December 19, 2019

Province of Ontario
Ontario Water Management Program Report

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, Conservation and Parks (MECP) 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 – St. Lawrence River Basin Sustainable Water Resources Agreement* (Agreement). MECP is responsible for water quality management and for the Permit to Take Water and the Water Taking Registration Programs.

Key Contacts:

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Ontario Ministry of Natural Resources and Forestry

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Great Lakes and Inland Waters Branch
Ontario Ministry of the Environment, Conservation and Parks

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

The commitments of the Agreement are implemented in Ontario primarily through 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.

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).	☑ Ban on diversions out of Ontario's major water basins, including the Great Lakes Basin (OWRA s. 34.3). ☑ Regulation of intra-basin transfers (OWRA s. 34.5-34.11; O. Reg 387/04).	☑ *Environmental Assessment Act* - Technical Bulletin provides guidance for municipalities undertaking water, wastewater projects to meet Agreement

Agreement Commitments (Articles)	Ontario Water Resources Act, Water Taking and Transfer Regulation (O. Reg. 387/04)	Additional Legislation, Regulation, Policy
	☑ Environmental Compliance Approvals required for sewage works (return flow) (OWRA s. 53).	standards, criteria for class EA projects involving an intra-basin transfer. ☑ *Lakes and Rivers Improvement Act* – regulation of works forwarding, holding back, diverting water (location, design approval). ☑ Quality of return flow/effluent regulated under *Environmental Protection Act, Clean Water Act, Environmental Assessment Act,* Provincial Water Quality Objectives. ☑ *Clean Water Act* provides for the completion of water quality and quantity risk assessments, water budgets.
Regional review of significant diversion exceptions (Article 204).	☑ Regional review for significant intra-basin transfers (OWRA s. 34.6, 34.1).	☑ *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).	☑ Permitting criteria reflect Agreement Decision Making Standard (OWRA s. 34; O. Reg. 387/04). ☑ Environmental Compliance Approvals required for sewage works (return flow) (OWRA s. 53).	☑ Quality of return flow/effluent regulated under *Environmental Protection Act, Clean Water Act, Environmental Assessment Act*, Provincial Water Quality Objectives. ☑ *Clean Water Act* provides for the completion of water quality and quantity risk assessments, water budgets. ☑ Provincial Policy Statement and Provincial Plans under the Planning Act provide 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).	☑ Prior Notice and Comment required for significant consumptive uses by regulation (s. 6; O. Reg. 387/04).	☑ *Environmental Assessment Act* - Technical Bulletin provides guidance for municipalities undertaking water, wastewater projects to meet Agreement requirements for class EA projects. ☑ 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, 208).	☑ Exemptions from permitting for: livestock watering, household use, unless a new or increased transfer is established; wetland conservation; a weir that was constructed prior to March 29, 2016; and passive and/or active in-stream diversions for construction purposes (OWRA s. 34). ☑ Exceptions to Ontario ban on diversions/ transfers out of major water basins (OWRA s. 34.3). ☑ Regulation of bottled water under PTTW program, restriction of highly consumptive uses in defined high use watersheds (O. Reg.387/04).	☑ As of March 29, 2016, water takings (road construction and construction site dewatering) that meet the criteria in O. Reg. 63/16 under the Environmental Protection Act must be registered in the Environmental Activity and Sector Registry instead of requiring a Permit to Take Water.

Agreement Commitments (Articles)	Ontario Water Resources Act, Water Taking and Transfer Regulation (O. Reg. 387/04)	Additional Legislation, Regulation, Policy
	☑ Setting of a baseline (OWRA s. 34.8; O. Reg. 387/04).	
Review, possible amendment of standards based on periodic cumulative impact assessments (Article 209).	☑ Posting of cumulative impact assessments for public input, ON government response (OWRA s. 34.6).	
Judicial Review (standing to other Parties to seek judicial review of Ontario decision under Agreement) (Articled 210).	☑ Reciprocating jurisdictions entitled to hearing of Environmental Review Tribunal with respect to specified decisions (OWRA s. 34.9-34.10, O. Reg 387/04). ☑ 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).	☑ 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).	☑ Water conservation among the criteria considered in making decisions on a Permit to Take Water (OWRA O. Reg. 387/04). ☑ Permit application requires applicant to identify existing conservation measures. ☑ Annual Conservation Program Assessment, 5-year program reviews submitted voluntarily.	☑ *Water Opportunities Act*, 2010 sets out a framework for water efficiency, conservation (e.g. Building Code requires regular review of water conservation standards, expand scope of Building Code Conservation Advisory Council). ☑ Ontario Water Conservation and Efficiency Goals, Objectives completed 2012. ☑ 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).	☑ O. Reg 387/04 requires annual reporting of water use by permit holders. ☑ O. Reg. 63/16 under the Environmental Protection Act requires annual reporting of water takings for road construction and construction site dewatering purposes registered in the Environmental Activity and Sector Registry.	

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 MECP. 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 MECP 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 came into force on of January 1, 2015.

- *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
- *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

The *Water Taking and Transfer Regulation* under the OWRA outlines matters that the MECP must consider when deciding upon an application for a Permit to Take Water. This regulation operationalizes key Agreement commitments (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

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 MNRF, 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
- Ontario Regulation 454/96 (Construction): www.e-laws.gov.on.ca/html/regs/english/elaws_regs_960454_e.htm

The Clean Water Act, 2006, administered by the MECP, 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

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, Conservation and Parks 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.0. 1990, Chapter E.18 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

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
- *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

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 restore, protect and conserve the Great Lakes. Since 1971, a series of COAs have enabled both governments, together with local partners, to address the most significant challenges facing the Great Lakes region. The current COA was signed in 2014 and supports Ontario's implementation of the Great Lakes Strategy and Canada's commitments under the 2012 Canada-U.S. Great Lakes Water Quality Agreement. The current COA is comprised of a framework agreement and 14 annexes: nutrients; harmful pollutants; discharges from vessels; areas of concern; lakewide management; aquatic invasive species; habitat and species; groundwater quality; climate change

impacts; science; promoting innovation; and engaging communities, First Nations and Métis. The current COA expires in December 2019 and a new COA is being negotiated between Canada and Ontario. If a new COA is not yet in place when the current COA expires, Canada and Ontario are committed to continuing collaborative work on Great Lakes restoration while a new COA is finalized.

- *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

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, as well as designated provincial plans including the Growth Plan for the Greater Golden Horseshoe.

A Place to Grow: Growth Plan for the Greater Golden Horseshoe, represents the province's long-term vision for managing the rapid growth that is forecast for this region to 2041. The Plan contains requirements for watershed planning to inform land use, water and wastewater master plans with consideration for the context of applicable inter-provincial, national, bi-national or state-provincial Great Lakes Basin agreements, the identification of water resource systems and the protection of key hydrologic features and key hydrologic areas, and policies for evaluation of water availability and assimilative capacity needed to service current and forecasted growth.

- *Provincial Policy Statement*
  http://www.mah.gov.on.ca/AssetFactory.aspx?did=10463
- *A Place to Grow: Growth Plan for the Greater Golden Horseshoe*
  https://www.ontario.ca/document/place-grow-growth-plan-greater-golden-horseshoe

Water Management (1994, update 1998) establishes the Policies, Guidelines and Provincial Water Quality Objectives of the MECP and is based on the guiding principles related to the protection, preservation, and sustainability of the province's water resources for future generations. 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/page/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. As required under the *Great Lakes Protection Act*, Ontario is currently reviewing its 2012 Great Lakes Strategy and working on a renewed Strategy to address Ontario's priorities for protecting the Great Lakes.

- *Ontario's Great Lakes Strategy*, 2012
  https://www.ontario.ca/page/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 MECP 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. In 2016 the Water Taking and Transfer Regulation was amended also to exempt water

takings for wetland conservation, a weir that was constructed prior to March 29, 2016 and passive and/or active in-stream diversions for construction purposes from the requirement to obtain a Permit to Take Water.

Also in 2016, the government passed Ontario Regulation 63/16, Registrations under Part II.2 of the Act – Water Taking, under the Environmental Protection Act, requiring that as of March 29, 2016, water takings (for road construction and construction site dewatering purposes) that meet the criteria in the regulation must be registered in the Environmental Activity and Sector Registry (EASR) instead of requiring a permit to take water. The EASR is an online self-registration system implemented by the Ministry. The following water takings are prescribed activities under Ontario Regulation 63/16:

- surface water takings that are more than 50,000 L/day and are for road construction purposes that meet specified criteria about the purpose, rate or location of the water taking; and
- construction site dewatering involving more than 50,000 L/day and less than 400,000 L/day.

Restriction:

- The taking of water must not involve transferring water out of the Great Lakes – St. Lawrence River Basin, the Nelson River Basin, or the Hudson Bay Basin, or transferring water from one Great Lake watershed to another.
- The volume of water taken daily shall be reported to the Ministry on or before March 31 in each year, for each location from which water was taken in the previous calendar year. If no water is taken, then a "no taking" report must be entered. The water takings shall be reported online through the Regulatory Self-Reporting System (RSRS).

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 MNRF.

