

Minister's Annual Report on Drinking Water **2019**



Ontario



Minister's Annual Report on Drinking Water, 2019

Read an overview of our programs, policies and initiatives to protect drinking water in Ontario.

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Minister's message

Water resources are vital to our health and to the health of our environment and our economy. Our lakes, waterways and groundwater are the bedrock of Ontario's well-being and economic prosperity – that is why keeping Ontario's water clean and healthy are key commitments in our Made-in-Ontario Environment Plan.

As the Minister of the Environment, Conservation and Parks, I am proud to report that Ontario's drinking water continues to be among the best protected in the world. In the last year, 99.9 per cent of more than 522,000 drinking water tests from municipal residential drinking water systems met Ontario's strict, health-based drinking water standards. This is due to our comprehensive

legislation and strong monitoring, reporting and enforcement that help ensure our drinking water is held to Ontario's high safety standards.

Ontario also has the most stringent provincial testing regime for lead in drinking water in the entire country. The province requires every fixture used to prepare food or provide drinking water to children in schools, private schools and child care centres to be sampled and tested for lead. The facilities are also required to flush their plumbing on a daily or weekly basis, depending on the fixtures and results.

We also recently proposed to extend the moratorium on new or increasing water takings from groundwater sources by water bottling facilities for nine months as we continue our review and analysis. To provide you with added certainty before the moratorium ends, we are looking into having the science and data reviewed and verified by a third-party. We will continue to engage with the public, stakeholders and Indigenous communities for input on how we manage provincial water taking to help ensure the safety of secure, reliable sources of water.

While Ontario's drinking water remains well protected, we also recognize our water resources are facing increasing pressures, such as climate change, pollution and urban development.

Road salts, flooding, wastewater, and combined sewer overflows and bypasses are emerging issues impacting our water resources and, in this report, we identify some of the commitments and initiatives Ontario has underway to reduce contaminants from entering our waterways.

This report also includes actions we're taking to protect our Great Lakes. We worked with Canada to release a draft of a new Canada-Ontario Great Lakes Agreement in July which coordinates actions to protect Great Lakes water quality and ecosystem health. Work is also underway to review and update Ontario's Great Lakes Strategy to continue to protect fish, parks, beaches, coastal wetlands and water by reducing plastic litter, excess algae and contaminants along our shorelines, and reducing salt entering waterways to protect our aquatic ecosystems.

This report features some of the actions we're continuing to take in order to help protect and restore the ecological health of Lake Simcoe, Lake Erie and the Muskoka Watershed, and it highlights some of the great work municipalities and conservation authorities are doing to protect the sources of drinking water in their communities.

We are also continuing our collaboration with First Nations and Canada to support the resolution of long-term drinking water advisories and to support the long-term safety and sustainability of water infrastructure in these communities.

I am also pleased to present the third triennial report on implementing the *Water Opportunities Act, 2010* and Ontario's actions to encourage efficient water use, promote innovative water management and strengthen municipal water infrastructure planning.

Protecting our water is a responsibility of all of us who call Ontario home. I look forward to working with partners, Indigenous communities and people in this province to help conserve and manage our water resources for future generations.

The Honourable Jeff Yurek

Minister of the Environment, Conservation and Parks

Ontario's drinking water standards

Keeping Ontario's water clean and healthy are key commitments in our [Made-in-Ontario Environment Plan](#). This includes protecting the province's drinking water.

One of the most important ways Ontario is able to keep its drinking water among the best protected in the world is with our strict, health-based drinking water standards under the [Safe Drinking Water Act, 2002 \(SDWA\)](#). We have more than over 150 strict, health-based drinking water quality standards for pathogens, chemical parameters and radiological parameters to help protect the high-quality drinking water that is delivered to your taps.

Ontario works closely with Health Canada to maintain the effectiveness of our drinking water protection framework, and the safety of our drinking water. Any changes to standards are based on scientific evidence, stakeholder engagement, and consultation with the experts on the Ontario Advisory Council on Drinking Water Quality and Testing Standards.

Lead

In March 2019, Health Canada revised the guideline for lead in treated drinking water from 10 to 5 micrograms per litre. Ontario's Advisory Council on Drinking Water Quality and Testing

Standards and the ministry are currently reviewing the revised guideline and will engage with stakeholders to consider whether to adopt Health Canada's reduced lead guideline.

