

**Great Lakes-St. Lawrence River Water Resources Regional Body**

**RESOLUTION NO. 2015-9**

**ADOPTING DECLARATION OF FINDING**

For the Water Management Program Review and  
Water Conservation and Efficiency Program Review  
Province of Ontario

**I. BACKGROUND AND PURPOSE**

A. The Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement (“Agreement”) is by, between and among the States of Illinois, Indiana, Michigan, Minnesota, New York, Ohio, and Wisconsin, the Commonwealth of Pennsylvania, the Province of Ontario, and the Government of Québec, and certain provisions of the Agreement began to more fully come into force on March 8, 2015.

B. Article 300 of the Agreement requires each Party State and Province to submit a report to the Regional Body on actions taken by the State or Province to meet the provisions of the Agreement regarding that State’s or Province’s Water management and conservation and efficiency programs.

C. Following the Regional Body’s review of such reports pursuant to Article 300 of the Agreement, the Regional Body shall determine if that State or Province’s programs: (1) meet or exceed the provisions of the Agreement; (2) do not meet the provisions of the Agreement; or (3) would meet the provisions of the Agreement if certain modifications were made and what options may exist to assist the jurisdiction in meeting the provisions of the Agreement.

D. Because Article 300 of the Agreement came into force as of March 8, 2015, the first report will be due March 8, 2016 and the five-year report will be due March 8, 2021. Therefore, all such reports submitted prior to March 8, 2016, as well as the Declaration Of Finding issued thereon, are recognized as voluntary, and the submission of such reports and the issuance of Declaration Of Finding shall not be interpreted to indicate that Article 300 of the Agreement requires such reports at this time.

E. Article 304, Paragraph 1 of the Agreement requires the Regional Body to identify Basin-wide Water conservation and efficiency objectives to assist the Parties in developing their Water conservation and efficiency programs by December 13, 2007, which were adopted by the Regional Body on December 13, 2007. Article 304, Paragraph 2 of the Agreement requires each Party State and Province to develop its own water conservation and efficiency goals and objectives consistent with the Basin-wide goals and objectives, and develop and implement a water conservation and efficiency program, either voluntary or mandatory, within its jurisdiction based on the Party State’s and Province’s goals and objectives.

## **II. SUBMISSIONS BY PROVINCE OF ONTARIO**

The Regional Body has received the Province of Ontario's voluntary report on its Water management and conservation and efficiency programs under the Agreement, which is attached to this Resolution as Attachment A.

## **III. DECLARATION OF FINDING**

Upon review of the submissions of the Province of Ontario and the terms of the Agreement, the Regional Body finds that:

- A. Based on the report submitted by the Province of Ontario, the Water Management Program presented by the Province of Ontario meets or exceeds the current requirements of the Agreement.
- B. Based on the report submitted by the Province of Ontario, the Water Conservation and Efficiency Program presented by the Province of Ontario meets or exceeds the current requirements the Agreement.

***Adopted and approved on December 3, 2015 by  
the Great Lakes-St. Lawrence River Water Resources Regional Body***

**ATTACHMENT A**

Water Management Program Review  
Province of Ontario  
Revised Response Dated January 8,  
2015

January 8, 2015

## **Province of Ontario Five-Year Review of Ontario's Water Management Programs**

The following information is submitted by the Province of Ontario to the Great Lakes Regional Body Secretariat in response to the Questionnaire for Preliminary Submittals by States and Provinces, in fulfillment of the five-year review of Ontario's Water Management Programs, pursuant to the requirements in Article 300 of the *Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement* (Agreement).

### **General Information**

#### **1. Lead agencies and contact(s):**

The Ontario Ministry of Natural Resources and Forestry (MNRF) and the Ontario Ministry of the Environment and Climate Change (MOECC) share primary responsibility for water management at the provincial level. Generally, MNRF is responsible for certain aspects of Provincial water quantity management, including the administration of the *Great Lakes Charter* and the *Great Lakes – St. Lawrence River Basin Sustainable Water Resources Agreement* (Agreement). MOECC is responsible for water quality management and for the Permit to Take Water Program, which is being enhanced to implement key commitments of the Agreement.

#### **Key Contacts:**

Eric Boysen, Director  
Biodiversity Branch  
Ontario Ministry of Natural Resources and Forestry

Brian Nixon, Director  
Land and Water Policy Branch  
Ontario Ministry of the Environment and Climate Change

#### **2. Provincial water management program implementing laws, regulations and policies –**

Ontario is implementing its Agreement commitments through enhancement of existing water management programs. The commitments of the Agreement are being implemented primarily through changes to the Permit to Take Water Program under the Ontario Water Resources Act (OWRA), with contributions from a number of additional statutes, regulations and policies, as highlighted in the following table. A description of Ontario's key legislative and policy tools for water management follows the table.

Status As Of January 1, 2015,  
Commencement Date for Ontario's Implementing Legislation, Regulations

Agreement Commitments (Articles)	Ontario Water Resources Act, Water Taking and Transfer Regulation (O. Reg. 387/04)	Additional Legislation, Regulation, Policy
Prohibition of diversions, regulation of exceptions based on Exception Standard (Article 200, 201)	<input checked="" type="checkbox"/> Ban on diversions out of Ontario's major water basins, including the Great Lakes Basin (OWRA s.34.3) <input checked="" type="checkbox"/> Regulation of intra-basin transfers (OWRA s. 34.5-34.11; O. Reg 387/04)* <input checked="" type="checkbox"/> Environmental Compliance Approvals required for sewage works (return flow) (OWRA s. 53)	<input checked="" type="checkbox"/> Environmental Assessment Act - Technical Bulletin provides guidance for municipalities undertaking water, wastewater projects to meet spirit of Agreement standards, criteria for class EA projects involving an intra-basin transfer <input checked="" type="checkbox"/> Lakes and Rivers Improvement Act – regulation of works forwarding, holding back, diverting water (location, design approval) <input checked="" type="checkbox"/> Quality of return flow/effluent regulated under Environmental Protection Act, Clean Water Act, Environmental Assessment Act, Provincial Water Quality Objectives <input checked="" type="checkbox"/> Clean Water Act provides for the completion of water quality and quantity risk assessments, water budgets
Regional review of significant diversion exceptions (Article 204)	<input checked="" type="checkbox"/> Regional review for significant intra-basin transfers (OWRA s. 34.6, 34.1)*	<input checked="" type="checkbox"/> Environmental Bill of Rights provides for public consultation on water taking proposals
Management, regulation of withdrawals, consumptive uses based on Decision-Making Standard (Article 200, par 3; 203; 206)	<input checked="" type="checkbox"/> Permitting criteria reflect Agreement Decision Making Standard (OWRA s. 34; O.Reg. 387/04) <input checked="" type="checkbox"/> Environmental Compliance Approvals required for sewage works (return flow) (OWRA s. 53)	<input checked="" type="checkbox"/> Quality of return flow/effluent regulated under Environmental Protection Act, Clean Water Act, Environmental Assessment Act, Provincial Water Quality Objectives <input checked="" type="checkbox"/> Clean Water Act provides for the completion of water quality and quantity risk assessments, water budgets <input checked="" type="checkbox"/> Provincial Policy Statement under the Planning Act provides for the minimizing of negative impacts and planning for efficient, sustainable water use and conservation in planning and development decisions
Prior Notice and Comment for significant consumptive uses (Article 205)	<input checked="" type="checkbox"/> Prior Notice and Comment required for significant consumptive uses by regulation (s. 6; O.Reg 387/04)*	<input checked="" type="checkbox"/> Environmental Assessment Act - Technical Bulletin provides guidance for municipalities undertaking water, wastewater projects to meet spirit of Agreement for class EA projects <input checked="" type="checkbox"/> Environmental Bill of Rights provides for public consultation on water taking proposals
Applicability, determining new/ increased diversions, consumptive uses, withdrawals (e.g. foundation for baseline setting, Agreement exemptions, regulation of bottled water) (Article 207)	<input checked="" type="checkbox"/> Exemptions from permitting for livestock watering, household use, unless a new or increased transfer is established (OWRA s. 34) <input checked="" type="checkbox"/> Exceptions to Ontario ban on diversions/ transfers out of major water basins (OWRA s. 34.3) <input checked="" type="checkbox"/> Regulation of bottled water under PTTW program, restriction of highly consumptive uses in defined high use watersheds (O.Reg.387/04) <input checked="" type="checkbox"/> Setting of a baseline (OWRA s. 34.8; O. Reg. 387/04)*.	
Review, possible amendment of standards	<input checked="" type="checkbox"/> Posting of cumulative impact assessments for public input, ON government response (OWRA s. 34.6)*.	

Status As Of January 1, 2015,  
Commencement Date for Ontario's Implementing Legislation, Regulations

Agreement Commitments (Articles)	Ontario Water Resources Act, Water Taking and Transfer Regulation (O. Reg. 387/04)	Additional Legislation, Regulation, Policy
based on periodic cumulative impact assessments (Article 209)		
Judicial Review (standing to other Parties to seek judicial review of Ontario decision under Agreement) (Article 210)	<input checked="" type="checkbox"/> Reciprocating jurisdictions entitled to hearing of Environmental Review Tribunal with respect to specified decisions (OWRA s. 34.9-34.10, O. Reg 387/04)* <input checked="" type="checkbox"/> Reciprocating jurisdictions entitled to seek judicial review of specified decisions (OWRA s. 34.9, 34.11, O. Reg. 387/04)*.	
Submission of water management, conservation program reviews every 5 years (Article 300)	<input checked="" type="checkbox"/> Program reviews submitted voluntarily	
Conservation goals, objectives, programs, annual assessment of conservation programs (Article 304)  (Note: see Water Conservation & Efficiency Program Report for further description of contributing legislation, policies, programs)	<input checked="" type="checkbox"/> Water conservation among the criteria considered in making decisions on a Permit to Take Water (OWRA O.Reg. 387/04) <input checked="" type="checkbox"/> Permit application requires applicant to identify existing conservation measures <input checked="" type="checkbox"/> Annual Conservation Program Assessment, 5 year program reviews submitted voluntarily	<input checked="" type="checkbox"/> Water Opportunities Act, 2010 sets out a framework for water efficiency, conservation (e.g. Building Code amended to require regular review of water conservation standards, expand scope of Building Code Conservation Advisory Council) <input checked="" type="checkbox"/> Ontario Water Conservation and Efficiency Goals, Objectives completed 2012 <input checked="" type="checkbox"/> Broader water and ecosystem conservation commitments supported by a wide range of legislation, regulation, policies and programs e.g. Planning Act-Provincial Policy Statement, Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem, Great Lakes Strategy
Information Management commitments (mandatory reporting by water users, annual reporting of water use data to regional database) (Article 301)	<input checked="" type="checkbox"/> O.Reg 387/04 requires annual reporting of water use by permit holders	

The primary provincial legislative and policy tools that contribute to Agreement implementation are listed below. Federal legislation and management activities may also apply (e.g. Fisheries Act) but are not outlined in this report.

The *Ontario Water Resources Act* (OWRA) provides for the conservation, protection and management of Ontario's waters and for their efficient and sustainable use. The Act provides the authority for the Permit to Take Water Program administered by the Ministry of the Environment and Climate Change. Essentially, and subject to limited exceptions, any person who takes more than 50,000 litres of water in any day by means of a well, intake, or other works (a taking includes the diversion of water) is required to obtain a Permit to Take Water from the MOECC Director. In 2007 the OWRA was amended through the *Safeguarding and Sustaining Ontario's Water Act* (SSOWA) to incorporate key provisions of the Agreement. Some amendments came into force immediately (e.g. ban on out of basin diversions/transfers), others required supporting

regulations before they could be brought into force (e.g. regulation of intra-basin transfers, consumptive uses in accordance with the Agreement). All remaining provisions of the Act will be in force as of January 1, 2015, the date of proclamation.

- *Ontario Water Resources Act, R.S.O. 1990, c. O.40:*  
[www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_90o40\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90o40_e.htm)
- *Safeguarding and Sustaining Ontario's Water Act, S.O. 2007, c.12 – Bill 198:*  
[www.e-laws.gov.on.ca/html/source/statutes/english/2007/elaws\\_src\\_s07012\\_e.htm](http://www.e-laws.gov.on.ca/html/source/statutes/english/2007/elaws_src_s07012_e.htm)

The *Water Taking and Transfer Regulation* under the OWRA outlines matters that the Ministry of the Environment and Climate Change must consider when deciding upon an application for a Permit to Take Water. Amendments to the regulation have been developed to bring key Agreement commitments into force (e.g. ban on intra-basin transfer and regulation of exceptions; application of decision-making standard, prior notice and comment process that is required by the Agreement for very large withdrawals, consumptive uses)\*

- Ontario Regulation 387/04 (Water Taking and Transfer):  
[www.e-laws.gov.on.ca/html/regs/english/elaws\\_regs\\_040387\\_e.htm](http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_040387_e.htm)

The *Permit To Take Water Manual* (April 2005) sets out the decision-making process generally followed by the Ministry when evaluating a proposed or existing water taking.

- *Permit to Take Water Manual* (April 2005):  
<https://archive.org/details/permittotakewa4932ontauoft>

Other supporting Permit to Take Water application policies and guidance materials are outlined in section 5 of the Water Management Program report.

*The Lakes and Rivers Improvement Act, 1990 (LRIA)*, administered by the Ministry of Natural Resources and Forestry, provides for the management, preservation and use of Ontario's lakes and rivers and the land under them, the protection of public rights and riparian interests, the management of fish and wildlife dependent on lakes and rivers, protection of natural amenities and the protection of people and property by ensuring that dams and diversions are suitably located, constructed and maintained.

- *Lakes and Rivers Improvement Act, R.S.O. 1990, c. L.3:*  
[www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_90l03\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90l03_e.htm)
- Ontario Regulation 454/96 (Construction):  
[www.e-laws.gov.on.ca/html/regs/english/elaws\\_regs\\_960454\\_e.htm](http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_960454_e.htm)

*The Clean Water Act, 2006*, administered by the Ministry of the Environment and Climate Change, protects existing and future sources of Ontario's drinking water. A key component of the legislation is the preparation of locally developed, science based risk assessment reports (quality and quantity risks) and source protection plans.

- *The Clean Water Act, 2006, R. S.O. 2006, c. 22:*  
[www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_06c22\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_06c22_e.htm)

The Ontario *Environmental Assessment Act*, 1990 (EA Act) provides for two types of environmental assessment planning and approval processes: Individual Environmental Assessments (EA) carried out and submitted to the Minister of the Environment and Climate Change for review and approval, or Class Environmental Assessments which are approved subject to compliance with an approved class environmental assessment process (e.g. Municipal Engineers Association Class EA for Municipal Infrastructure projects, including water and wastewater projects)

- *Ontario Environmental Assessment Act*, R.S.O. 1990, Chapter E.18  
[www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_90e18\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90e18_e.htm)

Regulations under the *Environmental Protection Act* specify effluent monitoring requirements and effluent limits for nine industrial sectors: petroleum; pulp and paper; metal mining; industrial minerals; metal casting; organic chemical manufacturing; inorganic chemical manufacturing; iron and steel manufacturing; and electric power generation.

- *Environmental Protection Act*, R.S.O. 1990, CHAPTER E.19  
[www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_90e19\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90e19_e.htm)

*Water Opportunities and Water Conservation Act*, 2010 was passed on November 29th, 2010. The Act contains five schedules. Schedule 1 enacts a stand-alone act, the *Water Opportunities Act*, 2010. Schedules 2 to 5 amend existing legislation in respect of water conservation and other matters. The Act builds upon Ontario's expertise in clean water technology and sets out a framework to make the province a North American leader in water innovation to help address global water challenges. Among other things, the Act sets the framework to encourage Ontarians to use water more efficiently by creating and implementing innovative approaches to protect water resources for current and future generations.

- *Water Opportunities and Water Conservation Act*, S.O. 2010, Chapter 19  
[http://www.e-laws.gov.on.ca/html/source/statutes/english/2010/elaws\\_src\\_s10019\\_e.htm](http://www.e-laws.gov.on.ca/html/source/statutes/english/2010/elaws_src_s10019_e.htm)
- *Water Opportunities Act*, S.O. 2010, Chapter 19, Schedule 1  
[http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_10w19\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_10w19_e.htm)

The *Canada-Ontario Agreement* (COA) is the principal mechanism through which Ontario and Canada coordinate their work to address their respective and shared commitments to protect the Great Lakes. The first COA was signed in 1971. Ontario has negotiated with Canada the 8th Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health, 2014. The province has negotiated an agreement that supports implementation of Ontario's Great Lakes Strategy while Canada has focussed on aligning commitments with the 2012 Canada-U.S. Great Lakes Water Quality Agreement. The 8th COA is comprised of a framework agreement and 14 annexes. New annexes deal with climate change impacts, nutrients, aquatic invasive species, habitat and species, groundwater quality, discharges from vessels, promoting innovation and engaging communities, First Nations and Métis. Under Annex 5, Lakewide Management, of the 8th COA, Canada and Ontario have agreed to commitments that will result in improved understanding and implementation of adaptive management approaches to lake level regulation such as improving understanding of cumulative impacts of water withdrawals, diversions, and consumptive uses on the water resources and ecosystems of the Great Lakes basin.



- *Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health, 2014*  
[http://www.downloads.ene.gov.on.ca/envision/env\\_reg/er/documents/2014/011-9290\\_d.pdf](http://www.downloads.ene.gov.on.ca/envision/env_reg/er/documents/2014/011-9290_d.pdf)

The *Provincial Policy Statement* (PPS, 2014), under the authority of Section 3 of the *Planning Act*, administered by the Ministry of Municipal Affairs and Housing, provides policy direction on matters relating to land use planning that are of provincial interest, including protecting and restoring water quality and quantity, promoting efficient and sustainable use of water resources, including practices for water conservation and sustaining water quality, and protection from water-related natural hazards. Planning authorities that have authority to make decisions under the *Planning Act* must ensure their decisions are consistent with the *Provincial Policy Statement*.

