

Canada-Ontario Water Use and Supply Project

In the fall of 2000, Environment Canada and the Province of Ontario initiated a joint federal/provincial water use and supply project. The primary objective of this Canada/Ontario project is to gain baseline information on water supply, use and demand at a sub-basin level, identify the ecological sensitivities of the system to water resources and make projections for the future including the potential impacts of climate change. The study area covers the Great Lakes Basin, Ottawa River Basin and St. Lawrence River Basin above Cornwall on a sub-basin level. (Figure 1).

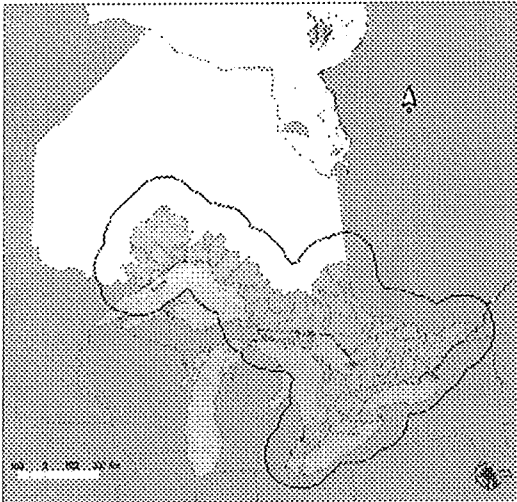


Figure 1: Study Area

Why is the project needed?

A recommendation in the recent International Joint Commission (IJC) report on bulk removals from the Great Lakes titled the "Protection of the Waters of the Great Lakes" was for federal, state, and provincial governments to move quickly to remedy water use data and research deficiencies. To this end, the Great Lakes Commission (GLC) out of Ann Arbor, MI are leading a large scale collaborative effort towards providing information to assist water management decisions. Environment Canada (EC) and the Ontario Ministry of Natural Resources (MNR) are currently full partners in this initiative. This work also supports Annex 2001 which sets out Great Lakes state and provincial commitments to manage withdrawals and uses of Great Lakes Basin water with a view to providing long-term protection of water and water-dependent natural resources of the Great Lakes Basin.

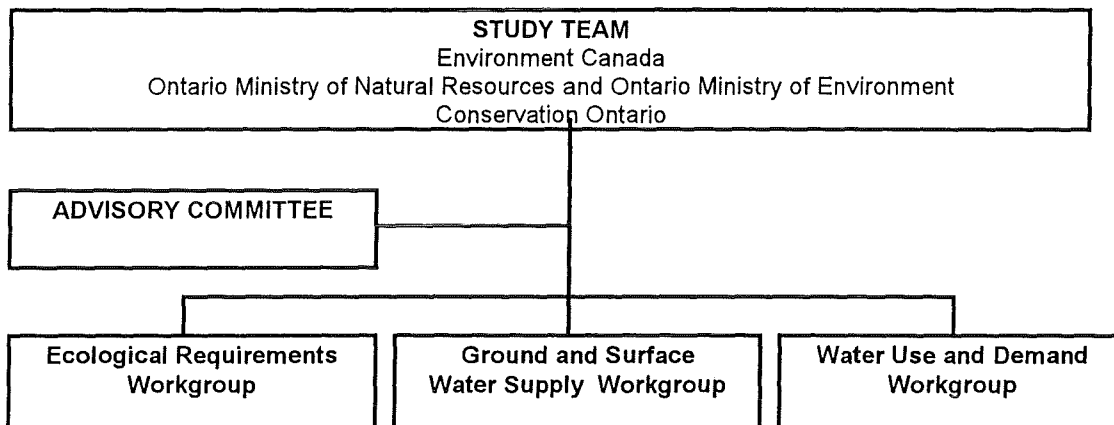
By undertaking the Canada/Ontario water use and supply project, Canada can support the GLC Study, but also look at water use and supply at a sub-basin level, which is something that has never been done before, and consider the impacts of climate change. The project also compliments Canada's strategy on bulk removals by providing needed baseline information on water uses and supplies in the Great Lakes. Further, it provides a basis for joint provincial, federal, and binational water management and

conservation efforts and takes an unprecedented look at the ecological sensitivities of the system to changes in water supply.

What are the Project Linkages?

This Canada/Ontario Water Use and Supply Project feeds into the Ontario Water Management Framework under development by the province and also directly supports the GLC effort to develop a Water Resource Management Decision Support System (WRMDSS). There are members from the Canada/Ontario Water Supply and Use Project on each technical sub-committee of the GLC Study. Where possible, joint efforts are underway to collect data and information.

Project Organization



Project Description

The Water Supply Work Group is developing a prototype methodology for calculating ground and surface water supplies on a sub-basin level (4th level watersheds) based on hydrologic factors including precipitation, evaporation, stream discharge and baseflow index. A baseflow separation is performed on the gauged stream flow data and the baseflow relation to geological factors is used to extrapolate to ungauged and regulated watersheds. This allows estimates of ground and surface water supply on a sub-basin level for the entire watershed to be calculated. This is the first time ground and surface water has been estimated on a sub-basin level for the Great Lakes Basin.

The Water Use Work Group is gathering the latest possible water use estimates as they relate to withdrawals, in-stream uses, inter-basin diversion and consumptive uses for municipal, industrial, agriculture, thermal and hydro-power sectors. These estimates will be based on historic water use and socio-economic trends and observations. This is the first time water use data have been assessed on a sub-basin level for the entire Great Lake region.

The goal of the Ecological Requirements Work Group is to determine the ecological sensitivities of the system to changes in water resources under current conditions and various climate change scenarios and future demand projections. Very little information has been gathered to date on this topic and yet it is critical to water management

decisions. This group will be looking into ways of evaluating ecological sensitivities on a sub-watershed basis.

Together, the information gathered from these three work groups will provide an overview and greater understanding of the status of the Great Lakes system with respect to its water resource and the sensitivities of the system.

Timelines

November 2001-March 31, 2005

Year 1: Data acquisition and theme assembly

Year 2-3: Basin-focused studies

Year 3-4½: Climate change scenarios and final report

Deliverables

1. A GIS database showing ground and surface water flow on a sub-watershed basis for the entire study area.
2. An assessment of current available models and their applicability in calculating water supply
3. Estimates of water use on a sub-watershed basis across the study area both in written and GIS format.
4. Projections of future water demand on a sub-watershed basis both in written and GIS format.
5. An assessment of the ecological sensitivities of the system to changes in the water resource on a sub-watershed basis in a GIS.
6. An assessment of the impacts of climate change on the system and related maps.

For more information please contact either of the Project co-chairs:

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