

Our Vulnerable Groundwater

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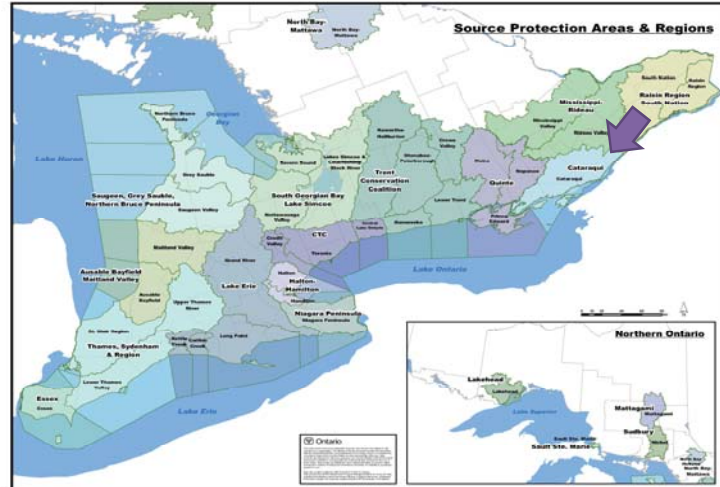
Proper Care and Maintenance of
Well and Septic Systems Workshop – January 15, 2018



CATARAQUI REGION CONSERVATION AUTHORITY



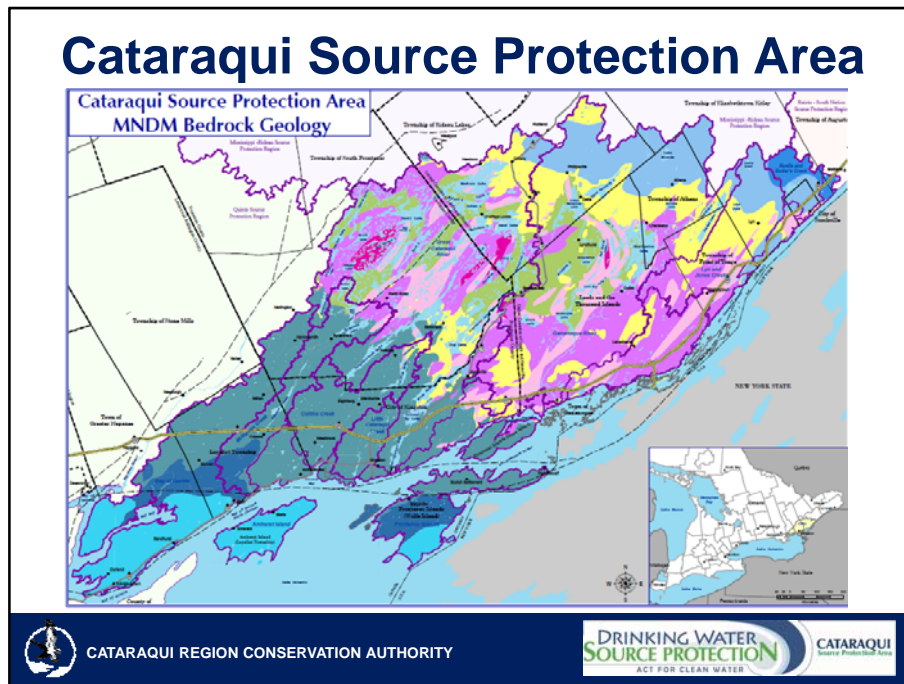
Cataraqui Source Protection Area



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The Cataraqui Source Protection Area is one of 19 source protection areas or regions defined by the *Clean Water Act* in Ontario. It's located in eastern Ontario and is the jurisdiction of the Cataraqui Region Conservation Authority with the addition of the Township of Frontenac Islands. All surface drainage of the CRCA is south to Lake Ontario and the St. Lawrence River. It is believed that groundwater flow generally mimics surface water flow patterns.



The Area is highly diverse on a number of fronts including bedrock geology.