Haloacetic Acids

A standard for Haloacetic Acids (HAAs) will come into effect in January 2020 under the *Ontario Drinking Water Quality Standard* regulation under the SDWA. The standard for HAAs will be 0.080 mg/L (as a running annual average of quarterly samples). HAAs are disinfection by-products formed within water distribution systems when chlorine interacts with humic acids (natural organic substances) present in source waters. This standard is being adopted in accordance with changes made to Health Canada's Guidelines for Canadian Drinking Water Quality, and in close consultation with the Ontario Advisory Council on Drinking Water Quality and Testing Standards.

Ontario began monitoring for HAAs in 2017, in order to identify locations where they would be found in the distribution system. This enabled municipal drinking water systems to identify if HAAs were forming in their system in concentrations above the new standard and implement process changes to meet the standard once it comes into effect in January 2020, without compromising disinfection.

Emerging issues

Road Salt and Chloride

Growing evidence suggests that winter road salt is contributing to increasing chloride levels in the environment, which can impact drinking water sources. Ontario continues to monitor for sodium and chloride, in over 400 rivers and inland lakes, Lake Simcoe, and the Great Lakes. The data collected, which is posted on Ontario's public [Data Catalogue](#), shows that chloride levels have been continuously increasing in the lakes, rivers, and streams in Ontario that are under urban impacts since monitoring began in the late 1960s.

Ontario committed in its [Made-in-Ontario Environment Plan](#) to building on the ministry's water monitoring and drinking water source protection activities to minimize impacts from road salt use, and to working with municipalities, conservation authorities, the private sector and other

partners to promote best practices and road salt alternatives. For example, the ministry has been providing input on road salt use in Ontario to the Freshwater Roundtable, a collaborative multisector discussion forum focused on the issue and impacts of road salt use which is jointly hosted by the Lake Simcoe Region Conservation Authority, World Wildlife Fund Canada and the Toronto and Region Conservation Authority with the support of the U.S. Consul General.

The handling, storage and application of road salt are prescribed drinking water threats in Regulation 287/07 under the *Clean Water Act, 2006*. As a result, municipalities and others are expected to implement the local source protection plan policies for road salt to address risks to municipal water supplies. Ontario also provides information and guidance on road salt management through its [Guidelines on Snow Disposal and De-icing Operations in Ontario](#).

Flooding and wastewater

Extreme weather events, including the seasonal combination of snowmelt and heavy rain, can overwhelm our aging stormwater and wastewater systems, resulting in sewage overflows and bypasses from municipal wastewater systems that flow into Ontario's lakes and rivers. Climate projections for the province predict that by 2050, the average annual temperature for Ontario could increase by 4°C, and 7°C in Northern Ontario during winter months. This will make the chance of extreme weather events and flooding more frequent and severe, further taxing our wastewater and stormwater infrastructure.

On November 7, 2019, Ontario issued a procurement to undertake its first-ever climate change impact assessment as a key part of the [Made-in-Ontario Environment Plan](#). The assessment will help the province better understand where and how climate change is likely to affect communities, critical infrastructure, economies and the natural environment. The results from this assessment will help the province, municipalities, Indigenous communities and other local decision-makers to make more informed and timely decisions to keep communities and people healthy and safe.

Strengthening resilience to flooding

To better prepare our province for possible flooding in the future, in July 2019, the Ontario government appointed a Special Advisor on flooding, to advise the province on ways to reduce the impacts of flooding and ensure communities can recover quickly. Engagement sessions

were held in Muskoka, Pembroke and Ottawa, to hear from municipalities and industry leaders on how to better prepare for and respond to floods. The Special Advisor also reviewed Ontario's current flood mitigation strategies and conducted community tours to learn firsthand the effects of flooding as part of his independent review. The Special Advisor delivered his [report](#) on October 31, 2019 for the province to consider his recommendations, and it was released to the public on November 28, 2019.

Taking action on sewage overflows

Through the [Made-in-Ontario Environment Plan](#), the ministry has committed to increasing transparency and accountability of real-time monitoring of sewage overflows from municipal wastewater systems into Ontario's lakes and rivers. We believe the wider public has the right to be made aware of spills, overflows and bypasses and the potential impacts to local water quality. We will bring forward measures to make sure incidents are reported on and made public by the municipality in a timely manner. We are proposing to make these changes through regulatory or legislative changes. Ontario is working with municipalities to ensure that proper monitoring occurs, and that the public is aware of overflow incidents.

