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BY EMAIL: ec.grandslacs-greatlakes.ec@canada.ca and glo@ontario.ca

Michael Goffin
Great Lakes National Program Office
Environment and Climate Change Canada
4905 Dufferin Street
Toronto, ON
M3H 5T4

Carolyn O'Neill
Great Lakes Office, Ministry of the Environment,
Conservation and Parks
40 St Clair Avenue West, Floor 10
Toronto, ON
M4V 1M2

Re: Draft 2020 Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health (ERO Number: 019-0198)

INTRODUCTION AND OVERVIEW

In a time of climate and biodiversity crisis among other serious stresses on the Great Lakes ecosystem, we look to instruments such as the Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health (COA) to guide our region in creating climate resilient communities and healthy ecosystems for people and nature to thrive. As stated in an earlier letter, we the undersigned organizations, expect a renewed COA that sets clear targets, investments, actions, and timelines. Decisions around policy, restoration, and protection of the Great Lakes – St Lawrence River ecosystem should integrate the perspectives from northern to southern Ontario, including values and worldviews of Indigenous Peoples. In particular, there is a need to integrate Indigenous governance into the COA, such that Indigenous governments are acknowledged as rights holders and contribute directly to decision-making. We are supportive of many elements contained in the draft COA, including the focus on key environmental issues such as reducing plastic pollution, road salt use, untreated and undertreated wastewater, and nutrient loading in Lakes Erie and Ontario. As well, we are supportive of the clear focus on action and increased transparency regarding Areas of Concern (draft Annex 5). We recommend improving the draft COA by recognizing Indigenous governance, setting ambitious goals and precise action plans to achieve those goals, providing adequate investment, clarifying reporting and accountability measures, committing to transparency, and enhancing public engagement.

Given that the next steps regarding the draft COA will not be determined until after a new federal government forms this fall, we reserve the right to provide additional comments and recommendations in the coming weeks and months. For now, our detailed comments are provided below.

COMMENTS

1. Indigenous governance

We are disappointed that the draft COA does not incorporate Indigenous governance. The inclusion of Indigenous peoples in COA annexes is not a sufficient process to work towards reconciliation and the integration of indigenous values and rights into the improvement of the region for all generations to come. We must turn our focus to the entirety of the Great Lakes – St Lawrence ecosystem and integrate perspectives from northern to southern Ontario, including, particularly, values and worldviews of Indigenous Peoples.

We recommend integrating Indigenous governance into the COA to become a tri-governance instrument: The Canada-Ontario-Indigenous Agreement, wherein Indigenous governments are acknowledged as rights holders and contribute directly to decision-making. Bringing Indigenous leaders to the table at the conception of renegotiation must be a new standard going forward.

In the absence of full participation of Indigenous Peoples in governance, we are concerned that the stated goals in Annexes 12 (Métis and the Great Lakes) and 13 (First Nations and the Great Lakes) of the draft COA will go unmet, especially if sufficient funds are not provided to the Métis and First Nations by the federal and provincial governments to ensure adequate Métis and First Nations capacity and representation. Indigenous Peoples have a vital role to play in implementing the Agreement on their own lands. As such, we recommend that Canada and Ontario undertake meaningful consultation with Métis and First Nations communities to determine the level of resources required to ensure their participation in COA implementation.

Recommendation 1: Acknowledge Indigenous governments as rights holders with decision-making power and a vital role in Agreement implementation.

Recommendation 2: Describe the plan to consult First Nation and Métis communities and commit to providing adequate resources for their participation in Agreement implementation.

2. Ambitious Goals

The Principles section of the draft COA states that the Parties “... remain accountable to citizens by establishing clear results and commitments for this Agreement”.¹ The Agreement, as

¹ Draft Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health, 2020, Article III

drafted, does not embody this principle. Very few results and activities in the draft COA are specific, measurable, and time-bound. Much of the work described in the draft COA is consultative, outreach-focused, or research-oriented. Although such commitments are important, they are far less quantifiable and it is unclear what the anticipated outcome is at the end of the COA term. Significant changes will not happen unless action plans are included for the work that will be carried out to take care of the waters and wetlands in the Great Lakes – St Lawrence ecosystem. Research and planning are an important component, yet only the beginning of what needs to be done.

For example, no reduction targets or timelines are established for harmful pollutants in the draft Harmful Pollutants Annex. In comparison, results set out in the 2002 COA Annex on Harmful Pollutants contained clear targets and timelines: “An 85 per cent reduction in mercury releases compared to releases in 1988 by 2005”.²

The Environmental Commissioner of Ontario (ECO) frequently noted the lack of transparency and accountability in the setting of priorities and targets in past COAs and has recommended the need for clearly defined results and deadlines³. While past COAs were not without issue, this draft COA indicates a further shift away from transparency and accountability.

An effective, transparent, and accountable COA must contain commitments that are clear, measurable, and time-bound. In the absence of clearly defined and measurable outcomes, the public and decision-makers will not be able to effectively determine the level of progress on the commitments in the draft COA. An objective analysis of progress is necessary to ensure transparency, to provide greater assurance of progress, and to stimulate further actions and adequate allocation of resources to carry out those actions.

Further to the lack of ambition in the Parties’ commitments in the draft Agreement, changes to Article V (Administration of the Agreement) present a concern regarding implementation. In the newly proposed structure, the COA Executive Committee will now be overseeing all elements of Annex activities and Agreement implementation. The apparent removal of the COA Management Committee is concerning because it is not clear how cross Ministerial coordination will be managed, and how Annex progress will be tracked. Further, the requirement for Annex Leads to be guided by a five-year work plan has also been removed; therefore, lower administrative levels have less implementation guidance. Finally, there is no longer any reference to Ad-Hoc Subcommittees and the Canada-Ontario Chemicals Management Committee.

² Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem (2002), at 20

³ Environmental Commissioner of Ontario, *Changing Perspective: Annual Report 1999/2000* (ECO 1999), at 46; Environmental Commissioner of Ontario, *Thinking Beyond the Near and Now: Annual Report 2002/2003* (ECO 2002), at 75; Environmental Commissioner of Ontario, *Getting to K(NO)W: Annual Report 2007/2008* (ECO 2007), at 89

We recognize that streamlining administrative oversight could make the Agreement more efficient, in principle. However, there is concern that without guidance and ongoing cross-Ministerial coordination from the Management Committee, elements of the COA's implementation could be overlooked. On the other hand, in the Management Committee's absence, Annex Leads should be guided by clear five-year work plans based on the priorities set out in each Annex. Of particular concern is that the COA Management Committee is cited as the implementation and coordinating body for another piece of Canada's and Ontario's Great Lakes framework, namely the Canada-Ontario Lake Erie Action Plan (COLEAP). There may well be other situations where the removal of the COA Management Committee will impact other initiatives.

In order to ensure accountability and transparency to the Great Lakes – St Lawrence community, we recommend:

Recommendation 3: Establish concrete, ambitious targets and timelines under the COA, as well as clearly articulated responsibilities for participating governments and stakeholders. "An 85 per cent reduction in mercury releases compared to releases in 1988 by 2005" from the 2002 COA is an example of a clearly articulated target and timeline for mercury releases.

Recommendation 4: That the Parties clarify how cross Ministerial coordination will be managed and how, within a streamlined administration, implementation of the COA will be assured.

Recommendation 5: That the Parties clarify which body will oversee the implementation of policies that currently rely on the COA Management Committee.

Recommendation 6: That the existing requirement for Annex Leads to follow five-year work plans to guide implementation of the COA be maintained.

3. Adequate Investment

We are concerned that the draft COA does not include any specific funding commitments, and that the funding itself, based on the track record of past COAs, will not be sufficient to achieve the purpose of the Agreement. Investments under past COAs have been disproportionate to the scale of the challenges facing the Great Lakes – St Lawrence region. The ECO has previously commented that the "chronic underfunding" of COA continues to hamper progress⁴.

There has been a progressive weakening of funding commitments under COA. Under the 1994 COA, specific funding was designated for the implementation:

⁴ *Supra* note 3, ECO 1999; ECO 2007; Environmental Commissioner of Ontario, *Engaging Solutions: Annual Report 2010/2011*, at 8

Canada and Ontario agree that the achievement of the objectives covered by this Agreement are estimated to cost Canada, Ontario and municipal governments over \$2.5 billion, including approximately \$1.7 billion for restoration of degraded areas. Canada and Ontario agree to share the core administrative costs associated with central and local coordination of the RAP [Remedial Action Plan] program⁵.

While the 2002 COA did not specify a funding amount, the Parties had committed themselves to

“...providing the resources needed to implement the Agreement and the Annexes pursuant to it”.⁶ This funding commitment has since been significantly weakened to the Parties providing the resources needed for implementation subject to the caveat to “...there being an *appropriation* for such purposes in Parliament or the Legislature, as the case may be, in the relevant fiscal year”⁷ [emphasis added]. This language is also found in the draft COA⁸.

We recommend that funding commitments by both Canada and Ontario be explicitly stated in the draft COA. Specifically, we recommend that Canada commit to a minimum \$100 million per year investment under COA⁹. Further, Ontario will need to make a significant funding commitment, in order to collaborate with the federal government in achieving the 15 key actions aimed at addressing just four priorities: protecting Great Lakes shorelines from high water levels, reducing our exposure to toxics, accelerating nutrient reductions to address harmful algal blooms, and making contaminated beaches clean and safe¹⁰. Given that COA addresses more than just these four priorities, additional investments will be necessary.

Without committed resources by each level of government for each year, COA is more vulnerable to the competing priorities of government funding. Ensuring that the COA commitments are allocated adequate resources will be aided by specificity in the goals, which we have recommended above. Without clear commitments to resourcing and clarity in the goals (eg, targets and timelines), it is very difficult to ascertain whether there will be sufficient funding to carry out the commitments under the draft COA. Commitment of appropriate resources by Canada and Ontario is essential to the effective implementation of COA. Failure to outline the governments’ resource commitments significantly challenges the ability of responsible governmental departments and the Great Lakes – St Lawrence community to carry

⁵ Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem (1994), at 8

⁶ Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem (2002), at 6

⁷ Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health (2014), Article VII

⁸ Draft Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health, 2020, Article VIII

⁹ The Great Lakes and St Lawrence Collaborative, PROTECTING THE GREAT LAKES AND ST. LAWRENCE Part 1: Great Lakes Action Plan 2030 (June 2019). Online: <https://westbrookpa.com/glsicollab/reports/great-lakes/>

¹⁰ Ibid.

out work under COA. Without adequate funding we are concerned that Canada and Ontario will be unable to fulfil the goals of each draft annex by the end of the COA term.

In addition, there is a persistent lack of transparency with respect to funding under COA¹¹. There is no transparent public reporting of funding commitments and distribution of funds under COA. There is no requirement to notify or consult the public where governments have withdrawn resources and support. As a result, it is very difficult for the public to ascertain what funding commitments and amounts were made towards the implementation of COA commitments.

