

Deseronto's Drinking Water Source - System Summary

Drinking Water From the Bay of Quinte

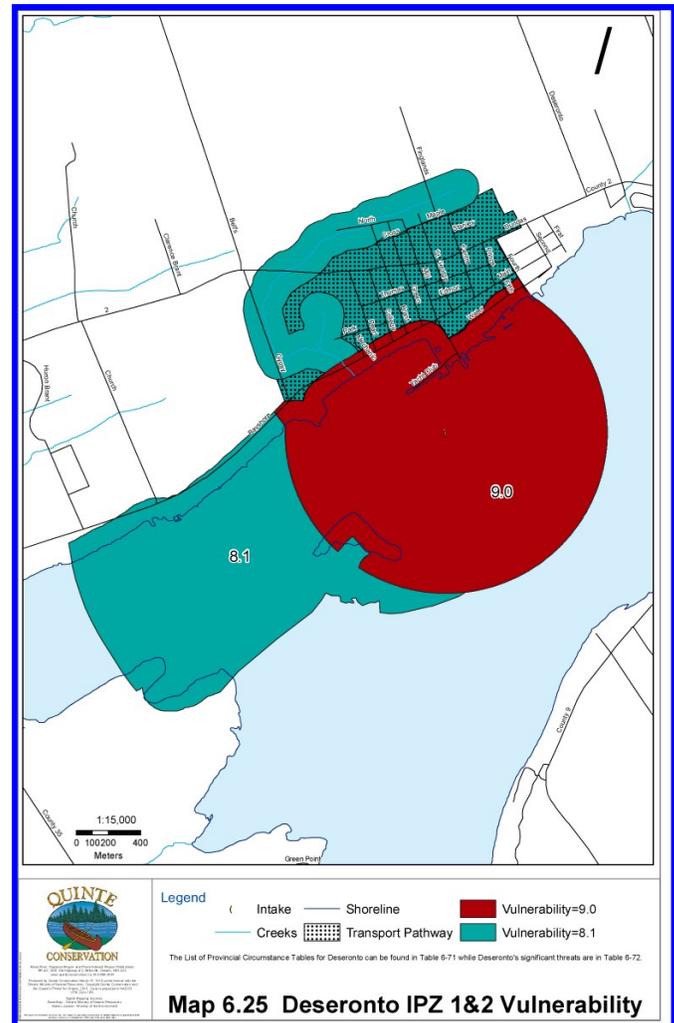
The Bay of Quinte is the drinking water source for the Town of Deseronto. The Town is located along the north shore of the Bay of Quinte east of the City of Belleville. Water in the Bay of Quinte flows from west to east and the major tributary to the Bay is the Trent River system. The Deseronto Water Plant serves a population of approximately 2,100. The intake pipe is located almost 500 metres off-shore in the Bay of Quinte. Deseronto also has municipal sewage treatment that discharges into the Bay of Quinte less than one kilometre east of the drinking water intake. Land use around the intake is a mixture; predominantly residential and agricultural with some commercial, industrial and institutional uses.

Vulnerable Areas

Through the science of the Assessment Report (available at www.quintesourcewater.ca), zones were mapped that show which areas surrounding the water intake pipe are most vulnerable to pollution and contamination. These zones are called intake protection zones or IPZs. Three IPZs are identified; each with different levels of vulnerability:

- **IPZ 1** is the area closest to the intake. It is the area of highest concern because contaminants entering this zone would reach the intake quickly with little or no dilution. (red on map)
- **IPZ 2** is a secondary protection zone. It is calculated based on how far water can travel during a two-hour time period. The contributing area to IPZ 2 was determined by considering contributions from flows, wind, transport pathways and urban sewer systems. (dark blue on map)
- **IPZ 3** is the total area of drainage that contributes to the intake. The IPZ 3 for the Deseronto Intake includes: the Bay of Quinte up to the Point Anne intake, the Salmon River and the Napanee River up to the Napanee Backup supply. So, for this study the IPZ 3 stops where the study of nearby systems begin. This avoids duplication of work and associated costs.

The IPZ 3 was divided into two sub-zones, 3a and 3b, due to the different area conditions and vulnerability considerations. (See map on reverse.) IPZ 3a includes the drainage area immediately upstream of IPZ 2 to the approximate limit of the higher density agricultural land use area within the watershed. Within IPZ 3a, land use is predominantly agricultural while within IPZ 3b it is mainly forested. The divide between IPZ 3a and IPZ 3b also corresponds to the approximate southerly edge of the Canadian Shield geology of IPZ 3b.