In May 2019, Ontario announced the start of construction for the new Red Rock wastewater treatment plant, located in the Town of Red Rock, in Northern Ontario. Ontario is contributing more than \$17 million in funding (two-thirds of the project costs) to support the township, in partnership with the Government of Canada. Once completed, this project is expected to improve water quality in Nipigon Bay and Lake Superior, which should improve the quality of drinking water sources in the Great Lakes overall. Construction has already begun, and the ministry has been providing ongoing monitoring to assess the project's compliance with provincial legislation and regulations. We look forward to the completion of the project and the positive impact it will have on water quality in the Great Lakes, particularly Lake Superior.

Key findings from the Chief Drinking Water Inspector

Ontario's Chief Drinking Water Inspector reports annually on the performance of Ontario's regulated drinking water systems. Data associated with the 2018-2019 Chief Drinking Water Inspector's report is available on Ontario's [Data Catalogue](#).

This year's results show that Ontario's drinking water continues to be among the best protected in the world.

Municipal and laboratory results

More than 80 per cent of Ontario residents get drinking water from a municipal residential drinking water system in the city or town where they live. These drinking water systems are inspected each year to make sure they are following Ontario drinking water regulations.

All laboratories licensed by the province to perform drinking water testing are inspected twice annually. These laboratories must report to the province the results of all drinking water tests that they are licensed to conduct.

2018-19 test and inspection results for Ontario's municipal residential drinking water systems and licensed laboratories show that:

- Drinking water supplied by municipalities was tested over 522,000 times and 99.9 per cent of tests met Ontario's drinking water quality standards.
- All municipal drinking water systems were inspected at least once and laboratories that test drinking water were inspected at least twice.
- Seventy-two per cent of municipal systems scored 100 per cent on their inspection.
- Forty-two per cent of laboratory inspections scored 100 per cent.

Compliance and enforcement activities

Inspectors help make sure the regulated community follows Ontario's drinking water laws.

Where the laws are not followed, inspectors may issue orders to prompt compliance with the applicable legislation or regulation. In 2018-19 Ontario's inspectors undertook the following enforcement activities:

- Two orders were issued in respect of two municipal residential drinking water systems. One order directed the owner to confirm that certain equipment had been installed and the other one directed the owner to modify the system's sodium sampling for a specified time. Both orders have been complied with.

- Five orders were issued to various owners and operators of private systems that supply water to residences such as trailer parks. As an example, one of these orders directed the owner of a mobile home park to ensure that at least one water sample is taken and tested for chemical parameters. Of the five orders, one order has been fully complied with and the ministry is working with the remaining owners to address their non-compliance issues.
- A total of four orders were issued to the owners of privately-owned systems serving four designated facilities. A designated facility provides services to people who can be especially vulnerable to illness, such as children or the elderly, and can include health care facilities, schools, camps, and child care centres. For example, one order directed the owner/operator to prepare a written action plan and adequately maintain free chlorine residual in treated water prior to it entering the distribution system. Three orders have been complied and the ministry is working with the remaining owner to address the non-compliance issue.
- A total of five orders were issued to owners of five licensed laboratories. For example, these orders directed the laboratories to stop analyzing drinking water samples in relation to chemicals that they are not authorized to test for and to make sure that staff on temporary assignment continue to get training. In all cases, all orders were complied with.

Charges were laid for more serious violations:

- Various owners, operators and subcontractors that worked at seven systems that supply drinking water to residences in cities, trailer parks and children's camps were convicted and fined a total of \$80,650. These convictions include operating a drinking water system without a valid operator's certificate, failing to ensure the drinking water system was operated by a properly trained individual, failing to conduct proper sampling, providing false or misleading information to the ministry, and failing to report adverse water quality incidents to the ministry.

Lead testing

Ontario has the most stringent provincial lead testing in drinking water regime in the entire country and is the only province that requires lead testing in drinking water from all schools and

child care centres. However, ongoing diligence is required to protect the health of the children who attend these facilities.

Work has been done over the past few decades to reduce children's exposure to lead, however, lead enters water through contact with plumbing that contains lead or was constructed using lead solder. On July 1, 2017, the province expanded testing requirements in [Ontario Regulation 243/07](#) made under the *Safe Drinking Water Act, 2002* to help protect children from lead in drinking water. Every tap or fountain used for drinking water or to prepare food or drinks for children in schools and child care centres must be tested for lead at least once by January 2020 (for child care centres and schools with primary divisions) or January 1, 2022 (for schools without primary divisions).

