TORONTO AND REGION AREA OF CONCERN

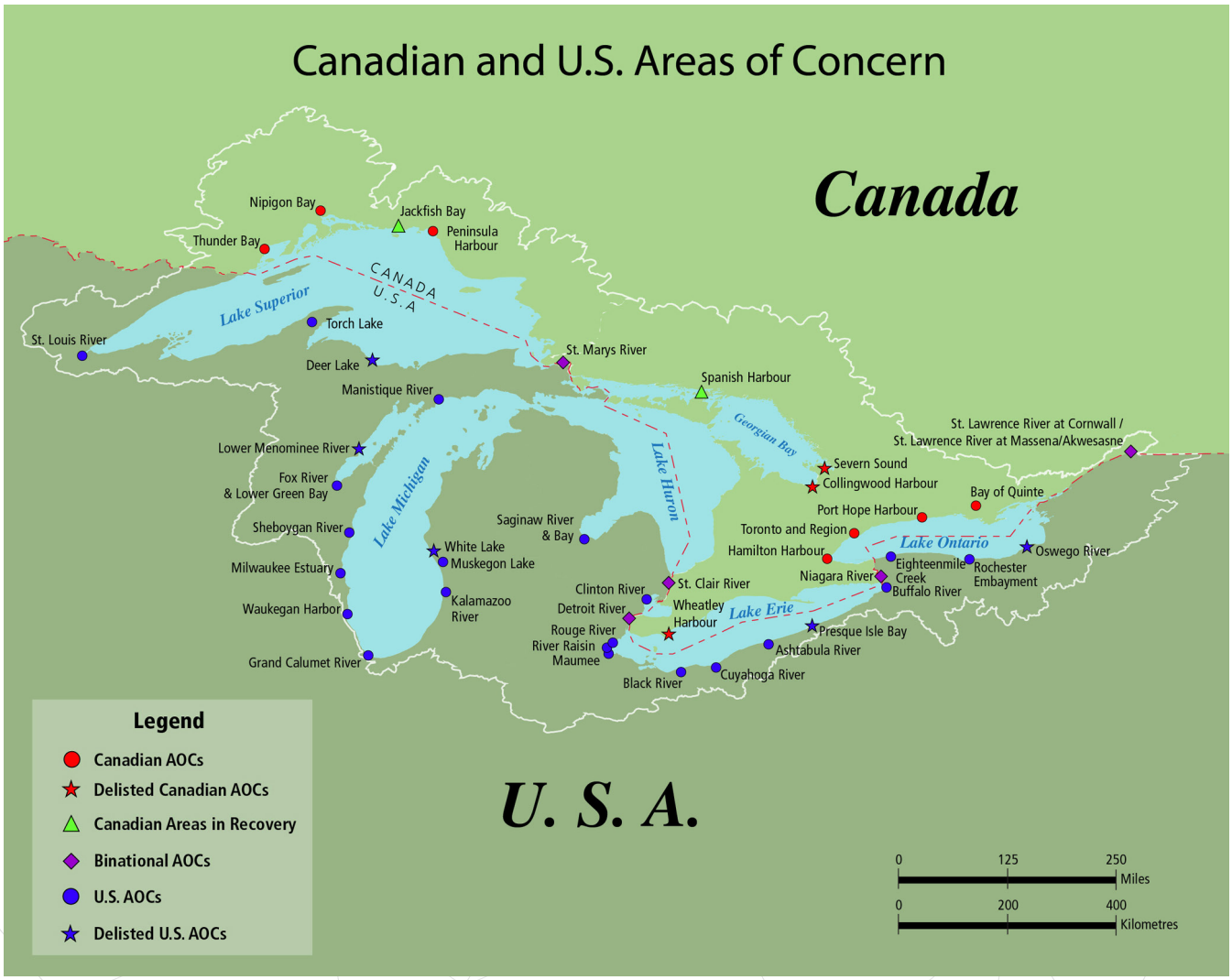
Work Plan 2020-2025

TORONTO & REGION
REMEDIAL ACTION PLAN

BACKGROUND

Environmental degradation in the Great Lakes basin has been a cause of concern to residents of Toronto and Region for decades. It's the reason the Canadian and American governments signed the Canada-U.S. Great Lakes Water Quality Agreement (GLWQA) in 1972. This agreement committed both countries to work together to "restore and maintain the chemical, physical, and biological integrity of the Great Lakes System".

In 1987, Canada and the U.S. formally recognized 42 Areas of Concern, or AOCs where local environmental degradation may be causing harm to the wider Great Lakes system. Toronto and Region, spanning from Etobicoke Creek in the west to the Rouge River in the east, was one of these AOCs.



EACH AREA OF CONCERN HAS A REMEDIAL ACTION PLAN (RAP) THAT GUIDES CLEAN-UP

The clean-up, or remediation, of an AOC occurs through a mandated process called a Remedial Action Plan, or RAP. An individualized RAP is required for each AOC to address its specific impairments.

This document highlights some of the key activities required to address the remaining BUIs for the Toronto and Region AOC from 2020 to 2025.

