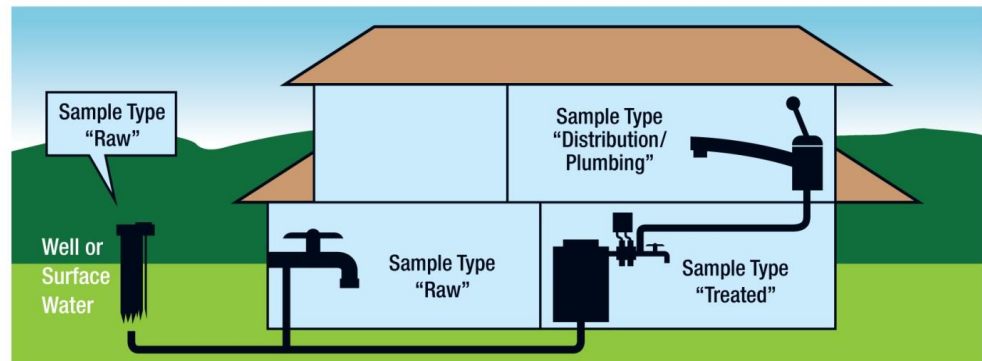
- No protection under *Clean Water Act*
- Setbacks
- Susceptibility to contamination
- Quantity concerns
- Equity



**Municipal System** - Multi barrier approach to protecting drinking water



**Private System** - No multi-barrier approach to protecting drinking water



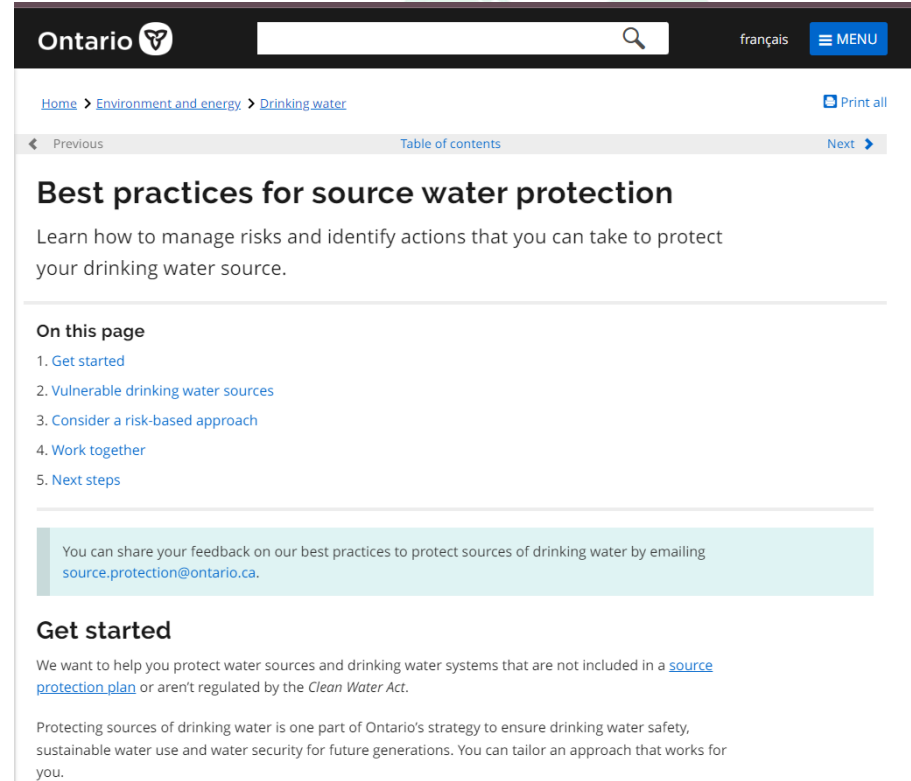
# Best Practices For Source Water Protection



# Best Practices

## Free Voluntary Drinking Water Source Protection

- Ministry of the Environment, Conservation and Parks initiative.
- Aims to protect Ontario residents that are not protected by:
  - The *Clean Water Act, 2006*
  - A Source Protection Plan
- Provides information and suggestions to system owners.