- *Provincial Policy Statement*  
<http://www.mah.gov.on.ca/AssetFactory.aspx?did=10463>

*Water Management* (1994, update 1998) establishes the Policies, Guidelines and Provincial Water Quality Objectives of the Ministry of the Environment and Climate Change and is based on the guiding principles related to the protection, preservation, and sustainability of the province's water resources for future generations. In order to effectively implement these principles, ecosystem and watershed management, how pollutants are controlled, and the inter-relationship of air, water and land management are all important considerations.

- *Water Management (1994, update 1998)*  
<https://www.ontario.ca/environment-and-energy/water-management-policies-guidelines-provincial-water-quality-objectives>

*Ontario's Great Lakes Strategy*, released in December 2012, provides a roadmap for how Ontario will focus action to protect the Great Lakes. The Strategy summarizes environmental conditions of the Great Lakes and Ontario's actions taken to date, and identifies priorities for future action. Priorities for future action are described with respect to the six Great Lakes goals of engaging and empowering communities; protecting water for human and ecological health; improving wetlands, beaches, shorelines and coastal areas; protecting habitats and species; enhancing understanding and adaptation; and ensuring environmentally sustainable economic opportunities and innovation. For example, the mayors of the Great Lakes and St. Lawrence Cities Initiative launched the Municipal Adaptation and Resiliency Service (MARS) in January, 2014 to which Ontario (MOECC) provided funding to help municipalities accelerate local adaptation to climate change in the Great Lakes Region.

- *Ontario's Great Lakes Strategy, 2012*  
<http://www.ontario.ca/environment-and-energy/ontarios-great-lakes-strategy>

## **Water Management Programs Overview (Five-Year Review)**

The information is limited to the provincial water management programs which contribute to the achievement of Ontario's Agreement commitments.

### **1. Summary description of Ontario's Water management program scope and thresholds –**

The focus of the following summary is on the water use regulation elements of Ontario's water management programs.

#### ***Water Use Regulation Overview***

The *Ontario Water Resources Act* and its companion regulations are directed at the protection of the quality and quantity of Ontario's surface and groundwater resources. The purpose of the Act is to provide for the conservation, protection and management of Ontario's waters and for their efficient and sustainable use, in order to promote Ontario's long-term environmental, social and economic well-being. The legislation provides for:

- prohibitions related to the discharging of pollutants to surface or groundwater and the regulation of discharges from sewage works; and
- a permit system that governs the taking of surface or groundwater (>50,000 litres per day [over 13,000 U.S. Gallons per day]).

Water Quality (return flow) – Section 53 of the *Ontario Water Resources Act*, requires Ministry of the Environment and Climate Change approval to establish, alter extend or replace new or existing sewage works. Environmental Compliance Approvals are issued for approved works. Sewage works means any works for the collection, transmission, treatment and disposal of sewage or any part of any such works. Sewage includes drainage, storm water, commercial wastes and industrial wastes and any such other matter or substance that is specified by regulation.

It is the responsibility of the proponent to assess the assimilative capacity of the receiver, and determine the actual and potential uses of the intended receiver of the effluent from the proposed works, and derive from this analysis the effluent quality and discharge regimen criteria for the proposed works. Terms and conditions of the approval deal with the criteria for operation and performance of the sewage works, requirements for monitoring and recording of specific indicators of the environmental impact of the works, reporting on incidents, and provision of contingencies to prevent and deal with accidental spills or upsets.

Water Takings – Section 34 of the *Ontario Water Resources Act*, prohibits water takings over 50,000 litres per day without a permit subject to some specified exceptions. The Permit to Take Water Program applies to all water use sectors. Ontario does not have a separate water registration program as water use is monitored through a water use reporting mechanism under the Permit to Take Water program where permit holders are required to report annually the amounts of their takings.

Exemptions from the requirement to obtain a permit include water takings for ordinary household purposes, watering of livestock or poultry and firefighting purposes. If a new or increased transfer of water of 379,000 litres (100,000 U.S. gallons) per day or more is

established for household purposes or watering of livestock or poultry, a permit would be required\*

Water withdrawals from all Ontario water sources, including withdrawals from the Great Lakes, other surface waters, and groundwater, are regulated in Ontario.

Dams and water diversions (e.g. for hydroelectric power production) are also regulated through the *Lakes and Rivers Improvement Act*, which regulates works forwarding, holding back or diverting water and is administered through the Ministry of Natural Resources and Forestry. Proposed diversions do not require approval under the *Lakes and Rivers Improvement Act* when they are located within the jurisdiction of a conservation authority, are subject to approval under the *Drainage Act*, or are not expected to harmfully alter fish habitat or impede the movement of fish in a river, stream or lake.

### ***Water Withdrawals and Consumptive Uses***

Considerations – In making decisions on an application for a Permit to Take Water the following factors are considered:

- Protection of the natural functions of the ecosystem – e.g. potential impact of the natural variability of water flow or water levels, minimum stream flow, habitat that depends on water flow or water levels, interrelationships between groundwater and surface water, and the potential to restore source watershed hydrologic conditions and functions\*
- Water availability – e.g. impact on water balance and sustainable aquifer yield, existing water uses, low water conditions, whether the taking is in a high use or medium use watershed (certain highly consumptive water uses are restricted in these watersheds), any planned municipal use approved under the *Environmental Assessment Act* or under a Municipal Official Plan
- Issues related to the use of water – e.g. whether water conservation is implemented in accordance with best water management standards for the relevant sector, the purpose for the water use including the amount of water lost through consumptive use\*, the manner and location to which the water will be returned\*, and other issues, including compliance with the Boundary Waters Treaty and the International Boundary Waters Treaty Act of Canada\*

Water Taking Risk Classification – To assist in the evaluation of proposed water takings, permit applications are classified based on their potential risk to the environment or potential to interfere with other water users.

- Category 1 proposals have a lower risk of causing adverse environmental impacts or interference. They meet the following criteria:
  - Renewal of a previously issued permit that will expire, to allow the continuance of an existing taking with no changes and for which no past interference or impact problems have been reported.
  - Groundwater takings from dugout ponds not connected to or receiving water from surface water; the dugouts must satisfy depth and separation distance from other water sources.
  - Surface water takings from small ponds that collect only surface run-off or takings from a Great Lake or connecting channel less than 1 million litres (260,000 US gallons) per day.

- Category 2 and Category 3 proposals have a greater potential to cause adverse environmental impact or interference.
  - Applications for Category 2 takings require accreditation by a qualified person.
  - Applications for Category 3 takings are required to be supported by a detailed ecological/hydrological/hydrogeological study prepared by a qualified person. Among the water takings classified as a Category 3 are new or increased withdrawals from the Great Lakes or connecting channels which exceed 19 million litres per day consumptive use (5 million U.S. gallons per day), the threshold which triggers obligations under the Agreement\*.

Public Involvement – In Ontario, notifications of permit applications are required to be posted to the *Environmental Bill of Rights Registry* for public review and comment for a minimum of 30 days unless exempted from the registry posting requirement (e.g. exceptions include: proposals for which an equivalent public consultation process has been provided, such as through an Environmental Assessment, water takings that are less than one year, and agricultural irrigation, unless a new or increased water transfer is proposed\*). As well, municipalities and conservation authorities are given notice of Environmental Registry postings for permit proposals within their area of jurisdiction. The proponent of a water taking has the right to appeal the Ministry decision on their permit application. In addition, the public may seek leave to appeal Ministry decisions on proposals that are subject to registry posting.

Water Use Reporting – Ontario's *Water Taking and Transfer Regulation* requires every permit holder to collect and record data on the volume of water taken daily and to report the previous year's data to the Ministry before March 31 of the following year. This requirement applies to all permitted water takers in Ontario. Water use data are submitted and stored in the internet-based Water Taking Reporting System established to facilitate compliance and to inform provincial water management.

Great Lakes – St. Lawrence River Basin Sustainable Water Resources Agreement (Agreement)\* – Ontario's *Water Taking and Transfer Regulation* requires that Ontario's obligations under the Agreement be met when considering a permit application. More specifically, this requirement relates to the need to ensure that Prior Notice and an opportunity to comment on the proposal is provided to Great Lakes jurisdictions before a decision is made for new or increased consumptive uses of Great Lakes – St. Lawrence River Basin water of over 19 million litres (5 million U.S. gallons) per day average over any 90 day period. In keeping with Agreement Article 205, comments will be considered from the other parties to the Agreement that address whether the proposal is consistent with the Decision-Making Standard established under Article 203 of the Agreement. A detailed analysis of how the provisions of the Decision-Making Standard are applied is provided under question 3 of the questionnaire.

To meet this requirement, estimated consumptive use associated with proposed new or increased water takings are screened using generally accepted consumptive use coefficients for 34 water use sectors/activities, developed through a Ministry of Natural Resources and Forestry commissioned study in 2009. Proposed uses that may exceed the Agreement threshold are encouraged to conduct a site specific consumptive use evaluation to confirm whether Prior Notice is required. Additional guidance will be provided as required to assist in determining the amount of water lost through consumptive use.

In determining whether a proposed new or increased water taking from the Great Lakes – St. Lawrence River Basin would result in a consumptive use of water in an amount that triggers obligations to provide Prior Notice and an opportunity to comment under Article 205 of the Agreement, consideration is given to:

- The baseline of the existing water withdrawal approval limits, as per the Agreement; and
- The volume of the proposed new or increased water taking and the associated consumptive use, including the amount of any related water taking supplying the same facility or common distribution system, approved within the ten years prior to the application.

### ***Water Diversions, Transfers***

Ban on Out of Basin Diversions/Transfers – In 1999, Ontario introduced a regulation under the Ontario Water Resources Act banning water diversions/transfers out of the province's three major water basins (Great Lakes – St. Lawrence River Basin, Hudson Bay Basin, and Nelson River Basin). This ban was elevated to legislation (i.e. placed into the *Ontario Water Resources Act*) through the *Safeguarding and Sustaining Ontario's Water Act*, 2007. The only exceptions to Ontario's ban on diversions are for transfers of water in containers 20 litres or less, water incorporated into a product that is transferred out of the basin, water required for the operation of a vehicle or vessel, water for firefighting or other emergency purposes, existing transfers commenced before January 1, 1998, and the transfer of water pursuant to the order of the Lieutenant Governor in Council dated October 2, 1913 respecting the Greater Winnipeg Water District. In Ontario there are no exceptions to the ban on diversions for straddling communities or straddling counties.

Intra-Basin Transfers\* – The intra-basin transfer commitments of the Agreement have been integrated into Permit to Take Water decision-making through amendments to the *Ontario Water Resources Act* in 2007 which introduced the ban on intra-basin water transfers from one Great Lake watershed to another and the regulation of exceptions, consistent with the straddling community and intra-basin transfer provisions of the Agreement and the Exception Standard criteria\*. A detailed analysis of how the provisions of the Exception Standard criteria are applied is provided under question 3 of the questionnaire.

In keeping with the Agreement, the intra-basin transfer provisions apply to new or increased transfers 379,000 litres (100,000 U.S. gallons) per day or more, average in any 90 day period, termed "the threshold amount" in the legislation. Permits for transfers involving a consumptive use of 19 million litres (5 million U.S. gallons) per day or more will be issued by the Minister of the Environment and Climate Change (as opposed to a Director delegated authority under the *Ontario Water Resources Act*) following Regional Review, taking into consideration the declaration of finding issued by the Regional Body.

The legislation encourages municipal water uses that transfer 379,000 litres (100,000 U.S. gallons) of water per day or more to return water to the source Great Lake watershed and requires any new or increased transfers involving a consumptive use of 19 million litres (5 million U.S. gallons) per day or more to return water to the source Great Lake watershed, in keeping with the Agreement.

The legislative framework for regulating new or increased intra-basin transfers of water is outlined in the following table – all thresholds are based on a 90 day running average\*:

<b>19+ MLD Consumptive Use</b>	<ul style="list-style-type: none"> <li>Meets <b>exception criteria</b>, including <b>return flow</b> to source GL watershed</li> <li>No feasible alternatives to transfer, including conservation</li> <li>Proposal undergoes <b>Regional Review</b> &amp; the Minister considers the Declaration of Finding by Regional Body before making a decision</li> </ul>	
<b>379,000+ L/Day (Consumptive Use less than 19 MLD)</b>	<b><i>Municipal Drinking Water Systems:</i></b> <ul style="list-style-type: none"> <li>Meets <b>exception criteria</b>, including return flow to source Great Lake watershed</li> </ul>	<b><i>All Uses (including Municipal Drinking Water Systems if return flow to source watershed cannot be met):</i></b> <ul style="list-style-type: none"> <li>Meets <b>exception criteria</b>, except return flow may be to another Great Lake watershed – if demonstrated that it is not feasible, environmentally sound or cost effective to return water to the source Great Lake watershed</li> <li>No feasible, environmentally sound, cost effective alternatives to transfer, including conservation</li> <li>Ontario gives prior notice to other Parties to the Agreement</li> </ul>
<b>50,000 L/Day to 379,000 L/Day</b>	<ul style="list-style-type: none"> <li>Subject to Permit to Take Water requirements; not prohibited</li> </ul>	

In determining whether a proposed new or increased intra-basin transfer requires regulation under the above framework, consideration will be given to:

- The volume of water deemed to currently be transferred (baseline), according to approval limits, as per the Agreement;
- Whether the proposed transfer is from a Great Lakes watershed to the watershed of a downstream connecting channel of that Great Lake (exempt);
- Whether the proposed transfer is from the watershed of a downstream connecting channel of a Great Lake to the watershed of that Great Lake (exempt);
- Whether the proposed transfer involves water taken from a location within 10 kilometres (approximately 6 miles) of the point at which Lake Ontario flows into the St. Lawrence River and transferred to the St. Lawrence River watershed or the Lake Ontario watershed (exempt); and
- The volumes of any new or increased water transfers by the permit holder between the same Great Lakes watersheds to which the application relates that were approved within the ten years prior to the application.

In determining whether a proposed new or increased intra-basin transfer triggers the 19 million litre per day consumptive use threshold, estimated consumptive use associated with proposed new or increased water transfers will be screened using generally accepted consumptive use coefficients for 34 water use sectors/activities, developed through a Ministry of Natural Resources and Forestry commissioned study in 2009. Proposals that may exceed the Agreement threshold will be encouraged to conduct a site specific consumptive use evaluation to confirm whether Regional Review is required. Additional guidance will be provided as required to assist in determining the amount of water lost through consumptive use.

## 2. Description of how Ontario manages Water Withdrawals by sector, water source, quantity and location

Permitted water takings are managed by sector, source, quantity and location.

### **Sector:**

The following table identifies the existing general purpose and specific purpose water taking categories under the Permit to Take Water program. Any management requirements specific to a particular sector are noted.

Sector	Description	Management
ALL Sectors		<ul style="list-style-type: none"> <li>Permit to Take Water required for water takings over 50,000 litres per day by ALL water use sectors, with the exception of ordinary household purposes and watering of livestock or poultry (unless a new or increased intra-basin transfer 379,000 litres/day or more is proposed*) and firefighting purposes.</li> </ul>
Agriculture	Irrigation of (includes frost protection): field and pasture crop; fruit orchard; market garden/flowers; nursery; sod farm; tender fruits; tobacco	
Commercial	Aquaculture, bottled water, golf course irrigation, mall/business; snowmaking	<ul style="list-style-type: none"> <li>Highly consumptive water uses are restricted in defined "high use watersheds". This restriction applies to bottled water.</li> <li>Bottled water transported in containers 20 litres or less are exempt from the prohibition of water transfers</li> </ul>
Construction	Dredging, road building	
Dewatering	Pits and quarries, construction	
Industrial	Aggregate washing, brewing/soft drinks, cooling water, food processing, manufacturing; pipeline testing; power generation	<ul style="list-style-type: none"> <li>Highly consumptive water uses are restricted in defined "high use watersheds". This restriction applies to beverage manufacturing, fruit or vegetable canning, aggregate processing where water is incorporated into a slurry, product manufacturing if more than 50,000 litres/day of water is incorporated into the manufactured product(s).</li> </ul>
Recreation	Aesthetic, fish pond, wetland	
Remediation	Groundwater	
Water Supply	Campground, communal, municipal	
Miscellaneous	Dam/reservoir, heat pump, wildlife conservation, pump test	
<i>each sector has the option of identifying 'other', with a requirement to specify use</i>		

### **Source:**

Water takings are also categorized according to the source – as surface water or ground water and by name of the source (e.g. watercourse name and tributary). Permits are required for water takings over 50,000 litres per day from a lake, stream, river, pond or groundwater.

To assist in evaluating proposed water takings, applications are classified based on their potential risk to the environment or potential to interfere with other water users. The table below outlines how applications are classified for groundwater and surface water takings. Applications for Category 2 takings would require a scoped hydrogeological (groundwater) or hydrological/ecological study (surface water), and applications for Category 3 takings would require a detailed hydrogeological (groundwater) or hydrological/ecological study due to their potential for greater environmental risk.