This lack of transparency also limits the ability of external stakeholders, such as the undersigned organizations, to assess and make recommendations about where more investment is needed. We request a detailed reporting of all relevant spending under COA 2014 in order to properly assess priority areas for funding under the draft COA. Transparent reporting of funding commitments and actual expenditures must be a standard going forward under COA.

Recommendation 7: That the COA include specific funding obligations sufficient to implement the commitments under the Agreement and the Annexes.

Recommendation 8: That the COA include transparent reporting of funding commitments and actual expenditures. Specifically, we recommend that Canada commit to a minimum \$100 million per year investment under COA and that Ontario similarly make a significant annual funding commitment.

4. Accountability Measures

a. Reporting

The draft COA fails to provide comprehensive reporting requirements, which are an essential component of an effective, transparent and accountable agreement.

There has been a progressive weakening of reporting requirements under COA. Under the 2002 COA, Annex Leads were required to undertake annual assessment of progress and the COA Management Committee was responsible for preparing and releasing progress reports to the public every two years. The 2002 COA also contained a “Monitoring and Information Management Annex”, with clear activities and timelines regarding the development of an information management system for tracking change and progress. Progress reports were

¹¹ Environmental Commissioner of Ontario, *Neglecting Our Obligations: Annual Report 2005/2006 (ECO 2005)*, at 21; *Supra* note 3, ECO 2007

released under previous COAs in 1999, 2003, 2005, 2007 and 2010¹², all of which provided some accounting of the progress relevant to each goal or result. To our knowledge, no progress report was released by the Parties under the 2014 COA. The draft COA, like the 2014 COA, does not include mandated timelines for reporting. While past COAs and progress reports were not without challenges, the lack of reporting under more recent COAs is very concerning.

Furthermore, we are concerned about the shift away from joint reporting under the draft COA. In past COAs, the Parties had committed to report jointly on progress. The draft COA, on the other hand, no longer requires joint reporting. Instead, the Parties now agree to report under their own mechanisms – Canada will report under the Great Lakes Water Quality Agreement (GLWQA) and Ontario pursuant to the *Great Lakes Protection Act, 2015* (GLPA). We believe this shift away from joint reporting is inconsistent with the purpose and function of COA. The COA outlines how Canada and Ontario will cooperate and coordinate their efforts to restore, protect and conserve the Great Lakes. Notably, the first COA, which was signed 1971, predates the first GLWQA. The potential activities under COA are not limited by the scope of the GLWQA and/or the GLPA, and joint reporting should, at minimum, occur with regard to these activities. Further, joint reporting is more efficient when there are joint commitments (eg, initiatives on which Canada and Ontario collaborate).

In an effort to identify progress and gaps under the 2014 COA, the Canadian Environmental Law Association undertook research and prepared a report, which is attached to this submission as Appendix A. Preparing this report required researching various federal and provincial government websites, including the announcement pages for each responsible department and ministry, reviewing budgets and other reporting mechanisms. The public cannot be expected to undertake such a difficult, inexact, and time-consuming task.

To ensure accountability to the Great Lakes – St Lawrence community, it is critical that Canada and Ontario report on progress under the COA. We recommend publicly available biannual progress reports using a consistent set of measures and indicators of progress and success. A COA reporting protocol should be developed and published to ensure consistency and transparency. In addition to reporting on success, progress reports should identify key barriers to meeting targets and identify steps to overcome those barriers. In light of previous shortcoming, the ECO has also suggested that COA progress reports be subject to independent review¹³.

We further recommend the Parties implement a holistic approach to measuring and reporting on progress which considers not only changes in chemical and biophysical indicators of water

¹² Environment Canada, Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem - progress report / [Co-published by] the Ontario Ministry of the Environment. Online:

<http://publications.gc.ca/site/eng/9.507777/publication.html>

¹³ *Supra* note 1, ECO 2007, at 89

quality but also overall environmental integrity of the Great Lakes – St Lawrence ecosystem. This includes consideration of the health of the region’s economy; individual and societal values and perceptions of the Great Lakes – St Lawrence ecosystem; and individual and societal health and well-being. Broadening the indicators used to measure progress can be helpful in acknowledging and defining the interconnectedness of natural, social and economic components of the Great Lakes – St Lawrence ecosystem. It can also promote a more comprehensive and inclusive understanding of the value of the Great Lakes – St Lawrence ecosystem and those who benefit from the ecosystem. This holistic approach to reporting is consistent with the stated goal of the COA, which is “to restore, protect and conserve Great Lakes water quality and ecosystem health in order to assist in achieving the vision of a healthy, prosperous and sustainable region for present and future generations”.¹⁴

The University of Michigan is currently undertaking a binational project to develop sustainability indicators¹⁵. It is directed by a steering committee that includes representatives of: The Great Lakes Fishery Commission (Marc Gaden), the International Joint Commission (Raj Bejankiwar) and the Great Lakes Commission (Victoria Pebbles). We encourage the Parties to reach out to the Principal Investigator (Jennifer Read) of this project to explore if and how future assessments of progress made under the COA can more comprehensively assess how Ontarians benefit from the value of the Great Lakes – St Lawrence ecosystem, defined broadly.

Recommendation 9: That the Parties commit to jointly reporting on progress under COA (rather than separately), and do so through publicly available biannual reports that use a consistent set of measures and indicators of progress and success.

Recommendation 10: That the Parties include holistic measures of success that incorporate natural, social and economic components of the Great Lakes – St Lawrence ecosystem. Connect with researchers that have developed or will be developing such indicators (eg, University of Michigan’s binational project to develop sustainability indicators) to determine the potential fit within the COA.

b. Data

Data and information collected under the COA, such as through monitoring activities, should be publicly available. This would greatly assist the Great Lakes – St Lawrence community’s effort to identify and address priority issues.

¹⁴ Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health (2014), Article II

¹⁵ See School of Social Work, University of Michigan article, “Developing Sustainability Indicators for the Great Lakes”, online: <https://ssw.umich.edu/offices/research/projects-grants/developing-sustainability-indicators-for-the-great-lakes/WEB1539714106>. Principal Investor: Jennifer Read (jenread@umich.edu)

Recommendation 11: That the Parties set up and manage a COA web portal that can organize material related to implementation, such as data and progress reports. This portal should be easily accessible to and usable by the public.

5. Public Engagement

We are concerned about the minimal level of public engagement in the development of the draft COA and the lack of an express commitment in the draft Agreement to public consultation and engagement. The ECO has highlighted the lack of public involvement in the negotiation and the implementation of commitments as a persistent shortcoming of COA¹⁶.

Participation in the renegotiation of the draft COA has been limited to one bilateral meeting between the NGOs and Environment and Climate Change Canada on March 20, 2019, followed by a webinar information session jointly hosted by the Ministry of Environment, Conservation and Parks and Environment and Climate Change Canada on May 31, 2019, where it was announced that a draft COA would be released in the coming weeks. From our perspective, Canada and Ontario did not allow adequate time for a thorough review of and engagement with the Great Lakes – St Lawrence community on the scope of the COA, goals, and targets.

The draft COA should outline the process for the next COA review process. The Agreement should contain explicit wording on how the next COA review process will be undertaken, including clarifying when the review process will begin, setting out how public engagement will be sought, and committing adequate staff resources and funds to consultation and engagement.

In addition, essential to the success of the COA is the level of support from the Great Lakes – St Lawrence community in its implementation. Opportunities for meaningful public engagement in the Agreement's implementation should be incorporated in the draft COA. Mechanisms should be created for ensuring that representatives of the Great Lakes – St Lawrence community have a formal role in the oversight and decision-making related to the administration of the Agreement. This could be achieved by establishing a public advisory body that provides input to the COA Executive Committee, and by ensuring that representative community members participate in each of the COA Annex Committees.

Efforts must also be made to raise the public profile of the COA and Great Lakes – St Lawrence Basin issues more generally. It is our understanding that there is little awareness and understanding regarding the COA among the public. Action and support of the people who live, work and play in the Great Lakes – St Lawrence Basin is essential to the success of the COA. Government agencies and partners must work closely together to better promote awareness to

¹⁶ *Supra* note 11, ECO 2005

the general public about the work that is being done through COA and convey a sense of urgency regarding the issues facing our Great Lakes – St Lawrence ecosystem.

Recommendation 12: That the COA be amended to include an outline of the public engagement process for future COAs, clarifying when the review will begin and how the public will be consulted.

Recommendation 13: That a public advisory body be established to provide input to the COA Executive Committee and ensure that public engagement is formalized and ongoing.

Recommendation 14: That the Parties pursue opportunities to raise the public profile of the COA and the Great Lakes – St Lawrence ecosystem more generally.

6. Annexes

The draft COA includes a slightly modified Annex structure compared to the structure of previous COAs. Generally, we are supportive of the proposed structure and, particularly, the addition of Wastewater and Stormwater (Annex 3) as it represents the acknowledgement of the serious threats to water quality and ecosystems throughout the Basin. Further, the rationale for integrating science and innovation throughout the Agreement by proposing Article VI – Science is reasonable. As mentioned in Section 1 of this submission, identifying the interests of Métis and First Nations via Annexes does not go far enough toward an innovative approach to co-governance and does not acknowledge Indigenous Peoples as rights holders and as having a vital role in Agreement implementation. On the whole, the proposed Annexes reflect the majority of serious threats faced in the Great Lakes – St Lawrence Basin; although, as Sections 2-4 of this submission detail, the ability of the draft COA to address these threats should be strengthened by providing more ambitious goals, action plans, greater investment, and accountability measures. The following subsections include additional detail and specific recommendations on issues we work closest on, or have the most direct recommendations for, at this point in time.

Recommendation 15: That the Annexes in the draft COA be reviewed and opportunities to increase accountability and ambition on annex goals be considered for the final COA.

a. Nutrients

The draft COA includes some positive proposals for action on nutrient pollution to address harmful algae blooms not only in Lake Erie, but now in Lake Ontario¹⁷. The finalization of COLEAP represents a significant development since the previous COA, despite the action plan's

¹⁷ Draft Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health, 2020, Annex 1

shortcomings. The commitment to develop and implement phosphorus management plans for priority watersheds in Lake Erie is a welcomed commitment in this draft. We hope to see this commitment strengthened further with timelines and measurable goals.

We are additionally supportive of the Parties committing to begin a similar COLEAP process to address harmful algae blooms (HABs) in Lake Ontario. However, the process should recognize the limitations of relying on voluntary measures that are currently making the phosphorus reduction targets for Lake Erie additionally challenging to achieve. We are encouraged by the commitment to extend action on HABs to Lake Ontario, and encourage the Parties to consult the Great Lakes – St Lawrence community as they begin this process. The addition of goals and milestones for the development timeline of this action plan for Lake Ontario would make the existing commitment stronger.