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 Registry of Ontario 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 (EASR's are reported in the Regulatory Self Reporting System, PTTW will be transferring to the new 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 R*egulation 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 an MNRF 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. Therefore, 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 is integrated into Permit to Take Water decision-making through the *Ontario Water Resources Act* in 2007 which includes a 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, Conservation and Parks (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:

<table>
<tr><td>19+ MLD
Consumptive Use</td><td colspan="2">• Meets exception criteria, including return flow to source GL watershed.
• No feasible alternatives to transfer, including conservation.
• Proposal undergoes Regional Review & the Minister considers the Declaration of Finding by Regional Body before making a decision.</td></tr>
<tr><td>379,000+ L/Day
(Consumptive Use less than 19 MLD)</td><td>Municipal Drinking Water Systems:
• Meets exception criteria, including return flow to source Great Lake watershed</td><td>All Uses (including Municipal Drinking Water Systems if return flow to source watershed cannot be met):
• Meets exception criteria, 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.
• No feasible, environmentally sound, cost effective alternatives to transfer, including conservation.
• Ontario gives prior notice to other Parties to the Agreement.</td></tr>
<tr><td>50,000 L/Day to 379,000 L/Day</td><td colspan="2">• Subject to Permit to Take Water requirements; not prohibited.</td></tr>
</table>

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 an MNRF 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 sector-specific management requirements are noted.

Sector	Description	Management
ALL Sectors		• **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 per day or more is proposed),firefighting purposes, wetland conservation, a weir that was constructed prior to March 29, 2016 and passive and/or active in-stream diversions for construction purposes.**
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,	• Highly consumptive water uses are restricted in defined “high use watersheds”. This restriction applies to bottled water. • Bottled water transported in containers 20 litres or less are exempt from the prohibition of water transfers

	mall/business; snowmaking	• On December 16, 2016, Ontario passed Ontario Regulation 436/16 to implement a moratorium on every new or expanding water bottling facility that takes groundwater and is required to have a water taking permit under the Ontario Water Resources Act, until January 1, 2019. On December 21, 2018, Ontario extended the moratorium on new or expanded permits to take groundwater to produce bottled water for one year, until January 1, 2020. The province proposed to extend this moratorium for nine months, ending October 1, 2020, to give the ministry time to complete its analysis of the water quantity review and to publicly consult on and finalize changes to how we manage water takings before the moratorium ends. This way, we can be confident our programs, policies and science protect vital water resources while keeping Ontario open for business. Our proposal to extend the moratorium was made available for comment on the Environmental Registry from November 18 to December 18, 2019. • In April 2017, the Ministry released new stricter requirements for renewals of existing bottled water permits to take groundwater, available at http://www.downloads.ene.gov.on.ca/envision/env_reg/er/documents/2017/012-9151_d.pdf The new rules strengthen Ontario's permit to take water program by increasing public reporting and transparency and enhancing scientific requirements. • Effective August 1, 2017, water bottling companies that take groundwater and are required to have a permit under the Ontario Water Resources Act must pay a new additional fee of $500 per million litres.
Construction	Dredging, road building, dewatering	• As of March 29, 2016, water takings (road construction and construction site dewatering) that meet the criteria in O. Reg. 63/16 under the Environmental Protection Act must be registered in the Environmental Activity and Sector Registry instead of requiring a Permit to Take Water.
Dewatering	Pits and quarries	
Industrial	Aggregate washing, brewing/soft drinks, cooling water, food processing, manufacturing; pipeline testing; power generation	• 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).
Recreation	Aesthetic, fish pond	
Remediation	Groundwater	
Water Supply	Campground, communal, municipal	
Miscellaneous	Dam/reservoir, heat pump, pump test	
Each sector has the option of identifying 'other', with a requirement to specify use		

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.

Classification Criteria for Categories for Groundwater and Surface Water Takings	
Groundwater	**Surface Water**
Category 1	**Category 1**
Renewal (same or lesser amount, same purpose, same location, same source, no past interference/ impacts, and no scientific study required as part of renewal).	**Renewal** (same or lesser amount, same purpose, same location, same source, no past interference/ impacts, and no scientific study required as part of renewal).
Ponds (e.g. irrigation and agriculture) • Not connected to nor receiving water from surface water; and • <4m deep and >1000m from the nearest stream or wetland; or • <7m deep and >250m from the nearest stream or wetland.	**Ponds** <1,500 cubic metres in volume that collect runoff and that are not drawing from groundwater, watercourses, wetlands, other lakes or ponds.
	Great Lakes or connecting channel takings <1,000,000 litres/day.
Category 2	**Category 2**
Short-term, non-recurring taking less than 7 days (e.g. pumping test or hydrostatic test).	**Great Lakes** or connecting channels taking less than 19 million litres per day.
	Takings from sources with previous assessments (i.e. further to a previous study and implementing previously established controls).
	River and Streams (3rd order or higher order) taking ,5% of $7Q_{20.}$
	Transitional Permits where the Director previously required upgrades/modifications to water taking.
	Takings and Returns 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).
	Lakes and Ponds 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.
Category 3	**Category 3**
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 1st or 2nd 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. An interactive map of registrations on the Environmental Activity and Sector Registry can be found at:
https://www.accessenvironment.ene.gov.on.ca/AEWeb/ae/GoSearch.action?search=basic&lang=en.

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 through the Permit to Take Water Program under the *Ontario Water Resources Act*.

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 a 2009 Technical Bulletin further guides municipalities in meeting 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	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). The criteria which form the foundation for issuing permits to take water in Ontario (which are enshrined in the Water Taking and Transfer Regulation O. Reg 387/04) (s.4) meet the Decision-Making Standard criteria of the Agreement (Article 203) and ensure compliance with the Prior Notice provisions (Article 205) of the Agreement for new or increased consumptive uses 19 million litres (5 million U.S. gallons) per day or more (s. 6). The OWRA also provides 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.
1. Return flow to source watershed	OWRA requires separate Environmental Compliance Approval (ECA) for wastewater discharge. 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 MECP may consider issues related to return flow (quality, location) when reviewing and issuing permits. 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). 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.

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	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). 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. PTTW Directors may also impose terms and conditions related to mitigating adverse impacts related to the water taking. PTTW Manual: Consideration of cumulative impacts of water takings is a principle of the PTTW program & 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. In addition to regulation-making authority, the OWRA (s. 34.1 (9), (10) provides 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.
3. Conservation measures	The regulation requires the permitting Director to consider whether water conservation is, or will be implemented, based on best management standards & practices of the sector (s. 4(2), par. 3i). Director may set terms and conditions on a permit requiring implementation of conservation measures. In addition to regulation-making authority, the OWRA (s. 34.1 (9) provides 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.
4. Compliance with applicable laws, agreements, treaties	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*). 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). The regulation also 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). The regulation also requires 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.
5. Reasonable use, with consideration of:	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.*"

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)
a. Planned to provide for efficient use b. Efficient use of existing supply c. Balance between economic, social development, environmental, protection d. Supply potential of water source (quantity, quality, reliability, safe yield) e. Degree, duration of any adverse impacts & their avoidance/mitigation f. Restoration of hydrologic conditions, functions of source watershed	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), 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. 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. The regulation includes 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.

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	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). 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 out of the Great Lakes – St. Lawrence River Basin. 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), and provides authority to make regulations to support these provisions The regulation provides 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). 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, Conservation and Parks, 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).

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	The regulation requires the permitting Director to consider whether water conservation is being implemented, based on best management standards & practices of the sector. (s. 4(2), par. 3i). Director may set terms and conditions on a permit requiring implementation of conservation measures. Exception Standard criteria explicitly referenced in OWRA s. 34.6(3) for new or increased intra-basin transfers 379,000 litres/day or more. The OWRA (s.34.7) provides 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).
2. Limited to reasonable quantities for proposed purpose	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. The PTTW Manual provides further guidance in the balancing of these interests. Exception Standard criteria explicitly referenced in OWRA s. 34.6(3) for new or increased intra-basin transfers 379,000 litres/day or more. The OWRA (s. 34.7) provides 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).
3. Return flow to source watershed (no water from outside basin except if part of combined system, treated to prevent invasive species)	OWRA requires separate Environmental Compliance Approval (ECA) for wastewater discharge. 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). Exception Standard criteria explicitly referenced in OWRA s. 34.6(3) for new or increased intra-basin transfers 379,000 litres/day or more. The OWRA (s.34.7) also provides 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). The regulation also includes consideration of issues related to the return of water after use to the matters considered by a permitting Director.
4. No significant adverse impacts	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). 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". 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 conservation of transferred water, monitoring and reporting).

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)
	PTTW Manual: Consideration of cumulative impacts of water takings is a principle of the PTTW program & 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. Exception Standard criteria explicitly referenced in OWRA s. 34.6(3) for new or increased intra-basin transfers 379,000 litres/day or more.
5. Conservation measures	The regulation requires the permitting Director to consider whether water conservation is, or will be implemented, based on best management standards & practices of the sector (s. 4(2), par. 3i). 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). Exception Standard criteria explicitly referenced in OWRA s. 34.6(3) for new or increased intra-basin transfers 379,000 litres/day or more.
6. Compliance with applicable laws, agreements, treaties	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*). 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). 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.
7. All applicable criteria	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). The Act also provides authority to make regulations to support these provisions. The regulation further supports 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). The OWRA (s. 34.7) provides 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).