<b>Classification Criteria for Categories for Groundwater and Surface Water Takings</b>	
<b>Groundwater</b>	<b>Surface Water</b>
<b>Category 1</b>	<b>Category 1</b>
<b>Renewal</b> (same or lesser amount, same purpose, same location, same source, no past interference/ impacts, and no scientific study required as part of renewal). •	<b>Renewal</b> (same or lesser amount, same purpose, same location, same source, no past interference/ impacts, and no scientific study required as part of renewal).
<b>Ponds</b> (e.g. irrigation and agriculture) <ul style="list-style-type: none"> <li>• Not connected to nor receiving water from surface water; and</li> <li>• &lt;4m deep and &gt;1000m from the nearest stream or wetland; or</li> <li>• &lt;7m deep and &gt;250m from the nearest stream or wetland</li> </ul>	<b>Ponds</b> <1,500 cubic metres in volume that collect runoff and that are not drawing from groundwater, watercourses, wetlands, other lakes or ponds
	<b>Great Lakes</b> or connecting channel takings <1,000,000 litres/day
<b>Category 2</b>	<b>Category 2</b>
<b>Short-term, non-recurring taking less than 7 days</b> (e.g. pumping test or hydrostatic test). <b>Short-term, non-recurring taking less than 30 consecutive days and less than 400,000 litres/day</b> (e.g. construction dewatering and dust suppression).	<b>Great Lakes</b> or connecting channels taking less than 19 million litres per day
	<b>Takings from sources with previous assessments</b> (i.e. further to a previous study and implementing previously established controls)
	<b>River and Streams</b> (3 <sup>rd</sup> order or higher order) taking ,5% of 7Q <sub>20</sub>
	<b>Transitional Permits</b> where the Director previously required upgrades/modifications to water taking
	<b>Takings and Returns</b> where water is removed for a short time only and water is returned to a nearby point with no significant change to water quantity or quality (i.e. for cooling, hydrostatic testing, hydraulic lake dredging)
	<b>Lakes and Ponds</b> takings < 1,000,000 L/day twice per week or less from water bodies >10ha in size that are not on-stream and not part of the headwaters of any watercours. More frequent takings require supporting studies.
<b>Category 3</b>	<b>Category 3</b>
All groundwater takings that do not meet Category 1 or Category 2 criteria.	All surface water takings that do not meet Category 1 or Category 2 criteria and new takings from 1 <sup>st</sup> or 2 <sup>nd</sup> order watercourses, wetlands, intermittent streams, new on-stream reservoirs, impoundments and ponds, groundwater sources that potentially affect surface waters.



***Quantity:***

When granted, a Permit to Take Water imposes terms and conditions that limit the amount of water the person can take by specifying a maximum rate for the water taking (litres per minute), duration (hours per day), and amount (litres per day).

In support of the Agreement, thresholds requiring regulation of new or increased intra-basin transfers in accordance with Agreement criteria and standards, and thresholds for consumptive uses requiring prior notice with Great Lakes jurisdictions are based on the average consumptive use in any 90 day period (rolling 90 day average)\*.

Proposed water taking volumes are assessed against a series of considerations relating to the protection of natural ecosystem functions, water availability, the use of water (i.e. water conservation measures, the need and purpose for the water, the amount of water that may be lost through consumptive use\*), the return of water after use\* and other interests.

The risk classification criteria for permits also reflect the quantity of water requested. For example, new or increased takings above 19 million litres/day from the Great Lakes or connecting channels are classified as a Category 3 taking, requiring more rigorous analysis than smaller takings.

***Location:***

The locations of takings are identified by their geographic coordinates (Datum NAD83) including UTM zone, easting and northing. An interactive map of all active Ontario permits can be found at <http://www.ontario.ca/environment-and-energy/map-permits-take-water>

To assist in meeting the requirements of the Agreement a Great Lakes Watershed locator map tool is also available and can be accessed at <http://www.ontario.ca/environment-and-energy/great-lakes-watershed-locator>

The Water Taking and Transfer Regulation restricts new and increased water takings for highly consumptive uses (e.g. bottled water, aggregate processing) in specific watersheds identified as “high use watersheds”, where the cumulative demand for water within the watershed is high relative to available supply.

**3. Description of how the provisions of the Standard of Review and Decision are applied. The description should include information on how each criterion of the Decision Making Standard and Exception Standard is addressed.**

The tables below highlight how the criteria of the Agreement Decision-Making Standard and Exception Standard are being implemented 1) through the current Permit to Take Water Program under the *Ontario Water Resources Act* and 2) through the Permit to Take Water Program once amendments to the *Ontario Water Resources Act* passed under the *Safeguarding and Sustaining Ontario's Water Act* come into force.

In addition to the Permit to Take Water Program under the *Ontario Water Resources Act*, implementation of Agreement standards is also supported by other Ontario statutes, policies and programs, including, for example:

- Environmental impact assessment under the ***Environmental Assessment Act*** , which provides for the completion of individual assessments or class assessments, such as the Class Environmental Assessment for Municipal Water and Wastewater Treatment projects. The municipal class environmental assessment references compliance with the *Ontario Water Resources Act* and the Agreement and in 2009 a Technical Bulletin was released to further guide municipalities in meeting the Great Lakes Charter and the spirit of the Agreement in conducting environmental assessments for projects involving an intra-basin transfer or large consumptive use of Great Lakes – St. Lawrence River Basin water;
- Completion of water budgets and water quantity risk assessments to support the development of Drinking Water Source Protection plans under the ***Clean Water Act***;
- Location and design approval for works forwarding, holding back, or diverting water in accordance with the ***Lakes and Rivers Improvement Act***;
- Promotion of water conservation under the ***Water Opportunities Act***.

**a. Decision-Making Standard (Water Withdrawals, Consumptive Uses)**

Decision-Making Standard Criteria Article 203	Permit to Take Water Program (PTTW) (Ontario Water Resources Act, As Amended by the Safeguarding & Sustaining Ontario's Water Act, 2005, Water Taking and Transfer Regulation O. Reg. 387/04)*
General	<p>Under the OWRA a Permit to Take Water is required for water takings over 50,000 litres / day (over 13,000 U.S. gallons / day) (s. 34)</p> <p>The criteria which form the foundation for issuing permits to take water in Ontario (which are enshrined in O.Reg 387/04) are generally consistent with the Decision Making Standard criteria of the Agreement. Yet, OWRA section 75(1.2, 1.3) provides authority to make regulations as required to augment existing PTTW criteria to further support the Agreement, [e.g. Articles 203 (Decision-Making Standard), 205 (proposals subject to Prior Notice)]</p> <p>Amendments to the Water Taking and Transfer Regulation (O. Reg. 387/04) augment the matters considered in the issuance of water taking permits to meet the Agreement standard (s. 4) and ensure compliance with the Prior Notice provisions of the Agreement for new or increased consumptive uses 19 million litres (5 million U.S. gallons) per day or more (s. 6).</p> <p>OWRA amendments (s.34.1 (9),(10) also provide a permitting Director with authority to set additional terms and conditions on a permit e.g. limiting use, related to the return of water after use (location, quantity, quality), and the conservation of water including a conservation audit and/or plan</p>
1. Return flow to source watershed	<p>OWRA requires separate Environmental Compliance Approval (ECA) for wastewater discharge.</p> <p>No explicit requirement to return water to source Great Lake watershed, although most water uses do not remove water from a Great Lake watershed. In certain cases, the Ministry of the Environment and Climate Change may consider issues related to return flow (quality, location) when reviewing and issuing permits.</p> <p>In addition to regulation-making authority, OWRA amendments (s.34.1 (9),(10) provide a permitting Director with authority to set additional terms and conditions on a permit governing the return of water after use (location, quantity, quality)</p> <p>Issues related to the return of water after use (i.e. manner returned, location of return) and the amount of water that may be lost through consumptive use have been added to permitting considerations in the regulation*</p>

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Decision-Making Standard Criteria Article 203	Permit to Take Water Program (PTTW) (Ontario Water Resources Act, As Amended by the Safeguarding & Sustaining Ontario's Water Act, 2005, Water Taking and Transfer Regulation O. Reg. 387/04)*
2. No significant adverse impacts	<p>The regulation requires the permitting Director to consider issues related to protecting the natural functions of the ecosystem, water availability (e.g. water balance and sustainable aquifer yield, existing or planned uses of water, low water conditions or whether taking is in a high use or medium use watershed). (s. 4(2), par. 1,2)</p> <p>Section 5 of the regulation restricts new or increased water takings for highly consumptive uses (e.g. bottled water, aggregate processing) in watersheds identified as "high use watersheds" where the cumulative demand for water within a watershed is high relative to available supply.</p> <p>PTTW Directors may also impose terms and conditions related to mitigating adverse impacts related to the water taking.</p> <p>PTTW Manual: Consideration of cumulative impacts of water takings is a principle of the PTTW program &amp; water takings are classified into 3 categories according to the risk of environmental impact, with Category 3 takings subject to greater rigour including submission of supporting scientific studies. New or increased water Takings from the Great Lakes or connecting channels that exceed 19 million litres --5 million U.S. gallons per day are Category 3 takings</p> <p>In addition to regulation-making authority, OWRA amendments (s.34.1 (9),(10) provide a permitting Director with authority to set additional terms and conditions on a permit limiting use, governing the return of water after use or requiring implementation of measures to prevent or remedy interference with other uses</p>
3. Conservation measures	<p>The regulation requires the permitting Director to consider whether water conservation is, or will be implemented, based on best management standards &amp; practices of the sector (s. 4(2), par. 3i)</p> <p>Director may set terms and conditions on a permit requiring implementation of conservation measures</p> <p>In addition to regulation-making authority, OWRA amendments (s.34.1 (9) provide a permitting Director with authority to set additional terms and conditions on a permit e.g. limiting use, related to the conservation of water including a conservation audit and/or plan</p>
4. Compliance with applicable laws, agreements, treaties	<p>PTTW Directors will not issue a permit if an application is not in compliance with other laws (e.g. PTTW issuance follows other processes, e.g. completion of an environmental assessment under the Environmental Assessment Act)</p> <p>The regulation (s.6) requires that Ontario's obligations under the Agreement are complied with (i.e. Prior Notice to Agreement Parties and an opportunity to comment for new or increased consumptive uses 19 million litres-5 million U.S. gallons per day or more)*</p> <p>Regulation amendments require consideration of whether a proposed water taking is in compliance with the Boundary Waters Treaty or the International Boundary Waters Treaty Act of Canada (s. 4 (4ii))*</p> <p>Regulation amendments require compliance with the Prior Notice commitments of the Agreement for new or increased consumptive uses 19 million litres/day (5 million U.S. gallons/day) or more, replacing the Prior Notice and Consultation obligations of the Great Lakes Charter.*</p>
5. Reasonable use, with consideration of: a. Planned to provide for efficient use b. Efficient use of	<p>The purpose of the OWRA is to "...provide for the conservation, protection and management of Ontario's waters and for their efficient and sustainable use, in order to promote Ontario's long-term environmental, social and economic well-being."</p> <p>The regulation requires the permitting Director to consider issues related to protecting the natural functions of the ecosystem, water availability (e.g. water balance and sustainable aquifer yield, existing or planned uses of water, low water conditions or whether taking is in a high use or</p>

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Decision-Making Standard Criteria Article 203	Permit to Take Water Program (PTTW) (Ontario Water Resources Act, As Amended by the Safeguarding & Sustaining Ontario's Water Act, 2005, Water Taking and Transfer Regulation O. Reg. 387/04)*
<p>c. existing supply</p> <p>c. Balance between economic, social development, environmental, protection</p> <p>d. Supply potential of water source (quantity, quality, reliability, safe yield)</p> <p>e. Degree, duration of any adverse impacts &amp; their avoidance/mitigation</p> <p>f. Restoration of hydrologic conditions, functions of source watershed</p>	<p>medium use watershed), and issues related to the use of water (e.g. water conservation measures, plan and/or audit) (s. 4(2), par. 1,2, 3) Together, these considerations are consistent with the "reasonable use" considerations of the Agreement.</p> <p>The PTTW Manual provides further guidance in the balancing of these interests e.g. through considerations and guidance in evaluating PTTW from surface water and groundwater sources, assessing the water balance and sustainability, addressing low water conditions, addressing aquatic habitat and restricting water use in high and medium use watersheds.</p> <p>Amendments to the regulation include consideration of the potential to restore hydrologic conditions and functions of the source watershed, the amount of water that may be lost through consumptive use, issues related to the return of water after use, and compliance with the Boundary Waters Treaty and the International Boundary Waters Treaty Act of Canada to the matters a permitting Director shall consider when reviewing a PTTW application*.</p>

**b. Exception Standard (Water Diversions, Transfers)**

Exception Standard Criteria Article 201, par. 4	Permit to Take Water Program (PTTW) (Ontario Water Resources Act, as Amended by the Safeguarding & Sustaining Ontario's Water Act, 2005, Water Taking and Transfer Regulation O. Reg. 387/04)*
General	<p>Under the OWRA a Permit to Take Water is required for water takings over 50,000 litres / day (over 13,000 U.S. gallons / day) (s. 34)</p> <p>Water transfers out of the Great Lakes – St. Lawrence River Basin, or Ontario's other major water basins, are prohibited (s. 34.3) Ontario has no exception to the ban for straddling communities or straddling counties. Therefore, Ontario is fully implementing the minimum standards in Article 201, par. 1, 3, 4 as they pertain to diversions <u>out of</u> the Great Lakes – St. Lawrence River Basin.</p> <p>Amendments to the OWRA passed in 2007 provide for the regulation of new or increased intra-basin transfers 379,000 litres/day or more, consistent with the criteria in Article 201 par. 1, 2, 4. (OWRA s.34.4-34.11)*</p> <p>The Act also provides authority to make regulations to support these provisions. Amendments to the regulation provide further support to the regulation of intra-basin transfers (e.g. definition of Great Lakes watersheds and connecting channels, exemptions, determination of consumptive use amounts, setting the baseline for existing transfers)*</p> <p>The legislation also requires that permit applications for large transfers (i.e. with consumptive use of 19 million litres [5 million U.S. gallons] per day or more) are to be referred to the Minister of the Environment and Climate Change, who shall notify the Regional Body of the proposal and consider any Declaration of Finding issued by the Regional Body following Regional Review of the proposal.(s.34.1 (12-14)*)</p>

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Exception Standard Criteria Article 201, par. 4	Permit to Take Water Program (PTTW) (Ontario Water Resources Act, as Amended by the Safeguarding & Sustaining Ontario's Water Act, 2005, Water Taking and Transfer Regulation O. Reg. 387/04)*
1. Efficient use, conservation of existing supplies	<p>The regulation requires the permitting Director to consider whether water conservation is being implemented, based on best management standards &amp; practices of the sector. (s. 4(2), par. 3i)</p> <p>Director may set terms and conditions on a permit requiring implementation of conservation measures.</p> <p>Exception Standard criteria explicitly referenced in OWRA s. 34.6(3) for new or increased intra-basin transfers 379,000 litres/day or more*</p> <p>OWRA amendments (s.34.7) also provide a permitting Director with authority to set additional terms and conditions on a permit to regulate a transfer (e.g., governing return of water after use, the use and conservation of transferred water, monitoring and reporting)</p>
2. Limited to reasonable quantities for proposed purpose	<p>The regulation requires the permitting Director to consider issues related to protecting the natural functions of the ecosystem, water availability and the use of water (e.g. water conservation measures, plan and/or audit). (s. 4(2), par. 1,2, 3) Together, these considerations are consistent with the "reasonable use" considerations of the Agreement.</p> <p>The PTTW Manual provides further guidance in the balancing of these interests.</p> <p>Exception Standard criteria explicitly referenced in OWRA s. 34.6(3) for new or increased intra-basin transfers 379,000 litres/day or more*</p> <p>OWRA amendments (s.34.7) also provide a permitting Director with authority to set additional terms and conditions on a permit to regulate a transfer (e.g., governing return of water after use, the use and conservation of transferred water, monitoring and reporting)*</p>
3. Return flow to source watershed (no water from outside basin except if part of combined system, treated to prevent invasive species)	<p>OWRA requires separate Environmental Compliance Approval (ECA) for wastewater discharge.</p> <p>The legislative framework encourages return flow for municipal transfers below the 19 million litres/day consumptive use threshold. All transfer proposals above the threshold require return flow to the source Great Lakes watershed. (s. 34.6)*</p> <p>Exception Standard criteria explicitly referenced in OWRA s. 34.6(3) for new or increased intra-basin transfers 379,000 litres/day or more*</p> <p>OWRA amendments (s.34.7) also provide a permitting Director with authority to set additional terms and conditions on a permit to regulate a transfer (e.g., governing return of water after use, the use and conservation of transferred water, monitoring and reporting)*</p> <p>Amendments to the regulation also include consideration of issues related to the return of water after use to the matters considered by a permitting Director.*</p>
4. No significant adverse impacts	<p>The regulation requires the permitting Director to consider issues related to protecting the natural functions of the ecosystem, water availability (e.g. water balance and sustainable aquifer yield, existing or planned uses of water, low water conditions or whether taking is in a high use or medium use watershed). (s. 4(2), par. 1,2)</p> <p>Section 5 restricts new or increased water takings by highly consumptive uses (e.g. bottled water, aggregate processing) in watersheds identified as "high use watersheds".</p> <p>PTTW Directors may also impose terms and conditions on a permit. OWRA amendments (s.34.7) also provide a permitting Director with authority to set additional terms and conditions on a permit to regulate a transfer (e.g., governing return of water after use, the use and</p>

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Exception Standard Criteria Article 201, par. 4	Permit to Take Water Program (PTTW) (Ontario Water Resources Act, as Amended by the Safeguarding & Sustaining Ontario's Water Act, 2005, Water Taking and Transfer Regulation O. Reg. 387/04)*
	<p>conservation of transferred water, monitoring and reporting)*</p> <p>PTTW Manual: Consideration of cumulative impacts of water takings is a principle of the PTTW program &amp; water takings are classified into 3 categories according to the risk of environmental impact, with Category 3 takings subject to greater rigour including submission of supporting scientific studies. Water transfers from the Great Lakes or connecting channels 19 million litres -5 million U.S. gallons per day or more fall under Category 3 .</p> <p>Exception Standard criteria explicitly referenced in OWRA s. 34.6(3) for new or increased intra-basin transfers 379,000 litres/day or more*</p>
5. Conservation measures	<p>The regulation requires the permitting Director to consider whether water conservation is, or will be implemented, based on best management standards &amp; practices of the sector (s. 4(2), par. 3i)</p> <p>PTTW Directors may set terms and conditions on a permit requiring implementation of conservation measures. OWRA amendments (s.34.7) also provide a permitting Director with authority to set additional terms and conditions on a permit to regulate a transfer (e.g., governing return of water after use, the use and conservation of transferred water, monitoring and reporting)*</p> <p>Exception Standard criteria explicitly referenced in OWRA s. 34.6(3) for new or increased intra-basin transfers 379,000 litres/day or more*</p>
6. Compliance with applicable laws, agreements, treaties	<p>PTTW Directors will not issue a permit if an application is not in compliance with other laws (e.g. PTTW issuance follows other processes, e.g. completion of an environmental assessment under the Environmental Assessment Act)</p> <p>Exception Standard criteria explicitly referenced in OWRA s. 34.6(3) for new or increased intra-basin transfers 379,000 litres/day or more, including compliance with the Boundary Waters Treaty and the International Boundary Waters Treaty Act (Canada).*</p> <p>Amendments to the regulation have replaced compliance with Great Lakes Charter obligations with those under the Agreement. New or increased intra-basin transfers are regulated in accordance with OWRA s.34.4-34.8 and s. 34.1 (12-14) which reflect the Agreement.*</p>
7. All applicable criteria	<p>OWRA s. 34.6 (2) sets out the criteria that must be met for new or increased intra-basin transfers 379,000 litres/day or more, consistent with Article 201, par. 2 of the Agreement. Some provisions of par. 1 pertaining to straddling communities are also reflected (e.g. return flow for smaller transfers encouraged)</p> <p>The Act also provides authority to make regulations to support these provisions. Regulatory amendments provide further support to the management of intra-basin transfers (e.g. definition of Great Lakes watersheds and connecting channels, exemptions, determination of consumptive use amounts, setting the baseline for existing transfers)</p> <p>OWRA amendments (s.34.7) also provide a permitting Director with authority to set additional terms and conditions on a permit to regulate a transfer (e.g., governing return of water after use, the use and conservation of transferred water, monitoring and reporting)*</p>

#### **4. Overview of Provincial reporting and database of Withdrawals, Consumptive Uses and Diversions**

##### ***Annual Submission to Regional Water Use Database***

Provincial reporting of withdrawals, consumptive uses and diversions to the Great Lakes Commission's *Regional Water Use Database* is coordinated by the Ontario Ministry of Natural Resources and Forestry with the support of the Ontario Ministry of the Environment and Climate Change.