The test results from drinking water samples to date show that the majority of schools and child care centres in Ontario comply with the provincial standard for lead in drinking water. Nearly 95 per cent of more than 69,000 test results in 2018-19 met the province's lead standard. Test results improved when water was flushed through the pipes before the sample was taken. Over 97 per cent of flushed samples met Ontario's standard for lead. The fact that fewer flushed test results exceeded the standard than standing test results is consistent with previous years and demonstrates that flushing is an effective way to temporarily reduce lead levels below the standard for lead. More permanent solutions include replacing the fixture or installing and maintaining a filter.

Operator certification and training

Operators of drinking water systems must be trained and certified according to the type and class of the drinking water system where they work. Depending on the classification level of the drinking water system in question, operators must complete between 60 and 150 combined hours of continuing education and on-the-job training every three years to renew their certificates. Operators can hold multiple certificates, which allows them to work in more than one type of drinking water system.

As of March 31, 2019, 10,040 certificates were held by 7,272 certified drinking water operators in Ontario, and 180 people were employed as system operators in First Nations across the province. The Walkerton Clean Water Centre provides provincewide training for operators and

owners of drinking water systems, with a focus on small and remote drinking water systems, including those serving First Nation communities.

As of March 31, 2019, more than 84,000 new and existing professionals were provided with high quality operator training programs on water treatment equipment, technology and operating requirements. Operator training programs also covered environmental issues such as water conservation and energy efficiency, with the aim of increasing the sustainability of drinking water operations.

Actions to support First Nations communities

Ontario's First Nations communities have the highest number of long-term drinking water advisories in the country. In October 2019, there were 43 long-term drinking water advisories impacting 23 First Nations communities in Ontario.

Although the federal government and First Nations share primary responsibility for providing safe drinking water on First Nations' reserves, Ontario has taken steps to help ensure that all Ontarians have access to clean drinking water. Ontario has been working collaboratively with First Nations' organizations and the federal government by providing technical advice, when asked, to support safe, sustainable water infrastructure in these communities so they can develop the capacity to resolve long-term drinking water advisories.

The province has collaborated with Political-Territorial Organizations, Tribal Councils and their member communities to assess existing water infrastructure against Ontario standards and support the development of long-term community water infrastructure plans. As of October 2019, 63 water and 17 wastewater assessments were completed in 59 communities.

Through the Walkerton Clean Water Centre, Ontario has also been working with First Nations on the development of training programs to support operators, managers and community leaders in maintaining safe drinking water systems. As of October 2019, 106 individuals have successfully completed the Entry Level Training for drinking water operators, approximately half of whom are from Northern Ontario. This is more than twice the number of individuals who have successfully completed such drinking water-related training relative to last year's reporting period.

The Ontario Clean Water Agency's (OCWA's) Training Department offers a full range of technical and certification training in water and wastewater treatment, water distribution, wastewater collection, preventive maintenance, electrical awareness, health and safety and compliance subjects. In addition to their extensive, province-wide, internal training program, OCWA's professional trainers can deliver custom sessions at various convenient locations. First Nations operator training services are delivered as part of OCWA's operations and engineering services or directly through third-party training agreements. In support of access to safe, sustainable drinking water in First Nations communities, OCWA assists First Nations operators in gaining the experience and knowledge required to progress with their water treatment certification. OCWA trainers and mentors also provide advice to Chiefs and councils on their water systems.

We recognize that there is more work to be done to ensure that First Nations communities can also depend on clean drinking water. Ontario will continue to advocate on behalf of First Nations communities to help ensure that Indigenous Services Canada and Health Canada's First Nations and Inuit Health Branch develop sustainable drinking water systems and monitoring programs that are consistent with our rigorous provincial standards.

Actions to protect the Great Lakes and Lake Simcoe

Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health

The Great Lakes directly provide drinking water to the majority of Ontarians.

On July 5, 2019, Ontario and Canada released a draft of a new Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health. The draft agreement is designed to advance action on key challenges facing the Great Lakes such as improving wastewater and stormwater management and reducing pollution, including a new focus on road salt and plastic pollution. It also focuses on ongoing and emerging issues such as blue-green algal blooms, invasive species and climate resilience.