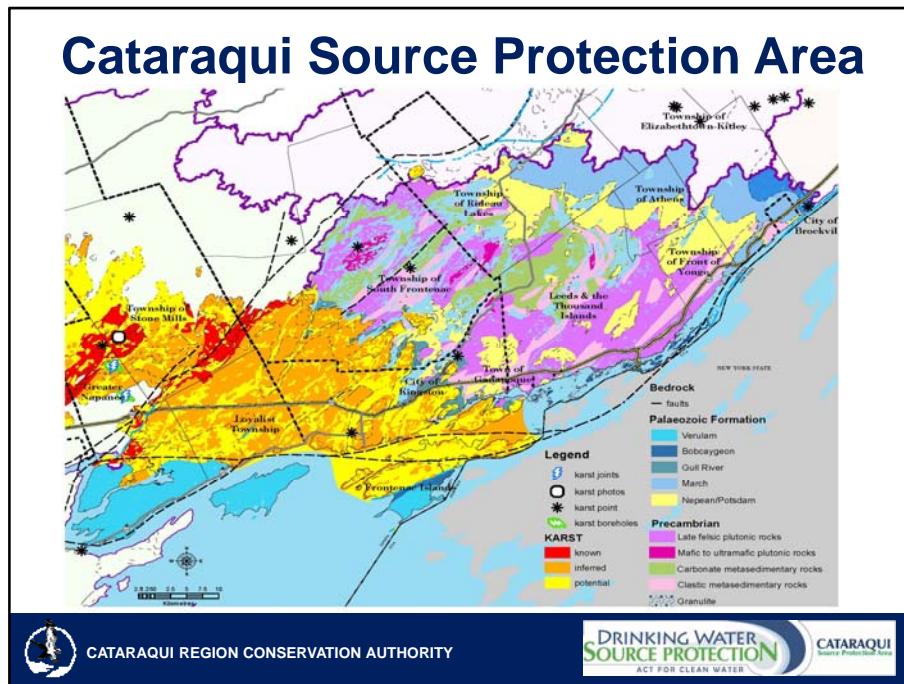
This map displays major bedrock units.

In the northeast sandstone and dolostone of the March and Nepean Formations dominate with higher well yields and generally more aesthetically pleasing drinking water.

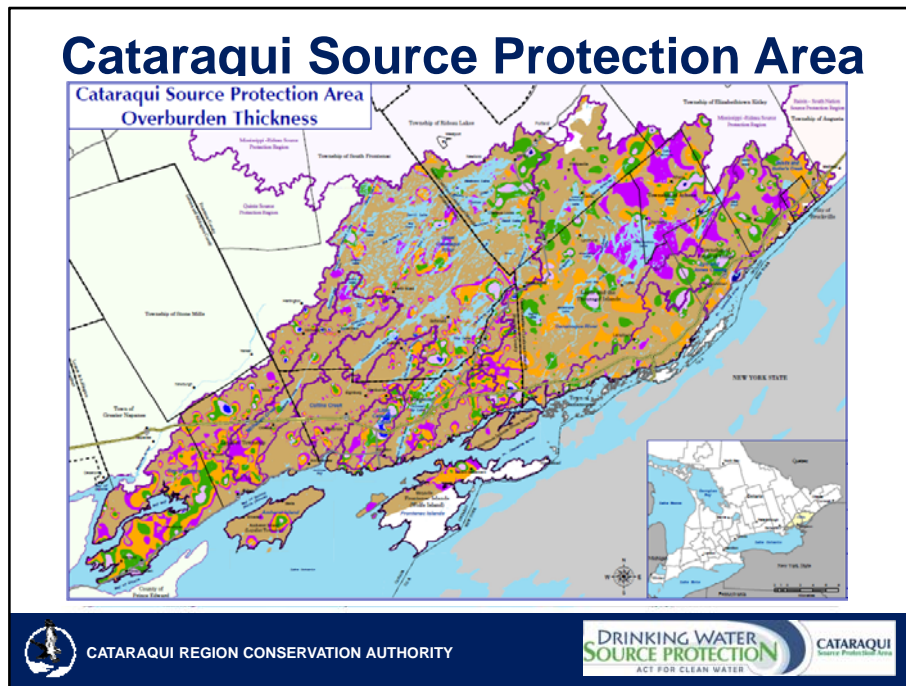
The central portion is an uplifting of the Canadian Shield referred to as the Frontenac Arch where groundwater yield and quality is variable.

The western area is composed of limestone formations (Gull River, Verulam and Bobcaygeon) with lower well yields and higher ions concentrations resulting in drinking water that may be salty and taste and smell of sulphur.

It should also be noted that the groundwater table is relatively shallow (about 20 mbgs).



Karst is also inferred and known to be present in the central and western area. Karst is defined as a geological feature created on the earth's surface by the drainage of water into the ground. This often creates a direct pathway to groundwater sources. Note that the karst impacts groundwater vulnerability, but not structural stability in the CSPA, as can be the case in other areas.



Finally, the entire Area is characterized by fractured bedrock with thin to absent soils. The beige colour on this map depicts areas with less than 0.9 m of overburden.