To estimate water withdrawals and consumption in its 2013 submission, Ontario applied the reporting methodology developed for its 2012 submission which incorporates aggregated annual water withdrawal information primarily obtained from its water taking permitting program (see next section for more information). Estimates of water consumption were developed using a comprehensive set of consumptive use coefficients which can be found at <http://waterbudget.ca/consumptiveuse>. Aggregated withdrawal values reported for the hydropower sector were augmented by historical information collected through owner and operator surveys.

##### ***Water User Reporting under Ontario's Water Taking and Transfer Regulation***

By regulation, permit to take water holders province-wide are required to report daily water taking amount. Phase-in of this requirement for all water use sectors was completed in 2008. Since then, all permit to take water holders are expected to submit daily water taking volumes, electronically to the provincial *Water Taking Reporting System* through an internet-based interface <https://www.lrcsde.lrc.gov.on.ca/wtrs/> or via hard copy prior to March 31 of the following year. The Water Taking Reporting System database represents the provincial warehouse for reported actual volumes of water taken by all permitted users in the province.

In addition, the *Permit to Take Water Database* is the primary warehouse of permit holder information (permit number, owner name, address, water taking source information: water use sector, source coordinates, taking type and source name and maximum permitted volumes). A searchable map of active permits can be found at <http://www.ontario.ca/environment-and-energy/map-permits-take-water>. Enhancements to both databases may be required to warehouse information specifically related to applications that involve intra-basin transfers, return flow, and calculated or measured consumptive uses.

By regulation, permit to take water holders are required to measure water taking/use by flow meter, or calculate it using a method acceptable to the program Director.

Permit holders are also required to comply with any additional data collection or monitoring and reporting conditions required by a permit such as specific monitoring methods, collection of information at a greater frequency, recording a daily maximum flow, and a requirement that all water taking information be analyzed by a qualified professional.

## 5. Ontario's Provincial withdrawal application documents

As part of the Permit to Take Water program, Ontario's *Application for Permit to Take Water* (September 2007) collects information from applicants under the authority of the *Ontario Water Resources Act*, the *Environmental Bill of Rights*, C. 28, Statutes of Ontario, 1993, and is used by the Province to evaluate applications under Section 34 of the Act (Water Taking). The application can be found at:

<https://www.ontario.ca/environment-and-energy/application-permit-take-water>

Assistance is provided to applicants in completing the Application Form through local Regional Offices of the Ministry of the Environment and Climate Change, along with a published *Guide to Permit to Take Water Application Form* found at:

[http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/std01\\_079452.pdf](http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/std01_079452.pdf)<https://www.ontario.ca/environment-and-energy/guide-permit-take-water-application-form>

Information requested on the form is categorized as the application type (e.g. new, amended, or renewal), permit category classification, applicant information, water taking information (e.g. source, public consultation requirements, and water taking sector and volume information), and location mapping and supporting studies. Revisions to the form may be required to identify information specifically related to applications that involve intra-basin transfers, return flow, and consumptive uses.

The suite of permit to take water application resources can be found at:

<https://www.ontario.ca/environment-and-energy/permits-take-water>

Links to related policies and manuals supporting permit to take water applicants, proponents, and application reviewers:

- a) *Permit To Take Water Manual* (April 2005):

<https://archive.org/details/permittotakewa4932ontauoft>

This manual sets out the decision making process generally followed by the Ministry and explains to applicants, proponents, and the public the requirements and considerations that are generally taken into account as reviewers are evaluating a proposed or existing water taking.

- b) *Technical Guidance Document for Surface Water Studies in Support of Category 3*

*Applications for Permit to Take Water* (April 2008): <https://www.ontario.ca/environment-and-energy/technical-guidance-document-surface-water-studies-support-category-3>

This document provides guidance and a consistent, structured approach for a surface water study (hydrological and or ecological) in support of Category 3 Permit to Take Water applications (or for Category 2 applications, where applicable).

- c) *Technical Guidance Document for Hydrogeological Studies in Support of Category 3*

*Applications for Permit to Take Water* (April 2008): <https://www.ontario.ca/environment-and-energy/technical-guidance-document-hydrogeological-studies-support-category-3>

This document provides guidance and a consistent, structured approach for a hydrogeological study in support of Category 3 Permit to Take Water applications (or for Category 2 applications, where applicable).

- d) *Great Lakes Watershed Locator Interactive Mapping Tool*:

<http://www.ontario.ca/environment-and-energy/great-lakes-watershed-locator>



The web-based mapping tool assists applicants in determining the tertiary watershed and the classification of a proposed water taking location for the purposes of the *Water Taking and Transfer Regulation*.

- e) *Water Basins Map* (November 2014): <https://www.sse.gov.on.ca/sites/MNR-PublicDocs/EN/CMID/Great%20Lakes%20St%20Lawrence%20Basin%20-%20Municipal%20Structure%20Great%20Lakes%20Basin%20Map.pdf>

Map identifies the boundaries of water basins and connecting channel watersheds to assist practitioners in identifying new or increased water transfers.

- f) *Permits to Take Water Interactive Map*:

<http://www.ontario.ca/environment-and-energy/map-permits-take-water>

Map assists users in locating water taking locations specified in active permits across Ontario.

## **6. Description of Provincial initiatives that support an improved scientific understanding of the Waters of the Basin (including groundwater) in basin water resource management**

### ***Initiatives supporting improved scientific understanding of basin waters:***

- Ontario's **Provincial Surface Water Monitoring Centre** (Ministry of Natural Resources and Forestry) collects, monitors, and assesses climate data, water levels and flows in streams, and lake and reservoir levels. Information supports programs including the Provincial Flood Forecasting and Warning Program, Ontario's Low Water Response, and others related to water takings, water budgets, water management plan compliance, dam safety, and emergency response.

<https://www.ontario.ca/environment-and-energy/surface-water-monitoring-centre>

- **Aquatic Research and Monitoring** (Ministry of Natural Resources and Forestry) The Ministry conducts research that contributes to a greater understanding of the waters of the Great Lakes – St. Lawrence basin and provides improved scientific information to support water resource decision making within the basin. Examples of research conducted or initiated over past several years include: the classification of natural flow regimes within Ontario, an examination of variability and changes in water balance components of Great Lakes tributaries in response to land and water use and climate change, work toward development of an aquatic ecosystem classification system, and several studies to better understand the ecological effects of altered flow regimes and related physical processes in rivers. In addition, the Ministry published a technical report that provides scientific information for assessing the state of river ecosystems and identifying potential changes to aquatic ecosystem condition.

<https://www.ontario.ca/environment-and-energy/aquatic-research>

- The proposed 8<sup>th</sup> **Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health, 2014** (Environment Canada (federal lead), and Ministries of the Environment and Climate Change (provincial lead), Natural Resources and Forestry, and Agriculture, Food and Rural Affairs) supports restoration and protection of the Great Lakes Basin ecosystem. Improved understanding of adaptive management approaches to lake level regulation, groundwater and climate change impacts are areas supporting water related actions.

[http://www.downloads.ene.gov.on.ca/envision/env\\_reg/er/documents/2014/011-9290.pdf](http://www.downloads.ene.gov.on.ca/envision/env_reg/er/documents/2014/011-9290.pdf)

- The **International Joint Commission under the Boundary Waters Treaty** carries out **periodic science-based studies** in boundary waters along Ontario's borders. The Ministry of Natural Resources and Forestry and Ministry of the Environment and Climate Change support aspects of studies involving water-related natural hazards and alterations along shorelines, hydroclimate, water use, and ecosystem impacts.
- The **Spatial Data Infrastructure Program (SDI)** Program of the Ministry of Natural Resources and Forestry (formerly Water Resources Information Program – WRIP) is responsible for capturing, creating and maintaining Ontario's fundamental mapping data (water, roads, utilities, wetlands, elevation and imagery), by focusing on the needs and priorities of internal and external partners, the sharing of data, and providing leadership in management practices and standards for mapping and imagery.

Part of SDI's mandate supports the creation and maintenance of Provincial water and elevation datasets to ensure accurate information is available on Ontario's water resources. A series of GIS data products are developed by SDI to support the generation of watersheds. These datasets are used by provincial ministries, municipalities, conservation authorities and others to create maps, conduct geographic analysis and support decisions about the province's water resources. The SDI program developed updated watershed boundaries to support the implementation of the Agreement.

- The **Conservation Authorities Act** administered by the Ministry of Natural Resources and Forestry provides a statutory framework for establishing conservation authorities. The purpose of conservation authorities is to develop and undertake programs on a watershed basis to meet both provincial and municipal natural resource management needs.
  - Conservation authorities are established by participating municipalities within a common watershed which are entitled under the Conservation Authorities Act to appoint representatives to the conservation authority board in accordance with a representation by population formula that is set out in the Act. There are 36 authorities in the province, principally in southern Ontario with five authorities in urbanized centres in the north.
  - In order to develop programs, conservation authorities are enabled to study and investigate the watershed(s) in their jurisdictions and some authorities have developed watershed planning documents, watershed 'report cards' and technical studies to support understanding of local resource management interests and to effectively undertake provincial responsibilities for example in natural hazard prevention and management.
  - Conservation authorities are involved in the delivery of several provincial programs that require data management and monitoring of water including the Provincial Flood Forecasting and Warning Program, Ontario's Low Water Response and the Ministry of Environment's Provincial Groundwater Monitoring Network.  
<https://www.ontario.ca/environment-and-energy/conservation-authorities>
- The **Clean Water Act** (Ministry of the Environment and Climate Change) provides for a **source water protection program and local source water protection planning**. The Ministry of Natural Resources and Forestry with the Ministry of the Environment and Climate

Change develop supporting estimates of surface and groundwater supplies, water budgets, water use demand, and water quantity risks assessments. Locally, water use impacts are considered through Ontario's water use permitting application process.

The Science Behind Drinking Water Source Protection:

<http://www.ontario.ca/environment-and-energy/drinking-water>

Water Quantity Solutions in Ontario:

<http://www.waterbudget.ca/>

- **Ontario's Provincial Groundwater Monitoring Network** (Ministry of the Environment and Climate Change) monitors ambient groundwater quantity and quality conditions in the province. Science provides an indicator of aquifer conditions and supports studies and decisions around water-taking, drought management, land use planning decisions, and water budget and cumulative impact studies. Ministry of Natural Resources and Forestry and conservation authorities are involved in the program delivery.

<http://www.ontario.ca/environment-and-energy/provincial-groundwater-monitoring-network>

- **Climate Ready: Ontario's Adaptation Strategy and Action Plan** is aimed at understanding and adapting to climate change. Under it, the Ministries of the Environment and Climate Change, and Natural Resources and Forestry are supporting science-based decision-making, including exploring partnerships that link hydrologic models with climate models to better understand the local impacts of climate change on our water resources.

<https://www.ontario.ca/environment-and-energy/climate-ready-adaptation-strategy-and-action-plan-2011-2014>

- The **Ministry of Natural Resources and Forestry Climate Change program** coordinates science and research on climate change and its impacts on Ontario's ecosystems and natural resources, including aquatic and terrestrial research in the Great Lakes basin and beyond. Recent projects that support the implementation of the Agreement include a Lake Simcoe watershed climate change vulnerability assessment, completion of a Practitioner's Guide to Climate Change Adaptation in Ontario's Ecosystems, and enhancements to climate modelling and monitoring capacity. Several related initiatives are currently underway:

<https://www.ontario.ca/environment-and-energy/natural-resource-management-and-climate-change>

- State of Knowledge on Ecological Vulnerabilities to Climate Change in Ontario's Great Lakes Basin
- Climate Change Vulnerability Assessment for Aquatic Habitat in Ontario's Great Lakes Basin
- Climate Change Vulnerability Assessment for Furbearers in Ontario's Great Lakes Basin
- Rapid Assessment of Climate Change Vulnerability of Great Lakes Basin's Biodiversity (rapid assessment of ~200 aquatic and terrestrial species)

- **Ontario Geological Survey** (Ministry of Northern Development and Mines) implements a **groundwater mapping program** that contributes to water management initiatives, including the development of GIS-based maps / databases, regional (3-D) aquifer mapping, watershed

characterization, thematic studies, regional groundwater sampling, and method/protocol and product development.

<http://www.mndm.gov.on.ca/en/mines-and-minerals/geoscience/groundwater>

## **7. Additional Information**

N/A

## **Province of Ontario**

### **Water Conservation and Efficiency Programs Overview (Five-Year Review)**

The following information is submitted by the Province of Ontario to the Great Lakes Regional Body Secretariat in response to the Questionnaire for Preliminary Submittals by States and Provinces, in fulfillment of the five-year review of Ontario's Water Conservation and Efficiency Programs, pursuant to the requirements in Article 300 of the *Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement* (Agreement).

#### **1. Status of Ontario's water conservation and efficiency goals and objectives consistent with the Basin-wide goals and objectives**

In 2012 Ontario adopted water conservation and efficiency goals and objectives that are consistent with the Basin-wide goals and objectives. The goals and objectives were developed based on stakeholder consultation and public comments received. A decision notice was posted on the Environmental Bill of Rights Registry: <http://www.ebr.gov.on.ca/ERS-WEB-External/display.do?language=en&currentURL=%2Fdisplaynoticecontent.do%3FnoticeId%3DMTA2Mjcx%26statusId%3DMTY3MDA3>

Ontario's goals are identical to the goals prescribed in the Agreement.

Ontario's objectives are consistent with the regional objectives adopted for the Basin and have been tailored for Ontario to reflect the direction in the *Water Opportunities and Water Conservation Act*, 2010, and to address stakeholder requests to emphasize the importance of taking ecological water needs into account in decision making, in keeping with the broader ecosystem protection and restoration goals of the Agreement.

Ontario's water conservation goals and objectives are available at:

<http://www.ontario.ca/environment-and-energy/ontarios-water-conservation-and-efficiency-goals-objectives-and-programs>

#### **2. Ontario's water conservation and efficiency program overview**

Ontario's water conservation and efficiency program consists of a wide variety of statutes, programs and policies administered across nine ministries. See Appendix A for a detailed description of Ontario's fifty-five contributing water management and conservation statutes, programs and policies.

The foundation of the program is the *Ontario Water Resources Act* and the *Water Taking and Transfer Regulation* (Ontario Regulation 387/04). The purpose of the *Ontario Water Resources Act* is to provide for the conservation, protection and management of Ontario's waters and for their efficient and sustainable use, in order to promote Ontario's long-term environmental, social and economic well-being. In 2007, the Ontario government passed the *Safeguarding and Sustaining Ontario's Water Act*, which amended the *Ontario Water Resources Act* to enable implementation of the Agreement and other amendments to the Permit to Take Water program including enhancing the water conservation provisions. Section 34.1 (9)(h) of the OWRA provides a permitting Director with authority to set terms and conditions on a permit governing

the use and conservation of water taken under the permit, including requiring the holder to implement specified measures to promote the efficient use of the water or reduce the loss of water through consumptive use, conduct a water audit, and to prepare and implement a water conservation plan. In addition, section 76(1)(b.1) of the OWRA provides regulation making authority requiring the taking of measures by permit and non-permit holders to promote the conservation of water, including the preparation and implementation of water conservation plans and other measures to promote the efficient use of water or reduce the loss of water through consumptive use.

The *Water Taking and Transfer Regulation* outlines matters that the Director must consider when considering an application for a Permit to Take Water. Section 4(2).3.i. of the Regulation requires that the Director consider issues relating to the use of water, including whether water conservation measures are being implemented or are proposed to be implemented in the use of water, in accordance with best water management standards and practices for the relevant sector if these are available.

Provincial land use planning statutes such as the *Planning Act*, policies such as the *Provincial Policy Statement, 2014* and plans such as the *Growth Plan for the Greater Golden Horseshoe* require the consideration of water conservation in new development and the preparation of municipal water conservation plans in specific areas. Ontario's Building Code also requires water efficiency in new development. The *Clean Water Act* requires that any significant threats to municipal drinking water sources from a water quantity perspective be identified through the preparation of water budgets and addressed in source protection plans such as through policies on water conservation.