As mentioned above, the removal of the COA Management Committee is a key concern for the Nutrients Annex as it is often cited as being the implementation and coordination body for COLEAP. The COLEAP implementation plan is now months overdue (due February 2019), and such delays cannot be afforded. In launching a process for Lake Ontario, speed of implementation should be prioritized, and the administration gaps presented in the draft COA should be addressed and clarified.

Recommendation 16: Specify the timelines and targets for priority Lake Erie watershed phosphorus management plans.

Recommendation 17: Clarify how the Canada-Ontario Lake Erie Action Plan will be coordinated and implemented as it currently relies on the COA Management Committee. Further, clarify how cross-Ministerial efforts for a Lake Ontario process would be coordinated in the absence of this administrative body.

b. Harmful Pollutants – Plastic Pollution

Plastic pollution is a welcomed addition to harmful pollutants (draft Annex 2), and we are pleased to see the Parties acknowledge the urgency of this threat to the Great Lakes – St Lawrence River in the draft COA. While increasing the amount of waste diversion and transitioning to extended producers' responsibility are positive actions, Ontario should commit to high collection targets for plastic products. In particular, plastic bottles and caps are among the most littered items found in shoreline cleanups¹⁸ and Ontario is one of the only two Provinces in Canada without a deposit return program for beverages in plastic containers. According to Environmental Consultancy Eunomia, a deposit return program with a 90% target,

¹⁸ Great Canadian Shoreline Cleanup, 2019. "Data – 2018 Dirty Dozen". Online: <https://www.shorelinecleanup.ca/impact-visualized-data>

would avoid 80% of litter from plastic bottles and increase the plastic recycling by 117,567 tonnes¹⁹.

Additionally, we take issue with the intention of addressing plastic pollution through technologies such as thermal treatment (incineration) and chemical recycling. This proposition is out of context, as burning does not have any impact on plastic pollution. Moreover, incineration is not consistent with Ontario's *Resource Recovery and Circular Economy Act, 2016*. Although energy from waste and alternative fuels are permitted as waste management options, these methods will not count towards diversion in Ontario. Energy from waste is also not consistent with a Circular Economy, which seeks to keep materials and resources in the economy as long as possible.

To address plastic pollution, we urge Ontario to implement a deposit return program for plastic bottles as part of the transition to a Circular Economy. A deposit return program is a proven best practice that can recover over 90 per cent of containers sold.

Further, one of the goals for a Circular Economy is to design waste out of the system. As such, in addition to transitional commitments (including diversion targets, no thermal/chemical treatment, and implementing a deposit refund program), Canada and Ontario should commit to implementing effective and timely waste reduction and reuse policies, plans and programs (eg, ambitious extended producers' responsibility for products and packaging).

Recommendation 18: That Ontario immediately establish high collection targets for plastic products and that Canada and Ontario commit to implementing an ambitious extended producers' responsibility for products and packaging.

Recommendation 19: Remove any mention of thermal treatment (incineration) and ensure options for waste management remain consistent with a Circular Economy.

Recommendation 20: That Ontario, as we transition to a Circular Economy, establish a deposit return program for plastic bottles.

c. Harmful Pollutants - Chloride

We are supportive of the actions to address chloride pollution from excessive road salt use that have been included in the draft COA (Annex 2). Specifically, developing "site-specific chloride guidelines for areas that are primary habitat for chloride-sensitive species"²⁰ is an excellent

¹⁹ Eunomia Research & Consulting, 2019. "How a Deposit Return System Will Complement Ontario's Blue Box Program and Enhance Circular Economy." at 10. Online: <https://reloopplatform.eu/wp-content/uploads/2019/06/Ontario-Report-Final-Issued-2.pdf>

²⁰ Draft Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health, 2020, Annex 2, Result 4, paragraph (d)

start. We encourage the Province to consider creating a Provincial Water Quality Objective for chloride to fulfill this objective, and would welcome this positive step. We are encouraged by the joint action to monitor chloride concentrations in freshwater to understand the impacts to the Great Lakes – St Lawrence River.

To further strengthen the commitment to address road salt pollution, we recommend the federal government move beyond a voluntary code of practice and engage smaller townships and communities across the Great Lakes – St Lawrence Basin in addition to large urban centers. On the provincial scale, tracking salt imports and sales in Ontario would allow for better estimates of the application rate across private and public sectors in the province. We are encouraged by the notion of exploring new technologies and processes for preventing chloride contamination of drinking water, and urge the Parties to commit to investing in these technologies.

Additionally, the commitment to promote road salt alternatives and certification programs is an important step, and we encourage the Parties to engage the Great Lakes – St Lawrence community as well as private and public sectors in certification and liability protection schemes to balance public safety and environmental health. We recommend the Parties continue to pursue solutions and set milestones and measurable goals for progress on addressing excess road salt.

Recommendation 21: Ontario commits to establishing a Provincial Water Quality Objective for chloride, as the clearest way to meet their objective of developing “site-specific chloride guidelines”.

Recommendation 22: That the Parties continue to consult the Great Lakes – St. Lawrence community on initiatives to address chloride as a harmful pollutant, including certification programs, and to extend urban programs to rural areas in the Basin.

d. Areas of Concern

Areas of Concern (draft Annex 5) is the strongest and most accountable aspect of the proposed Agreement. The approach taken in the draft COA, to advancing remediation and commitment to complete assessment reports, is positive and encouraging. The actions on proceeding with beneficial use impairment re-designations are well defined. The commitments under Annex 5 are discrete and measurable, and we strongly encourage the Parties to draft other Annexes with such clarity and specificity.

Recommendation 23: Carry forward the specificity and measurable goals of the Areas of Concern Annex to other aspects of the draft COA.

CONCLUSION

Our Great Lakes – St Lawrence Region is facing serious threat from climate change, harmful algal blooms, plastic pollution, and ecological break down at an increasing rate. Therefore, to address these increasingly severe threats, the terms set by the draft COA for the next five years (2020-2024) must be stronger than it ever has. The next iteration of the COA is our opportunity to show leadership in the protection of the Great Lakes – St Lawrence ecosystem, and we hope governments will approach this task with that responsibility top of mind.

Repeated below are our 23 recommendations, for ease of reference.

Recommendation 1: Acknowledge Indigenous governments as rights holders with decision-making power and a vital role in Agreement implementation.

Recommendation 2: Describe the plan to consult First Nation and Métis communities and commit to providing adequate resources for their participation in Agreement implementation.

Recommendation 3: Establish concrete, ambitious targets and timelines under the COA, as well as clearly articulated responsibilities for participating governments and stakeholders. “An 85 per cent reduction in mercury releases compared to releases in 1988 by 2005” from the 2002 COA is an example of a clearly articulated target and timeline for mercury releases.

Recommendation 4: That the Parties clarify how cross Ministerial coordination will be managed and how, within a streamlined administration, implementation of the COA will be assured.

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Recommendation 8: That the COA include transparent reporting of funding commitments and actual expenditures. Specifically, we recommend that Canada commit to a minimum \$100 million per year investment under COA and that Ontario similarly make a significant annual funding commitment.

Recommendation 9: That the Parties commit to jointly reporting on progress under COA (rather than separately), and do so through publicly available biannual reports that use a consistent set of measures and indicators of progress and success.

Recommendation 10: That the Parties include holistic measures of success that incorporate natural, social and economic components of the Great Lakes – St Lawrence ecosystem. Connect with researchers that have developed or will be developing such indicators (eg, University of

Michigan’s binational project to develop sustainability indicators) to determine the potential fit within the COA.

Recommendation 11: That the Parties set up and manage a COA web portal that can organize material related to implementation, such as data and progress reports. This portal should be easily accessible to and usable by the public.

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Recommendation 14: That the Parties pursue opportunities to raise the public profile of the COA and the Great Lakes – St Lawrence ecosystem more generally.

Recommendation 15: That the Annexes in the draft COA be reviewed and opportunities to increase accountability and ambition on annex goals be considered for the final COA.

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Recommendation 17: Clarify how the Canada-Ontario Lake Erie Action Plan will be coordinated and implemented as it currently relies on the COA Management Committee. Further, clarify how cross-Ministerial efforts for a Lake Ontario process would be coordinated in the absence of this administrative body.

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Recommendation 22: That the Parties continue to consult the Great Lakes – St. Lawrence community on initiatives to address chloride as a harmful pollutant, including certification programs, and to extend urban programs to rural areas in the Basin.

Recommendation 23: Carry forward the specificity and measurable goals of the Areas of Concern Annex to other aspects of the draft COA.

We believe our recommendations are crucially important to achieving a shared vision of a healthy, prosperous and sustainable Great Lakes – St Lawrence ecosystem for present and future generations. We urge the Parties to consider these comments as the draft COA is finalized.

Sincerely,



Anastasia Lintner, PhD, LLB
Special Projects Counsel, Healthy Great Lakes
Canadian Environmental Law Association
t: (647) 705-7564
e: anastasia@cela.ca



Kelsey Scarfone
Water Programs Manager
Environmental Defence Canada
t: (416) 323-9521
e: kscarfone@environmentaldefence.ca

CC: Jerry V. DeMarco, Commissioner of the Environment

Signatory Organizations

John Jackson
Co-chair
Toxics Free Great Lakes Network

Natalija Vojno
Concerned Citizen



Susan Bryant
Secretary
Grand River Environmental Network



Anne Bell
Director of Conservation and Education
Ontario Nature



Dr. Gail Krantzberg
Professor
Engineering and Public Policy,
McMaster University



Claire Malcolmson
Executive Director
Rescue Lake Simcoe Coalition



**SIERRA
CLUB
ONTARIO**

Lino Grima
Great Lakes Campaign
Sierra Club Ontario



Janet McKay
Executive Director
LEAF (Local Enhancement and
Appreciation of Forests)



Ellen Mortfield
Executive Director
EcoSuperior Environmental Programs



Amber Ellis
Executive Director
Earthroots



Arlene Slocombe
Executive Director
Wellington Water Watchers



Elizabeth Hendricks
Vice-President Freshwater Conservation
WWF-Canada



Marwa Selim
Program Manager & Advocacy Coordinator
BurlingtonGreen Environmental Association



Rupert Kindersley
Executive Director
Georgian Bay Association



Derek Coronado
Coordinator
Citizens Environmental Alliance of
Southwestern Ontario



Alice Casselman
President
ACER Association for Canadian
Educational Resources



**BAY AREA
RESTORATION
COUNCIL**

Chris McLaughlin
Executive Director
Bay Area Restoration Council



Raj Gill
Great Lakes Program Director
Canadian Freshwater Alliance



Jill Ryan
Executive Director
Freshwater Future Canada



Margaret Prophet
Executive Director
Simcoe County Greenbelt Coalition



**ALLIANCE *for the*
GREAT LAKES**

Molly M. Flanagan
Vice President, Policy
Alliance for the Great Lakes



David Sweetnam
Executive Director, Georgian Baykeeper
Georgian Bay Forever

APPENDIX A:

PROGRESS REPORT (DECEMBER 2014 – JULY 2019) **CANADA-ONTARIO AGREEMENT ON GREAT LAKES QUALITY AND ECOSYSTEM HEALTH, 2014**

By Jessica Karban, Counsel

A. Summary of Commitments under COA, 2014:

During the term of the 2014 COA, Ontario and Canada committed to completing all actions toward delisting five Areas of Concern and make significant progress to restore the Areas of Concern; protect waters from high nutrient levels, harmful pollutants, and invasive species; protect habitat and species; enhance understanding and adaptation through increased investment in climate change science and water infrastructure; and engaging communities, First Nations and Métis.

