

OVERVIEW

Highly Vulnerable Aquifers Education Collection

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a component of
Highly Vulnerable Aquifers Education Collection
A Guide to the Protection of Vulnerable Groundwater
in the Mississippi Rideau Source Protection Region

August 2022

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Purpose

This collection of educational material aims to encourage the protection of the highly vulnerable groundwater resources across our region.

The materials offer the information and tools by which watershed residents, businesses, community associations, institutions, municipalities, geoscience and engineering professionals, and conservation authorities alike can be informed about and act to:

**protect our regional groundwater,
our invaluable but vulnerable drinking water reserves**

Contents

This collection of educational material includes the following items:

- 1** This **overview**, where interested parties may read about the collection's purpose, context, and related roles and responsibilities
- 2** An esri® **StoryMap** which provides simple text, vibrant photos, educational videos, and interactive maps, from which watershed residents can learn about the natural vulnerability of our regional groundwater system and drinking water reserves
- 3** **Action sheets** which provide the tools by which we all may act to protect vulnerable groundwater in our everyday lives
- 4** A **three-part video series**, produced by academic experts from the region, which shows us the science about our vulnerable aquifers, from a general overview to detailed scientific review
- 5** A **state-of-the-science bibliography** that organizes the available scientific references by theme from which local geoscientists, engineers, planning professionals, and other interested parties can discover in the evidence about aquifer vulnerability

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Context

In 2006, the province of Ontario enacted the *Clean Water Act (CWA)* and developed the drinking water source protection program that followed. While the focus of the CWA is protecting sources of municipal drinking water, it does provide opportunities to help protect regional groundwater. Under the CWA and *Conservation Authorities Act*, regional groundwater, such as that which supplies private wells, can be studied. Further, under the CWA, non-restrictive policies can be created to help protect it.

The CWA established 38 watershed-based *Source Protection Areas* across Ontario. Many of these areas, which mirror conservation authority boundaries, were also grouped into *Source Protection Regions* depending on local decisions. Conservation authorities therefore administer the source protection programs at local levels.

The 8,500 km² Mississippi Rideau Source Protection Region (MRSPR) encompasses the watersheds that drain into the Mississippi and Rideau rivers in eastern Ontario. The regional source protection program is jointly administered and overseen by the *Mississippi Valley Source Protection Authority* and the *Rideau Valley Source Protection Authority* and a multi-stakeholder *Source Protection Committee*.

As required by the CWA, the authorities and committee facilitated the production of a suite of local technical references and a governing science-to-policy plan. The core technical reference, the *Assessment Report*, delineated the watersheds' physical characteristics, water quality and quantity, and land use. It also identified *vulnerable areas* and described related issues and threats to municipal drinking water. The principle governing plan, the *Source Protection Plan*, contains the policies to protect local drinking water sources. The current *Assessment Reports* and *Source Protection Plan* are found in the *MRSPR digital library*.

One of the four types of identified vulnerable areas are **highly vulnerable aquifers** (HVA), which “means an aquifer on which external sources have or are likely to have a significant adverse effect and includes the land above the aquifer”. See *O. Reg. 287/07*.

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The 4 vulnerable areas defined under the Clean Water Act are:

- 1 significant groundwater recharge areas • SGRA
- 2 highly vulnerable aquifers • HVA
- 3 surface water intake protection zones • IPZ
- 4 wellhead protection areas • WHPA

Roles and Responsibilities

The Ministry of the Environment, Parks, and Conservation (MECP) has provided the framework to protect HVAs, in the 2022 *Best Practices for Source Water Protection*. The MECP has also provided the legislative framework, via the *Water Resources Act* and others, to protect groundwater in general.

The Source Protection Authorities (SPA) and Source Protection Committee, oversees implementation of the local *Source Protection Plan* (SPP). The SPP includes legally and non-legally binding policies to protect HVAs. The non-legally binding policies are directed to all regional land users and land use decision makers.

The RVCA is providing this collection of educational material to fulfill the following non-legally binding policy, as per applicable *Source Protection Plan* policies.

Policy: EDU-6-NLB

4.3 Protecting Regional Groundwater

4.0 Policies for Education and Outreach

Approved Mississippi-Rideau Source Protection Plan revised May 21, 2020

The conservation authorities are also responsible for studying the interactions between surface and ground water, and to implement the local provincial groundwater monitoring program, as this is related to their legislated mandates.

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Further, to protect HVAs, some of the most important tools that Ontarians have in their toolbox lie in the hands of the municipal planning authorities who have been tasked with protecting, improving, and restoring the quality of surface waters and groundwaters, as this pertains to their **development approval responsibilities** and interests. This is discussed in Sections 2.1 and 2.2 *Water* of the 2020 Provincial Policy Statement (PPS).

In our part of the province, this responsibility falls to either the single, lower, or upper tier municipalities depending on the type of planning decision is being made.

To protect our waters, our municipalities are required to:

Implement necessary restrictions on development and site alteration to:

Protect all municipal drinking water supplies and designated **vulnerable areas**

Protect, improve, or restore vulnerable ... groundwater

Our municipalities are also required to ensure the suitability of all new development. This includes planning and building decisions such as zoning changes and lot creation when this will be privately serviced, and/or for all new parts of their stormwater management system. Both private servicing and stormwater management are intrinsically tied-in with aquifer vulnerability and with the above-mentioned policies. In the PPS, private servicing and stormwater management are spoken to in Sections 1.6.6.4 and 1.6.6.7, respectively.

To protect our waters, our municipalities are required to:

Ensure site conditions are suitable for the **long-term provision of private services** with no negative impacts

Mitigate the risks from stormwater management to human health and the environment, including minimizing / preventing increases in contaminant loads.

Beyond legislation, policy, guidance, technical studies, and on-going development decisions, much of the responsibility to protect HVA **lies with individual landowners and private businesses and industries** who are living and operating directly on top of the vulnerable aquifers.

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Attributions

Educational video series produced by:

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