Studies

- Examine groundwater as a resource
- Determine contamination sources and areas of vulnerability
- Collect data and create a resource inventory
- Develop recommendations for management and land use planning



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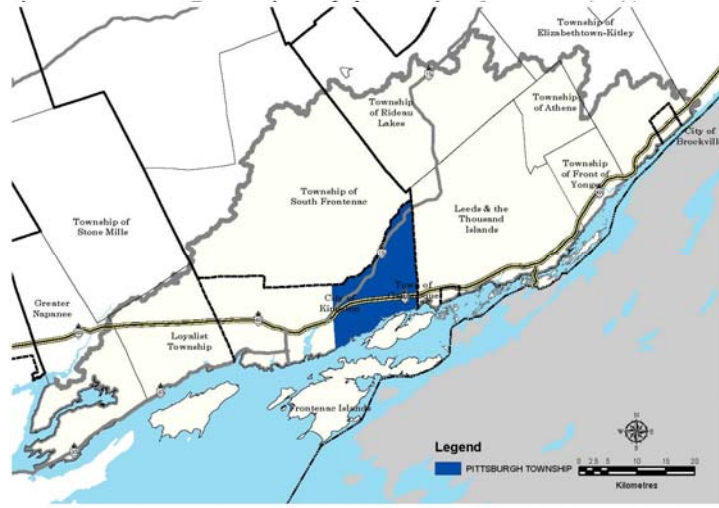


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Since 1990 a number of groundwater studies have been completed for the area.

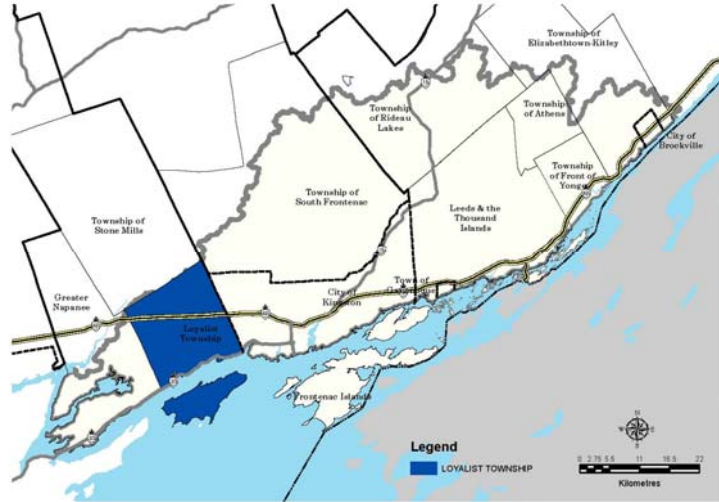
Given the fractured bedrock, thin to absent soils and relatively high water table, it is no surprise that these independent studies have identified groundwater as highly vulnerable to contamination throughout the CSPA and in many cases a higher level of protection is recommended.

Study Areas



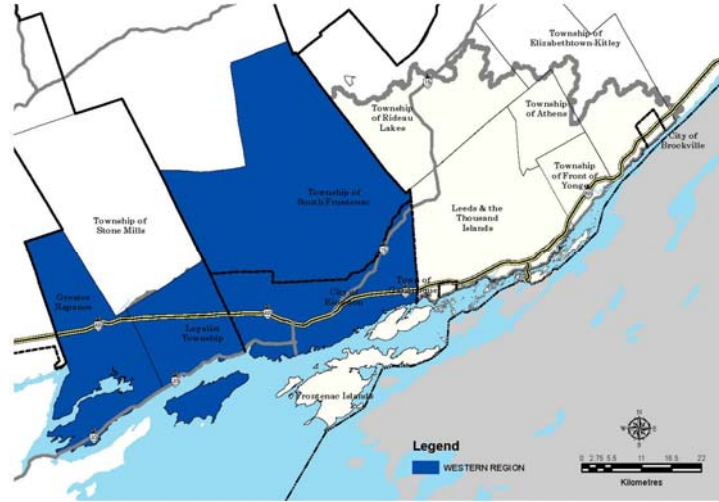
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Study Areas



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Study Areas



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Recommendation Themes

- **Education**
- Vulnerable area mapping
- Threat inventory and control
- Improved regulations (all levels of government)
- Well construction and abandonment
- Existing development
- New land development
- Data and monitoring



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Across the various studies, we found that there were eight main themes; one being education. Workshops like this one help to improve knowledge and understanding of our groundwater and what we can all do to protect it.

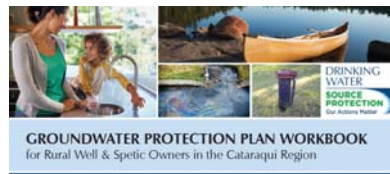
New Resource - Coming Soon!

Ground Water Protection Workbook:

- Determines groundwater vulnerability
- Outlines best practices
- Provides key contacts, tracking sheets and resources

Scores Vulnerability for:

- Bedrock and Soil Conditions
- Land Uses and Practices
- My Well
- Water Quality and Quantity
- My Sewage System



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To further support groundwater-related education. We, in collaboration with our partners, are in the final stages of producing a property-specific and self-guided groundwater assessment workbook. The workbook is voluntary and confidential. It leads well and septic system owners through a series of multiple choice questions. Resulting scores provide an overall groundwater risk score for your drinking water supply as well as scores for 5 different topics.

Questions?



Made possible through the support of the Government of Ontario



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