The agreement addresses geographic priorities within the Great Lakes, including continuing partnerships for Lake Erie restoration, a new focus on Lake Ontario and finishing the clean up of

many historically-polluted communities. The [draft Canada-Ontario Agreement](#) was open for public comment on the Environmental Registry from July 5 to September 4, 2019, and approximately 1,500 submissions were received. Many of the public comments focused on reducing excess nutrients and harmful (blue-green) algae, improving wastewater and stormwater management, enhancing shoreline protection, reducing plastic pollution and improving public outreach and education. Ontario is currently reviewing the feedback in detail.

Ontario's Great Lakes Strategy

[Ontario's Great Lakes Strategy](#) articulates Ontario's economic, social and environmental priorities for action by all partners in the Great Lakes region. The [Great Lakes Protection Act, 2015](#) requires a review of the Strategy every six years and a report on progress every three years. As outlined in the [Made-in-Ontario Environment Plan](#), Ontario is committed to reviewing and updating Ontario's Great Lakes Strategy to continue to protect fish, parks, beaches, coastal wetlands and water. That means reducing plastic litter, excess algae and contaminants along our shorelines and reducing the amount of salt entering waterways to protect our aquatic ecosystems. Ontario initiated a review of the Strategy in December 2018 and review work is ongoing to help inform an update of Ontario's Strategy and to reflect the province's evolving social, economic and environmental Great Lakes priorities and Great Lakes progress to date.

Canada-Ontario Lake Erie Action Plan

Phosphorus enters Lake Erie from many sources, including runoff from agricultural lands, urban centres, sewage treatment plants and septic systems. The [Canada-Ontario Lake Erie Action Plan](#), 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 to reduce (blue-green) algal blooms. Ontario reiterated this goal in the [Made-in-Ontario Environment Plan](#).

Actions in the [Canada-Ontario Lake Erie Action Plan](#) include encouraging effective techniques to keep phosphorus on farmland and out of the watershed, improving wetland conservation, and upgrading municipal wastewater treatment and collection systems. Ontario is working with Canada and other partners to implement the [Canada-Ontario Lake Erie Action Plan](#).

On January 15, 2019, Canada and Ontario co-hosted the inaugural meeting of the Lake Erie Action Plan Implementation Team, which is responsible for overseeing the successful

implementation of the plan. The Implementation Team includes provincial and federal agencies, and partner municipalities, agricultural organizations, conservation authorities, and non-governmental organizations who contributed their own actions to the plan, as well as First Nations and Métis communities. The Implementation Team continues to meet regularly to help drive action. For further information on actions underway, see Ontario's [2019 Annual Update](#) and the binational [2019 Progress Report of the Parties \(Nutrients Annex Chapter\)](#).

Lake Simcoe Protection Plan

Ontario has committed in its [Made-in-Ontario Environment Plan](#) to continuing to protect and restore the ecological health of Lake Simcoe and its watershed through the [Lake Simcoe Protection Plan](#), which is a comprehensive plan to protect and restore the ecological health of Lake Simcoe and its watershed. Implementation of this plan is helping minimize pollutants entering the lake and keeping drinking water protected through research, monitoring and supporting the use of best practices.

The [Lake Simcoe Protection Act, 2008](#) requires that the Lake Simcoe Protection Plan be reviewed every 10 years to determine whether it should be amended. The province is working closely with our delivery partners and we are committed to a review process that is responsive and inclusive. Stakeholder and public participation in the review of the plan is key. People living within the watershed and all who have an interest in the health of the lake will be encouraged to have their say.

One of the ways Ontario is working to protect the water quality of Lake Simcoe is through a partnership the ministry entered into in 2018 with the University of Guelph to examine potential best practices for the re-inspection, maintenance and recordkeeping of onsite septic systems in the Lake Simcoe watershed. This important research, which concluded in September 2019, included a review of best practices in Canada and the United States to propose a recommended course of action to protect the Lake Simcoe watershed. The research highlights tangible examples of how municipalities, community members and private businesses can work together to protect our drinking water sources.

Actions to protect Ontario's water sources

Implementing source protection plans

Conservation authorities play an important role in protecting Ontario's sources of drinking water. They are designated as source protection authorities and have legislated responsibilities for maintaining source protection plans under the [Clean Water Act, 2006](#).

Source protection plans contain a series of locally developed policies that are designed to protect existing and future sources of municipal drinking water. Source protection plans are in place in each of the 38 source protection areas across the province. Ministries, municipalities, conservation authorities and others are all working on implementing policies to address various risks to the sources of drinking water for municipal residential systems.

