

Domestic, Industrial and Municipal Water Uses



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What is the purpose of the Water Uses Technical Work Group?

We represent the interests of the principal users relying directly on water for various purposes.

The main interests identified and investigated are:

- Drinking water treatment plants;
- Wastewater treatment plants and sewer systems;
- Industries withdrawing or discharging water; and
- Private shore wells, intake lines, septic systems, etc.

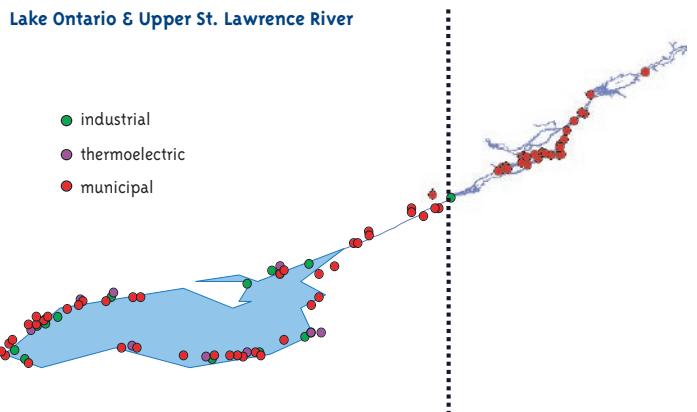
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Where is the study zone?

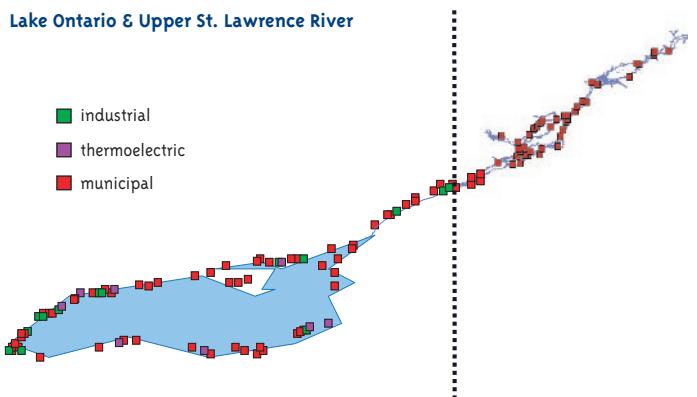
The study zone covered by this project extends from Lake Ontario down to Trois-Rivières, in the Quebec portion of the St. Lawrence River (Figure 1).

Figure 1

Water Intakes



Waste Water Outfalls



How do water levels have an impact on water uses?

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1. **Minimum water levels** are required for municipal and industrial plants to be able to withdraw the required volumes of water.
2. **Maximum water levels** limit the gravity discharge of treated wastewater and can also cause flooding of septic systems resulting in other problems such as groundwater contamination.

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What did we learn?

1. Based on surveys and site visits, the **critical water levels** were calculated (or obtained for Lake Ontario and the upper St. Lawrence River). The critical water level is highly dependant on the structure (shape, material, elevation) as well as on the flow going through the intake (Figure 2).
2. The critical levels for part of the Lower St. Lawrence are presented in Figure 3. According to this figure, only three plants are vulnerable at frequencies greater than 1/10000 years. The potential vulnerability of the plants, however, could represent serious impacts (limited or no production) and costs (building new infrastructures).
3. The influence of water level on water quality was also investigated as it could influence the treatment. Although the findings suggest that the impacts are secondary, they were still expressed in terms of performance indicators.

Figure 2

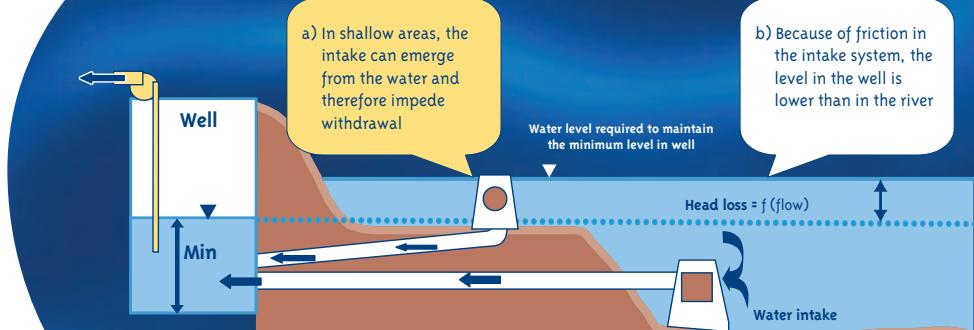
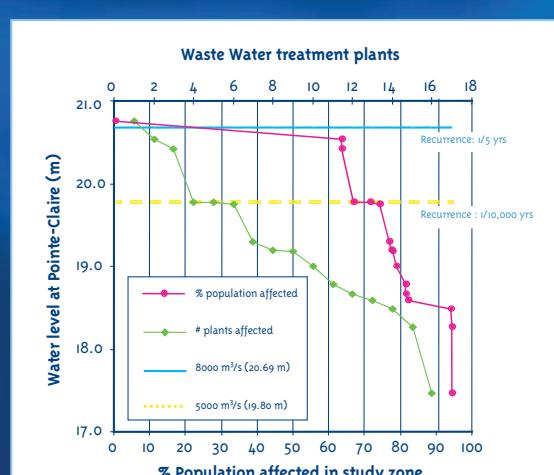


Figure 3



Critical Minimum Water Level