On November 29, 2010, Ontario passed the *Water Opportunities and Water Conservation Act, 2010*, which is an important step to Ontario fulfilling its water conservation and efficiency Agreement commitments. The Act builds upon Ontario's expertise in clean water technology and sets out a framework to make the province a continental leader in water innovation to help address global water challenges. Among other things, the Act sets the framework to encourage Ontarians to use water more efficiently by creating and implementing innovative approaches to protecting and conserving water resources for current and future generations.

### 3. Consistency with Regional Objectives

Ontario's program is consistent with the regional objectives in the promotion of environmentally sound and economically feasible water conservation measures (see table below and Appendix for details). The programs (statutes, programs and policies) below may link to more than one objective.

REGIONAL OBJECTIVES	LEGISLATIVE OR PROGRAM CITATION
○ Guide programs toward long-term sustainable water use.	Ontario is implementing a range of adaptive programs and conservation and efficiency strategies that consider long-term sustainable water use taking into account the importance of water to related ecosystems – such as through the assessment of water taking applications as described above, preparation of source protection plans to protect existing and future sources of drinking water in terms of both water quantity and quality, development of water

REGIONAL OBJECTIVES	LEGISLATIVE OR PROGRAM CITATION
	<p>budgets to estimate surface and groundwater supplies, water use and water quantity risk assessments, and action to protect the Great Lakes. The most relevant programs are:</p> <ol style="list-style-type: none"> <li>1. <i>Ontario Water Resources Act</i> and the <i>Water Taking and Transfer Regulation</i></li> <li>2. <i>Clean Water Act</i>, 2006 and associated Water Budget Studies</li> <li>3. <i>Conservation Authorities Act</i>, 1990</li> <li>4. <i>Lakes and Rivers Improvement Act</i>, 1990</li> <li>5. <i>Endangered Species Act</i>, 2007</li> <li>6. Ontario Great Lakes Wetland Conservation Action Plan</li> <li>7. <i>Greenbelt Act</i>, 2005 and Greenbelt Plan</li> <li>8. <i>Niagara Escarpment Planning and Development Act</i> and Plan</li> <li>9. Ontario's Biodiversity Strategy</li> <li>10. Biodiversity: It's In Our Nature – Ontario Government Plan to Conserve Biodiversity 2012-2020</li> <li>11. Ontario's Great Lakes Strategy</li> <li>12. Canada-Ontario Agreement on the Great Lakes</li> <li>13. Joint Strategic Plan for the Management of Great Lakes Fisheries</li> </ol>
<p>o Adopt and implement supply and demand management to promote efficient use and conservation of water resources.</p>	<p>Ontario has a range of programs that manage water supply and demand to achieve efficient use and conservation of water resources — including promoting innovative water technologies through WaterTAP established under the Water Opportunities and Water Conservation Act, requiring water conservation plans by municipalities in the Oak Ridges Moraine and Lake Simcoe areas, promoting green infrastructure in municipal stormwater management systems and establishing water efficiency standards in Ontario's Building Code,. The most relevant programs are:</p> <ol style="list-style-type: none"> <li>14. <i>Water Opportunities and Water Conservation Act</i>, 2010</li> <li>15. Financial Plans Regulation under the <i>Safe Drinking Water Act</i>, 2002</li> <li>16. <i>Building Code Act</i>, 1992 and the Building Code</li> <li>17. <i>Green Energy Act</i>, 2009</li> <li>18. <i>Oak Ridges Moraine Conservation Act</i>, 2001 and Plan</li> <li>19. <i>Places to Grow Act</i>, 2005 and Growth Plan</li> <li>20. <i>Lake Simcoe Protection Act</i>, 2008 and Lake Simcoe Protection Plan</li> <li>21. <i>Planning Act</i>, 1990 and Provincial Policy Statement, 2014</li> <li>22. Municipal Stormwater Management Systems</li> <li>23. Ontario Small Waterworks Assistance Program</li> <li>24. Ontario's Water Sector Strategy</li> </ol>

<b>REGIONAL OBJECTIVES</b>	<b>LEGISLATIVE OR PROGRAM CITATION</b>
<ul style="list-style-type: none"> <li>○ Improve monitoring and standardize data reporting among State and Provincial water conservation and efficiency programs.</li> </ul>	<p>A range of Ontario programs support improved monitoring and standardized data reporting related to water supply, water use and conservation/ efficiency – for example, water use information for Permits To Take Water is collected, analyzed and reported, and watershed-based teams declare low water condition based upon provincial water monitoring and varying levels of conservation are required depending upon the low water conditions, The most relevant programs are:</p> <ul style="list-style-type: none"> <li>25. Ontario Low Water Response</li> <li>26. Ontario Surface Water Monitoring</li> <li>27. Provincial Groundwater Monitoring Network</li> <li>28. Water Use Reporting</li> <li>29. Spatial Data Infrastructure Unit</li> <li>30. Ecological Framework for Recreational Fisheries Management in Ontario</li> <li>31. The Ontario Geological Survey's Groundwater Mapping Program</li> <li>32. Climate Change Modelling and the Weather and Water Information Gateway</li> <li>33. Stream Water Quality Monitoring and the Multi-Watershed Nutrients Study</li> </ul>
<ul style="list-style-type: none"> <li>○ Develop science, technology and research.</li> </ul>	<p>The following programs encourage science, technology and research to implement the best in water, wastewater and stormwater technology:</p> <ul style="list-style-type: none"> <li>34. Showcasing Water Innovation</li> <li>35. Ontario Clean Water Agency</li> <li>36. Walkerton Clean Water Centre</li> <li>37. Innovation Demonstration Fund</li> <li>38. Green Focus on Innovation and Technology</li> <li>39. Ontario Research Fund - Research Excellence Water Round</li> <li>40. Investor Accelerator Fund</li> <li>41. Ministry of Agriculture Food and Rural Affairs / University of Guelph Partnership Research Program</li> <li>42. New Directions Research Program</li> <li>43. Anishinabek/Ontario Fisheries Resource Centre</li> <li>44. Climate Ready: Ontario's Adaptation Strategy and Action Plan</li> <li>45. Water Resources Adaptation Management Initiative</li> <li>46. Water Adaptation Management and Quality Initiative</li> </ul>



REGIONAL OBJECTIVES	LEGISLATIVE OR PROGRAM CITATION
<ul style="list-style-type: none"> <li>○ Develop education programs and information sharing for all water users.</li> </ul>	<p>Ontario is implementing a range of education programs and other programs that raise awareness of the importance of water and the value of conservation, efficiency and cost-saving, and which promote the sharing of best management practices, through the following programs:</p> <ul style="list-style-type: none"> <li>47. Ontario Drinking Water Stewardship Program</li> <li>48. Water Efficiency Labelling</li> <li>49. Best Management Practices</li> <li>50. Canada-Ontario Environmental Farm Plan Program (Growing Forward 2)</li> <li>51. Species at Risk Stewardship Fund</li> <li>52. Invading Species Awareness Program</li> <li>53. Community Fisheries and Wildlife Involvement Program</li> <li>54. Eastern Habitat Joint Venture</li> <li>55. Ontario Parks Water Conservation Initiatives</li> </ul>

#### **4. Ontario's water conservation and efficiency program implementation timeline and status**

Ontario's water conservation and efficiency program is in place and is being implemented.

## **Appendix A**

### **Description of Ontario's Contributing Water Management and Conservation Statutes, Programs and Policies (as of November 1, 2014)**

The following statutes, programs and policies contribute to achieving Ontario's goals and objectives for water conservation and efficiency. The statutes, programs and policies may link to more than one goal or objective.

#### **OBJECTIVE 1: GUIDE PROGRAMS TOWARD LONG-TERM SUSTAINABLE WATER USE AND MANAGEMENT INCLUDING TAKING ECOSYSTEM NEEDS FOR WATER INTO ACCOUNT**

To achieve this objective, Ontario has a range of adaptive programs and conservation and efficiency strategies that take into account the importance of water to related ecosystems, working with local stakeholders, and improving water demand forecasts, and water budgets.

##### **1. Ontario Water Resources Act and the Water Taking and Transfer Regulation**

Water takings in Ontario are governed by the Ontario Water Resources Act and the Water Taking and Transfer Regulation (Ontario Regulation 387/04). The purpose of the Ontario Water Resources Act is to provide for the conservation, protection and management of Ontario's waters and for their efficient and sustainable use, in order to promote Ontario's long-term environmental, social and economic well-being. [http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_90o40\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90o40_e.htm)

The Water Taking and Transfer Regulation under the Ontario Water Resources Act outlines matters that the Ministry of the Environment and Climate Change must consider when considering an application for a Permit to Take Water. The Permit to Take Water Program provides for the fair sharing, conservation, and sustainable use of Ontario's waters. Any person taking more than a total of 50,000 litres of water in a day must first obtain a Permit to Take Water. Water taken for domestic uses, watering of livestock or poultry, or firefighting is excepted from the requirement to obtain a permit.

[http://www.e-laws.gov.on.ca/html/regs/english/elaws\\_regs\\_040387\\_e.htm](http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_040387_e.htm)

The regulation of water taking is done in accordance with statute, policies, guidelines and the Permit to Take Water Manual ([http://www.ene.gov.on.ca/environment/en/resources/STD01\\_078778.html](http://www.ene.gov.on.ca/environment/en/resources/STD01_078778.html)). The Water Taking and Transfer Regulation specifically identifies the relevant matters that must be considered by the ministry when assessing water taking applications, including:

- the need to protect the natural functions of the ecosystem, including the natural variability of water flow or water levels, minimum stream flow, and habitat that depends on water flow or water levels;
- impact on groundwater and surface water quantity and quality;
- issues related to water availability, including low water conditions and the level of existing water use in the watershed;
- whether water conservation measures are being implemented or are proposed to be implemented in the use of water, in accordance with best water management standards and practices for the relevant sector if these are available; and

- demonstrated need for the water (reasonable prospect of use).

New or increased water takings by regulation-specified highly consumptive water users that remove water from “high use watersheds” are either prohibited or constrained during the low-flow period. The regulation-designated high use watersheds are shown on the Summer Low Flow Map and Average Annual Flow Map specified by the regulation.

Applicants for a Permit to Take Water must complete and submit a “Schedule 1 – Implementation of Water Conservation in accordance with Best Management Practices and Standards for the Relevant Sector”.

This Schedule contains a list of water conservation best management measures and practices for applicants. For the measures and practices checked off, applicants are expected to provide specific details about best management practices applied or to be applied and to cite any information used to determine water conservation and efficiency management practices and measures. Using the Schedule, applicants must declare the water conservation measures and practices they are currently implementing or anticipate implementing over the duration of the permit. They must state their goals for reducing the use, loss or waste of water or for increasing the efficiency of water use, e.g. litres per day per unit of production or litres per day per capita for the residential sector. Finally, applicants are asked to identify any approval or certification that they have received for implementing water conservation and efficiency measures best management practices e.g. Environmental Farm Plan, Audubon Cooperative Sanctuary Program for Golf Courses.

In 2007, the Ontario government passed the Safeguarding and Sustaining Ontario’s Water Act, which amended the Ontario Water Resources Act to enable implementation of the Great Lakes – St. Lawrence River Basin Sustainable Water Resources Agreement and other amendments to the Permit to Take Water program. [http://www.e-laws.gov.on.ca/html/source/statutes/english/2007/elaws\\_src\\_s07012\\_e.htm](http://www.e-laws.gov.on.ca/html/source/statutes/english/2007/elaws_src_s07012_e.htm)

The Ontario Water Resources Act was amended in 2010 to add a regulation-making authority to establish water efficiency standards or requirements for prescribed appliances and products.

## **2. Clean Water Act, 2006**

The purpose of the Clean Water Act, 2006 is to protect existing and future sources of drinking water in Ontario in terms of both quality and quantity of water. It is part of the Ontario Government’s commitment to ensure the sustainability of clean, safe drinking water for all Ontarians and to implement the recommendations of the Walkerton Inquiry.

The Clean Water Act, 2006 requires that source protection committees, composed of representatives from the local watershed and supported by source protection authorities (generally conservation authorities), assess activities and conditions that pose a risk to the quality and quantity of municipal drinking water sources, and prepare a plan to address these risks. This work includes identifying present and future sources of municipal groundwater and surface water, and areas where the sources of groundwater are being recharged. A component of the source protection plan is a water budget which involves measuring how much water exists both at surface and below ground, how it moves, and how much water is withdrawn, to identify potential water shortages. Part of this process will be looking at the long-term water supply and determining current or future water availability. These water budgets consider future drought conditions and the potential impact on supplies for both drinking water and ecological needs. The

Ministry of the Environment and Climate Change is considering how the impacts of climate change can be considered.

If specific activities present significant risks to drinking water quantity, the source protection plan must include policies to address those risks. Such policies may include requirements around water conservation and/or water efficiency. Under the Clean Water Act, 2006, source protection committees are provided with a wide range of policy tools (including prohibiting the activity or regulating it through risk management plans), provincial approvals, land use planning tools or non-regulatory approaches such as education and outreach and incentive programs. Guidance is being developed on which best management practices would be locally appropriate when implementing their source protection plan policies.

### Water Budget Studies

In collaboration with the Ministry of the Environment and Climate Change, the Ministry of Natural Resources and Forestry has developed climate change scenarios to be included in future water budget cumulative impact assessments at the watershed scale. These assessments will consequently support the development of source protection plan policies that build in local climate change adaptation. All data, information and technologies developed through the Water Budget research project are available through the Weather and Water Information Gateway under the Regional Adaptation Collaborative.

The Ministry of Natural Resources and Forestry, working with the Ministry of the Environment and Climate Change, and Environment Canada, has produced a guide for the assessment of hydrologic effects of climate change in Ontario. The purpose of the guide is to provide a methodology for conducting assessments of the effects of climate change on water resources in Ontario. This guide supports the Clean Water Act, 2006 and has numerous target users and applications. In addition to the guide, the Ministry of Natural Resources and Forestry has developed an interactive web-based tool that allows users to select and download standard climate change data sets for use within hydrologic models as outlined in the guide. This web-based tool is functional and available at: [www.waterbudget.ca](http://www.waterbudget.ca)

<http://www.waterbudget.ca/climatechangeguide>

Under the Clean Water Act, source protection planning must also consider several federal and provincial Great Lakes agreements, including the Great Lakes Charter and the Great Lakes-St Lawrence River Basin Sustainable Water Resources Agreement.

[http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_06c22\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_06c22_e.htm)

### **3. Conservation Authorities Act, 1990**

The Conservation Authorities Act is administered by the Ministry of Natural Resources and Forestry. The Act provides a statutory framework for creating, funding and the operations of conservation authorities; municipalities petition the Province to form or join a conservation authority to be able to participate in shared local resource management with other municipalities in a common watershed and in shared programs with the Ministry. As public sector organizations, conservation authorities implement programs that serve both the Ministry's and the municipal interests. There are 36 conservation authorities in Ontario today.

The current shared program with the Ministry of Natural Resources and Forestry for conservation authorities is related to public safety and natural hazard prevention and management. Program activities

include flood and erosion control operations, flood forecasting and warning, ice management, as well as hazard prevention by input into municipal planning documents. Water-related natural hazard technical information can be developed in shoreline and watershed plans.

Additionally, each conservation authority has a provincially-approved 'Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses' made under the Act. Conservation authorities regulate development and activities through a permitting process in areas prone to water related hazards (floodplains, shorelines, wetlands, hazardous lands) as set out in the Act and regulations that fall within the authority's jurisdiction. The conservation authority considers the impact of a development on the control of the natural hazards (flooding, erosion, dynamic beaches, pollution or the conservation of land) and considers permits for activities that may change or interfere with the existing channel of a watercourse or a wetland.

In a delegated role from the Ministry of Natural Resources and Forestry, conservation authorities review municipal plans and site plan applications made under the Planning Act for consistency with the natural hazards policies of the [Provincial Policy Statement, 2014](#).

Additional local resource management programs are determined by the conservation authority boards of directors which are comprised of municipal appointees. These additional programs reflect local needs and the capacity of the conservation authority and may include activities such as stewardship, watershed studies, education and recreation. Conservation authorities may also comment on municipal planning documents according to their own board approved policies as a public body.

By contract or agreement, authorities may provide additional technical advice or other services to municipalities, such as assessment of environmental impacts, hydrogeology services, stormwater management advice, natural heritage advice, septic system reviews, tree planting and other activities.

Conservation authorities may also have responsibilities under other provincial legislation, programs or through agreements with other government agencies. For example, conservation authorities undertake the duties of source protection authorities [under the Clean Water Act](#), 2006, and participate in the [Ontario Low Water Response Program](#).

<https://www.ontario.ca/environment-and-energy/conservation-authorities>

#### **4. Lakes and Rivers Improvement Act**

The Lakes and Rivers Improvement Act, administered by the Ministry of Natural Resources and Forestry, provides for the management, preservation and use of Ontario's lakes and rivers and the land under them, the protection of public rights and riparian interests, the management of fish and wildlife dependent on lakes and rivers, protection of natural amenities and the protection of people and property by ensuring that dams and diversions are suitably located, constructed and maintained.

Dams and water diversions (e.g. for hydroelectric power production) are also regulated through the Lakes and Rivers Improvement Act, which regulates works forwarding, holding back or diverting water and is administered through the Ministry of Natural Resources and Forestry. Lakes and Rivers Improvement Act approvals govern how dams are managed including water levels and flows and levels as they are affected by the operation of waterpower generating facilities and water control structures to protect the public from floods and other hazards, while supporting flows, ecosystem health, drinking water supply, hydro-

electricity generation, navigation for commercial and recreational purposes, agricultural irrigation, and municipal, commercial and industrial use.

When a Permit to Take Water is required from the Ministry of the Environment and Climate Change for the water taking associated with a dam or diversion, the Ministry of the Environment and Climate Change collaborates with the Ministry of Natural Resources and Forestry to harmonize the requirements imposed on dam or diversion operators by the approvals and permits issued by the ministries.