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

Annual Submission to Great Lakes Regional Water Use Database
(https://waterusedata.glc.org/)
Provincial reporting of aggregated annual withdrawals, consumptive uses and diversions to the Great Lakes Commission's *Regional Water Use Database* is coordinated by the MNRF with the support of the MECP.

To estimate water withdrawals and consumptive use in its annual data submissions, Ontario incorporates aggregated annual water withdrawal information primarily obtained from its Permit to Take Water program (see next section for more information). Estimates of consumptive water use are based on a comprehensive set of 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.

Water User Reporting under the *Registrations under Part II.2 of the Environmental Protection Act*

By regulation, registrants are required to report daily water taking amounts. Prior to March 31 of the following year, registrants are required to submit daily water taking volumes, electronically to the provincial Regulatory Self Reporting System (RSRS) which is accessed through the same online account used to create an EASR. The RSRS database houses reported actual volumes of water taken by all registered water takers in the province.

In addition, active EASR's can be found through Access Environment, a map-based at https://www.accessenvironment.ene.gov.on.ca/AEWeb/ae/GoSearch.action?search=basic&lang=en.

Note: The MECP is transiting PTTW to the electronic platform this is currently being used for EASR's. PTTW's that are processed through the electronic system will be required to report to RSRS and if approved the permission will be accessible to the public through Access Environment. There is currently no plan to phase out paper-based PTTW applications, as such if approved the paper-based permissions will continue to report to WTRS and the permit information will continue to be housed in the publicly accessible Permit to Take Water Database.

5. Ontario's Provincial withdrawal application documents

As part of the Permit to Take Water program, Ontario's *Application for Permit to Take Water* (May 2017) collects information from applicants under the authority of the *Ontario Water Resources Act*, the *Environmental Bill of Rights Act* and is used by the Province to evaluate applications under Section 34 of the Act (Water Taking). The application can be found at: http://www.forms.ssb.gov.on.ca/mbs/ssb/forms/ssbforms.nsf/ODAGetFormDetail?openagent&lang=E&env=ODA&NO=012-2167E

Assistance is provided to applicants in completing the Application Form through local Regional Offices of the MECP, along with a published *Guide to Permit to Take Water Application Form* found at: https://www.ontario.ca/page/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/page/permits-take-water

Links to related policies and manuals supporting permit to take water applicants, Environmental Activity Sector Registrants, 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) Application guide: Permit to Take Water: https://www.ontario.ca/page/guide-permit-take-water-application-form
c) *Technical Guidance Document for Surface Water Studies in Support of Category 3 Applications for Permit to Take Water* (April 2008): https://www.ontario.ca/page/technical-guidance-document-surface-water-studies-support-category-3-applications
   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).
d) *Technical Guidance Document for Hydrogeological Studies in Support of Category 3 Applications for Permit to Take Water* (April 2008): https://www.ontario.ca/page/technical-guidance-document-hydrogeological-studies-support-category-3-applications
   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).
e) *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*.

f) *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.

g) 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.

h) Water taking user guide for environmental activity and sector registry: https://www.ontario.ca/page/water-taking-user-guide-environmental-activity-and-sector-registry

i) Water taking and transfer user guide: clarifications and exemptions: https://www.ontario.ca/page/water-taking-and-transfer-user-guide-clarifications-and-exemptions

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** (MNRF):
The MNRF administers the bi-lateral 'Canada-Ontario Agreement on Hydrometric Monitoring' which funds stream flow monitoring infrastructure, technology and data collection protocols on behalf of the province. The MNRF collects, monitors, and analyzes stream flow and climate data through a provincial network of over 650 stations. This information is used to provide early warnings for flooding and drought/low water to identify locations throughout the province where potential risks may exist. The mandate for this work is founded in Lieutenant Governor Order-in-Council under the *Emergency Management and Civil Protection Act* for the purposes of emergency planning and public safety. Additionally, this information supports a broad spectrum of water related decision-making for the management, use and sharing of water resources.

- http://ontario.ca/page/surface-water-monitoring
  http://www.ontario.ca/law-and-safety/flood-forecasting-and-warning-program

Aquatic Research and Monitoring (MNRF):
The MNRF 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: examining flow and thermal regimes of Ontario's rivers and physical and ecological effects of alteration; investigating variability and change in water balance components of Great Lakes tributaries in response to land and water use and climate change, including changes to snow accumulation and melt; developing an aquatic ecosystem classification system;

and developing and providing software tools for practitioners to examine and assess change in flow and thermal regimes of rivers and the water balances of watersheds.

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

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

- https://www.ontario.ca/page/canada-ontario-great-lakes-agreement

The **International Joint Commission (IJC) under the Boundary Waters Treaty** carries out **periodic science-based studies** in boundary waters along Ontario's borders. The MNRF and the MECP participate as stakeholders in aspects of studies involving the IJC's review of its regulation of water levels and flows and associated water-related natural hazards and alterations along shorelines, hydroclimate, water use, and ecosystem impacts.

Mapping and Geomatics Services (MNRF):
The Mapping and Geomatics Services Section provides leadership and coordination to capture, create and maintain the province's foundation geospatial 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 Mapping and Geomatics Services Section that can support the implementation of the Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement.

Mapping and Geomatics Services Section has developed the **Ontario Flow Assessment Tool** (OFAT) to allow water professionals in the public and private sectors and academia to analyze and understand water flow. The application allows for watersheds to be generated, characterized and flows estimated for any location in Ontario. Statistics and mapping from OFAT can be used for applications such as water permitting, water use reporting and water quantity assessment.

- https://www.ontario.ca/page/land-information-ontario
- https://www.ontario.ca/environment-and-energy/topographic-maps
- https://www.ontario.ca/page/watershed-flow-assessment-tool

The ***Conservation Authorities Act*** (MECP), provides a statutory framework for establishing and governing conservation authorities. The objects of conservation authorities are to provide programs and services in their jurisdiction to further the conservation, restoration, development and management of natural resources. Ontario's 36 conservation authorities were created at the request of municipalities and are governed by municipally appointed representatives to deliver local resource management programs at a watershed scale for both provincial and municipal interests.

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 undertake provincial mandated programs and services for example related to the risks of natural hazards. Conservation authorities are currently 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, the Provincial Groundwater Monitoring Network, and the Provincial Water Quality Monitoring Network.

The ***Clean Water Act*** (MECP) provides for a **source water protection program and local source water protection planning**. The MNRF with the MECP 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: https://www.ontario.ca/page/source-protection
- Water Quantity Solutions in Ontario: http://www.waterbudget.ca/

Ontario's Provincial Groundwater Monitoring Network (MECP) 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

The **Ministry of Natural Resources and Forestry** integrates climate adaptation and mitigation into natural resource management across the ministry and with their partners by leading strategic projects in advance and incorporate climate considerations into policy, developing and communicating information and resources to support policy and science, and coordinating MNRF actions within broader provincial climate priorities. This includes support to aquatic and terrestrial research and adaptation initiatives in the Great Lakes basin and beyond. Recent projects that support the implementation of the Agreement include modelling the relative risks of aquatic invasive species establishing and spreading in the Great Lakes under future climate change scenarios, assessing the vulnerability of species to climate change in the Ontario Great Lakes Basin, modelling temperatures in streams throughout the Great Lakes Basin and associated impacts on cold and cool-water species and continued enhancements to climate modelling and monitoring capacity.

Ontario Geological Survey (Ministry of Northern Development and Mines) implements a **groundwater mapping program** that contributes geoscience data and information to water management initiatives, including the development of GIS-based geological maps/databases,

groundwater vulnerability maps, regional (3-D) aquifer subsurface mapping in bedrock and surficial sediments, karst mapping, watershed characterization, thematic studies, regional groundwater geochemistry studies, method/protocol and product development.

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

7. Additional Information

N/A

December 19, 2019

Province of Ontario
Water Conservation and Efficiency Program Report

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. Lead agency and contact person:

Ala Boyd, Director
Natural Resources Conservation Policy Branch
Ontario Ministry of Natural Resources and Forestry

2. 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, Indigenous engagement, and public comments received.

Ontario adopted the water conservation and efficiency goals as set out in the Agreement and developed objectives consistent with the regional objectives adopted for the Basin that are tailored for Ontario to reflect the direction in the Water Opportunities and Water Conservation Act, 2010, and to address stakeholder and Indigenous community 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

3. 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 several Ontario ministries, as well as local governments and other organizations. 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.

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. 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.

The *Water Opportunities and Water Conservation Act*, 2010 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.

4. 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. The programs (statutes, programs and policies) below may link to more than one objective. See Table 1 and Appendix A.