The annual progress reports for source protection demonstrate that implementation is progressing well across the province:

- The majority of significant risks to drinking water sources identified locally have been addressed through the actions set out in source protection plan policies
- 866 risk management plans are in place to manage the risk posed by activities occurring on over 1,000 properties
- 242 municipalities have initiated or completed updates to their Official Plans to conform with source protection plan policies.

Municipalities and conservation authorities have done some great work to protect sources of drinking water. Here are a few recent highlights:

- The Municipality of Halton Region requires Smart About Salt certification for staff and contractors responsible for winter maintenance at all public works facilities, including water treatment plants, water distribution sites, wastewater treatment plants, and wastewater collections sites.
- Cataraqui Region Conservation Authority is promoting the protection of groundwater by hosting workshops for landowners with private wells and septic systems to help them better understand how to reduce the risks (on their property) to drinking water sources. More than 350 landowners have participated.

- The North Bay-Mattawa Conservation Authority, in collaboration with Nipissing University, has been conducting research into the factors contributing to blue-green algal blooms in Callander Bay. The research is contributing to local understanding of the problem and will hopefully lead to a reduction in the frequency of blooms.
- The Lake Simcoe Region Conservation Authority is supporting local actions to reduce risks to drinking water from agricultural activities by supporting projects on farms that protect water quality such as decommissioning wells, managing livestock and manure, and upgrading septic systems. Proposed projects within vulnerable areas where source protection policies apply are encouraged and given priority.

Ontario's investment in the source protection program has supported the development of local expertise in municipalities and conservation authorities related to the protection of drinking water sources. This has created one of the largest bodies of watershed science of any jurisdiction that continues to be improved and maintained. Links to local source protection plans and their associated annual progress reports can be found on [ontario.ca](https://www.ontario.ca).

Protecting groundwater sources

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.

Strengthening compliance and enforcement tools

The ministry has also proposed to expand the use of administrative monetary penalties for environmental contraventions to strengthen enforcement and compliance with laws that protect our drinking water, water resources, air and land. The ministry posted the proposed legislative amendments on the [Environmental Registry](#) from October 28 to November 27, 2019 to introduce, expand and/or clarify the authority to issue administrative monetary penalties for a broad range of environmental violations under key environmental statutes, including the *Safe Drinking Water Act 2002*, *Ontario Water Resources Act*, *Environmental Protection Act*, *Nutrient Management Act 2002*, and *Pesticides Act*. If passed, this will mean that the ministry can take more immediate action to protect source water by securing compliance for violations such as illegal sewage discharges, failing to have a certified operator when operating a drinking water system, or violating terms of a permit to take water.

Again, if passed, the funds collected from these penalties will be reinvested into local environmental projects under a new program, modeled on the Ontario Community Environment Fund. Funds would support community projects, such as restoring habitats of endangered species, restoring rivers and streams, tree planting, shoreline litter clean-up, and other priorities set in the [Made-in-Ontario Environment Plan](#).

Actions to address blue-green algal blooms

Ontarians across the province are concerned that blue-green algal blooms impact our enjoyment of our waterfront and have the potential to affect our drinking water quality. Blue-green algae (also called cyanobacteria) are microscopic organisms that are found naturally in almost all aquatic habitats. Blue-green algae can form visually identifiable areas called “blooms” in lakes when environmental conditions are conducive, including sufficient levels of nutrients such as phosphorus and nitrogen, warm water temperatures and calm weather conditions. When they accumulate in large numbers as blooms, there can be a risk to human health from poisons called “cyanotoxins” that can be produced by blue-green algae.

Recently, there has been an increase in the occurrence of blue-green algal blooms in Ontario. The causes for recent increases in blue-green algal blooms are not fully understood, however, climate change and increases in inputs of nutrients (such as phosphorus) are likely contributors.

Actions by the agricultural sector, municipalities and conservation authorities are helping to reduce phosphorus loadings and potential impacts from algae on our drinking and recreational waters.

Ontario also has a specific [action plan to address blue-green algal blooms](#). The action plan outlines how the ministry is working with partners and entities to address blue-green algal blooms including a number of actions associated with reducing nutrients, raising public awareness, protecting drinking water sources, supporting science and innovation and administering legislation and regulations as well as policies and programs to protect water quality.

The ministry has developed specialized training for staff and comprehensive protocols for responding to occurrences of blue-green algal blooms. The protocols involve rigorous proactive and frequent monitoring of raw water by municipal drinking water systems to ensure early detection and consistent, effective responses to reports of surface water blooms in Ontario.