[http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_90l03\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90l03_e.htm)

<http://www.ontario.ca/law-and-safety/dam-management>

## **5. Endangered Species Act**

With the passage of the Endangered Species Act in 2007, Ontario became a North American leader in protection and recovery for the province's more than 200 species at risk and their habitats. Many species at risk and their habitats in the Great Lakes Basin are now legally protected under the Act. Some of these protected species, including the Lake Sturgeon and American Eel, were also the focus of rehabilitation efforts under the 2007-2012 Canada – Ontario Agreement Respecting the Great Lakes Basin Ecosystem.

The key to protecting many species at risk is protecting and restoring their habitats. Conserving water helps to maintain habitat conditions for species at risk and will aid in their recovery. For example, the recovery of both fish species identified above would be enhanced by promoting upstream and downstream passage around water control and hydro-power structures, both of which may be used to alter flows in their respective rivers, ultimately effecting water levels in downstream lakes and wetlands.

Under the Act, a recovery strategy is to be developed for each species listed as either Endangered or Threatened on the Species at Risk in Ontario list. A recovery strategy provides the Ontario government with the best available scientific information and advice regarding how to protect and recover the species. The government then outlines the actions it plans to take in response to this advice in a government response statement. Recovery strategies and government response statements are available to the public through Ontario's Environmental Registry and the Ministry of Natural Resources and Forestry home page.

[http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_07e06\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_07e06_e.htm)

<http://www.ontario.ca/environment-and-energy/species-risk>

## **6. Ontario Great Lakes Wetland Conservation Action Plan**

The Great Lakes Wetland Conservation Action Plan (GLWCAP) was crafted in 1994 so government and environmental organization partners could work together more effectively to conserve remaining Great Lakes Basin wetlands. GLWCAP is the implementation mechanism for the *25-year Strategic Plan for Wetlands of the Great Lakes Basin* (1993). Prepared by a cooperative of government and non-government agencies, GLWCAP outlines a framework for wetland conservation in the Great Lakes Basin through eight implementation strategies. GLWCAP complements the Canada-Ontario Agreement for the Great Lakes and Ontario's Great Lakes Strategy and is coordinated by a team of environmental organizations and provincial and federal government representatives, including the Ministry of Natural Resources and Forestry.

The Ministry of Natural Resources and Forestry, on behalf of Ontario, also supports international efforts to conserve and manage Great Lakes coastal wetlands through its participation in initiatives such as the International Joint Commission's Upper Great Lakes and Lake Ontario-St. Lawrence River water level studies.

<http://glwcap.ca>

## **7. Greenbelt Act, 2005 and Greenbelt Plan**

The Greenbelt Act, 2005 provides the legislative framework for the development and implementation of the Greenbelt Plan. The Act sets out the objectives of the Greenbelt Plan including protection of the land base needed to maintain, restore and improve the ecological and hydrological functions of the Greenbelt Area. The Greenbelt Act requires all decisions under the Planning Act and Condominium Act to conform to the Greenbelt Plan and that municipalities bring their official plans into conformity with the Greenbelt Plan at the time of their next 5 year official plan review.

The Greenbelt Plan requires municipalities to provide for a comprehensive, integrated and long-term approach to managing water resource systems. It identifies a Natural Heritage System in Schedule 4 as a guiding framework to help reach this goal. It also contains a listing of key natural heritage and key hydrological features which are to be identified and protected from development and site alteration, along with appropriate buffers.

The Greenbelt Plan area contains numerous watersheds, subwatersheds and groundwater resources, including the network of tributaries that support the major river systems identified in the Plan. These resources are critical to the long-term health and sustainability of water resources and biodiversity and overall ecological integrity.

Key policies which ensure the protection of water resources in the Greenbelt include those related to: the need to use watershed plans and watershed management approaches to guide development; the consideration of cross-jurisdictional or cross-watershed impacts; and the protection of source water in accordance with provincial direction. The Plan also contains policies that restrict the planning and provision of infrastructure in order to help protect the water resources systems, including key natural heritage and key hydrologic features.

[http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_05g01\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_05g01_e.htm)

<http://www.mah.gov.on.ca/Page189.aspx>

## **8. Niagara Escarpment Planning and Development Act and Niagara Escarpment Plan**

The Niagara Escarpment Planning and Development Act sets out the legislative framework for the Niagara Escarpment Plan and its implementation through a system of development control that is administered by the Niagara Escarpment Commission, a regulatory agency of the Government of Ontario. The purpose of the Act and the Niagara Escarpment Plan is to provide for the maintenance of the Niagara Escarpment and land in its vicinity substantially as a continuous natural environment, and to ensure that only such development occurs as is compatible with that natural environment.

The Plan identifies several land use designations which direct how land can be used throughout the Niagara Escarpment Plan Area, and includes policies that guide planning and development in order to



help protect water resources. The Plan works to ensure that new development affecting streams, watercourses, lakes, wetlands, and groundwater systems will have minimum individual and cumulative effect on water quality and quantity, and on the Escarpment environment.

<http://www.escarpment.org/landplanning/plan/index.php>

[http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_90n02\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90n02_e.htm)

## **9. Ontario's Biodiversity Strategy**

Ontario's Biodiversity Strategy, 2011, is the guiding framework for coordinating the conservation of Ontario's biodiversity. It builds on the positive achievements of Ontario's 2005 Strategy and sets out new and updated direction to 2020. The Ontario Biodiversity Council, a multi-stakeholder group with members from the conservation and environmental community, business and industry, the Minister of Natural Resources and Forestry, Aboriginal organizations and others, led the renewal process, with support provided by the Ontario Ministry of Natural Resources and Forestry.

Ontario's Biodiversity Strategy includes actions to reduce threats and enhance the resilience of the Great Lakes. Actions include reducing pollution and preventing the introduction and spread of invasive species, implementing legislation to better protect species at risk and their habitats, completing a system of protected areas representative of Ontario's ecosystems, and encouraging private land and water resources stewardship.

On an international scale, Ontario participates in efforts to conserve the diversity of species and ecosystems of the Great Lakes Basin through binational projects, such as The Great Lakes Conservation Blueprint for Terrestrial and Aquatic Biodiversity; *The Sweetwater Sea: An International Biodiversity Conservation Strategy for Lake Huron*; and, the first Great Lakes-wide international assessment of island biodiversity, *Islands of Life: A Biodiversity and Conservation Atlas of Great Lakes Islands*.

<http://viewer.zmags.com/publication/c527c66f#/c527c66f/1>

## **10. Biodiversity: It's in Our Nature, Ontario Government Plan to Conserve Biodiversity 2012-2020**

Biodiversity: It's in Our Nature, Ontario Government Plan to Conserve Biodiversity 2012-2020 (BIION) is the Ontario government's implementation plan for advancing biodiversity conservation. Using Ontario's Biodiversity Strategy, 2011, as a guiding framework, this Implementation Plan outlines key actions and supporting activities the Ontario government will take to 2020 to conserve the province's biodiversity. It is an important statement of partnership and commitment across 16 ministries to work together to conserve Ontario's biodiversity.

BIION includes actions and activities to reduce threats and enhance the resilience of the Great Lakes ecosystem including promoting land and water conservation; reducing threats to biodiversity posed by habitat loss, invasive species, pollution, population growth and climate change; enhancing habitats and ecosystem services; and supporting science, research and information management to inform biodiversity conservation.

<http://viewer.zmags.com/publication/c8f28fef#/c8f28fef/6>



## **11. Ontario's Great Lakes Strategy**

Released in December 2012, Ontario's Great Lakes Strategy provides a roadmap for how Ontario will focus action to protect the Great Lakes. Ontario's Great Lakes Strategy includes a summary of Great Lakes environmental conditions, a summary of Ontario's actions taken to date, and identification of priority areas for future action. Priorities for future action are described around the following six Great Lakes goals:

- Engaging and empowering communities
- Protecting water for human and ecological health
- Improving wetlands, beaches, shorelines and coastal areas
- Protecting habitats and species
- Enhancing understanding and adaptation
- Ensuring environmentally sustainable economic opportunities and innovation

Goal 2 of Ontario's Great Lakes Strategy (protecting water for human and ecological health) includes actions to improve water quantity management such as fulfilling Ontario's commitments under the Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement and promoting water conservation and efficiency under the Water Opportunities and Water Conservation Act.

The province is currently implementing actions in Ontario's Great Lakes Strategy focused on community engagement, water protection, coastal and beach improvements, biodiversity protection, science, climate change adaptation, and innovative economic opportunities.

<http://www.ontario.ca/environment-and-energy/ontarios-great-lakes-strategy>

## **12. Canada-Ontario Agreement for the Great Lakes**

The Canada-Ontario Agreement (COA) is the principal mechanism through which Ontario and Canada coordinate their work to address their respective and shared commitments to protect the Great Lakes. The first COA was signed in 1971. Ontario has negotiated with Canada the 8<sup>th</sup> Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health, 2014. The province has negotiated an agreement that supports implementation of Ontario's Great Lakes Strategy while Canada has focussed on aligning commitments with the 2012 Canada-U.S. Great Lakes Water Quality Agreement. The Agreement was finalized by the governments of Ontario and Canada after receiving input from the public, First Nations, Métis, and the broader Great Lakes community. The 8<sup>th</sup> COA is comprised of a framework agreement and 14 annexes. New annexes include climate change impacts, nutrients, aquatic invasive species, habitat and species, groundwater quality, discharges from vessels, promoting innovation and engaging communities, First Nations and Métis. Under Annex 5, Lakewide Management, of the 8<sup>th</sup> COA, Canada and Ontario have agreed to commitments that will result in improved understanding and implementation of adaptive management approaches to lake level regulation.

The Canada-Ontario Agreement Memorandum of Cooperation outlines areas of collaboration between Ontario, through the Ministries of the Environment and Climate Change, Natural Resources and Forestry, and Agriculture, Food and Rural Affairs and the Great Lakes and St. Lawrence Cities Initiative in support of Great Lakes protection and conservation. The third Memorandum of Cooperation expired on May 31, 2014. There is a commitment in the 8<sup>th</sup> COA for Ontario and Canada to continue to work with the Great Lakes and St. Lawrence Cities Initiative under the Memorandum of Cooperation and a focus for future action under Ontario's Great Lakes Strategy is ongoing collaboration with the Cities Initiative. The

Province is currently working with the Cities Initiative in developing a new Memorandum of Cooperation. The Province also considered municipal interests while negotiating the new COA with the federal government.

[http://www.downloads.ene.gov.on.ca/envision/env\\_reg/er/documents/2014/011-9290\\_d.pdf](http://www.downloads.ene.gov.on.ca/envision/env_reg/er/documents/2014/011-9290_d.pdf)

### **13. Joint Strategic Plan for the Management of Great Lakes Fisheries**

The *Joint Strategic Plan for Management of Great Lakes Fisheries* is a world-renowned model for ensuring that Canada and the U.S. agree on how best to manage and sustain common Great Lakes fish stocks. The Great Lakes Fishery Commission, a secretariat that coordinates fisheries management and research on the Great Lakes, coordinates implementation of this historic plan, originating in the 1950s and last revised in 1997. The Ministry of Natural Resources and Forestry represents Ontario on four out of five Great Lakes Fishery Commission lake committees and on the Council of Lake Committees. The lake committees are responsible for developing fish-community goals and objectives for each Great Lake, as well as plans for managing, preserving and restoring Great Lakes fish species and their habitats.

The Joint Strategic Plan makes a clear connection between fish habitat, water quality and water uses. The plan highlights impacts on fish during spawning and the potential for large-scale diversions to impact fish. Thus, the plan clearly identifies a need to ensure the conflicting goals of users take into account impacts on fish, an important aquatic resource.

[www.glfc.org](http://www.glfc.org)

### **OBJECTIVE 2: ADOPT AND IMPLEMENT SUPPLY AND DEMAND MANAGEMENT TO PROMOTE EFFICIENT USE AND CONSERVATION OF WATER RESOURCES**

To achieve this objective, Ontario has a range of programs that manage water supply and demand to achieve efficient use and conservation of water resources — including promoting innovative water technologies, green infrastructure and water use efficiency.

### **14. Water Opportunities and Water Conservation Act, 2010**

On November 29<sup>th</sup>, 2010 Ontario's Legislature passed the Water Opportunities and Water Conservation Act, 2010. The Act contains five schedules. Schedule 1 enacts a stand-alone act, the Water Opportunities Act, 2010 (see below for details). Schedules 2 to 5 amend existing legislation in respect of water conservation and other matters. The Act builds upon Ontario's expertise in clean water technology and sets out a framework to make the province a North American leader in water innovation to help address global water challenges. Among other things, the Act sets the framework to encourage Ontarians to use water more efficiently by creating and implementing innovative approaches to protect water resources for current and future generations.

The Water Opportunities Act created the Water Technology Acceleration Project (WaterTAP), a non-crown corporation to encourage collaboration and coordination between industry, governments and academia. WaterTAP is assisting in facilitating the creation and growth of globally competitive companies and high-value jobs in the water and wastewater sector.

The Water Opportunities Act, 2010 also includes authority to require municipalities and other municipal service providers to prepare municipal water sustainability plans that would include an asset management plan, a financial plan, a water conservation plan, strategies for maintaining and improving the service, a risk assessment and other prescribed information; authority to require prescribed information on or with municipal water bills to promote transparency; authority to set aspirational targets for water conservation and other matters; and authority to require public agencies to prepare water conservation plans. This includes authority to require public agencies to achieve water conservation targets and consider technologies, services and practices that promote the efficient use of water when making capital investments or purchasing goods and services.

The Act also amended the Ontario Water Resources Act to enable regulations for water efficiency standards or requirements for prescribed appliances and products. No person would be permitted to offer for sale, sell or lease a prescribed appliance or product unless it meets the water efficiency standard or requirement set out in the regulations. These are tools that will enable Ontarians to use water more efficiently to conserve and protect water resources.

The Act also amended the Building Code Act, 1992. These changes require the Minister of Municipal Affairs to initiate reviews of the Building Code with reference to standards for water conservation every five years, rename the Building Code Energy Advisory Council to the Building Code Conservation Advisory Council, and expand the mandate of this council to include advising the Minister on the Building Code with reference to standards for water conservation.

[http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_10w19\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_10w19_e.htm)

[http://www.ontla.on.ca/web/bills/bills\\_detail.do?locale=en&Intranet=&BillID=2362](http://www.ontla.on.ca/web/bills/bills_detail.do?locale=en&Intranet=&BillID=2362)

## **15. Financial Plans Regulation under the Safe Drinking Water Act, 2002**

As part of the province's commitment to implement all of Justice O'Connor's Walkerton recommendations, the province put in place a new licensing framework under the Safe Drinking Water Act for municipal residential drinking-water systems – the Municipal Drinking-Water License Program. Financial plans are one of the elements which must be put in place for a license to be issued.

A Financial Plans Regulation and Financial Plans Guidance Document were prepared and put into effect by the province in 2007. The Regulation outlines requirements set out by the Minister of the Environment and Climate Change for financial plans that are required to obtain a license under the Safe Drinking Water Act. Taken together, the Financial Plans Regulation and Guideline are a key step in the province's long term strategy to ensure the financial sustainability of municipal drinking water and wastewater systems.

[http://www.e-laws.gov.on.ca/html/source/regs/english/2007/elaws\\_src\\_regs\\_r07453\\_e.htm](http://www.e-laws.gov.on.ca/html/source/regs/english/2007/elaws_src_regs_r07453_e.htm)

[http://www.ene.gov.on.ca/envision/env\\_reg/er/documents/2007/Financial%20Plan%20Guideline%20-%20Aug%2015.pdf](http://www.ene.gov.on.ca/envision/env_reg/er/documents/2007/Financial%20Plan%20Guideline%20-%20Aug%2015.pdf)

## **16. Building Code Act, 1992 and the Building Code**

Ontario's Building Code is a regulation under the Building Code Act, 1992 that sets out technical and administrative requirements that must be met when a building is constructed, renovated or undergoes a change of use.

One way to conserve water is to design buildings so that they use less water. Ontario's Building Code has been amended over the past 20 years to include increasingly progressive water conservation requirements.

Conservation became one of the purposes of the Building Code with the introduction of the Building Code Act, 1992. Over time, water conservation requirements for plumbing fixtures have been enhanced so that today, very high-efficiency toilets (4.8 litre or 4/6 litre dual flush), urinals (1.9 litre) and showerheads (7.6 litres/minute) are required as a minimum in new construction and renovations. The Building Code has also been amended to allow for more plumbing functions to reuse storm sewage, greywater and rainwater and to remove barriers to water reuse, thereby increasing certainty in the building industry about the uses of these green technologies.

[http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_92b23\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_92b23_e.htm)

[http://www.e-laws.gov.on.ca/html/regs/english/elaws\\_regs\\_120332\\_e.htm](http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_120332_e.htm)

## **17. Green Energy Act, 2009**

On May 14, 2009 the Ontario government passed the Green Energy Act to attract new investment, create new green economy jobs and better protect the environment. Amendments in 2010 expanded the guiding principles for the Government of Ontario to consider when constructing, acquiring, operating and managing government facilities. The guiding principles now include:

- Reporting on water use associated with government facilities;
- Ensuring water efficiency is considered in planning and designing government facilities; and
- Using technologies, services and practices that promote the efficient use of water and reduce negative impacts on Ontario's water resources.

[http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_09g12\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_09g12_e.htm)

## **18. Oak Ridges Moraine Conservation Act, 2001 and Oak Ridges Moraine Conservation Plan**

The Oak Ridges Moraine Conservation Act, 2001 provides the legislative framework for the development and implementation of the Oak Ridges Moraine Conservation Plan.

The Oak Ridges Moraine Conservation Plan provides a long-term framework of designations and policies and requires that municipalities further implement these directions through their official plans and zoning by-laws. It identifies a Natural Heritage System comprised of Cores and Linkage Areas and goes on to define key natural heritage and hydrological features which are to be identified and protected in municipal planning documents. It also provides mapping of landform conservation areas and highly vulnerable aquifer areas, requires subwatershed planning and the preparation of water conservation plans and water budgets, and requires the identification of municipal well-head protection areas and restricts certain types of stormwater management facilities in order to protect the ground water resources in the Moraine's aquifers – which provide drinking water for over 250,000 people and provide the baseflow for the vast

majority of streams running north and south off the Moraine – the regional groundwater divide for central Ontario.