B. Progress under the COA, 2014

Investing in the Great Lakes

Through the Lake Simcoe/South-eastern Georgian Bay Clean-Up Fund, the Government of Canada supports community-based projects that will improve the ecosystem health of the Lake Simcoe and South-eastern Georgian Bay watersheds, with a focus on priorities such as reducing phosphorous inputs from urban and rural sources, restoring fish and aquatic wildlife habitat and populations, and addressing nearshore toxic and nuisance algae growth²¹. In January 2015, the Government of Canada committed \$8 million for 32 environmental projects; in July 2015, over \$3.7 million for 32 projects; and in June 2016, over \$1.7 million for 17 projects²².

Through the Great Lakes Guardian Community Fund, the Ontario Government provides a grant of up to \$25,000 to not-for-profit organizations, schools, First Nations and Metis communities and other local groups for projects that protect, restore and enhance the Great Lakes and surrounding water systems. In 2016, the Government announced that it would award \$1.5 million in total through the fund for eligible projects²³. In 2018, the Government invested \$1.5 million for 60 projects²⁴.

²¹ <https://www.canada.ca/en/news/archive/2015/07/harper-government-announces-support-lake-simcoe-south-eastern-georgian-bay.html>

²² <https://www.canada.ca/en/environment-climate-change/services/water-overview/comprehensive-approach-clean/lake-simcoe-georgian-bay/currently-funded-projects.html>

²³ <https://news.ontario.ca/ene/en/2016/10/ontario-protecting-water-quality-wetlands-and-beaches.html>

²⁴ <https://www.ontario.ca/data/great-lakes-guardian-community-fund-recipients>

In the 2017 Budget, the Government of Canada allocated \$70.5 million of new funding for freshwater projects²⁵.

As part of the 2017 Budget, the Government of Canada announced \$44.84 million for the Great Lakes Protection Initiative²⁶. Programming will focus on reducing toxic and nuisance algae and strengthening the resilience of Great Lakes coastal wetlands, identifying at risk nearshore waters, target reducing the release of harmful chemicals, and strengthening engagement with Indigenous Peoples and the public in addressing Great Lake issues²⁷. In July 2018, the Government of Canada announced \$8.95 million in funding over four years for 36 projects under the Great Lakes Protection Initiative²⁸. For example, the Swim Drink Fish Canada project will receive \$1.8 million to engage Canadians through citizen science in Great Lakes water quality monitoring of beaches and other recreational waters.

Through the EcoAction Community Funding Program, the Government of Canada funds action-oriented projects that will protect, rehabilitate, or enhance the nature environment. In 2017, the program provided \$4 million for 66 projects²⁹. In 2018, the program funded 58 projects³⁰. Some of the funded projects include:

- dealing with the impacts of climate change
- reducing greenhouse gas emissions by reducing energy consumption and taking steps to improve home energy efficiency
- improving water quality by reducing the amount of pesticides or household hazardous substances entering streams and lakes
- working to reduce air emissions that contribute to air pollution
- restoring and protecting natural habitat
- reducing biodiversity loss

In the 2018 Budget, the Ontario Government committed to investing an additional \$52 million over three years to³¹:

- Invest in new technologies to address excessive algae, toxic chemicals, microplastics and road salt, and enhance real-time monitoring and research around the Great Lakes, with a primary focus on Lake Erie;
- Better manage the impacts of population growth and development around Lake Ontario through the continuation of efforts to develop operational plans to help reduce

²⁵ <https://www.budget.gc.ca/2017/docs/plan/budget-2017-en.pdf> at p. 125

²⁶ <https://www.newswire.ca/news-releases/the-government-of-canada-invests-in-great-lakes-protection-initiative-661352923.html>; <https://www.budget.gc.ca/2017/docs/plan/budget-2017-en.pdf> at p.125

²⁷ <https://www.canada.ca/en/environment-climate-change/news/2017/12/the-government-ofcanadainvestsingreatlakesprotectioninitiative.html>

²⁸ <https://www.canada.ca/en/environment-climate-change/services/great-lakes-protection/funding/2018-2019.html>

²⁹ <https://www.canada.ca/en/environment-climate-change/news/2017/10/the-government-ofcanadasecoactioncommunityfundingprogram.html>

³⁰ <https://www.canada.ca/en/environment-climate-change/services/environmental-funding/ecoaction-community-program/projects-2018-2019.html>

³¹ <http://budget.ontario.ca/2018/chapter-2.html#s-36>

pollution from combined sewer system overflows, and certification requirements and improved training for sewage plant operators;

- Protect the health of Lake Erie by implementing the Canada–Ontario Lake Erie Action Plan. Working with all partners, the Province will support reductions of phosphorus loads from agricultural sources and support municipal wastewater and storm water management; and
- Increase engagement with First Nation and Métis communities to create opportunities for engagement and relationship building through a shared desire to protect and restore the ecological health of the Great Lakes system.

Protecting Habitats and Species

In February 2015, the Governments of Canada and the United States released the “Biodiversity Conservation Strategy for Lake Superior: A Guide to Conserving and Resorting the Health of the World’s Largest Freshwater Lake”.³²

In May 2015, as part of the province’s commitment under the Ontario’s 2011 Biodiversity Strategy (OBS), to report on the state of Ontario’s biodiversity every five years, Ontario released the “State of Ontario’s Biodiversity” report, assessing the status of and trends for 45 indicators and evaluates progress against Ontario’s biodiversity targets. Several indicators are related to Great Lakes stressors, including the status of aquatic alien species in the Great Lakes³³.

In July 2015, the Government of Canada announced \$5.2 million over 3 years in additional support of 12 new North American Waterfowl Management Plan (NAWMP) project³⁴. In eastern Canada, this program will be delivered through the Ontario Eastern Habitat Joint Venture project through activities which secure, enhance and manage priority wetland and associated upland habitats for migratory birds. The project received \$789,000 over three years³⁵.

Each year, Ontario invests up to \$5 million in projects that support the recovery of species at risk in the province under the Species at Risk Stewardship Program. Funded projects under the Program address key protection, recovery and research actions to support species at risk recovery strategies. Projects also identify priority species, ecosystems (such as wetlands) and issues. These projects have helped restore thousands of hectares of important habitat and protect many vulnerable Great Lakes Basin species, including the lake sturgeon, the American

³² <https://binational.net/wp-content/uploads/2015/02/LakeSuperiorBCSen.pdf>

³³ http://sobr.ca/biosite/wp-content/uploads/SOBR-2015-Summary-Report_E.pdf

³⁴ <https://www.canada.ca/en/news/archive/2015/07/harper-government-invests-projects-support-wetland-waterfowl-conservation.html>

³⁵ <https://www.canada.ca/en/news/archive/2015/07/what-north-american-waterfowl-management-plan-.html>

eel, the eastern hog-nosed snake and the piping plover. See link below for full list of funded projects³⁶.

The Government of Canada continues to invest \$300,000 in the Land Stewardship and Habitat Restoration Program to support projects that create and restore habitat that benefit fish, animals and/or plants, such as stream restoration, wetland restoration, and invasive species control. See link below for full list of funded projects³⁷.

In March 2018, the Government of Canada announced \$1.3-billion investment in nature conservation to support the Government in meeting its international commitments on biodiversity, sustainable development and climate change³⁸.

In March 2018, the Government of Canada announced \$500-million investment in creating the \$1-billion Nature Fund to support collaboration with other governments, Indigenous people and all Canadians to strengthen and better connect networks of protected areas and conservation areas as the cornerstone of biodiversity, as well as contribute to reconciliation and the sustainability of local communities³⁹.

In November 2018, the Government of Canada committed to increasing the amount of protected and conserved land and fresh water from 10.5 per cent to 17 per cent by 2020. To support this goal, the Government of Canada has committed to investing over \$9 million over three years to support 93 conservation projects⁴⁰.

In December 2018, the Government of Canada launched the Target 1 Challenge, part of Canada's Nature Fund, which will provide up to \$175 million for projects that help meet Canada's biodiversity target 1 of protecting 17 per cent of land and inland water by 2020. Federal funding will be matched by partners, doubling financial support to protect Canada's nature. This funding is part of Budget 2018's \$1.3 billion investment in nature. Funding through the Target 1 Challenge is open to projects led by provinces, territories, Indigenous Peoples, and the private and not-for-profit sectors that expand or strengthen Canada's network of protected and conserved areas⁴¹.

³⁶ <https://www.ontario.ca/page/species-risk-stewardship-program-projects>

³⁷ <https://www.ontario.ca/page/land-stewardship-and-habitat-restoration-program>

³⁸ <https://www.canada.ca/en/innovation-science-economic-development/news/2018/03/minister-chagger-highlights-canadas-largest-ever-investment-in-nature-conservation.html>

³⁹ <https://www.canada.ca/en/innovation-science-economic-development/news/2018/03/minister-chagger-highlights-canadas-largest-ever-investment-in-nature-conservation.html>

⁴⁰ <https://www.canada.ca/en/environment-climate-change/news/2018/11/government-of-canada-invests-in-local-conservation-projects-to-protect-species-at-risk-and-their-habitat.html>

⁴¹ <https://www.canada.ca/en/environment-climate-change/news/2018/12/government-of-canada-puts-175-million-toward-projects-that-protect-nature.html>

In April 2019, the Government of Canada announced its investment of \$967,000 in the Georgian Bay Land Trust's work to protect 2400 hectares of nature in the Georgian Bay watershed to conserve biodiversity and protect important wetlands and mature forests⁴².

In April 2019, the Government of Canada expressed their intention to work together to designate a series of islands under their jurisdiction as National Wildlife Areas (NWAs). The St. Lawrence islands project includes the potential creation of three NWAs: the Boucherville Islands NWA, the Varennes and Verchères Islands NWA and the Lake St. Pierre Islands NWA. The project targets 27 islands located in the heart of the St. Lawrence River between Montréal and Lake St. Pierre⁴³.