The Ontario Ministry of Agriculture, Food and Rural Affairs, using a variety of tools and formats, provides technical information and funding supports for growers to implement best management practices that build soil health and reduce soil and nutrient loss. Adoption of these practices retains nutrients on-farm reducing the conditions that contribute to algal blooms in waterbodies. Additionally, Ontario has made a \$2.2-million investment in 2019 to protect the environment, enhance water quality and soil health, and foster efficiency in the agricultural-food sector through new research projects funded through Ontario Agri-Food Innovation Alliance and OMAFRA's open research programs. This investment is supporting new research collaborations to develop new technologies, practices and on-farm solutions designed to improve soil and water health to support agricultural work across Ontario.

Licensing changes to strengthen drinking water protection

Ontario previously recommended proactive monitoring for blue-green algal blooms via an annual letter to owners and operators of municipal residential drinking water systems that use surface water as their water source. As part of its process of reviewing current drinking water permit and licence applications for municipal drinking water systems, Ontario is now incorporating a new standard condition that requires a monitoring, sampling and reporting plan for blue-green algal

blooms. The ministry will also be including this condition in the upcoming renewal cycle for all municipal drinking water licences.

Our stringent requirements around managing blue-green algal blooms are designed to help ensure that Ontario never has a case of microcystin (cyanotoxins) in our treated drinking water.

Further actions to support watershed management

Muskoka Watershed Conservation and Management Initiative

In August 2018, Ontario announced \$5 million for the Muskoka Watershed Conservation and Management Initiative to better identify risks and issues facing the Muskoka Region, such as increased development and impacts associated with severe weather and flooding. The government also committed to matching tax-deductible donations from people and businesses to the initiative, and any funding from other levels of government, up to an additional \$5 million.

The province is continuing to act to protect the Muskoka Watershed. On August 7, 2019, Ontario announced the appointment of nine members to the Muskoka Watershed Advisory Group. The group includes representation from residents, communities, organizations and businesses local to the Muskoka Region, as well as academia. The focus of the advisory group is to provide advice and recommendations on measures to protect the watershed and support the economic growth of the region.

This initiative and the work of the advisory group will help inform the development of a more comprehensive approach to watershed management in Muskoka and current and future actions elsewhere in the province.

Water Opportunities Act, 2010

The [*Water Opportunities Act, 2010*](#) requires public reporting by the Minister every three years. This is the third progress report on implementation of that Act. The following summary discusses Ontario's actions to further the purposes of the Act, which include encouraging efficient water

use, conserving and sustaining water resources, promoting innovative water and wastewater technologies, services and practices, and strengthening municipal infrastructure planning.

Helping people conserve water and save money

Ontarians are among the national leaders when it comes to water conservation. According to information released by Statistics Canada, Ontario's average daily residential water use per capita of 184 litres is lower than the Canadian average of 220 litres and lower than ten other provinces and territories (2017). Ontario's average residential water use also declined by 11 per cent from six years earlier, from 208 litres per person per day in 2011 to 184 in 2017.

Ontario's [Made-in-Ontario Environment Plan](#) commits to promoting the use of technologies and practices to encourage more efficient water use, noting that water conservation is improved through water conservation planning; water use tracking and reporting; and improving standards for household fixtures and appliances, such as dishwashers or washing machines. The province and broader public sector play a leadership role in this area.

Increasingly stringent water efficiency requirements in the [Building Code](#) reduce water consumption from fixtures such as showers, toilets, urinals and faucets. Ontario made changes to its [Building Code](#) in 2019 to enhance water efficiency in new construction. Changes include requirements related to lower-flow public and residential washroom faucets as well as requiring automatic water shut-offs in public showers (such as recreation centres) and urinals when they are not in use. These changes, which will be mandatory on January 1, 2020, align Ontario's Building Code with National Plumbing Code requirements. Reducing the amount of water that is used and wasted helps to save money and the energy that municipalities use to pump and treat water. It also keeps excess water out of sewage systems that might otherwise be overwhelmed during storm events.

Ontario sets water efficiency standards for energy consuming products which also consume water through [Ontario Regulation 509/18, Energy and Water Efficiency – Products and Appliances](#), under the [Electricity Act, 1998](#). On January 1, 2017, the regulation was updated to include new water efficiency standards for appliances such as clothes washers, clothes dryers and dishwashers. Energy and water efficiency standards for these products are harmonized with the highest minimum standards in North America.