Table 1: Regional Objectives and Ontario's Water Conservation and Efficiency Program

REGIONAL OBJECTIVES	LEGISLATIVE OR PROGRAM CITATION
1) Guide programs toward long-term sustainable water use and management.	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 budgets to estimate surface and groundwater supplies, water use and water quantity risk assessments, and action to protect the Great Lakes. 1. Ontario's Environment Plan

REGIONAL OBJECTIVES	LEGISLATIVE OR PROGRAM CITATION
	2. *Ontario Water Resources Act* and Water Management: Policies, Guidelines, Provincial Water Quality Objectives 3. *Ontario Water Resources Act* and Regulations 4. *Clean Water Act, 2006* 5. *Conservation Authorities Act, 1990* 6. *Lakes and Rivers Improvement Act, 1990*
2) Adopt and implement supply and demand management to promote efficient use and conservation of water resources.	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. 7. *Water Opportunities and Water Conservation Act*, 2010 8. Financial Plans Regulation under the *Safe Drinking Water Act*, 2002 9. *Building Code Act*, 1992 and the Building Code 10. *Electricity Act, 1998* 11. *Oak Ridges Moraine Conservation Act*, 2001 and Plan 12. *Places to Grow Act*, 2005 and Growth Plans 13. *Planning Act* and Provincial Policy Statement, 2014 14. Municipal Stormwater Management Systems 15. Ontario's Water Sector Strategy
3) Improve monitoring and standardize data reporting among State and Provincial water conservation and efficiency programs.	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. 16. Ontario Low Water Response 17. Ontario Surface Water Monitoring 18. Provincial Groundwater Monitoring Network 19. Water Use Reporting 20. Mapping and Geomatics Services Section 21. The Ontario Geological Survey's Groundwater Mapping Initiative

REGIONAL OBJECTIVES	LEGISLATIVE OR PROGRAM CITATION
4) Develop science, technology and research.	The following programs encourage science, technology and research to implement the best in water, wastewater and stormwater technology: 22. Ontario Clean Water Agency 23. Water Technology Acceleration Project (WaterTAP) 24. Southern Ontario Water Consortium 25. Green Focus on Innovation and Technology 26. Investment Accelerator Fund 27. Ministry of Agriculture Food, and Rural Affairs-University of Guelph Agreement Research Program 28. New Directions Research Program 29. Ontario's Cleantech Strategy
5) Develop education programs and information sharing for all water users.	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: 30. Walkerton Clean Water Centre 31. Water Efficiency Labelling 32. Best Management Practices 33. Canada-Ontario Environmental Farm Plan Program and Canadian Agricultural Partnership Cost-share Funding Assistance Program
Other programs:	In accordance with Ontario's water conservation and efficiency goals, objectives, the provinces water conservation and efficiency program includes a range of legislation, strategies and programs that aligns with these objectives by integrating water conservation and efficient water use with other environmental management practices and considerations such as energy use, climate change, and the protection and restoration of hydrological and ecological integrity: 34. *Endangered Species Act, 2007* 35. Great Lakes Wetland Conservation Action Plan 36. *Greenbelt Act, 2005* and Greenbelt Plan, 2017 37. *Niagara Escarpment Planning and Development Act* and Plan 38. Ontario's Biodiversity Strategy 39. Biodiversity: It's in Our Nature – Ontario Government Plan to Conserve Biodiversity 2012-2020 40. Ontario's Great Lakes Strategy 41. Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health, 2014 42. *Great Lakes Protection Act, 2015*

REGIONAL OBJECTIVES	LEGISLATIVE OR PROGRAM CITATION
	43. Joint Strategic Plan for the Management of Great Lakes Fisheries 44. *Lake Simcoe Protection Act, 2008* and Lake Simcoe Protection Plan, 2009 and associated Subwatershed Plans and Water Budgets 45. *The Crown Forest Sustainability Act, 1994* 46. A Wetland Conservation Strategy for Ontario 2017-2030 47. Ontario's Provincial Fish Strategy: Fish for the Future 48. Stream Water Quality Monitoring and the Multi-Watershed Nutrients Study 49. Fish Contaminant Monitoring Program 50. Great Lakes Intake Program 51. Anishinabek/Ontario Fisheries Resource Centre 52. Ontario Parks Water Conservation Initiatives 53. Species at Risk Stewardship Program 54. Invading Species Awareness Program 55. Land Stewardship and Habitat Restoration Program 56. Eastern Habitat Joint Venture

5. 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

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

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

1. Ontario's Environment Plan

In November 2018, the Made in Ontario Environment Plan environment plan was released to help protect our air, land and water, address litter and reduce waste, support Ontarians to continue to do their share to reduce greenhouse gas emissions, and help communities and families prepare for climate change. The plan proposes to make Ontario communities resilient to help prepare for the costs and impacts of climate change and protect communities, businesses, municipalities and government in Ontario. Building resilience is about having the right information, tools and resources to adapt and respond to our changing climate.

2. *Ontario Water Resources Act* and Water Management: Policies, Guidelines, Provincial Water Quality Objectives

The legislative authority to manage water comes from the *Ontario Water Resources Act*, *Environmental Protection Act* and other legislation. Ontario's Water Management: Policies, Guidelines, Provincial Water Quality Objectives gives direction on how to manage the quality and quantity of both surface water and groundwater. Surface water and groundwater quantity is to be managed to ensure a fair sharing, conservation, and sustainability of the resource. Water conservation is defined as the preservation of the quantity of available water through judicious use, reuse and minimal wastage.

https://www.ontario.ca/page/water-management-policies-guidelines-provincial-water-quality-objectives

3. *Ontario Water Resources Act* and Regulations

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, 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

According to the *Ontario Water Resources Act*, any person taking more than 50,000 litres of water on any day must first obtain a Permit to Take Water from the Ministry of the Environment, Conservation and Parks. Water taken for domestic uses, watering of livestock or poultry, firefighting, wetland conservation, a weir that was constructed prior to March 29, 2016 and passive and/or active in-stream diversions for construction purposes is exempted from the requirement to obtain a permit. The Ministry's guiding policy for issuing permits is to ensure the fair sharing, conservation, and sustainable use of the surface and ground waters in the province.

The Water Taking and Transfer Regulation and Permit to Take Water Manual outlines the specific requirements related to applying for and holding a permit and identifies the matters that the Ministry must consider when reviewing a permit application.

http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_040387_e.htm

https://ia902301.us.archive.org/25/items/permittotakewate00snsn8696/permittotakewate00snsn8696.pdf

Among the matters considered by the Ministry when reviewing a permit application is whether water conservation measures are to be implemented in the use of water, in accordance with sector best water management standards and practices if these are available. As part of their permit application, proponents 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 provides details about sector-specific best management practices (e.g., Environmental Farm Plan, Audubon Cooperative Sanctuary Program for Golf Courses) to be applied to the proposed water taking and specifies the water conservation measures and practices they are currently implementing or anticipate implementing over the duration of the permit. Applicants must also state their goals for reducing the use, loss, or waste of water, or for increasing the efficiency of their water use (e.g., litres per day per unit of production or litres per day per capita for the residential use).

Over the past year, the province has reviewed, and continues to review, the state of water resources in key areas of Ontario and the effect water takings have on these resources. This includes reviewing water quantity-related policies and programs as they apply to water takers across the province, including water bottlers taking groundwater, as well as enhancing our understanding of how we can manage water takings to ensure we have sustainable water resources in the face of changing climate and continued population growth.

The *Taking Ground Water to Produce Bottled Water Regulation (Ontario Regulation 463/16)* established a moratorium on new or increased permits for groundwater by water bottling facilities. The province proposed to extend this moratorium for nine months, ending October 1, 2020, to give the ministry time to complete its analysis of the water quantity review and to publicly consult on and finalize changes to how we manage water takings before the moratorium ends. This way, we can be confident our programs, policies and science protect vital water resources while keeping Ontario open for business. Our proposal to extend the moratorium was

made available for comment on the Environmental Registry from November 18 to December 18, 2019.

https://www.ontario.ca/laws/regulation/r16463

In April 2017, the Ministry released new stricter requirements for renewals of existing bottled water permits to take groundwater. The new rules strengthen Ontario's permit to take water program by increasing public reporting and transparency and enhancing scientific requirements. Effective August 1, 2017, water bottling companies that take groundwater and are required to have a permit under the *Ontario Water Resources Act* must pay a new additional fee of $500 per million litres.

https://www.ontario.ca/laws/regulation/r17176

http://www.downloads.ene.gov.on.ca/envision/env_reg/er/documents/2017/012-9151_d.pdf

4. *Clean Water Act, 2006*

The purpose of the *Clean Water Act* 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 Ontario communities.

Source protection plans are in effect across Ontario and are intended to protect sources for about 450 municipal drinking water systems, covering areas where over 95 per cent of the province's population live. The plans contain a series of locally-developed policies such as 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. Plans may also include policies around water conservation and/or water efficiency. Municipalities, the Province, and others are implementing actions on the ground to protect the quality and quantity of sources of municipal drinking water.

As a first step, science-based assessment reports were developed to identify where sources of water are vulnerable to contamination and depletion. Through this, water budgets were developed to evaluate how much water exists both at the surface and below ground, how it moves, how much water is withdrawn, to identify potential water shortages on a subwatershed scale. Part of this process is also looking at the long-term water supply and determining current or future water availability and ecological needs. Furthermore, these water budgets consider drought climate conditions and the potential impact on supplies of drinking water.

As a requirement under the *Clean Water Act*, source protection planning also considered 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

5. *Conservation Authorities Act, 1990*

The *Conservation Authorities Act*, administered by the Ministry of the Environment, Conservation and Parks, provides a statutory framework for the creation, funding and the operation 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 Province. As public-sector organizations, conservation authorities implement programs that serve both Provincial and municipal interests. Categories of conservation authority mandatory programs and services which may be prescribed in regulation include those that relate to the risk of natural hazards, conservation and management of conservation authority owned lands, the authority's duties, functions and responsibilities as a source protection authority under the *Clean Water Act,* programs and services required under the *Lake Simcoe Protection Act,* and an other programs and services as prescribed by regulation. There are 36 conservation authorities in Ontario today.