In May 2019, the Government of Canada announced an investment of up to \$275,000 over two years to Ottawa Riverkeeper, a charitable organization, to help protect the long-term health and vitality of the Ottawa River watershed, including the animals, fish, and species at risk. The funding will support community-based monitoring, in partnership with Indigenous and watershed communities. This financial support adds to the \$75,000 that the Government of Canada provided in 2018 to Ottawa Riverkeeper to develop health indicators for the Ottawa River⁴⁴.

In July 2019, the Government of Canada announced a federal investment of \$2 million towards the Marsh Restoration Project at Point Pelee National Park in order to support efforts to restore the diversity and overall health of the marsh. This project is a collaboration between Parks Canada and the Caldwell and Walpole Island First Nations, along with other regional experts⁴⁵.

Nutrients

On June 23, 2015, Ontario signed onto the Lake Friendly Accord, pledging to reduce the amount of nutrients in Ontario's waterways⁴⁶.

In July 2015 the Government of Canada launched public consultations on phosphorous targets to protect Lake Erie⁴⁷.

In September 2015, the Great Lakes Commission, Lake Erie Nutrient Targets Working Group, released the "Joint Action Plan for Lake Erie" report⁴⁸.

⁴² <https://www.canada.ca/en/environment-climate-change/news/2019/04/protecting-a-georgian-bay-watershed0.html>

⁴³ <https://www.canada.ca/en/environment-climate-change/news/2019/04/st-lawrence-islands-project.html>

⁴⁴ <https://www.canada.ca/en/environment-climate-change/news/2019/05/canada-funds-community-based-monitoring-to-protect-health-of-the-ottawa-river-watershed.html>

⁴⁵ <https://www.canada.ca/en/parks-canada/news/2019/07/government-of-canada-restores-marsh-in-point-pelee-national-park.html>; <https://www.canada.ca/en/parks-canada/news/2019/07/2019-point-pelee-national-park-announcement-federal-infrastructure-and-conservation-programs.html>

⁴⁶ <https://news.ontario.ca/ene/en/2015/06/ontario-signs-onto-lake-friendly-accord.html>

⁴⁷ Phosphorous targets consultations: <https://www.canada.ca/en/news/archive/2015/07/government-canada-launches-consultations-phosphorus-targets-protect-lake-erie.html>

In the 2016 Budget, the Government of Canada committed to providing \$3.1 million in 2016–17 to Environment and Climate Change Canada to continue to improve nearshore water and ecosystem health by reducing phosphorus and the resulting algae in Lake Erie⁴⁹.

From March 2017 to May 2018, the Government of Canada held public consultations on the draft “Lake Erie Action Plan”.⁵⁰

In February 2016, the Governments of Canada and the United States announced phosphorus reduction targets of 40 percent to improve Lake Erie⁵¹.

In May 2017, the Governments of Canada released “Canadian Environmental Sustainability Indicators Phosphorus levels in the offshore waters of the Great Lakes”.⁵²

In February 2018, the Governments of Canada and Ontario released the final domestic Lake Erie Action Plan titled, “Canada-Ontario Lake Erie Action Plan, Partnering to Achieving Phosphorous Loading Reductions to Lake from Canadian Sources”. The Plan identifies more than 120 federal, provincial and partners actions to help achieve the goal of reducing phosphorous entering Lake Erie by 40 per cent⁵³.

Harmful Pollutants

In May 2016, the Governments of Canada and the United States designated the first set of Chemicals of Mutual Concern for priority action consisting of the following: Hexabromocyclododecane (HBCD), Polybrominated diphenyl ethers (PBDEs), Perfluorooctanoic Acid (PFOA), Long-Chain Perfluorocarboxylic Acids (LC-PFCAs), Perfluorooctane Sulfonate (PFOS), Mercury, Polychlorinated Biphenyls (PCBs), and Short Chain Chlorinated Paraffins (SCCPs)⁵⁴.

⁴⁸ <https://www.glc.org/wp-content/uploads/2016/10/LENT-Joint-Action-Plan-FINAL-Sept-2015.pdf>

⁴⁹ <https://www.budget.gc.ca/2016/docs/plan/budget2016-en.pdf> at p. 163

⁵⁰ https://www.canada.ca/en/environment-climate-change/news/2017/03/canada_and_ontariolaunchpublicconsultationsondraftactionplantore.html; <https://news.ontario.ca/ene/en/2017/03/canada-and-ontario-launch-public-consultations-on-draft-action-plan-to-reduce-harmful-algal-blooms-i.html>

⁵¹ <https://www.canada.ca/en/environment-climate-change/news/2016/02/governments-of-canada-and-the-united-states-announce-phosphorus-reduction-targets-of-40-percent-to-improve-lake-erie-water-quality.html>

⁵² <https://www.canada.ca/en/environment-climate-change/services/environmental-indicators/phosphorus-levels-off-shore-great-lakes.html>

⁵³ <https://www.canada.ca/en/environment-climate-change/services/great-lakes-protection/action-plan-reduce-phosphorus-lake-erie.html>; https://www.canada.ca/en/environment-climate-change/news/2018/02/the_governments_ofcanadaandontarioreleaseactionplantoreduceharmf.html; <https://news.ontario.ca/ene/en/2018/02/governments-of-ontario-and-canada-release-action-plan-to-reduce-harmful-algal-blooms-in-lake-erie.html>

⁵⁴ <https://www.canada.ca/en/environment-climate-change/news/2016/05/governments-of-canada-and-the-united-states-designate-first-set-of-chemicals-of-mutual-concern-for-great-lakes.html>

In May 2016, the Government of Canada announced that it will invest \$491.8 million over the next five years to continue delivering on Canada's Chemicals Management Plan (CMP)⁵⁵. The next phase of the CPM will focus on completing the systematic review of the remaining 1550 substances of the 4300 identified when the CMP began in 2006, as well as developing and implementing risk management actions for the substances found to be harmful to human health and/or the environment⁵⁶.

In December 2016, Canada and Ontario developed an assessment report on the status of Tier 1 and Tier II substances in the Great Lakes basin, including past and current research, monitoring and risk management activities and achievements on the identified chemicals⁵⁷.

In December 2017, the Governments of Canada and the United States released "Binational; Strategy for Hexabromocyclododecane (HBCD) Risk Management".⁵⁸

In January 2018, the Governments of Canada and the United States released "Binational Strategy for Polychlorinated Biphenyl (PCB) Risk Management".⁵⁹

In April 2018, the Governments of Canada and the United States released the draft "Binational Strategy for Mercury Risk Management (April 2018)".⁶⁰

In November 2018, the federal government, provinces, and territories, at a meeting of the Canadian Council of Ministers of the Environment, agreed to push forward on a Canada-wide zero-plastic-waste-strategy. The strategy outlines a vision to keep plastics in the economy and out of the environment through solutions to better prevent, reduce, reuse, and clean up plastic waste⁶¹.

In May 2019, the Government of Canada announced its support for Canadian innovation by small businesses to reduce plastic waste and pollution. Six winners were announced as part of the Canadian Plastics Innovation Challenge. Each will receive up to \$150,000⁶².

⁵⁵ <https://www.canada.ca/en/environment-climate-change/news/2016/05/government-of-canada-invests-over-490-million-to-protect-canadians-and-the-environment-from-harmful-chemicals.html>

⁵⁶ <https://www.canada.ca/en/environment-climate-change/news/2016/05/the-chemicals-management-plan.html>

⁵⁷ <https://www.ontario.ca/page/status-tier-1-and-tier-2-chemicals-great-lakes-basin-under-canada-ontario-agreement>

⁵⁸ <https://binational.net/2018/03/29/hbcd-hbcd/>

⁵⁹ <https://binational.net/2018/03/29/pcb-bpc/>

⁶⁰ <https://binational.net/2018/05/17/draft-ebauche-cmc-pcpm/>

⁶¹ <https://www.canada.ca/en/environment-climate-change/news/2018/11/federal-government-provinces-and-territories-push-forward-on-a-canada-wide-zero-plastic-waste-strategy.html>

⁶² <https://www.canada.ca/en/environment-climate-change/news/2019/05/canada-unveils-support-for-canadian-innovation-by-small-businesses-to-reduce-plastic-waste-and-beat-plastic-pollution.html>

Areas of Concern

No Areas of Concern (AOCs) were delisted during the evaluation timeframe. However, a number of beneficial uses were restored, and some progress was made to address priority actions under a number of AOCs.

In 2015-2016, through the Great Lakes Sustainability Fund (GLSF), the Government of Canada contributed more than more than \$2.8 million for over 30 new projects to clean up each of Canada's 12 remaining Areas of Concern or "degraded areas" within the Great Lakes Basin⁶³. Projects supported by the Fund typically focus on restoring fish and wildlife habitat and populations, cleaning up contaminated sediment, and controlling pollution from municipal wastewater, urban storm water and rural run-off.

The GLSF supported work to improve point source and non-point-source water quality, and to develop and implement stewardship initiatives and deliver programs that reduce nutrient inputs to watercourses from urban and rural non-point sources in the Bay of Quinte, Niagara River, Hamilton Harbour, Toronto and Region, Thunder Bay, Nipigon Bay, St. Mary's River, and Detroit River AOCs. Initiatives included outreach and education programs to encourage rural farming and non-farming landowners to adopt best management practices, and studies leading to improved water quality through improved management of municipal waste water.

The GLSF also supported projects to restore fish and wildlife habitat in AOCs, including projects to implement habitat management plans in the Bay of Quinte AOC; habitat and wetland restoration projects along the Detroit River, the Niagara River, the St. Clair River, and in McVicar Creek and in the McIntyre River in the Thunder Bay AOC, and six projects in the St. Clair River AOC; and several projects to restore fish and wildlife habitat and populations in the Toronto and Region AOC.

The GLSF continued to support advance plans and strategies to management and remediate contaminated sediments in AOCs including a project to survey and map contaminated sediments in the nearshore areas of the Canadian St. Lawrence AOC.

The Government of Canada also funded a number of projects aimed at restoring Areas of Concern under the Great Lakes Protection Initiative. For example, in July 2018, the Government announced \$8.95 million over four years for 36 projects under the Great Lakes Protection Initiative to supports projects which will help to restore areas of concern, prevent toxic and nuisance algae, reduce the release of harmful chemicals, engage the public through citizen science, and engage Indigenous Peoples⁶⁴.

The Ontario government also made substantive investments in the cleanup of contaminated sediments. Contaminated sediment management projects have been completed in the St.

⁶³ <https://www.canada.ca/en/news/archive/2015/06/harper-government-continues-make-progress-protecting-restoring-great-lakes-water-quality.html>; <https://www.canada.ca/en/environment-climate-change/services/great-lakes-protection/sustainability-fund-about.html>

⁶⁴ <https://www.canada.ca/en/environment-climate-change/services/great-lakes-protection/funding/2018-2019.html#toc4>

Lawrence River (Cornwall); Niagara River; Detroit River; Bay of Quinte; and the Peninsula Harbour AOCs. Initiatives are also underway to address environmental problems in Randle Reef in the Hamilton Harbour AOC⁶⁵.