The Oak Ridges Moraine Conservation Plan requires that every upper-tier municipality and single-tier municipality within the designated moraine area begin to prepare a water budget and conservation plan for every watershed whose streams originate within the municipality's area of jurisdiction. It also, as of April 2007, prohibits major development unless the water budget and conservation plan is completed and demonstrates that the water supply required for the major development is sustainable.

[http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_01o31\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_01o31_e.htm)

<http://www.mah.gov.on.ca/AssetFactory.aspx?did=1779>

<http://www.mah.gov.on.ca/Page4808.aspx>

## **19. Places to Grow Act, 2005 and Growth Plans**

The Places to Grow Act, 2005, provides the legislative framework for the development and implementation of growth plans for any part of the province. The Act clearly establishes the provincial interest in coordinated regional growth management and infrastructure investment. It sets a broad scope for growth plans, allowing for province-wide relevance and application, and gives growth plans status. The Act requires that all decisions under the Planning Act and Condominium Act, 1998 must conform to a growth plan and that municipal official plans be brought into conformity within three years of the effective date of a growth plan.

[http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_05p13\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_05p13_e.htm)

The Growth Plan for the Greater Golden Horseshoe area was the first plan developed under the Places to Grow Act, 2005, and came into effect in June 2006.

### Growth Plan for the Greater Golden Horseshoe

The Growth Plan for the Greater Golden Horseshoe, 2006 represents the province's long-term vision for managing the rapid growth that is forecast for this region to 2041. The Plan contains policies that call for more compact and complete communities, require co-ordination between infrastructure investment and land-use planning and support the development of a culture of conservation.

The Growth Plan includes water conservation policies. These policies require that the construction of new, or expansion of existing, municipal or private communal water and wastewater systems should only be considered when:

- strategies for water conservation and other water demand management initiatives are being implemented;
- plans for expansion or for new services are to serve growth in a manner that supports achievement of the intensification and density targets; and,
- plans have been considered in the context of applicable Great Lakes Basin Agreements.

Municipalities are also required to develop and implement official plan policies and other strategies in support of conservation objectives: water conservation, including water demand management, for the efficient use of water, and water recycling to maximize the reuse and recycling of water.

### Growth Plan for Northern Ontario

In March 2011, the Ministry of Infrastructure released the Growth Plan for Northern Ontario, a 25-year plan to guide decisions and investments to build a globally competitive northern economy that is resilient and sustainable. The Plan includes a chapter on the environment which sets out policies to encourage municipalities to contribute to the protection of surface water and ground water features. Additionally, Northern economic and service hubs are to identify environmental sustainability objectives and develop policies and programs to achieve water conservation.

[https://www.placestogrow.ca/index.php?option=com\\_content&task=view&id=53&Itemid=65](https://www.placestogrow.ca/index.php?option=com_content&task=view&id=53&Itemid=65)

### **20. Lake Simcoe Protection Act, 2008 and Lake Simcoe Protection Plan**

The Lake Simcoe Protection Act, 2008 provides the legislative framework for the development and implementation of the Lake Simcoe Protection Plan.

On June 2, 2009 the government released the Lake Simcoe Protection Plan to address environmental protection of the watershed. Drawing on expert advice from scientists, the plan sets a new standard for environmental protection in the province and provides a road map to help restore and protect the health of Lake Simcoe.

Among other things, the Plan promotes greater efforts to conserve and use water more efficiently in order to maintain future demands for water within sustainable limits. To monitor progress in achieving the water quantity-related objectives of the Plan, the indicators of environmental health relating to water quantity include effective water conservation and efficiency plans (e.g. as measured through reductions in peak water demand; reduced water use per capita; progress in achieving municipal targets).

The Plan contains the following policies to promote greater efforts to conserve and use water more efficiently throughout the Lake Simcoe watershed:

- Within five years of the date the Plan comes into effect, municipalities of Barrie, Orillia, New Tecumseth, Bradford West Gwillimbury, Innisfil, Oro-Medonte and Ramara will prepare and begin implementation of a water conservation and efficiency plan that includes targets for water conservation and/or efficiency with associated timeframes, water conservation measures, incentives and means to promote conservation, cost/benefit analyses, required measures, an implementation plan, and monitoring and reporting;
- The Ministry of Agriculture, Food and Rural Affairs, in cooperation with key stakeholders, will assist and encourage water conservation and efficiency efforts in the agricultural community through stewardship programs aimed at promoting the adoption of best management practices;
- The Ministry of the Environment and Climate Change will work with other water use sectors in the Lake Simcoe watershed to encourage the development and implementation of water conservation and efficient use practices for their sector; and
- An application to establish or expand a major recreational use shall be accompanied by a recreational water use plan that demonstrates the reduction in water use or use of water conservation technologies.



The plan also requires the Ministries of Environment and Climate Change and Natural Resources and Forestry to develop in-stream flow targets for water quantity stressed subwatersheds, in collaboration with the local conservation authority. The targets will consider the potential impacts of climate change and will be used to inform future strategies related to water taking.

In support of these initiatives, the province and the Lake Simcoe Region Conservation Authority (LSRCA) recently finalized the collection of Tier Two Water Budget information for all subwatersheds in the Lake Simcoe watershed, to create a complete groundwater model representation for the entire Basin. The water budgets may be used to inform municipal water conservation and efficiency plans and municipal decisions concerning growth and development; water-taking strategies and decisions concerning Permits to Take Water; and the identification of significant groundwater recharge areas.

Ecologically Significant Groundwater Recharge Areas are the areas of the landscape responsible for providing water to ecologically significant features, such as cold-water streams and significant wetlands. The province is working with the LSRCA to map these areas in the watershed. Areas of high volume recharge have been mapped for entire watershed, and mapping of ecologically significant areas is underway. In early 2014, the LSRCA, in collaboration with Ministries of Environment and Climate Change and Natural Resources and Forestry, and watershed municipalities, developed guidance to assist municipalities in protecting and restoring these important areas.

[http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_08123\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_08123_e.htm)

<http://www.ene.gov.on.ca/en/water/lakesimcoe/index.php>

## **21. Planning Act and Provincial Policy Statement, 2014**

The Planning Act provides the legislative basis for the land use planning system in Ontario. Municipalities are the main implementers of provincial land use planning policies through their official plans and zoning by-laws and their decisions on planning applications. Their decisions and plans are required by the Planning Act to conform (or not conflict) with provincial plans and to be consistent with policies in the Provincial Policy Statement, 2014. A variety of other legislation may also apply when municipalities are making decisions on applications or when creating their planning documents.

The Planning Act contains the process requirements for public notice and consultation rules governing municipal processing of land use proposals or documents and the framework for appeals to the Ontario Municipal Board. The planning process provides an opportunity for an inter-disciplinary assessment of all related matters pertaining to land use, including the integration of water-related considerations.

Issued under the authority of section 3 of the Planning Act, the Provincial Policy Statement, 2014 provides policy direction on matters relating to land use planning that are of provincial interest. For example, policy 1.6.6.1 of the Provincial Policy Statement, 2014 states that planning for water and sewage services shall promote water conservation and water use efficiency. In addition, policy 2.2.1 states that planning authorities shall protect, improve or restore the quality and quantity of water by, among other things, “planning for efficient and sustainable use of water resources, through practices for water conservation and sustaining water quality” and using the watershed as the ecologically meaningful scale for planning. It calls for planning authorities to identify the water resource system, including ground and surface water features and functions necessary for ecological and hydrological integrity of the watershed, and maintain linkages among hydrologically connected water-based and terrestrial-based features.

A comprehensive review of the Provincial Policy Statement was undertaken collaboratively with ministries that have an interest in land use planning. The Provincial Policy Statement 2014 was released and came into effect on April 30, 2014.

Under the Clean Water Act, local science-based assessment reports have identified vulnerable areas related to municipal drinking water systems that must be considered by planning authorities when implementing policy 2.2.1 of the Provincial Policy Statement, 2014. These assessment reports also identify areas where water supplies are at risk and where source protection plans may include policies to find efficiencies in the use of water including developing water conservation plans to address these water supply risks.

<http://www.mah.gov.on.ca/AssetFactory.aspx?did=10463>

[http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_90p13\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90p13_e.htm)

## **22. Municipal Stormwater Management Systems**

The Ministry of the Environment and Climate Change has created several documents for municipalities, community groups, businesses and anyone who is interested in managing stormwater and reducing pollution at its source.

[http://www.ene.gov.on.ca/environment/en/subject/stormwater\\_management/STDPROD\\_076045.html](http://www.ene.gov.on.ca/environment/en/subject/stormwater_management/STDPROD_076045.html)

In 2010, the ministry completed a review of the need for a new policy, act or regulation to deal with municipal stormwater management systems in Ontario municipalities in light of climate change. The review identified a need for a stormwater management policy framework, with emphasis on improving stormwater management at the source through reuse and low impact development practices. Further, increased collaboration for source control practices is needed between all partners including residents, businesses, conservation authorities and all levels of governments.

The ministry is collaborating with several partners on three case study projects on innovative stormwater management practices.

## **23. Ontario Small Waterworks Assistance Program - Phase Three**

On August 16, 2010, the government launched the third phase of the Ontario Small Waterworks Assistance Program to provide capital funding over four years to help small communities that own residential drinking water or wastewater systems improve water conservation and efficiency. Examples of possible projects that could be funded include fixing leaking pipes and installing water meters. In May 2011, \$40.9 million was committed to 85 communities under this program.

<http://www.moi.gov.on.ca/en/news/bg20110518.asp>



## **24. Ontario's Water Sector Strategy**

Ontario's Water Sector Strategy is based on three pillars:

### **1. Driving Adoption of Innovative Technologies:**

The government will partner with stakeholders like the Ontario Clean Water Agency to encourage the development, demonstration, commercialization, and adoption of innovative water solutions. Areas of collaboration include;

- facilitating approvals for pilot/demonstration projects,
- driving more demonstration activity,
- leveraging Ontario's research and demonstration capabilities,
- driving end-user adoption of conservation technologies, and
- promoting innovative technologies to improve Ontario's water operations.

### **2. Attracting Investment and Increasing Access to Global Markets:**

The government will work with stakeholders to expand the reach of Ontario companies in global markets and to attract global companies to invest in Ontario.

The Water Technology Acceleration Project (WaterTAP) will work with the government to continue showcasing Ontario's water technology sector at trade missions and at more international conferences and tradeshows. This will increase the visibility of Ontario companies and raise the profile of our water sector.

WaterTAP will also work with the government to continue connecting Ontario companies with potential partners overseas by attracting global media coverage and attending international events. In addition, the Ontario Clean Water Agency will work to expand the international recognition it is already receiving from other jurisdictions.

### **3. Creating a Competitive Ontario Advantage:**

To create a competitive advantage, the government will increase collaboration and support innovative financing models. Infrastructure partnerships, strong linkages between stakeholders, and innovative financing options will accelerate the adoption of innovative water solutions in Ontario and the selling of them globally. Support for collaboration will include;

- coordinating Ontario's research networks,
- connecting water operators with solution providers developing innovative technologies, and
- maintaining Ontario's water infrastructure through innovative financing options.

[http://www.watertapontario.com/a/brochures/20130523230443\\_waterstrategyen.pdf](http://www.watertapontario.com/a/brochures/20130523230443_waterstrategyen.pdf)

### **OBJECTIVE 3: IMPROVE MONITORING AND STANDARDIZE DATA REPORTING AMONG STATE AND PROVINCIAL WATER CONSERVATION AND EFFICIENCY PROGRAMS**

To achieve this objective, Ontario has a range of programs that improve monitoring of water supply, use and conservation/ efficiency and standardizing data reporting among state and provinces.

#### **25. Ontario Low Water Response**

The Ontario Low Water Response program provides a framework to coordinate and support local response in the event of a drought. The Ministry of Natural Resources and Forestry maintains the provincial monitoring network, analyzes data to provide early warnings, and coordinates provincial drought response. The Ontario Low Water Response program creates three levels of low water status, based on measureable and escalating low water conditions. Local Water Response Teams may be required to outline contingency measures within the watershed to achieve water use reduction targets of 10 to 20%. Water permit holders may be contacted to help achieve water reduction targets. Increasing water conservation is required as water scarcity increases. The program is currently under review.

<http://www.ontario.ca/environment-and-energy/low-water-response-program>

#### **26. Ontario Surface Water Monitoring**

Ontario collects, monitors and analyzes water flows, levels and climate data to identify areas throughout the province where a potential risk of flood or drought may exist.

<http://www.ontario.ca/environment-and-energy/surface-water-monitoring-centre>

#### **27. Provincial Groundwater Monitoring Network**

The Provincial Groundwater Monitoring Network monitors and reports on ambient groundwater levels and quality in aquifers across Ontario, through a network of over 450 monitoring wells. Rain gauges established at 50 of the monitoring sites provide information on how groundwater levels are responding to precipitation and changing weather patterns. The water level and chemistry data produced under this program support drought response, assessment of permit to take water applications, source water protection activities, and water budget and cumulative impact studies.

<http://www.ontario.ca/environment-and-energy/provincial-groundwater-monitoring-network>

#### **28. Water Use Reporting**

By regulation, every holder of a Permit to Take Water is required to report daily water use for each calendar year prior to March 31 of the following year. These data are used to inform the broad water management programs for the province.

Provincial reporting of withdrawals, consumptive uses and diversions to the Great Lakes Commission's Regional Water Use Database is coordinated by the Ontario Ministry of Natural Resources and Forestry.

<http://www.glc.org/wateruse/database/>

## **29. Spatial Data Infrastructure Unit**

The Spatial Data Infrastructure Unit provides leadership and coordination to capture, create and maintain the province's fundamental mapping data (e.g., roads, water, utilities, wetlands, elevation and aerial imagery) and works to ensure information about Ontario's water resources is available to provincial ministries, municipalities, conservation authorities and others to create maps, conduct geographic analysis and support decisions about the province's water resources. The Ontario Hydrology Network; Ontario Integrated Hydrology; provincial elevation and imagery layers; and enhanced watershed boundaries are all examples of datasets produced by the Spatial Data Infrastructure Unit that can support the implementation of the Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement.

<https://www.ontario.ca/environment-and-energy/topographic-maps>

**30. Ecological Framework for Recreational Fisheries Management in Ontario** Even with its abundant resources, Ontario's fisheries are in high demand by sport fishing and tourist industries, as well as commercial fisheries. Ontario's Fisheries Management Zones have been established to protect and maintain Ontario's high quality fishing opportunities. To enhance public involvement and decision-making in managing and ensuring the sustainability of its recreational fisheries resources, Ontario created complementary Fisheries Management Zone Advisory Councils for each zone. Each of Ontario's four Great Lakes is assigned a council, with a council assigned specifically to the Fisheries Management Zone that encompasses Georgian Bay as well.

In support of the Ecological Framework, the Ministry of Natural Resources and Forestry implemented a broad-scale monitoring program for inland lakes. The broad-scale monitoring program is a long-term effort to monitor the health of Ontario's lakes and their fisheries. The goals of the program are to: describe the distribution of aquatic resources in Ontario lakes; identify stresses on these resources; track trends in indicators of the health of Ontario's fisheries, lake ecosystems and aquatic biodiversity; and assess and report on the status of fisheries in Ontario. A wide range of variables are monitored: fish are netted to determine abundance, sex, length and weight, and to test for contaminants; temperature/oxygen and water quality is analyzed; invasive species are documented; and fishing effort is estimated.

Intensive monitoring occurs on each of the Great Lakes to provide information on the fish communities and fisheries they support. These monitoring programs inform the development of lake-specific Fish Community Objectives and are used to establish allowable harvest levels for fisheries within the lakes.

<http://www.ontario.ca/travel-and-recreation/fishing>

## **31. The Ontario Geological Survey's Groundwater Mapping Initiative**

The Ontario Geological Survey's groundwater mapping initiative contributes to water management initiatives, including the development of GIS-based geological maps / databases, regional (3-D) aquifer mapping in bedrock and surficial sediments, watershed characterization, thematic studies, regional groundwater geochemistry studies, method/protocol and product development.

<http://www.mndm.gov.on.ca/en/mines-and-minerals/geoscience/groundwater>

### **32. Climate Change Modelling and the Weather and Water Information Gateway**

Weather and Water Information Gateway (WWIG) is a directory of standardized weather, and water resource data and information. Based on open standards, it provides long-term access to current and future data sets. It provides data, knowledge and tools to support the development of local capacity. WWIG data helps decision-makers make more informed risk management decisions.

<http://www.ontario.ca/environment-and-energy/climate-change-ecoregions> (Climate Change - ecoregions)

<http://www.ontario.ca/environment-and-energy/climate-change-regions-and-districts> (Climate Change - regions and districts)

<https://www.javacoeapp.lrc.gov.on.ca/geonetwork/srv/en/main.home> (WWIG)

### **33. Stream Water Quality Monitoring and the Multi-Watershed Nutrients Study**

The Provincial Water Quality Monitoring Network measures and reports on stream water quality across Ontario with focussed studies related to agricultural and urban pesticide uses, climate change, drinking water source protection, road salts and mining development. Collected data inform assimilative capacity assessments and decisions regarding water takings and wastewater discharges. The Multi-Watershed Nutrients Study was launched in 2013 to assess the interaction between agricultural land use and nutrient loadings in streams draining to the Great Lakes. The study will inform potential management actions to mitigate nutrient losses from agricultural systems.

<http://www.ontario.ca/environment-and-energy/provincial-stream-water-quality-monitoring-network>

## **OBJECTIVE 4: DEVELOP SCIENCE, TECHNOLOGY AND RESEARCH**

To achieve this objective, Ontario has a range of programs that encourage science, technology and research to implement the best in water, wastewater and stormwater technology.