Conservation authorities currently undertake a shared program with the Ministry of Natural Resources and Forestry 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. 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.

Each conservation authority also has a provincially-approved 'Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses' 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) 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 with a wetland.

Conservation authorities are also key delivery partners for several government programs such as the Ontario Low Water Response Program, Provincial Groundwater Monitoring Network, Provincial Water Quality Monitoring Network, Permit to Take Water Program and Great Lakes protection.

www.ontario.ca/lowwater

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

6. *Lakes and Rivers Improvement Act, 1990*

The *Lakes and Rivers Improvement Act* (LRIA), administered by the Ministry of Natural Resources and Forestry, provides the Minister with the legislative authority to govern the design, construction, operation, maintenance and safety of dams in Ontario. The definition of a dam includes a dike, diversion, channel alteration, culvert or causeway.

The purposes of the Act are to provide for:

- the management, protection, preservation and use of water in Ontario;
- the protection and equitable exercise of public rights in or over water in Ontario;
- the protection of interests of riparian owners;
- the management, perpetuation and use of the fish, wildlife and other natural resources dependent on the lakes and rivers;
- the protection of the natural amenities of the lakes and rivers; and
- the protection of people and property.

Approval may be required for the construction of new dams and for certain alterations to existing dams. The LRIA Administrative Guide and supporting Technical Bulletins outline ministry requirements and technical guidance for applicants seeking approval for dam related works. The Ministry also engages key dam owners through a Dam Owners Advisory Committee to seek advice on government policies and initiatives related to the regulation and management of dams

Dams may provide for a few objectives, including waterpower generation, municipal water supply, flood low water mitigation, wetland habitat management, navigation for commercial and recreational purposes, and other municipal, commercial and industrial use.

https://www.ontario.ca/laws/statute/90l03

https://www.ontario.ca/page/dam-management

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.

7. *Water Opportunities and Water Conservation Act, 2010*

The *Water Opportunities and Water Conservation Act* passed in November 2010 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, 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 and Housing 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

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

Ontario put in place a licensing framework under the *Safe Drinking Water Act* for municipal residential drinking water systems – the Municipal Drinking Water Licensing Program. Financial plans are one of the elements that the owner of a municipal drinking water system must have in place for a licence to be issued or renewed.

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, Conservation and Parks for financial plans that are required to obtain a licence 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.ontla.on.ca/library/repository/mon/18000/275984.pdf

9. *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, demolished 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 is one of the objectives of the Building Code. 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/regs/english/elaws_regs_120332_e.htm

10. *Electricity Act, 1998*

The *Electricity Act, 1998* prohibits the sale of products in Ontario that do not meet prescribed energy and water efficiency standards. Setting water efficiency standards reduces water and energy use and further lower greenhouse gas emissions. Standards are set out in O.Reg. 509/18.

As of January 1, 2019, the Large Building Energy and Water Reporting and Benchmarking program requires commercial, multi-unit residential and some industrial buildings that are 100,000 square feet or larger to annually report their energy and water consumption and GHG emissions to the Ministry of Energy, Northern Development and Mines. The information will allow building owners to benchmark their consumption data against other similar buildings. Portions of the data will be publicly disclosed. Making the information publicly available can help building owners better manage energy and water use and costs and help the market value efficiency in purchasing, leasing and lending decisions. Details of the program are set out in O.Reg. 506/18.

https://www.ontario.ca/laws/statute/98e15

11. *Oak Ridges Moraine Conservation Act, 2001* and Plan

The *Oak Ridges Moraine Conservation Act, 2001* provides the legislative framework for the development and implementation of the Oak Ridges Moraine Conservation Plan, 2017. The Act requires all decisions under the *Planning Act* and *Condominium Act* to conform to the Oak Ridges Moraine Conservation Plan, 2017 and that municipalities bring their official plans and zoning by-laws into conformity with the Plan.

The Oak Ridges Moraine Conservation Plan, 2017 provides a long-term framework for land use 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, along with defined buffers. It also provides mapping of

landform conservation areas and highly vulnerable aquifer areas, requires watershed plans and the preparation of water conservation plans and water budgets, and requires the identification and protection 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 well 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, 2017 requires that every upper-tier municipality and single-tier municipality within the designated Oak Ridges Moraine plan area to have in place a water budget and conservation plan for every watershed whose streams originate within the municipality's area of jurisdiction. The Plan prohibits major development unless the watershed plan for the relevant watershed has been completed; the major development conforms with the watershed plan; and a 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.mah.gov.on.ca/Page13788.aspx

12. *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

Growth Plan for the Greater Golden Horseshoe

A Place to Grow: Growth Plan for the Greater Golden Horseshoe, represents the province's long-term vision for managing the rapid growth that is forecast for this region to 2041. The Plan contains requirements for watershed planning to inform land use and infrastructure master planning, the identification of water resource systems and the protection of key hydrologic features and key hydrologic areas, and policies for evaluation of water availability and assimilative capacity needed to service current and forecasted growth.

The Plan also includes water conservation and efficiency policies which municipalities are required to implement through official plan policies and other strategies.

https://www.ontario.ca/document/place-grow-growth-plan-greater-golden-horseshoe

Growth Plan for Northern Ontario

The Growth Plan for Northern Ontario, 2011 is 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

13. *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 planning matters.

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 Local Planning Appeal Tribunal. The planning process provides an opportunity for an inter-disciplinary assessment of 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. Among other matters, it provides clear direction to protect our water. 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. The Provincial Policy Statement is subject to an ongoing review.

Under the *Clean Water Act*, source protection plans were developed locally based on scientific assessments that 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 source protection plans also identify areas where water supplies are vulnerable to depletion and 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/Page215.aspx

http://www.ontario.ca/laws/statute/90p3

14. Municipal Stormwater Management Systems

The Ministry of the Environment, Conservation and Parks has created several documents for municipalities, community groups, businesses and anyone who is interested in managing stormwater and reducing pollution at its source. They include the Stormwater Management Planning and Design Manual, March 2003; Understanding Stormwater Management: An Introduction to Stormwater Management Planning and Design; and summaries of several stormwater projects completed with provincial assistance.

Preserving flow (e.g., by conserving water) is one of several objectives for stormwater management as stated in the 2003 Stormwater Management Planning and Design Manual:

- Preserve groundwater and baseflow characteristics, protect water quality;
- Reduce occurrences of undesirable geomorphic change (e.g., stream erosion);
- Reduce flood damage potential;
- Maintain appropriate diversity of aquatic life and opportunities for human uses; and
- Maintain the natural hydrologic cycle to the greatest extent possible.

https://www.ontario.ca/document/stormwater-management-planning-and-design-manual-0

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

Ontario is in the process of drafting a low impact development guidance manual that will assist proponents in implementing their efforts.

https://www.ontario.ca/page/policy-review-municipal-stormwater-management-light-climate-change

15. Ontario's Water Sector Strategy

On January 9, 2013, the government released Ontario's Water Sector Strategy. Through the strategy, Ontario aims to become a North American leader in the development, demonstration, commercialization and sale of water technologies. The Strategy builds on Ontario's strong foundation of water companies, researchers, demonstration and commercialization capabilities, and supportive policies. It focuses on three key actions:

- Driving Adoption of Innovative Technologies;
- Attracting Investment and Increasing Access to Global Markets; and
- Creating a Competitive Ontario Advantage.

The strategy can be accessed at:
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.

16. Ontario Low Water Response

The Ministry of Natural Resources and Forestry oversees the Ontario Low Water Response program which provides a framework to enable local response in the event of a drought/low water. The Ministry of Natural Resources and Forestry collects, monitors and analyzes stream flow and climate data to provide early warnings, and to support local drought response. The early warning framework utilizes three levels of drought/low water status, based on precipitation and stream flow deficit conditions. Local Water Response Teams are encouraged to outline voluntary contingency measures within the watershed to achieve water use reduction targets. Water permit holders may be contacted to help achieve water reduction targets and are formally regulated through the Ministry of the Environment, Conservation and Parks Permit-to-Take-Water Program. Increasing water conservation is strongly encouraged and communicated as water scarcity increases. The program is currently being modernized to streamline the response process, clarify roles and responsibilities and allow for increased autonomy in local decision making.

http://www.ontario.ca/page/low-water-response-program

17. Ontario Surface Water Monitoring

The Ministry of Natural Resources and Forestry administers the bi-lateral 'Canada-Ontario Agreement on Hydrometric Monitoring' which funds stream flow monitoring infrastructure, technology and data collection protocols on behalf of the province. The Ministry of Natural Resources and Forestry collects, monitors and analyzes stream flow and climate data through a provincial network of over 650 stations. This information is used to provide early warnings for flooding and drought/low water to identify locations throughout the province where potential risks may exist. The mandate for this work is founded in Lieutenant Governor Order-in-Council under the *Emergency Management and Civil Protection Act* for the purposes of emergency planning and public safety. Additionally, this information supports a broad spectrum of water-related decision-making for the management, use and sharing of water resources.

http://ontario.ca/page/surface-water-monitoring

http://www.ontario.ca/law-and-safety/flood-forecasting-and-warning-program

18. 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 480 monitoring wells. Rain gauges established at 65 of the monitoring sites provide insight into how groundwater levels are responding to precipitation and changing weather patterns. The water level and chemistry data produced under this program support climate change detection and adaptation activities, 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

19. Water Use Reporting

Under Ontario Regulation 387/04, every holder of a Permit to Take Water is required to report daily water use for each calendar year by March 31 of the following year. This also applies to water taking activities prescribed under the Registrations Under Part II.2 of the Act – Water Taking (Ontario Regulation 63/16). 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 Ministry of Natural Resources and Forestry in collaboration with the Ministry of Environment, Conservation and Parks. Investments continue to be made to enhance the regional data processing and assessment.

http://www.glc.org/work/water-use

https://waterusedata.glc.org/

20. Mapping and Geomatics Services Section

The Mapping and Geomatics Services Section provides leadership and coordination to capture, create and maintain the province's foundation geospatial 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 Mapping and Geomatics Services Section that can support the implementation of the Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement.