Status of St. Lawrence River (Cornwall) AOC: The decision on whether to delist the St. Lawrence River (Cornwall) AOC or to recognize it as an Area of Concern in Recovery (RAP) is still pending. RAP delisting criteria are currently under review by the St. Lawrence River Restoration Council. Subject to the outcome of the delisting criteria review, it is anticipated that the Canadian section of the St. Lawrence River may be considered for delisting or AOC in Recovery status by 2019⁶⁶.

Status of Nipigon Bay AOC: With the completion of the remedial actions identified for the AOC, and all afflicted beneficial uses restored in accordance with the delisting criteria established for the Remedial Action Plan, Nipigon Bay is being proposed for removal from the list of Great Lakes AOCs⁶⁷.

Status of Hamilton Harbour AOC: The Randle Reef contaminated sediment remediation project will be completed in 2022 and will cost \$138.9 million. Environment and Climate Change Canada and the Ontario Ministry of the Environment and Climate Change have each committed \$46.3 million, with the final third of the funding coming from the City of Hamilton, City of Burlington, Halton Region, the Hamilton Port Authority and Stelco. The project is divided in 3 stages. Stage 1 involves re-constructing an adjacent harbour pier wall and constructing the facility and is expected to be completed by the end of 2017. Stage 2 involves dredging contaminated sediment from the surrounding areas and placing them in the facility via an underwater pipeline. This stage is expected to be completed by 2020. Construction contract awards for stage 2 were announced on July 21, 2017⁶⁸. Stage 3 involves removing the water from and compacting the contained sediment and then constructing an impermeable cap on the facility. This stage is expected to begin in 2020 and be completed in 2022⁶⁹.

Status of Peninsula Harbour AOC: Results of ecological and post cap construction monitoring will inform decision-making as to whether Peninsula Harbour will be delisted. A decision is expected by 2019⁷⁰. The capping project represents the last major restoration action to be completed in the AOC. A long-term monitoring plan is in place to evaluate the performance and

⁶⁵ Ontario's Great Lakes Strategy 2016 Progress Report: <https://www.ontario.ca/page/ontarios-great-lakes-strategy-2016-progress-report>

⁶⁶ <https://www.canada.ca/en/environment-climate-change/services/great-lakes-protection/areas-concern/st-lawrence-river.html>

⁶⁷ <https://www.canada.ca/en/environment-climate-change/services/great-lakes-protection/areas-concern/nipigon-bay.html>

⁶⁸ https://www.canada.ca/en/environment-climate-change/news/2017/07/government_of_canadaawardssignificantconstructioncontractforrand.html

⁶⁹ https://www.canada.ca/en/environment-climate-change/news/2017/07/randle_reef_contaminatedsedimentremediationproject.html

⁷⁰ <https://www.canada.ca/en/environment-climate-change/services/great-lakes-protection/areas-concern/peninsula-harbour.html>

effectiveness of the cap, and to monitor ecological recovery. The Ontario Ministry of Environment and Climate Change and Environment and Climate Change Canada are conducting a follow-up assessment of the cap's integrity and re-colonization of the benthic community⁷¹.

Status of Bay of Quinte AOC: Several beneficial uses were restored. It is anticipated that all actions to finalize the clean-up of the Bay of Quinte AOC will be completed by 2019. A phosphorous management plan for the Bay of Quinte will be developed prior to delisting⁷².

Status of Thunder Bay AOC: It is anticipated that all priority actions will be completed beyond 2020. Completing the development of a contaminated sediment management strategy for the Thunder Bay North Harbour continues to remain a priority⁷³.

Status of St. Marys River AOC: Several beneficial uses were restored. In 2015, the City of Sault Ste. Marie began implementing a stormwater management master plan to better manage urban runoff and reduce pollution entering the river. It is anticipated that actions will be completed beyond 2020⁷⁴.

Status of St. Clair River AOC: Several beneficial uses were restored. It is anticipated that actions will be completed by 2020. Remaining priority actions include the implementation of a sediment remediation project, monitoring of water and sediment quality, municipal infrastructure improvements, shoreline restoration, and habitat and species restoration⁷⁵.

Status of Detroit River AOC: Several beneficial uses were restored. It is anticipated that actions will be completed by 2020. Further habitat restoration and continued monitoring of the fish, wildlife, water and sediment quality remain as priority actions⁷⁶.

Status of Toronto and Region AOC: Several beneficial uses were restored. It is anticipated that actions will be completed beyond 2020. Realigning and naturalizing the mouth of the Toronto and Region AOC, implementing large infrastructure projects, upgrading Toronto's Main Sewage Treatment Plant, the Don River restoration project, the restoration of coast wetland habitat for fish and wildlife remain as major priority actions.

Status of Port Hope AOC: Delisting the Port Hope AOC requires that the low-level radioactive waste contaminated sediment be removed from Port Hope Harbour. Canada's Port Hope Area

⁷¹ <http://infosuperior.com/blog/2017/07/13/peninsula-harbour-monitoring-2/>

⁷² <https://www.canada.ca/en/environment-climate-change/services/great-lakes-protection/areas-concern/bay-of-quinte.html>

⁷³ <https://www.canada.ca/en/environment-climate-change/services/great-lakes-protection/areas-concern/thunder-bay.html>

⁷⁴ <https://www.canada.ca/en/environment-climate-change/services/great-lakes-protection/areas-concern/st-marys-river.html>

⁷⁵ <https://www.canada.ca/en/environment-climate-change/services/great-lakes-protection/areas-concern/st-clair-river.html>

⁷⁶ <https://www.canada.ca/en/environment-climate-change/services/great-lakes-protection/areas-concern/detroit-river.html>

Initiative is planning to remove the sediments and restore the harbour by about 2019. It is anticipated that actions will be completed beyond 2020.

Lakewide Management

The Governments of Canada and the United States published Lakewide Action and Management Plan (LAMP) *Annual Reports* for each Great Lake for 2015, 2016 and 2017⁷⁷.

Lake Superior Lakewide Action and Management Plan (2015-2019) finalized by the Governments of Canada and the United States in September 2016⁷⁸.

Lake Huron Lakewide Action and Management Plan (2015-2019) finalized in 2018⁷⁹.

Lake Erie Partnership has begun to develop the Lake Erie LAMP in May 2018 and is scheduled for completion in March 2019⁸⁰.

In September 2016, the Governments of Canada and the United States, led by the Lakewide Annex Committee, finalized the Great Lakes Nearshore Framework, a systematic, integrated and collective approach for assessing the nearshore health of the Great Lakes and identifying and communicating cumulative impacts and stresses⁸¹.

Groundwater Quality

In May 2016, the Great Lakes Executive Committee by the Annex 8 Subcommittee published “Groundwater science relevant to the Great Lakes Water Quality: A status report”⁸². The report is a product of collaboration among groundwater experts from both Canada and the United States and summarizes current knowledge on groundwater and identifies science needs to better understand the role of groundwater in the Great Lakes Basin.

Aquatic Invasive Species

On November 3, 2015, Ontario passed the *Invasive Species Act, 2015*, giving the province new authority and tools to deal with invasive species in the Great Lakes. Ontario was the first jurisdiction in Canada to pass an act to prevent, detect, and respond to and, where feasible, eradicate invasive species.

⁷⁷ <https://binational.net>

⁷⁸ <https://binational.net/wp-content/uploads/2016/09/Lake%20Superior%20LAMP%202015-2019.pdf>

⁷⁹ https://binational.net/wp-content/uploads/2018/04/2017-2021_Lake_Huron_LAMP.pdf

⁸⁰ <https://binational.net/2018/05/03/erie-lamp-paap/>

⁸¹ <https://binational.net/2016/09/27/nearshore-eaux-littorales-2/>

⁸² <https://binational.net/wp-content/uploads/2016/05/GW-Report-final-EN.pdf>

In December 2015, the Governments of Canada and the United States reported on their achievements in developing and implementing an early detection and rapid response initiative⁸³. Achievements under the initiative include:

- the development of a “watch list” for species at risk of invading the Great Lakes;
- the Identification of priority locations for AIS surveillance;
- the development and implementation of surveillance methodologies;
- the establishment and implementation of protocols for information sharing; and
- the coordination of plans and preparations for any response actions necessary to prevent the establishment of newly detected AIS.

In November 2018, the Government of Canada launched the Baitfish Primer app, which allows fish harvesters to identify which baitfishes are legal to use in Ontario’s waters. The App is available in English and French and is free to download⁸⁴.

Sea Lamprey:

- On June 9, 2016, Fisheries and Oceans Canada announced increased infrastructure funding of \$8 million (in addition to \$8.1 million annually) to the Sea Lamprey Control Program to improve physical barriers that prevent Sea Lamprey from accessing suitable spawning and nursery habitats in the upstream reaches of several Great Lakes tributaries⁸⁵.
- In the 2017 Budget, the Government of Canada allocated \$8.7 million over five years, with an ongoing annual increase of \$2.5 million, for Sea Lamprey control, management and research. On April 4, 2018, Fisheries and Oceans Canada announced that it will be increasing investment to help control the invasive Sea Lamprey and to protect valuable fisheries in the Great Lakes. This new funding will increase the capacity of Canada’s Sea Lamprey Control Program⁸⁶.

Carp:

- On October 3, 2016, the Great Lakes Fishery Commission and the Fisheries and Oceans Canada hosted a public forum on the threat of Asian Carp. The Ontario Ministry of Natural Resources and Forestry participated in the forum⁸⁷.