### **34. Showcasing Water Innovation Fund**

The \$17 million program launched on April 29, 2011 is funding leading-edge, innovative and cost-effective solutions for managing drinking water, wastewater and stormwater systems in Ontario communities. The program was established to complement the Water Opportunities Act, 2010 by advancing integrated and sustainable water management in Ontario communities. Projects include testing new technologies, demonstrating stormwater technologies and approaches, advancing water conservation in new developments, and others. Lessons learned from these innovative projects are being shared across the province.

[www.ontario.ca/waterinnovation](http://www.ontario.ca/waterinnovation)

### **35. Ontario Clean Water Agency**

The Water Opportunities and Water Conservation Act, 2010 enabled the Ontario Clean Water Agency to finance and promote the development, testing, demonstration and commercialization of technologies and services for the treatment and management of water, wastewater and stormwater. The Ontario Clean

Water Agency is a Crown Agency of the province that provides clean water services to municipalities, First Nations communities, institutions and businesses.

[http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_93c23\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_93c23_e.htm)

### **36. Walkerton Clean Water Centre**

The Walkerton Clean Water Centre was established in 2004, as part of the province's response to the Walkerton Inquiry Report. The Centre provides training for drinking water operators across Ontario, with a focus on smaller and remote systems, including those serving First Nations. The Centre's Technology Demonstration Facility, with its leading-edge drinking water technologies, is a platform for hands-on training and research on cost-effective solutions for small drinking water systems. The Centre is also responsible for delivering education, information and advice on water treatment, equipment, technology and operational requirements, and environmental issues related to drinking water, such as a course entitled "Water Conservation" that takes participants through a step-by-step process for developing a water conservation plan.

<https://www.wcwc.ca/en/>

### **37. Innovation Demonstration Fund**

The Innovation Demonstration Fund administered by the Ministry of Research and Innovation focuses on emerging technologies, including environmental, alternative energy, bio-products, hydrogen and other globally significant technologies. The purpose of the Innovation Demonstration Fund is to support pilot-scale technology demonstrations that will lead to the commercialization of processes and/or products in Ontario that are globally competitive, innovative green technologies. Although the program is not currently accepting applications, the program previously announced a special round of funding for water projects that resulted in support being provided to four water technology projects with an investment of \$5.9M.

<http://www.ontario.ca/business-and-economy/funding-clean-tech-projects>

### **38. Green Focus on Innovation and Technology**

To support newly commercialized innovative green technologies, the province introduced the Green Focus on Innovation and Technology. The initiative allows the Government of Ontario to use its buying power to adopt innovative clean technologies, products and solutions and showcase the successful solutions to potential customers in local and global markets. Green Focus on Innovation and Technology provides an opportunity for clean technology companies to accelerate their innovative green technologies to the global marketplace.

<http://www.doingbusiness.mgs.gov.on.ca/mbs/psb/psb.nsf/English/GreenFIT>

### **39. Ontario Research Fund - Research Excellence Water Round**

The Ontario Research Fund Research Excellence Water Round promotes research excellence of strategic value to Ontario by supporting new leading-edge, transformative, and internationally significant research in water and wastewater-related technologies. These solutions include water and wastewater-related

technologies and marketable processes and methods. The government is investing \$8.8 million to support four water research teams in Hamilton, Toronto, and Waterloo.

<http://www.ontario.ca/business-and-economy/ontario-research-fund>

#### **40. Investment Accelerator Fund**

The Investment Accelerator Fund helps accelerate the growth of new technology companies (including companies focused on water conservation technologies) being established in Ontario and positions them for further investment by angels and venture capitalists. The Fund invests up to \$500,000 in companies that have the potential to be global leaders in their field and provide sustainable economic benefits to Ontario.

<http://www.marsdd.com/aboutmars/partners/iaf/>

#### **41. Ministry of Agriculture, Food and Rural Affairs/University of Guelph Partnership Research Program**

The Ministry of Agriculture, Food and Rural Affairs invests in research in seven theme areas through a partnership with the University of Guelph. The Environmental Sustainability (ES) research theme focuses on maintaining the ability of natural resources (soil, air, water and biodiversity) to support and strengthen agriculture, food and bio-product sectors and rural communities by evaluating environmental, economic, and social perspectives. In order to support long-term sustainability of the agri-food sector (agro-ecosystem and food system) and address the concerns of society, the Ministry invests in this research theme to:

- understand the agriculture and food sectors potential risks and benefits to soil, water, air and biodiversity resources;
- provide science for the development of credible and evidence-based government policies, programs and initiatives;
- assess the effect of environmental policies and the natural environment on the agri-environment, agri-food sector economics and rural society; and
- identify opportunities for agriculture, food, and bio-products sectors, and rural communities to provide solutions for societal environmental challenges.

The ES research theme for this year (2014-15) is focused on three main priority areas as given below.

- A. Understanding the drivers and stressors influencing the agri-food system's interaction with the natural environment
- B. Managing effects of the agri-food system using best management practices that consider economic, environmental and social implications
- C. Measuring performance of and prioritizing agri-food system management practices

The above three priorities are built on a systems approach to address ES research needs that support a sustainable agri-food system. The ES research continuum involves linkages between research priority areas and desired outcomes of research to achieve the overall goal of the sustainable agri-food system.

In addition, the theme area of 'Agricultural Policy and Rural Development' is addressing Sustainability and Water Policy in terms of enhanced opportunities for water conservation, as well as understanding impacts of climate change and resilience to rural communities. An underlying premise of the

‘Bioeconomy’ research theme is advancing research into alternative products and approaches to address sustainability and life cycle impacts (e.g. reuse of biodiesel waste water, bio-products to treat waste water.

<http://www.uoguelph.ca/research/omafra/index.shtml>

#### **42. New Directions Research Program**

The purpose of the New Directions Research Program administered by the Ministry of Agriculture, Food and Rural Affairs is to stimulate the sustainable growth and competitiveness of Ontario’s agri-food sector through investment in innovative and high quality research in partnership with industry, rural communities, organizations, other levels of government, and research institutions. The 2014-2015 call for proposal includes climate change impacts and adaptation as a priority research area. One particular focus is the identification and design of landscape assessment criteria, indicators and tools to determine the resiliency, risk or vulnerability and opportunities of an agricultural production area (broader than plot or farm scale) under different climatic conditions.

[http://www.omafra.gov.on.ca/english/research/new\\_directions/overview.htm](http://www.omafra.gov.on.ca/english/research/new_directions/overview.htm)

#### **43. Anishinabek/Ontario Fisheries Resource Centre**

The Anishinabek/Ontario Fisheries Resource Centre was established to serve as an independent source of information on fisheries assessment, conservation, and management, promoting the value of both Western science and Aboriginal knowledge of the land and water. In the past six years, the centre has completed over 150 fisheries projects with First Nations and government agencies across the province, including creel surveys, index netting projects, tagging studies, fish habitat inventories, and synthesis of existing fisheries data for the purpose of formulating resource management plans. This type of information contributes to measuring the success of water conservation and fisheries management efforts.

<http://www.aofrc.org/>

#### **44. Climate Ready: Ontario’s Adaptation Strategy and Action Plan 2011-2014**

Ontario’s adaptation strategy and action plan outlines a framework for action across government, a vision for the four year period and beyond, and includes 37 near term actions.

The plan’s 37 actions to improve Ontario’s resilience include:

- Ensuring source protection plans consider integrating climate change adaptation measures into policies to ensure sources of drinking water are sustainable in the future.
- Releasing an updated Provincial Policy Statement in 2014 which requires that municipalities consider the impacts of a changing climate in infrastructure, electricity generation facilities, transmission and distribution systems, and public service facilities.
- Conserving biodiversity and supporting resiliency by helping ecosystems and species adapt by updating Ontario’s biodiversity strategy.

<http://www.ontario.ca/environment-and-energy/climate-ready-adaptation-strategy-and-action-plan-2011-2014>



#### **45. Water Resource Adaptation and Management Initiative (WRAMI)**

Funded under the Agricultural Flexibility Fund between April 2012 to March 31, 2014, WRAMI provided \$1.5 million in federal-provincial funding to support the capacity of farmers to adapt to severe low water levels under climate change.

On behalf of the government, Farm and Food Care Ontario delivered \$1.2 million of the funding for research and benchmarking studies, demonstration projects and communications/outreach to highlight water conservation/water efficiency technologies. Seventeen water use efficiency projects were funded across various sectors including vineyards, tender fruit orchards and field crops, outdoor container nursery and sod producers.

The remaining funding supported development of guidelines for design modification of agricultural drainage culverts and drainage system networks to adapt to more intensive storms and prolonged low water conditions; and the development of revised Intensity-Duration-Frequency curves to better forecast for the potential of severe storms and impact/capacity of agricultural drainage infrastructure.

<http://farmfoodcare.org/environment/10-farm-food-care/environment/238-wrami>

#### **46. Water Adaptation Management and Quality Initiative (WAMQI)**

Funded under Growing Forward 2, WAMQI is a 14 month (February 2014 –March 2015) \$1.5 million project providing funding for eligible applied research, demonstration and pilot scale projects to raise farmers awareness of new and innovative approaches to address water quality and water quantity issues. This initiative is also being delivered by Farm and Food Care Ontario on behalf of the government.

In contrast to WRAMI, WAMQI will focus on water efficiency demonstration projects but also projects which showcase the efficient use of nutrients and effective nutrient management related to water quality.

Similar to WRAMI, WAMQI provides funding to projects considered by the commodity association to have broad application to producers within each commodity group. Under WAMQI, 28 projects are being funded across various sectors including greenhouse, outdoor container nursery, field crops, dairy, tender fruit and vineyards, and floriculture sectors.

<http://farmfoodcare.org/environment/wamqi>



## **OBJECTIVE 5: DEVELOP EDUCATION PROGRAMS AND INFORMATION SHARING FOR ALL WATER USERS**

To achieve this objective, Ontario has a range of education programs and other programs that raise awareness of the importance of water and the value of conservation, efficiency and cost-saving, and to share best management practices.

### **47. Ontario Drinking Water Stewardship Program**

The Ontario Drinking Water Stewardship Program was established under the Clean Water Act, 2006 to provide financial assistance to help communities take voluntary actions to protect local sources of municipal drinking water. The investment of \$24.5 million provided cost-share funding to deliver local financial assistance to landowners, farmers, municipalities and businesses who implemented voluntary measures to help protect municipal drinking water sources. To date, the program has supported the implementation of over 3,000 on-the-ground projects across the province.

### **48. Water Efficiency Labelling**

The Ontario Ministry of the Environment has a promotional partnership agreement with the U.S. Environmental Protection Agency to be part of their WaterSense Program, a water efficiency labelling program for products such as showerheads, faucets, toilets, and pre-rinse spray valves. As a promotional partner, Ontario can share information about the program and promote WaterSense. The WaterSense label lets consumers know they are buying products tested and proven to use 20 per cent less water, and will make it easier for Ontarians to make green choices everyday. WaterSense also gives tips for saving water around the house. Ontario-based manufacturers can get their water efficient products certified and promoted under the program. Retailers, municipalities and other organizations in Ontario can also participate in WaterSense and help promote the label. More information is available at:

<http://www.epa.gov/watersense>.

### **49. Best Management Practices**

For the agricultural sector, the Ministry of Agriculture, Food and Rural Affairs provide a number of fact sheets and over 25 guides on best management practices. This series offers proven, practical and affordable approaches to conserving soil, water and other natural resources in agricultural and rural areas. In particular, three books, Irrigation Management, Water Management and Cropland Drainage address, among other things, efficient use of water / water conservation, (e.g. water efficient irrigation systems and staggered irrigation schedules, water quality tile drainage installation, maintenance and outlet protection for erosion control and subsurface drainage whereby water use may be conserved).

For the municipal sector, the Ministry of the Environment and Climate Change provided funding to the Ontario Water Works Association to prepare “Water Efficiency: Best Management Practice” as well as “Outdoor Water Use Reduction Manual” and associated seminars, with order information available at:

[http://www.owwa.ca/wp-content/uploads/2012/12/Water\\_Efficiency\\_Order\\_Form\\_revised.pdf](http://www.owwa.ca/wp-content/uploads/2012/12/Water_Efficiency_Order_Form_revised.pdf)

### **50. Canada-Ontario Environmental Farm Plan Program**

The Ontario Ministry of Agriculture, Food and Rural Affairs, in partnership with Agriculture and Agri-food Canada supports the development and delivery of the Canada-Ontario Environmental Farm

Plan program. The Environmental Farm Plan (EFP) is a confidential, voluntary self-assessment farmers undertake to review potential environmental risks associated with their farm operations. Farmers attend an EFP educational workshop, complete a review of their operation, and develop an individualized Action Plan to address identified concerns. Action Plans may be submitted for independent review to verify appropriateness of the actions proposed for mitigating identified areas of risk. The EFP promotes water conservation and water efficiency, raising farmers' awareness of legislative requirements, and best practices.

Participation in EFP and completion of a reviewed plan are strongly encouraged prior to a producer applying for cost-share funding under the Growing Forward 2 - Implementation Funding Assistance program. The Implementation Funding Assistance program supports a range of best management practices projects categories including irrigation water efficiency improvements.

Funding support for both programs is currently provided by the Ministry of Agriculture, Food and Rural Affairs and Agriculture and Agri-Food Canada under the federal-provincial Growing Forward 2 Agricultural Policy Framework Agreement. Both programs are delivered locally to farmers, on behalf of government, by the Ontario Soil and Crop Improvement Association and the Ontario Farm Environmental Coalition.

<http://www.omafra.gov.on.ca/english/environment/efp/efp.htm>

## **51. Species at Risk Stewardship Fund**

The Species at Risk Stewardship Fund is a Ministry of Natural Resources and Forestry funding program to encourage and support the recovery and protection of species at risk and their habitats through stewardship activities. Since 2007, Ontario has supported over 700 projects through the fund. The fund is open to individuals and groups across the province including landowners, farmers, Aboriginal peoples, academic and research institutions, conservation organizations, industries, municipalities, and others who undertake eligible protection and recovery activities. Eligible aquatic-related activities could include inventory, monitoring or outreach work around aquatic species at risk, enhancing and protecting aquatic habitat of species at risk or the development and implementation of Best Management Practices to help avoid or mitigate threats to species such as Lake Sturgeon or American Eel.

<http://www.ontario.ca/environment-and-energy/species-risk-stewardship-fund>

## **52. Invading Species Awareness Program**

The province-wide Invading Species Awareness Program has been a joint partnership initiative of the Ministry of Natural Resources and Forestry and the Ontario Federation Anglers and Hunters since 1992. The program focuses on education and outreach as well as programs designed to monitor the occurrence and distribution of invasive species. The Invading Species Awareness Program has involved over 300 partners. The program has worked with partners to develop an invasive species online and mobile App ([www.eddmaps.org/Ontario](http://www.eddmaps.org/Ontario)) which will serve as a key prevention tool helping Ontario to detect and track the spread of invasive species.

<http://www.invadingspecies.com/>

### **53. Land Stewardship and Habitat Restoration Program**

The Land Stewardship and Habitat Restoration Program (LSHRP) is a competitive funding program through which the Ministry of Natural Resources and Forestry supports on-the-ground restoration and enhancement projects that benefit fish, wildlife and biodiversity. The fund is open to incorporated organizations across Ontario, including Aboriginal communities or organizations, conservation organizations, businesses, municipal governments and non-government organizations. Since its launch in 2013, the LSHRP has funded a variety of aquatic-related projects, including stream restoration, riparian plantings, fencing to exclude livestock from lakes and waterways, invasive species control, wetland creation, and fish habitat restoration. The Ministry allocates \$300,000 to the fund annually to meet these biodiversity conservation objectives. Successful applicants are eligible for funding of up to \$20,000 per project, with a 1:1 match funding requirement.

In its first year, the LSHRP fund helped to improve, restore or create over 1,110 hectares of area, supported plantings of over 29,000 trees and shrubs, and leveraged over \$1.2M in project partner funding.

[www.ontario.ca/lshrp](http://www.ontario.ca/lshrp)

### **54. Eastern Habitat Joint Venture**

The Eastern Habitat Joint Venture (EHJV) is a collaborative partnership working together to conserve wetlands and other habitats that are important to waterfowl and other migratory birds. Since 1986, the EHJV has helped to implement habitat conservation programs that support continental waterfowl objectives identified under the North American Waterfowl Management Plan (NAWMP). The Joint Venture also supports the mission of the North American Bird Conservation Initiative (NABCI), an inter-governmental and inter-agency initiative to conserve all native birds and the habitats that support them.

The EHJV, one of 20 Joint Ventures in North America, spans the six eastern-most Canadian provinces: Ontario, Québec, New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland and Labrador. Ontario EHJV partners include the Government of Canada (Environment Canada – Canadian Wildlife Service), the Government of Ontario (Ministry of Natural Resources and Forestry, Ministry of Agriculture, Food and Rural Affairs), Ducks Unlimited Canada, the Nature Conservancy of Canada, Bird Studies Canada, and Long Point Waterfowl. The Ministry of Natural Resources and Forestry has provided financial support for wetland conservation by Ontario EHJV partners since 1994.

<http://www.ehiv.ca/>

### **55. Ontario Parks Water Conservation Initiatives**

Ontario Parks is responsible for the operation and protection of over 330 parks, covering 8.2 million hectares that attract an average of 8.6 million visits each year. Over the last few years, Ontario Parks has undertaken a number of initiatives to conserve water use within parks and to more efficiently treat grey water. Initiatives include the use of low-flow fixtures in park washrooms, variable frequency driven distribution pumps, use of low-power hand dryers, solar hot water assist systems and on-demand water heaters to reduce reliance on hydroelectric power, cold water meters in new buildings to monitor water usage, use of polyethylene piping in water distribution systems to reduce leakage, and a future pilot grey water treatment and reuse system at a comfort station as a potential tool for adaptation to future climate change water resource impacts.

[www.ontarioparks.com](http://www.ontarioparks.com)