Mapping and Geomatics Services Section has developed the Ontario Flow Assessment Tool (OFAT) to allow water professionals in the public and private sectors and academia to analyze and understand water flow. The application allows for watersheds to be generated, characterized and flows estimated for any location in Ontario. Statistics and mapping from OFAT can be used for applications such as water permitting, water use reporting and water quantity assessment.

https://www.ontario.ca/page/land-information-ontario

https://www.ontario.ca/page/watershed-flow-assessment-tool

21. The Ontario Geological Survey's Groundwater Mapping Initiative

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

http://www.mndm.gov.on.ca/en/mines-and-minerals/applications/ogsearth

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

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.

22. 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

23. Water Technology Acceleration Project (WaterTAP)

WaterTAP was created as a statutory corporation under Part 2 of *Ontario's Water Opportunities Act, 2010*. Operating since 2012, WaterTAP acts as Ontario's water sector champion by assisting and promoting the development of Ontario's water and wastewater sectors, expanding business opportunities for Ontario companies nationally and internationally, providing a forum for government, the private sector and academic institutions to exchange information and ideas on how to make Ontario a leading jurisdiction in the development and commercialization of innovative technologies and services for the treatment and management of water and wastewater, encouraging collaboration and co-operation among Ontario's water sector ecosystem, assisting in the development of certification, labelling and verification programs for water and wastewater technologies and services, if requested by the Minister of Economic Development, Job Creation and Trade, and providing the Minister with advice on actions the Government of Ontario should take to assist in fostering the development of Ontario's water and wastewater sectors.

WaterTAP achieves this by working directly with Ontario companies and tech developers to help them commercialize their products while offering export, investment, access to capital, sales, marketing, communications, and policy/regulatory research advice to help Ontario SMEs grow and expand into global markets. WaterTAP also plays a lead role in building/supporting Ontario's larger water sector ecosystem, which includes industry associations, NGOs, academic institutions, accelerators and incubators, testing beds, investors, end-users (e.g., municipalities) and members of the water technology supply chain.

http://www.watertapontario.com/

24. Southern Ontario Water Consortium

The Southern Ontario Water Consortium (SOWC) helps to advance new water technology ideas from research and bench scale through piloting and real-world demonstration.

SOWC is a network of 10 post-secondary institutions that helps companies by connecting them with relevant academic experts. Pilot and full-scale wastewater demonstration facilities anchor the unique suite of facilities offered by SOWC partner institutions. Regulatory approvals for facility use are in place, and SOWC can help its client companies obtain the necessary approvals to demonstrate innovative technologies. SOWC also provides financial support for collaborative industry-led technology development projects through its Advancing Water Technologies program (leveraged federal funding).

https://sowc.ca/

25. 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 become an early adopter and potential reference customer for new green technology solutions. By purchasing and validating new green products, GreenFIT provides direct support to innovative technology solutions and provides companies with the credibility they need to succeed. The program helps to measure and validate the unique attributes of green technology solutions which may have a higher initial purchase price than traditional items but significant longer-term operational savings, as well as notable environmental, economic, and social impacts.

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

26. 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 $750,000 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/

27. Ministry of Agriculture, Food and Rural Affairs-University of Guelph Agreement 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 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. 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 sector's 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 new technologies and practices;
- assess the effect of environmental policies on the agri-environment, agri-food sector's economics and rural society; and
- identify opportunities for agriculture, food, and bioproducts sectors, and rural communities to provide solutions for environmental challenges.

Since 2010, the OMAFRA-University of Guelph partnership research program has funded 37 research projects related to water management in agriculture and food. Out of these, 14 projects specifically target water use efficiency (technologies for greenhouse, microbrewery and fruit processing waste water treatment, evaluation of the implications of private water supply and waste water systems for rural Ontario municipalities, groundwater recharge and modeling water use efficiency in agriculture).

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

28. 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 specific priorities for the call for proposals vary annually depending on the research need to address emerging issues. This program included water management as one of the priorities in its annual call for proposals for 3 years (2010/11, 2011/12 and 2012/13) and funded a total of 13 water management research projects across the province during that period. The 2013/14, 2014/15 and 2015/16 calls for proposal included a climate change priority that funded two water related projects (out of total 6 climate change projects) linking to climate change impacts on agri-food water use.

Altogether, since 2010, the New Directions Research Program has funded overall 16 water management research projects which focused in the areas of water use efficiency, waste water treatment and recycling, modelling ground water under a changing climate, water quality etc.

http://www.omafra.gov.on.ca/english/research/new_directions/

29. Ontario's Cleantech Strategy

Ontario is currently developing a Cleantech Strategy to help establish the province as a North American cleantech leader. This will be done by leveraging provincial areas of competitive strength to meet growing national and international demand for new technologies, while supporting climate change goals.

Water and wastewater is one of the four key sub-sectors on which the strategy will focus. The strategy will aim to help companies scale, encourage adoption of their technologies, and globally export these products and services.

The strategy is currently in its final stages of development and is expected to be publicly released in November 2017.

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.

30. Walkerton Clean Water Centre

The Walkerton Clean Water Centre was established in 2004. 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/

31. Water Efficiency Labelling

The Ministry of the Environment, Conservation and Parks 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 every day. 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

32. Best Management Practices

For the agricultural sector, the Ministry of Agriculture, Food and Rural Affairs has released over 35 booklets and books on best management practices (BMPs), also referred to as environmentally sustainable agricultural practices. BMPs are consensus-based documents developed by multi-disciplinary and multi-agency project teams. This series offers proven, practical and affordable approaches to conserving soil, water and other natural resources in agricultural and rural areas. Four books - Irrigation Management, Water Management, Water Wells 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). The BMP series can be found here:

http://www.omafra.gov.on.ca/english/environment/bmp/series.htm

For the municipal sector, the Ministry of the Environment, Conservation and Parks 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

The Ministry of Agriculture, Food and Rural Affairs developed a series of videos geared towards horticultural growers. The videos take existing Ministry print information and workshops and present information in short 2 to 3-minute videos. A series for irrigators and for greenhouses introduces water efficiency practices. The videos can be seen here:

http://www.omafra.gov.on.ca/english/crops/hort/videos.htm

33. Canada-Ontario Environmental Farm Plan Program and Canadian Agricultural Partnership Cost-share Funding Assistance 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 that 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 required prior to a producer applying for cost-share funding for environmental projects under the Canadian Agricultural Partnership – Cost-share Funding Assistance program.

The Canadian Agricultural Partnership Cost-Share Funding Assistance program supports a range of best management practices project categories supporting soil health and water quality, with co-benefits to climate resilience, habitat and biodiversity.

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 Canadian Agricultural Partnership. Both programs are delivered locally to farmers, on behalf of government, by the Ontario Soil and Crop Improvement Association.

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

OTHER PROGRAMS

In accordance with Ontario's water conservation and efficiency goals, objectives, and the provinces water conservation and efficiency program includes a range of legislation, strategies and programs that aligns with these objectives by integrating water conservation and efficient water use with other environmental management practices and considerations such as energy use, climate change, and the protection and restoration of hydrological and ecological integrity.

34. *Endangered Species Act, 2007*

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, are also the focus of rehabilitation efforts under the Canada – Ontario Agreement on Great Lakes Water Quality and Ecosystem Health, 2014.

The key to protecting many species at risk is protecting and restoring their habitats. Effective water management helps to maintain habitat conditions for many species at risk and can aid in their recovery.

Under the Act, the Minister of the Environment, Conservation and Parks is required to ensure that a recovery strategy is prepared for each species listed as either Endangered or Threatened on the Species at Risk in Ontario list. A recovery strategy provides external science-based advice to the Ontario government with the best available scientific information on how to protect and

recover the species. Once recovery strategies are finalized, the government then develops the species-specific policy in response to the advice received, that outlines the government's goal for the recovery of the species and the prioritized actions it plans to take in a government response statement. Recovery strategies and government response statements are available to the public on the species at risk pages on the Government of Ontario's website.

http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_07e06_e.htm

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

35. 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. The GLWCAP is the implementation mechanism for the 25-year Strategic Plan for Wetlands of the Great Lakes Basin (1993) and complements the Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health. Prepared by a cooperative of government and non-government agencies, the GLWCAP outlines a framework for wetland conservation in the Great Lakes Basin through eight implementation strategies. The Steering Committee is co-chaired by the Ministry of Natural Resources and Forestry and Environment and Climate Change Canada, and includes representatives from Conservation Ontario, The Nature Conservancy of Canada and Ducks Unlimited Canada.