⁸³ <https://binational.net/2016/10/03/ais-eae/>

⁸⁴ <https://www.canada.ca/en/fisheries-oceans/news/2018/11/new-dfo-app-helps-protect-ontario-waterways-from-invasive-species.html>

⁸⁵ <https://www.canada.ca/en/fisheries-oceans/news/2016/06/taking-action-to-protect-the-great-lakes.html>

⁸⁶ <https://www.canada.ca/en/fisheries-oceans/news/2018/04/canada-increases-investment-in-sea-lamprey-control-program.html>

⁸⁷ <https://www.canada.ca/en/fisheries-oceans/news/2016/09/asian-carp-public-forum.html>

- On January 27, 2016, following the release of this study, the Minister of Fisheries, Oceans, and the Canadian Coast Guard, and the Ontario Minister of Natural Resources and Forestry made a statement regarding their joint commitment to fight against the Asian Carps in Canadian waters of the Great Lakes and announced that future plans to address this issue include:
 - Continued participation in the Asian Carp Regional Coordinating Committee.
 - On-going enforcement and inspection operations.
 - On-going research within both agencies towards a better understanding of aquatic invasive species in general and Asian Carps in particular.
 - The coordination of a Binational Ecological Risk Assessment for Black Carp.
 - A joint DFO and MNRF on-water Asian Carp response exercise near Lake Erie planned for April 2017⁸⁸.
- On January 27, 2016, Fisheries and Oceans Canada and the Great Lakes Fishery Commission released the results of the Canada-US study risk assessment study on the Grass Carp, one of four Asian Carp species. The study, *“Binational Ecological Risk Assessment for Grass Carp in the Great Lakes Basin”*, concludes that Grass Carp have been found in Lakes Michigan, Erie and Ontario⁸⁹.
- The Government of Canada (Fisheries and Oceans Canada) announced on January 23, 2018 that it will invest \$20 million over five years to Asian carp prevention in the Great Lakes through early warning surveillance, partnering and outreach activities.
- In January 2019, the Government of Canada the report— *Binational Ecological Risk Assessment of Grass Carp for the Great Lakes Basin—*which concluded that Grass Carp have been found in Lakes Michigan, Erie and Ontario, and that the ecological consequences of Grass Carp in most areas of the Great Lakes basin could be extreme within the next 50 years. Wetlands in the Great Lakes basin are particularly vulnerable should Grass Carp become established.
- In March 2019, the Government of Canada released the socio-economic study on the risk of Grass Carp to the Great Lakes titled, the report – *Socio-Economic Risk Assessment of the Presence of Grass Carp in the Great Lakes Basin*⁹⁰.

Agriculture

In February 2015, Ontario announced the Great Lakes Agricultural Stewardship Initiative⁹¹. The program commits \$16 million over four years to improve soil health and reduce nutrient loss

⁸⁸ <https://www.canada.ca/en/fisheries-oceans/news/2017/01/joint-statement-release-binational-ecological-risk-assessment-grass-carp-great-lakes-basin.html>

⁸⁹ <https://www.canada.ca/en/fisheries-oceans/news/2017/01/canada-study-risk-grass-carp-great-lakes-released.html>

⁹⁰ <https://www.canada.ca/en/fisheries-oceans/news/2019/03/government-of-canada-releases-socio-economic-study-on-the-risk-of-grass-carp-to-the-great-lakes.html>

from agricultural sources. Funding is provided through Growing Forward 2, a Canada-Ontario initiative, and targets the Lake Erie basin and the southeast shores of Lake Huron. This initiative supports private-and-public-sector partnerships with cost-share funding to:

- **Identify ways producers can improve soil health, reduce runoff, and improve pollinator habitat**
- **Modify equipment to address risks related to manure application and pollinator health**
- **Adopt best management practices, including soil erosion control structures, cover crops, residue management, buffer strips and field windbreaks/windstrips.**

The Great Lakes Agricultural Stewardship Initiative also offers technical training for service providers and education and outreach activities including local workshops.

In 2015, with the support of Ontario, Fertilizer Canada and the Ontario Agri-Business Association launched a 4Rs Nutrient Stewardship program: “right fertilizer, right rate, right time, right place.” Under the 4Rs program, crop advisors use best management practices to make the most efficient use of fertilizers and can receive formal certification⁹². The adoption of this program was one of the recommendations of the Great Lakes Commission’s Joint Action Plan for reducing nutrient loads to Lake Erie⁹³.

In early 2016, Ontario released a proposed *Excess Soil Management Policy Framework*, focusing on reuse and supporting sustainable management of excess soil. Since the release of the framework, several actions and projects have been completed. Proposed excess soil management Regulations were released for public comments in April 2018⁹⁴.

Climate Change

In 2015, the Ontario government launched a five-year pilot project to address a range of climate change vulnerabilities in the Great Lakes Basin. The project includes reaching out to partners and communities to facilitate adaptation action, and communicating climate change research findings to decision makers, practitioners and the public⁹⁵.

In 2015, the Ontario government published the first climate change vulnerability assessment which focuses on the wetlands and inland aquatic ecosystems of the Great Lakes Basin in Ontario. The report addresses wetland vulnerability to drying, wetland bird species habitats,

⁹¹ <https://news.ontario.ca/omafra/en/2015/02/great-lakes-agricultural-stewardship.html>

⁹² <https://fertilizercanada.ca/nutrient-stewardship/4rs-across-canada/ontario/>

⁹³ <https://www.glc.org/wp-content/uploads/2016/10/LENT-Joint-Action-Plan-FINAL-Sept-2015.pdf>

⁹⁴ <https://www.ontario.ca/page/handling-excess-soil>

⁹⁵ Ontario’s Great Lakes Strategy 2016 Progress Report <https://www.ontario.ca/page/ontarios-great-lakes-strategy-2016-progress-report>

stream temperatures, stream thermal habitats and walleye biomass. The report includes recommendations for adaptation action⁹⁶.

In 2015, the Ontario Climate Consortium, in partnership with the province, McMaster University and Environment and Climate Change Canada, published the “2015 State of Climate Change Science in the Great Lakes Basin”⁹⁷.

In April 2016, the MOECC undertook a policy review of municipal stormwater management in light of climate change⁹⁸.

In the 2017 Budget, the Government of Canada allocated \$260 million over five years to build Canada’s climate resilience through investments for adaptation programs on information and capacity, infrastructure, human health and well-being, vulnerable regions, and climate-related hazards and disaster risks such as floods, fires, and storms.

In Budget 2017, the Government of Canada announced funding to create the Canadian Centre for Climate Services. The service was launched in October 2018 and makes Canada’s climate data accessible to the public⁹⁹.

The Governments of Canada and the United States released the “2017 Annual Climate Trend and Impacts Summary for the Great Lakes Basin” report, which provides an overview of the climate trends and impacts in the basin for the year¹⁰⁰.

In September 2017, the Governments of Canada and the United States released the “Quarterly Climate Impacts and Outlook: Great Lake Region –September 2017” report¹⁰¹.

In February 2018, the Ontario Government (MOECC) announced that it is investing \$7.25 million in GreenON Agriculture and \$3.75 million in GreenON Food Manufacturing programs. These programs support farmers and agri-food business to improve their energy efficiency and fight climate change¹⁰².

In March 2018, the Ontario government announced that it will invest up to \$300 million in the GreenON Challenge through the Green Ontario Fund beginning in 2018-2019 to support

⁹⁶ http://www.climateontario.ca/MNR_Publications/CCRR-43.pdf

⁹⁷ <https://climateconnections.ca/our-work/great-lakes-basin/>

⁹⁸ <https://www.ontario.ca/page/policy-review-municipal-stormwater-management-light-climate-change>

⁹⁹ <https://www.canada.ca/en/environment-climate-change/news/2019/02/government-of-canada-collaborates-with-ouranos-to-deliver-climate-expertise-to-canadians.html>

¹⁰⁰ <https://binational.net/2018/07/10/ctis-ctic-2017/>

¹⁰¹ <https://binational.net/2017/10/31/qcio-btc-16/>

¹⁰² <https://news.ontario.ca/ene/en/2018/02/ontario-helping-farmers-and-agri-food-businesses-reduce-greenhouse-gas-pollution.html>

projects that help Ontario meet its greenhouse gas reduction goal target of 80% below 1990 levels by 2050¹⁰³.

In November 2018, the Governments of Canada and the United States released a report providing an overview of assessment that have been conducted in the Great Lakes Basin to determine the vulnerability of natural ecosystems to the impacts of climate change, titled “Approaches for Conducting Vulnerability Assessments in the Great Lakes Basin: A Review of the Literature (2018)”¹⁰⁴.

In February 2019, the Government of Canada announced \$1.25 million in funding over five years to Ouranos. The Quebec-based regional climate consortium helps policy-makers identify, evaluate, promote, and implement national, regional, and local adaptation strategies. This funding will enhance Ouranos’s existing capacity to provide regional climate services and the collective capacity of providers to deliver climate services across Canada¹⁰⁵.

Infrastructure

In September 2016, Ontario and Canada announced a bilateral agreement that will make more than \$1.1 billion in combined funding available under the Clean Water and Wastewater Fund (CWWF), which supports projects that contribute to ensuring that communities across Ontario have access to clean and reliable drinking water, efficient wastewater systems, and healthy rivers and lakes. Also announced was an initial list of 41 approved projects under the funding program. The list includes important work to create a new landmass around the current Esroc Quay in Toronto that will stabilize the area shoreline under flood conditions; replace aging water mains and provide sanitary and storm water services in Barrie; retrofit work for ponds in Brampton to enhance water quality and control erosion; upgrades to the main water line and the construction of a new storm water treatment plant in Sudbury; improvements to the Hespeler wastewater treatment plant in Waterloo; and upgrades to the snow disposal facility in Guelph¹⁰⁶.

In April 2017, the MOECC released a draft Guidance on Low Impact Development to add to its stormwater management planning and design guidelines¹⁰⁷.

In the 2017 Budget, the Government of Canada allocated \$22 billion in green-infrastructure investments to boost economic growth and build resilient communities, including a \$2 billion fund for a disaster mitigation and adaptation fund¹⁰⁸.

¹⁰³ <https://news.ontario.ca/ene/en/2018/03/ontario-supporting-innovative-solutions-to-fight-climate-change.html>

¹⁰⁴ <https://binational.net/2018/11/01/vulnerability-assessments-evaluations-de-la-vulnerabilite-2018/>

¹⁰⁵ <https://www.canada.ca/en/environment-climate-change/news/2019/02/government-of-canada-collaborates-with-ouranos-to-deliver-climate-expertise-to-canadians.html>

¹⁰⁶ <https://news.ontario.ca/moi/en/2016/09/canada-and-ontario-reach-agreement-under-the-new-clean-water-and-wastewater-fund.html>

¹⁰⁷ http://www.municipalclassea.ca/files/7_DRAFT_MOECC_LID%20SWM%20Manual.pdf

In June 2018, the Ontario government announced funding under the Port Lands Flood Protection Project to enhance Toronto's resiliency, help mitigate the impact of climate change on the city, and deliver a substantial return on investment by helping to set the stage for future residential and commercial development in the Port Lands¹⁰⁹.

In March 2018, the Government of Canada announced that under the \$180 billion Investing in Canada infrastructure plan, it is signing new bilateral agreements with all provinces and territories, which will see more than \$33 billion in federal investment towards significant infrastructure projects across the country. Part of this funding will be used towards green infrastructure, including increased capacity to treat and manage wastewater and stormwater, increased structural and natural capacity to adapt to climate change impacts, natural disasters and extreme weather events, and increased capacity to reduce or remediate soil and air pollutants¹¹⁰.