The screenshot shows the Ontario government website page for "Best practices for source water protection". The page header includes the Ontario logo, a search bar, and a "français" link. The breadcrumb trail is "Home > Environment and energy > Drinking water". The main heading is "Best practices for source water protection" with a sub-heading "Learn how to manage risks and identify actions that you can take to protect your drinking water source." Below this is a section "On this page" with a list of five links: "1. Get started", "2. Vulnerable drinking water sources", "3. Consider a risk-based approach", "4. Work together", and "5. Next steps". A light blue box contains the text: "You can share your feedback on our best practices to protect sources of drinking water by emailing [source.protection@ontario.ca](mailto:source.protection@ontario.ca)." The "Get started" section begins with "We want to help you protect water sources and drinking water systems that are not included in a [source protection plan](#) or aren't regulated by the *Clean Water Act*." and continues with "Protecting sources of drinking water is one part of Ontario's strategy to ensure drinking water safety, sustainable water use and water security for future generations. You can tailor an approach that works for you."

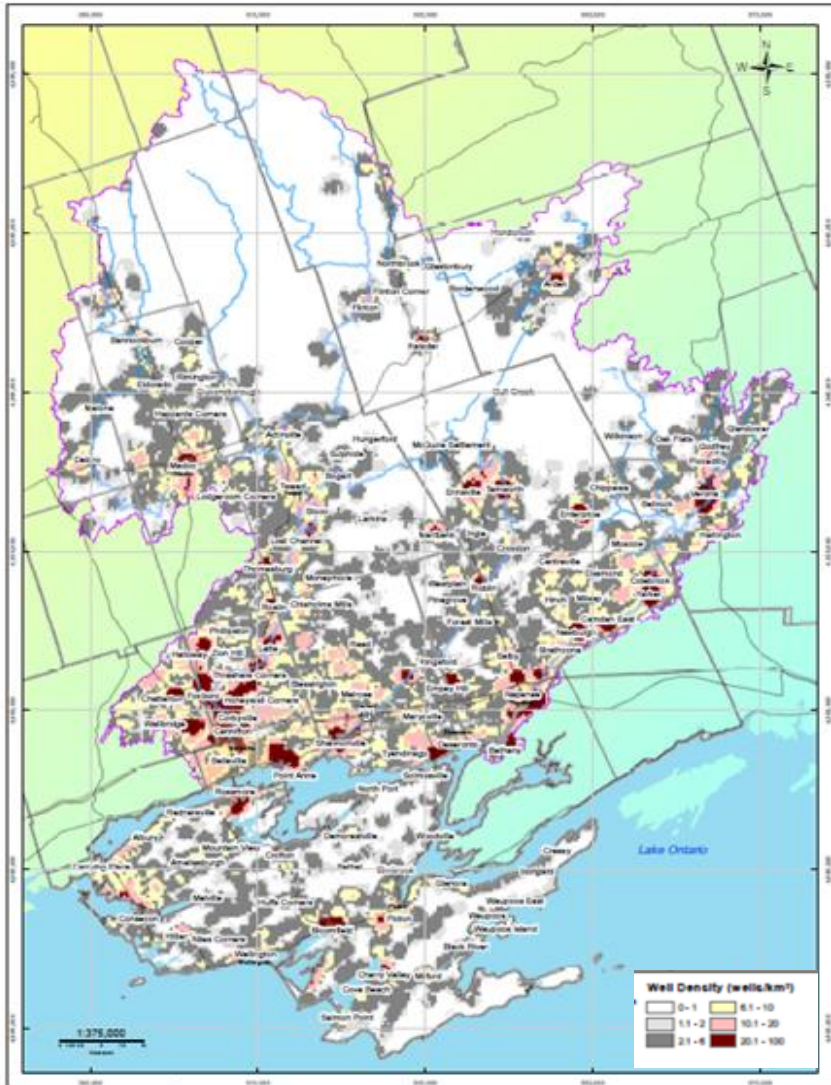
<https://www.ontario.ca/document/best-practices-source-water-protection>

# Main Goals

- To protect human health and the environment.
- To provide source protection resources to rural Ontario residents.
- To increase public awareness and accountability of drinking water stewardship.
- To educate our community on best practices they can use on their own properties.