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

36. *Greenbelt Act, 2005* and Greenbelt Plan, 2017

The *Greenbelt Act, 2005* provides the legislative framework for the development and implementation of the Greenbelt Plan, 2017. 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 five-year official plan review.

The Greenbelt Plan, 2017 requires municipalities to provide for a comprehensive, integrated and long-term approach to managing water resource systems and natural heritage systems comprised of key natural heritage and key hydrological features and areas which are to be identified and protected from development and site alteration, along with appropriate buffers.

The Greenbelt Plan, 2017 area contains numerous watersheds, subwatersheds and groundwater and surface water resources, and several river valleys 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: requirements for watershed planning to inform development an infrastructure planning and the identification of a water resources system; and municipalities are required to protect, improve or restore the water resources system including key hydrologic areas (e.g. significant groundwater recharge areas, highly vulnerable areas) and features (e.g. wetlands, permanent/ intermittent streams).

https://www.ontario.ca/laws/statute/05g01

http://www.mah.gov.on.ca/Page13783.aspx

37. *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 (NEP) and its implementation through a system of development control that is administered by the Niagara Escarpment Commission, a regulatory agency of the Ontario Government. The purpose of the Act and the NEP 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 NEP Area and includes policies that guide planning and development to help protect water resources. The NEP was comprehensively reviewed, and an updated NEP was in effect June 1, 2017. The updated NEP includes a new section 2.6 dedicated to development affecting water resources. The development criteria in the updated Plan established key hydrological features and restricts development in and adjacent to these features to protect, and where possible enhance, the quantity and quality of groundwater and surface water.

https://www.escarpment.org/LandPlanning/NEP

http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90n02_e.htm

38. Ontario's Biodiversity Strategy

Ontario's Biodiversity Strategy, 2011, is the guiding framework for coordinating the management of Ontario's biodiversity. Implementation and reporting on progress towards achievement of the strategy's 15 time-bound targets is guided by the Ontario Biodiversity Council with membership from government, conservation stakeholders, Indigenous organizations and industry. Ontario's Biodiversity Strategy includes actions to reduce threats and

enhance the resilience of the Great Lakes through activities including reducing pollution, 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 that developed biodiversity conservation strategies for each of the Great Lakes.

www.ontariobiodiversitycouncil.ca/ontarios-strategy/

39. 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 management under Ontario's Biodiversity Strategy, 2011. The plan is an important statement of partnership and commitment across 16 provincial ministries to work together to manage and protect Ontario's biodiversity for a strong natural resource-based economy.

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.

https://www.ontario.ca/page/biodiversity-its-our-nature

40. Ontario's Great Lakes Strategy

Ontario's Great Lakes Strategy, released in 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.

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*. As required under the *Great Lakes Protection Act,* Ontario is currently reviewing its 2012 Great Lakes Strategy and working on a renewed Strategy to address Ontario's priorities for protecting the Great Lakes.

www.ontario.ca/document/ontarios-great-lakes-strategy

https://www.ontario.ca/page/ontarios-great-lakes-strategy-2016-progress-report

41. Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health, 2014

The Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health (COA) is the principal mechanism through which Ontario and Canada coordinate their work to address their respective and shared commitments to restore, protect and conserve the Great Lakes. Since 1971, a series of COAs have enabled both governments, together with local partners, to address the most significant challenges facing the Great Lakes region. The current COA was signed in 2014 and supports Ontario's implementation of the Great Lakes Strategy and Canada's commitments under the 2012 Canada-U.S. Great Lakes Water Quality Agreement.

The 2014 COA commits Ontario to improved understanding and implementation of adaptive management approaches to lake level regulation, including enhancing understanding of the water budget within the Great Lakes Basin. Ontario is also committed to improved understanding of cumulative impacts of water withdrawals, diversions and consumptive uses, and to producing and maintaining water use data that is made available to water management agencies across the Great Lakes Basin. The 2014 COA also supports enhancing understanding of climate change impacts in relation to the Great Lakes and integrating this information into Great Lakes management strategies.

The 2014 COA includes commitments to address excess nutrients and reduce harmful and nuisance algal blooms starting with Lake Erie. The Canada-Ontario Lake Erie Action Plan (LEAP), released in 2018, identifies more than 120 federal, provincial and partner actions to help achieve the goal of reducing phosphorus entering Lake Erie by 40 per cent in order to reduce algal blooms. Ontario is working with the Federal government and other partners including municipalities, agricultural organizations, conservation authorities, and non-governmental organizations to implement LEAP. Actions in the plan include encouraging effective techniques to keeping phosphorous on farmland and out of the watershed, improving wetland conservation, and upgrading municipal wastewater treatment and collection systems.

Under the *Great Lakes Protection Act, 2015* (GLPA), Ontario established its own target of a 40 per cent phosphorus load reduction by 2025 (from 2008 levels), using an adaptive management approach, for the Ontario portion of the western and central basins of Lake Erie, as well as an aspirational interim goal of a 20 per cent reduction by 2020 to address algal blooms. The GLPA also requires that the Minister prepare a plan setting out actions to be taken to achieve these targets – LEAP serves as the Minister's plan for meeting GLPA targets to help reduce algal blooms.

The current COA expires in December 2019 and a new COA is being negotiated between Canada and Ontario. If a new COA is not yet in place when the current COA expires, Canada and Ontario are committed to continuing collaborative work on Great Lakes restoration while a new COA is finalized.

www.ontario.ca/page/canada-ontario-great-lakes-agreement

https://www.ontario.ca/page/canada-ontario-lake-erie-action-plan

42. *Great Lakes Protection Act, 2015*

The *Great Lakes Protection Act, 2015* (GLPA) strengthens the province's ability to restore and protect the Great Lakes and St. Lawrence River, as well as the waterways that flow into them.

Ontario's Great Lakes Strategy was first released in 2012. The GLPA requires Ontario to report on progress made under Ontario's Great Lakes Strategy every three years. The first progress report was published in 2016 and the next progress report will be released in 2019. Under the GLPA, Ontario is also required to undertake a review of its Great Lakes Strategy every six years. A review of the Great Lakes Strategy is currently underway. In preparing a new Great Lakes Strategy, Ontario will explore made-in-Ontario solutions to protect the waters of the Great Lakes basin and keep the Great Lakes clean for future generations, while supporting a prosperous economy.

To help deliver on goals under the COA and the GLPA, Swim Drink Fish Canada has developed a new digital tool to raise awareness of, and appreciation for, the importance of the Great Lakes and the issues facing them. The Great Lakes Guide provides a window to Ontario's Great Lakes parks, lakes and natural areas. The Guide seeks to enhance knowledge and understanding through inclusion of Indigenous knowledge, active engagement of youth in Great Lakes issues, and interactive features to profile Ontario's parks and conservation areas.

https://www.ontario.ca/page/protecting-great-lakes

https://www.ontario.ca/laws/statute/15g24

https://greatlakes.guide/

43. 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 identifies the need for an ecosystem approach to Great Lakes fishery management, recognizing the impact of water quality and water use on fish habitat. This includes the potential for large-scale water diversions to impact fish populations in the Great Lakes. As a result, the plan sets out an Ecosystem Management Strategy for the Great Lakes which has unique strategic procedures requiring the identification and resolution of environmental issues such as water uses that may impede the achievement of the individual Great Lakes Fish-Community Objectives.

www.glfc.org

44. *Lake Simcoe Protection Act, 2008* and Lake Simcoe Protection Plan, 2009 and associated Subwatershed Plans and Water Budgets

The *Lake Simcoe Protection Act, 2008* provides the legislative framework for the development and implementation of the Lake Simcoe Protection Plan. The Lake Simcoe Protection Plan is a comprehensive roadmap for Ontario and its partners to work together to improve the health of the watershed.

A key objective of the Plan is to promote greater efforts to conserve and use water more efficiently, to meet future demands for water within sustainable limits. To advance this objective, Ontario supports a wide range of work with partners addressing water quantity changes on the landscape.

Ontario undertakes or supports monitoring and research in the Lake Simcoe watershed with the Lake Simcoe Region Conservation Authority (LSRCA) to understand the impacts of land use on water quality and quantity, and to make sure that any recommended courses of action are based on sound evidence. For example, Tier Two Water Budgets have been created for all subwatersheds in the Lake Simcoe watershed. These assessments are being 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.

Ontario is also supporting action from other water use sectors by encouraging the development and implementation of water conservation practices in the agricultural, tourism and construction sectors. For example, the LSRCA is encouraging low impact development to improve water quantity control, reduce flood risks, and increase resilience to climate change.

Ontario has also supported work by the University of Western of Ontario to understand more about the major groundwater recharge and discharge functions in Lake Simcoe.

45. *Crown Forest Sustainability Act, 1994*

The Ministry of Natural Resources and Forestry is the lead ministry for the management and regulation of forest management in Ontario. The *Crown Forest Sustainability Act* provides the legislative framework for the sustainable management of forests on Crown lands in Ontario. Under the Act, there are four manuals that guide various aspects of forest management in Ontario and an array of guides that provide direction on acceptable forest management practices that conserve biodiversity by emulating natural disturbances and landscape patterns while minimizing adverse effects on plant life, animal life, water, soil, air, and social and economic values.