The Government of Canada endowed the Federation of Canadian Municipalities (FCM) with \$550 million to establish the Green Municipal Fund™. An additional \$125 million top-up to this endowment was also announced in Budget 2016 and will be added to the Fund in 2017-18¹¹¹. The Fund supports partnerships and leveraging of both public and private-sector funding to reach higher standards of air, water and soil quality, and climate protection. In November 2018, the Government of Canada announced over \$7 million in grants and loans through the Green Municipal Fund to improve wastewater treatment plans in the Townships of Wellington North and St. Clair in Ontario¹¹².

The federal 2019 Budget committed an additional \$739 million over five years, beginning in 2019-2020, with \$184.9 million per year ongoing to improve water and wastewater infrastructure. The investment will support ongoing efforts to eliminate and prevent long-term drinking water advisories – funding urgent repairs to vulnerable water systems and providing water operator training and support programs so that First Nations communities can effectively operate and maintain their public drinking water systems.

In July 2019, the Ontario Government appointed Doug McNeil as Ontario's Special Advisor on flooding, who will advise the province on ways to reduce the impacts of flooding and ensure communities can recover quickly. The government also launched a new Surface Water Monitoring Centre webpage with access to flood early warning messages. In addition, property owners can now apply online for a work permit to repair eroded shorelines and conduct erosion control immediately¹¹³.

¹⁰⁸ https://www.canada.ca/en/environment-climate-change/news/2017/08/the_government_ofcanadacreatesanexpertpanelonadaptingtoclimatech.html;

¹⁰⁹ <https://news.ontario.ca/moi/en/2017/06/investment-to-protect-and-transform-torontos-port-lands.html>

¹¹⁰ <https://news.ontario.ca/moi/en/2018/03/under-the-180-billioninvesting-in.html>

¹¹¹ <https://fcm.ca/home/programs/green-municipal-fund/about-gmf.htm>

¹¹² <https://www.canada.ca/en/office-infrastructure/news/2018/11/communities-in-st-clair-and-wellington-north-to-receive-support-for-wastewater-treatment-upgrades-from-the-green-municipal-fund.html>

¹¹³ <https://news.ontario.ca/mnr/en/2019/07/ontario-names-special-advisor-on-flooding.html>

Research/ Science

In 2015, the Great Lakes Futures Project was completed. The project engaged Great Lakes experts across many sectors, and 21 Ontario and U.S. research organizations and universities. The project identified driving forces that influence the air, watershed and water bodies of the Great Lakes region. Researchers examined these drivers of change and generated four potential future scenarios for the Great Lakes-St. Lawrence River Basin. Based on a structured scenario analysis and extensive stakeholder engagement, researchers proposed areas of governance and policy improvement to achieve a thriving and prosperous future for the region. The project also contributed to broadening and strengthening a network of Great Lakes experts across many sectors and regions¹¹⁴.

In January 2015, the Government of Canada announced \$26.5 million investment to modernize Environment Canada's weather warning and forecast systems¹¹⁵.

In the 2016 Budget, the Government of Canada committed \$197.1 million for ocean and freshwater science¹¹⁶.

In May 2016, the Government of Canada announced that starting in 2016-2017 it will invest \$197.1 million over five years to increase ocean and freshwater scientific research and monitoring at Fisheries and Oceans Canada. The investment will be used for: more research and monitoring to support healthy fish stock; more research and monitoring of environmental stressors such as contaminants and pollution; more research to support sustainable aquaculture; more freshwater research; more scientists; more technology; and, more collaboration¹¹⁷.

In July 2016, Fisheries and Oceans Canada announced \$3.75 million over three years through the Fisheries and Oceans Canada's National Contaminants Advisory Group for Canadian researchers to study the biological effects of contaminants on fish, marine mammals, and other aquatic organisms in marine and freshwater environments¹¹⁸.

In August 2016, as part of the 2016 Federal Budget, the Government of Canada (Fisheries and Oceans Canada) announced that it will provide \$1.7 million over two years to the International Institute for Sustainable Development- Experimental Lakes Area (IISD-ELA), where scientists can undertake real-world experiments on small lakes to improve our understanding of human impacts on the environment¹¹⁹. In August 2018, it invested \$4 million in the IISD-ELA.

¹¹⁴ <https://www.uwo.ca/biology/glfp/>

¹¹⁵ <https://www.canada.ca/en/news/archive/2015/01/investment-26-5-million-modernizing-environment-canada-weather-warning-forecast-systems.html>

¹¹⁶ <https://www.budget.gc.ca/2016/docs/plan/budget2016-en.pdf> at page 163.

¹¹⁷ <https://www.canada.ca/en/fisheries-oceans/news/2016/05/new-science-investments-at-fisheries-and-oceans-canada.html>

¹¹⁸ <https://www.canada.ca/en/fisheries-oceans/news/2016/07/fisheries-and-oceans-canada-announces-new-round-of-funding-for-canadian-researchers-to-study-contaminants.html>

¹¹⁹ <https://www.canada.ca/en/fisheries-oceans/news/2016/08/government-of-canada-provides-new-investment-in-freshwater-research-st-iisd-experimental-lakes-area.html>

Specifically, the funding supports the Long-Term Ecological Research program, which monitors a range of indicators that help to identify long-term trends and ecological changes of fisheries health and productivity in Canadian boreal lakes¹²⁰.

In September 2016, the Governments of Canada and the United States released the “2016 Progress Report of the Parties Pursuant to the Canada-United States Great Lakes Water Quality Agreement”.¹²¹

In March 2017, the Governments of Canada and the United States agreed on 2017-2019 Great Lakes Binational Priorities for Science and Action¹²².

In April 2017, the Ontario Ministry of Environment, Conservation, and Parks announced the 2016-2017 Best in Science Grant Recipients¹²³. With respect to the Great Lakes, some of these include:

- Arthur Chan, University of Toronto- Juewen Liu, University of Waterloo - A DNA Sensor Array for Heavy Metals in Water
 - This study presents a technique, based on DNA technology, to detect and measure heavy metals, including mercury, in water.
- Jeff Ridal, St. Lawrence River Institute of Environmental Sciences - Source-tracking Mercury Mobilization from St. Lawrence River Wetlands
 - The study will measure the amount of mercury retained in wetlands along the St. Lawrence River, and estimate the amount of mercury that may be released into the river as water levels change.
- Clare Robinson, Western University - Assessment of the Performance of Bioswale Bioretention Systems in Reducing Nutrient Loading to Tributaries from Urban Stormwater
 - The study will help in understanding how effective storm water management technologies could reduce the amount of potentially harmful nutrients such as phosphorous and nitrogen that gets transferred to rivers and lakes in Ontario.
- Frances Pick, University of Ottawa - Spatial and Temporal Dynamics of Microcystin Congeners in Response to Environmental Change
 - The study will provide better predictions and understanding of what toxins may be produced in algae blooms under different environmental conditions.

¹²⁰ <https://www.canada.ca/en/fisheries-oceans/news/2018/08/government-of-canada-invests-4-million-in-long-term-ecosystem-research-at-the-experimental-lakes-area.html>

¹²¹ <https://binational.net/2016/09/28/prp-rep/>

¹²² <https://binational.net/2017/03/03/psa-pasa-2017-2/>

¹²³ <https://news.ontario.ca/ene/en/2017/04/2016-17-best-in-science-grant-recipients.html>

In May 2019, the Ontario Government announced more than \$2 million in funding to the International Institute for Sustainable Development Experimental Lakes Area (IISD-ELA)¹²⁴.

In July 2017, the Governments of Canada and the United States released the “State of the Great Lakes Report 2017”.¹²⁵ The Report’s assessments support the identification of current and emerging challenges to Great Lakes water quality and ecosystem health, and assists Governments evaluate the effectiveness of programs and policies in place to address challenges and help inform and engage others.

In June 2019, the Government of Canada announced a \$89.7 million investment over five years to modernize Canada’s National Hydrological Service (water-monitoring), including developing water prediction services, improving data and information on water, and investigating new water-monitoring technologies¹²⁶.

Engagement

In early 2016, Ontario worked in partnership with Canada and the Chiefs of Ontario to host the first annual meeting with First Nations communities and Metis people under the COA, 2014¹²⁷.

On March 22, 2016, Ontario held its first Great Lakes Guardians’ Council meeting to discuss, gain input and build consensus on priority actions for protecting the Great Lakes, including climate change and algal blooms in Lake Erie, and opportunities for partnership and funding. In attendance were Ministers, representatives from First Nations and Metis communities, and experts from across Ontario, including municipalities and conservation authorities, agriculture, industry and science communities, environmental groups and the recreation and tourism sector¹²⁸.

The Great Lakes Public Forum was held on October 4-6, 2016. Environment and Climate Change Minister, Catherine McKenna, and Ontario Environment and Climate Change Minister, Glen Murray attended at the Forum and participated in discussions regarding the importance of the Great Lakes, threats to the basin, and opportunities for protection¹²⁹.

In December 2017, the Minister of ECCC convened a roundtable, moderated by the Council of the Great Lakes Region, to continue dialogue on the future of the protection of the Great Lakes.

¹²⁴ <https://news.ontario.ca/mndmf/en/2019/05/ontario-supporting-freshwater-research-and-education.html>

¹²⁵ <https://binational.net/2017/06/19/sogl-edgl-2017/>

¹²⁶ <https://www.canada.ca/en/environment-climate-change/news/2019/06/the-government-of-canada-invests-897-million-to-transform-water-monitoring-across-the-country.html>

¹²⁷ Ontario’s Great Lakes Strategy 2016 Progress Report <https://www.ontario.ca/page/ontarios-great-lakes-strategy-2016-progress-report>

¹²⁸ <https://news.ontario.ca/ene/en/2016/03/ontario-holds-first-great-lakes-guardians-council-meeting.html>

¹²⁹ <https://www.canada.ca/en/environment-climate-change/news/2016/10/minister-mckenna-participates-canada-great-lakes-public-forum.html>

Participants included representatives of Indigenous groups, the province of Ontario, municipalities, industry, and environmental non-governmental organizations¹³⁰.

In April 2019, the Ontario Government convened the Great Lakes Guardians' Council meeting to discuss emerging issues around the Great Lakes¹³¹.

In June 2019, the Ontario Government convened the Great Lakes St. Lawrence Governors' and Premiers' 2019 Leadership Summit¹³².

¹³⁰ https://www.canada.ca/en/environment-climate-change/news/2017/12/the_government_ofcanadainvestsingreatlakesprotectioninitiative.html

¹³¹ <https://news.ontario.ca/ene/en/2019/03/ontario-convening-leaders-to-discuss-great-lakes-water-protection.html>;
<https://news.ontario.ca/ene/en/2019/04/ontario-and-great-lakes-guardians-council-meet-to-discuss-great-lakes-water-protection.html>

¹³² <https://news.ontario.ca/ene/en/2019/06/statement-from-minister-phillips-on-the-great-lakes-st-lawrence-governors-and-premiers-2019-leadersh.html>