# Non-municipal Drinking Water Systems



## Other Systems

There are hundreds of systems in the watershed that aren't municipal residential drinking water systems

- Campgrounds (children, adults, both)
- Churches
- Education facilities (schools, education centres, daycares etc)
- Golf clubs
- Homes (senior, children, group)
- Provincial parks
- Resorts (bed & breakfasts, cottages, etc.)
- Restaurants
- Town halls, arenas, community centres
- Trailer parks
- Wineries, cideries, breweries
- And more

# Best Practices Outreach



# Creation of Storyboard Website



Best Practices for Source Water Protection



## Best Practices for Source Water Protection

A guided overview to protect and manage risks for non-municipal drinking water systems and users in the Quinte Region

For more information, please contact Natasha Mathieu at [nmathieu@quinteconservation.ca](mailto:nmathieu@quinteconservation.ca)



## Groundwater Assessment Quiz

- 30 questions out of a total of 43 points
- 9 individuals have completed the assessment quiz
- Scoring is out of 43 possible points:
  - Low= 0-17
  - Moderate= 17.5-32
  - High= 32.5+
- Results:
  - 4 moderate vulnerability
  - 5 low vulnerability
  - Average score 16

# Resources

## CARING FOR YOUR PRIVATE WELL

Protecting yourself and your community

### GROUNDWATER

Your well receives water from an underground water source called an aquifer. This water originates from surface water and precipitation that filters through the sediment.



Your well type and how deep it has been drilled or dug can affect your drinking water quality. Shallow groundwater that is influenced by surface water is more susceptible to contamination compared to deeper groundwater.



Dug Well



Drilled Well

### WELL TYPES

The most common well types in the Quinte region are dug and drilled wells. Dug wells are more prone to contamination because of their shallow depths. However, both well types can become contaminated if they are not maintained correctly. It is a good idea to keep a record of well test results and any well maintenance performed.

### WELL MAINTENANCE

It is very important that you test your well at least seasonal, or as often as necessary to determine if your water supply is within the acceptable range for *E.coli* and total coliforms. These bacteria can cause serious health issues if ingested. To test for these parameters, you can pick up a **FREE** water well testing kit at your local public health unit.



*E.coli* & Total Coliform Water Well Test

In addition to maintaining water quality, you should inspect your wellhead area and water supply system at least annually to ensure everything is functioning properly.

## CARING FOR YOUR SEPTIC SYSTEM

Protecting your investment and the environment



The average lifespan of a septic system is approximately **15-25 years**

A septic system is a private sewage treatment system used in rural areas where there are no municipal sewage pipes or facilities. Septic systems often pose a contamination threat for homeowners who have wells. If you have both a well and a septic system, you should have your well tested 3 times per year for *E.coli* and coliforms (spring, summer, and fall). These tests are free and available at your local health unit.

### MAINTAINING YOUR SEPTIC SYSTEM

Most rural homes and cottages use a septic system that usually consists of a tank and leaching bed or tile bed. You own the septic system and you're responsible for its safe operation, maintenance and repair. A properly functioning septic system provides a safe, reliable way of treating your household wastewater. If you don't maintain your septic system, you could be endangering your family's health, the integrity of the natural environment and nearby water sources.



### REGULAR MAINTENANCE

Regular maintenance can find existing or potential problems before they become severe and more costly to fix. It can also add years to the lifespan of your system. It is recommended that you inspect your system annually, and get it pumped out every 3-5 years because a faulty septic system can emit waste and bacteria into your drinking water source.

## Well Water Testing 101

*E. coli* and Coliforms



## Looking for Stakeholders for Complete Projects

- School boards & educational facilities on private system
- Municipal councils – hamlets & clusters
- Community living groups & Long-Term Care Facilities
- Lake Partner Groups
- Resorts, Campgrounds, & Childrens' Camps

# Drinking Water Wise Webinars

Home / ... / Source Water Protection / Protecting Water / Drinking Water Wise Webinars



During this five-part webinar series, you will hear from experts who will teach you the basics about well care, septic system maintenance, what to look for when buying and selling a house with a private drinking water system, and the potential health concerns with rural drinking water. Most importantly, these webinars will educate you on how you can protect your rural drinking water source.

# Eastern Working Group



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**Mississippi-Rideau Source Water  
Protection**

# 2023 Webinars

## Drinking Water Wise Webinars



### September 2023 Harmful Algal Blooms (HAB) and Drinking Water

What is an Algal Bloom?  
HAB Impact on Drinking Water  
Reducing Harmful Algal Blooms

### October 2023 Well Care 101

Well Maintenance  
Well Construction  
Regulation 903

### November 2023 Septic System 101

Septic Maintenance  
Identifying Common Problems  
Homeowner Best Practices

A drinking water intake, well and septic webinar series to promote the **Best Practices for Source Water Protection**

**More webinars to come in 2024!**



# Thank You

Questions?

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