Under the *Crown Forests Sustainability Act*, the Forest Management Guide for the Protection of Biodiversity at the Stand and Site Scales outlines standards, guidelines, and best management practices for forest operations around various water features including those within the Great Lakes watershed. For example, the guide outlines water crossing guidelines that protect water quality and fish habitat to minimize the effects of forest management on water resources. These

are intended to protect and maintain the ecological function of aquatic and wetland ecosystems, with consideration of the role of natural disturbances.

https://www.ontario.ca/laws/statute/94c25

https://dr6j45jk9xcmk.cloudfront.net/documents/4816/stand-amp-site-guide.pdf

46. A Wetland Conservation Strategy for Ontario 2017-2030

Building on over 30 years of positive achievement in conserving Ontario's wetlands, A Wetland Conservation Strategy for Ontario 2017-2030 is a framework to guide the future of wetland conservation across the province. The Strategy includes a clear vision, goals and desired outcomes, and a series of actions the government is taking, or will undertake, by 2030.

The guiding principles for the strategy recognize that wetlands are integral components of their watersheds, natural heritage and hydrologic systems, and part of the larger landscape. Included in the comprehensive suite of government actions are actions to improve wetland conservation and work towards a net gain in wetland area and function where wetland loss has been the greatest.

http://apps.mnr.gov.on.ca/public/files/er/a-wetland-conservation-strategy-for-ontario-2017-2030.pdf

47. Ontario's Provincial Fish Strategy: Fish for the Future

Ontario's abundant aquatic resources support a diverse range of year-round recreational, commercial and First Nation and Métis fisheries. Together, these activities and their supporting industries are estimated to contribute more than $2.2 billion annually to Ontario's economy. The province's Provincial Fish Strategy outlines goals, objectives and tactics for the dual purposes of improving the conservation and management of fisheries and the ecosystems on which fish communities depend, and promoting, facilitating and encouraging fishing as a social, economic and cultural activity in the province.

A Key Management Approach of the Provincial Fish Strategy is the ecosystem-based approach, where all ecosystem components, including humans and their interactions, are considered. In keeping with this, one of the goals of the Provincial Fish Strategy is 'Healthy Ecosystems that Support Self-Sustaining Native Fish Communities'. There are five objectives under this goal aimed at protecting and managing native fish populations and the diversity, connectivity, structure, and function of Ontario's aquatic ecosystems, as well as restoring or rehabilitating them where they are degraded. The objectives and tactics are also aimed at mitigating or adapting to large scale environmental changes and minimizing cumulative environmental effects of multiple stressors which can be much greater than any single stressor operating alone.

This goal is supported by MNRF's broad-scale monitoring program for inland lakes which aims 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 including: fish abundance, sex, length and weight; fish contaminant

levels (in collaboration with the Ministry of the Environment, Conservation and Parks, Fish Contaminant Monitoring Program); lake temperature, oxygen levels, and overall water quality; presence and abundance of invasive species; and estimated fishing effort.

Intensive monitoring occurs on each of the Great Lakes to provide information on the fish communities and fisheries they support. These monitoring programs support decision-making used in managing the sustainability of recreational fisheries resources and to inform the development of lake-specific Fish Community Objectives under the Joint Strategic Plan for Management of Great Lakes Fisheries and establish allowable harvest levels for fisheries within the lakes.

https://www.ontario.ca/page/fishing

48. Stream Water Quality Monitoring and the Multi-Watershed Nutrients Study

The Ministry of Environment, Conservation and Parks' Provincial Water Quality Monitoring Network measures and reports on stream water quality across Ontario with focussed studies related to pesticides, climate change, drinking water source protection, and roads. Collected data allows for the recognition of trends and correlations, informs land use planning decisions, assessments of water taking applications 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

49. Fish Contaminant Monitoring Program

The Ministry of the Environment, Conservation and Parks' Fish Contaminant Monitoring Program monitors persistent toxic contaminants (e.g., mercury, PCBs, dioxins/furans, organochlorine pesticides) in both large bodied (sport) and forage fish from the Great Lakes and inland lakes and rivers. The program started in 1967 and is an exemplary partnership between the Ministry of the Environment, Conservation and Parks and the Ministry of Natural Resources and Forestry. It is one of the largest, most comprehensive programs of its kind worldwide. The monitoring data are used for a variety of purposes including providing advice on the safe consumption of fish through the Guide to Eating Ontario Fish. The data are also used to evaluate the success of remedial measures, track long-term trends in fish contaminant levels, examine the status of Areas of Concern, support environmental assessments related to First Nations concerns, provide advice to First Nations communities, and conduct cumulative impact assessments. The program informs management and policy decisions. It also supports legislation and policies to protect Ontario's water, including the *Great Lakes Protection Act*, the Great Lakes Water Quality Agreement and Canada-Ontario Agreement, the *Clean Water Act*, the *Environmental Protection Act*, the *Ontario Water Resources Act*, the *Pesticides Act*, the *Toxics Reduction Act*, the *Far North Act*, the *Source Water Protection Act*, and the *Lake Simcoe Protection Act*.

www.ontario.ca/fishguide

50. Great Lakes Intake Program

The Great Lakes Intake Program monitors and reports on water quality and algae in the nearshore of the Great Lakes – St. Lawrence River system and in Lake Simcoe since the 1960s. Using water treatment plant intakes as collection points, untreated water samples are collected weekly or biweekly, year-round, and analyzed for water chemistry, including nutrients and planktonic algae. Program data are used to evaluate the current status of source water quality and assess long-term trends to evaluate the cumulative impacts of multiple environmental stressors such as nutrient loading, invasion by exotic species, and climate change. Data is also used to evaluate the effectiveness of broad scale pollution control measures, and to inform decision making to restore, protect and conserve the Great Lakes and Lake Simcoe. The program supports the *Great Lakes Protection Act*, the Great Lakes Water Quality Agreement and Canada-Ontario Agreement, the Canada-Ontario Lake Erie Action Plan, the *Lake Simcoe Protection Act*, the *Clean Water Act*, and the *Source Water Protection Act*.

https://www.ontario.ca/data/lake-water-quality-drinking-water-intakes

51. Anishinabek/Ontario Fisheries Resource Centre (AOFRC)

The Anishinabek/Ontario Fisheries Resource Centre was established in 1995 and continues to serve as an independent source of information on fisheries assessment, conservation, and management, promoting the value of both Western science and Indigenous knowledge of the land and water. Since its establishment, the AOFRC has completed over 500 fisheries projects with First Nations and government agencies across the province, including creel surveys, index netting projects, tagging studies, fish habitat inventories, and syntheses of fisheries data for formulating resource management plans. This type of information contributes to measuring the success of water conservation and fisheries management efforts.

http://www.aofrc.org/

52. 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 over 10.5 million visits each year. Over the last few years, Ontario Parks has undertaken several initiatives to conserve water use within parks. Initiatives include the use of low-flow fixtures in park washrooms, variable frequency driven distribution pumps, solar hot water assist and propane 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 monitor for water system leakage, identify and make repairs in a timely manner. While several of our operating parks are municipally connected to sewerage, most parks rely on septic treatment systems to safely return the water to the local environment.

Ontario Parks permanently protects over 12,000 square kilometres of water including lakes, rivers and wetlands. These areas are managed with a priority on ecological integrity, or environmental health, for the benefit of the people of Ontario and their visitors. This priority on ecological integrity is demonstrated at multiple scales; through a robust policy framework that outlines permitted activities, to park and park zone classifications that protect aquatic features (such as waterway class parks), to park-specific management plans that document park values, pressures, vision, site objectives, and management direction in the form of site specific management policies and implementation actions (e.g. wetland restoration).

www.ontarioparks.com

53. Species at Risk Stewardship Program

The Species at Risk Stewardship Program is a funding program established under the *Endangered Species Act, 2007* to encourage and support the recovery and protection of species at risk and their habitats through stewardship and research activities. Since 2007, Ontario has supported over 1000 stewardship projects including over 100 research projects through the program. The program is open to a wide variety of individuals and groups. Examples of eligible aquatic-related activities could include inventory, monitoring, research or outreach work related to 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/page/grants-protecting-species-risk

54. Invading Species Awareness Program

The province-wide Invading Species Awareness Program is a longstanding partnership of the Ministry of Natural Resources and Forestry and the Ontario Federation Anglers and Hunters launched in 1992. The program focuses on education and outreach to prevent the spread and or introduction of invasive species in Ontario. The ISAP also operates programs designed to monitor the occurrence and distribution of invasive species including a toll-free Invading Species Hotline, as well an online and mobile application called the Early Detection and Distribution Mapping System **(EDDMapS Ontario).**

http://www.invadingspecies.com/

55. 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 efforts in habitat enhancement and ecological restoration to advance Ontario's biodiversity conservation objectives at a landscape level. The fund is open to incorporated organizations across Ontario, including Indigenous 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.

Since 2013, the LSHRP fund has helped to improve, restore or create over 6,392 acres of area, supported plantings of over 119,391 trees and shrubs, and leveraged over $3M in project partner funding.

www.ontario.ca/lshrp

56. 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 and Bird Studies Canada. The Ministry of Natural Resources and Forestry has provided financial and/or in-kind support for wetland conservation by Ontario EHJV partners since 1994.

http://www.ehjv.ca/