Vulnerability Scores

Vulnerability scores help to quantify how vulnerable the drinking water source is to contamination. Scores are calculated based on the characteristics of each intake and IPZ around the intake, taking into account how contaminants might move through them. An area with a higher vulnerability score is more likely to allow contaminants from that area to reach the drinking water intake. The vulnerability score of the highest concern is 10. The vulnerability scores for the Town of Deseronto Intake are: **IPZ 1 = 9, IPZ 2 = 8.1, IPZ 3a = 7.2 and IPZ 3b = 2.7**

Drinking Water Issues

Drinking water issues are chemicals or bacteria in the untreated water that exceed allowable values. The raw water quality data that represent conditions at the Town of Deseronto Intake was screened to identify issues in the source water of the Bay of Quinte which might contribute to degraded water quality. Using a 4-step screening process it was confirmed that no issues in the raw water exist.

Drinking Water Threats

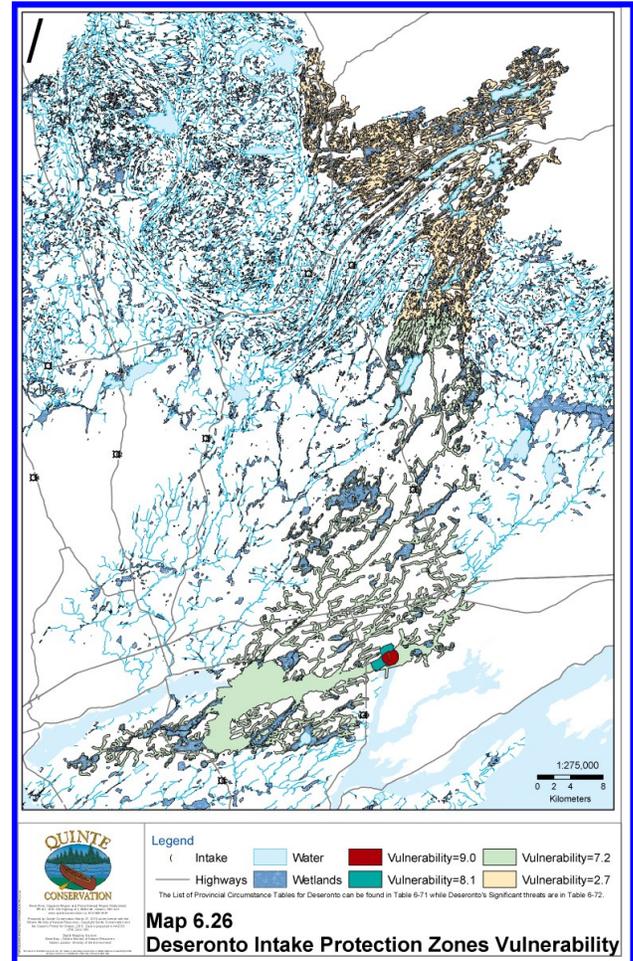
Threats to the drinking water source within the IPZs were evaluated. These threats are based on the categories prescribed by the Ministry of the Environment and Climate Change. Threats were inventoried by field observations, air photos and satellite images, existing databases and landowner contact. These threats were then ranked as significant, moderate or low. There were two significant threat types identified in the IPZ 1 and three significant threat types identified on three parcels in the IPZ 2. They are:

- sewage treatment and storage
- application of agricultural source material to land
- application of non-agricultural source material to land
- use of land as livestock grazing or pasturing land, an outdoor confinement area or a farm-animal yard
- handling and storage of non-agricultural source material

No threats were identified based on the presence of any past land uses or pre-existing conditions. Moderate and low threats are shown in tables in the Assessment Report.



Made possible through the support of the Government of Ontario



Source Protection Plan

The Approved Quinte Region Source Protection Plan includes policies, developed by the Source Protection Committee in consultation with the local community. The 63 policies in the plan address the drinking water threats identified in the science-based Assessment Report. The Assessment Report, identified the vulnerable areas surrounding the 11 municipal drinking water sources in the Quinte Region and ranked the threats as significant, moderate or low.

The source protection planning process is governed by the *Clean Water Act, 2006* and directed and funded by the Ontario Ministry of the Environment and Climate Change. The Quinte Region Source Protection Plan comes into effect January 1, 2015.

For more information, including the complete Assessment Report and the Source Protection Plan, visit:

www.quintesourcewater.ca

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