Owners of large commercial, industrial, multi-unit residential buildings in Ontario have, since 2018, been required to report their building's energy and water consumption, and greenhouse gas emission data annually to the Ministry of Energy, Northern Development and Mines. The requirements of the energy and water reporting and benchmarking initiative are found in [Ontario Regulation 506/18, Reporting of Energy Consumption and Water Use](#). Energy and water reporting and benchmarking allows building owners to review a building's energy and water use to compare it to its own past performance and the performance of other similar buildings.

Strengthening municipal infrastructure planning

[Ontario Regulation 588/17, Asset Management Planning for Municipal Infrastructure](#) came into effect on January 1, 2018. The regulation, which is being phased in over a 6-year period, requires municipalities to prepare asset management plans for their core infrastructure, including drinking water, wastewater and stormwater assets, by July 1, 2021 and all other assets by July 1, 2023. The regulation has been designed to improve the standardization and consistency of municipal asset management planning information which could help the province and municipalities work collaboratively to address structural challenges and better target funding resources and financing tools.

Ontario also is providing direct support for water systems through its ongoing infrastructure programming. Launched in September 2016, the Clean Water Wastewater Fund provides funding to municipalities, First Nations, and Local Services Boards for over 1,350 water, wastewater, and stormwater projects. Approximately 1,250 of these projects are underway, with more than \$595 million in combined provincial and federal funding paid to recipients to date.

In 2018, Ontario also signed an Integrated [Bilateral Agreement](#) with the federal government for the Investing in Canada Infrastructure Program (ICIP). The ICIP will allocate \$30 billion in combined federal, provincial, and municipal infrastructure funding over the next 10 years across four program streams, including Green infrastructure.

The Green stream consists of \$7.1 billion in provincial (\$2.3 billion), federal (\$2.85 billion), and partner funding (\$1.9 billion).

On October 28, 2019, Ontario launched the first intake of the Green stream which will be accepting applications until January 22, 2020. This intake will provide \$200 million in combined

federal and provincial funding for priority water, wastewater and stormwater projects. Further information on subsequent program intakes is anticipated in 2020.

Fostering innovative water management

The Walkerton Clean Water Centre (WCWC) and the Ontario Clean Water Agency (OCWA) are provincial agencies that provide education and training to water professionals, and water-related services to system owners. Ontario works in partnership with WCWC to support innovative water initiatives, such as pilot testing services related to source water quality, treatment performance and alternative treatment technologies which are performed at WCWC's Technology Demonstration Facility and on-site. Recent pilot projects have been related to arsenic reduction, coagulation, iron/magnesium reduction, and control of natural organic matter and trihalomethanes. The OCWA also conducts testing, piloting and demonstration of technology solutions, such as their pilot project to turn biosolids from wastewater treatment plants, food, and organic waste into energy sources.

The Water Technology Acceleration Project (WaterTAP), created under the [Water Opportunities Act, 2010](#), delivered programs, services and events to assist companies and stakeholders in Ontario's water and wastewater sectors. WaterTAP concluded its operations on June 30, 2019, having successfully fulfilled its legislated mandate. Ontario also has supported municipalities in optimizing water and wastewater systems such as the City of Brantford and Town of Bancroft. Brantford demonstrated that its existing infrastructure can produce ultra-low discharges of phosphorus at a low cost without building new infrastructure, and Bancroft is optimizing its wastewater system to ensure it is resilient to climate change. Both approaches involved analyzing existing conditions, making data-based decisions and applying continuous improvement to understand and maximize the capability of existing infrastructure.

Conclusion

Ontarians across the province expect and deserve clean drinking water, and we should all be proud that Ontario's drinking water continues to be among the best protected in the world. This is a result of the province's comprehensive protection framework that helps safeguard Ontario's drinking water.

We take the health and safety of all Ontarians, especially our children, very seriously. To keep our drinking water protected, we will continue to work collaboratively with other jurisdictions, the federal government, municipalities, Indigenous communities, business and local partners. We will continue to be transparent about the challenges we face, and by working together, we will use our scientific expertise and collective resources to continue managing our water resources responsibly.

We are committed to protecting the province's drinking water and water resources as part of our [Made-in-Ontario Environment Plan](#) to keep Ontarians safe and pass on a cleaner environment to future generations.