BENEFICIAL USE IMPAIRMENTS

The status of an AOC was determined by assessing the state of local environmental conditions against fourteen different Beneficial Use Impairments (BUIs). Each BUI describes a human or ecological use of the ecosystem that has been lost or impaired as the result of environmental degradation due to human activities. An AOC is therefore considered impaired when local conditions meet the descriptions of one or more BUIs. Of the 14 potential BUIs, 11 were identified as "impaired" or "requiring further assessment" for the Toronto and Region AOC. In 2020, only five BUIs remained impaired, and one required additional assessment.

1987 Beneficial Use Impairments (BUIs)

IMPAIRED

- Restrictions on dredging activities
- Restrictions on fish consumption
- Degradation of benthos
- Loss of fish and wildlife habitat
- Degradation of aesthetics
- Degradation of fish and wildlife populations
- Eutrophication
- Beach closures

NEEDS FURTHER ASSESSMENT

- Degradation of zooplankton and phytoplankton
- Bird or animal deformities or reproductive problems
- Fish tumours or other deformities

2021 Beneficial Use Impairments (BUIs)

NOT IMPAIRED

- Restrictions on dredging activities (2014)
- Bird or animal deformities or reproductive problems (2011)
- Degradation of benthos (2013)
- Fish tumours or other deformities (2011)
- Degradation of aesthetics

IMPAIRED

- Restrictions on fish consumption
- Degradation of fish and wildlife populations
- Loss of fish and wildlife habitat
- Eutrophication
- Beach closures

NEEDS FURTHER ASSESSMENT

- Degradation of zooplankton and phytoplankton

REMEDIAL ACTION PLAN PARTNERS

CoT - City of Toronto
ECCC - Environment and Climate Change Canada
TRCA - Toronto and Region Conservation Authority
MNRF - Ministry of Natural Resources and Forestry
WT - Waterfront Toronto
PC - Parks Canada
DFO - Department of Fisheries and Oceans Canada
GCSC - Great Canadian Shoreline Clean-up
MECP - Ministry of Environment, Conservation and Parks
UofT - University of Toronto Trash Team
PT - PortsToronto

BUI #1 - Restrictions on Fish Consumption

Status: *Impaired*

History

Restrictions on fish consumption were prevalent at most AOCs at the time of their listing. Elevated levels of contaminants have resulted in issuance of fish consumption advisories not only for the AOCs but also for other areas of the lakes. Legacy pollutants such as Polychlorinated Biphenyls (PCBs) and mercury that bioaccumulate in the food web are the primary contaminants of concern causing fish consumption advisories in the Toronto and Region AOC.

Progress

Elimination of PCBs and other persistent compounds from municipal and industrial discharges, clean-up of contaminated sites, as well as the track-down and removal of ongoing sources, have resulted in a decline in the levels of PCBs, and mercury in fish from the AOC and Lake Ontario over the last 30 years. Most resident fish are now safe to eat and are not subject to consumption advisories.

Remaining Actions	Lead	2020-21	2021-22	2022-23	2023-24	2024-25	Beyond
Monitoring of chemical contaminants in AOC fish	MECP		X		X		X
Tributary sediment sampling and reporting	MECP	X	X				
Eat Safe Fish Campaign	TRCA	X	X	X			
Fish Consumption BUI Status Assessment Report	MECP		X				
Indigenous and public consultation	TRCA ECCC MECP		X	X			
Submit BUI for re-designation to "Not Impaired" status	TRCA ECCC MECP			X			

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BUI #3 - Degradation of Fish & Wildlife* Populations

Status: *Impaired*

AND

BUI #14 - Loss of Fish & Wildlife* Habitat

Status: *Impaired*

History

Fish and wildlife populations and habitats in the western basin of Lake Ontario have undergone considerable change since European settlement. Fish populations have been negatively impacted by overfishing, colonization by exotic species, cultural eutrophication, contaminant discharges and the alteration and destruction of aquatic habitat.

In Toronto, the historic loss of the Don River's 486 ha Ashbridge's Bay marsh resulted in the reduction of local biological productivity and diversity of populations of largemouth bass, smallmouth bass, muskellunge, northern pike, yellow perch, pumpkinseed and walleye. On the open coast of Toronto, the stonehooking industry removed cobble and gravel from the lake bottom to be used as building materials in the Toronto area, resulting in the destruction of spawning habitat for coldwater populations of lake trout, lake whitefish, round whitefish and lake herring.

Other common habitat impacts include hardened shorelines that alter natural sediment transport processes; stream modifications, dams and barriers that cut off migratory routes, spawning and nursery areas; urbanized watersheds that produce increased streamflow variability; and fine sediment deposition from storm runoff and combined sewers that alters habitat, and introduces nutrients and contaminants to local water bodies.

Progress

The greatest threat to fish populations is the loss of habitat, therefore the fish habitat and fish populations BUIs are inextricably linked. Considerable effort has been undertaken to protect and restore habitat and improve populations for fish and wildlife within the AOC. The Toronto Waterfront Aquatic Habitat Restoration Strategy (TWAHRS) was developed in 2003 through key agency and public consultation to guide habitat restoration in the AOC. TWAHRS ensures that fish habitat creation receives consideration at the early planning stages of waterfront revitalization projects and has guided implementation of over 40 waterfront habitat restoration projects. Several habitat restoration projects are currently underway along the Toronto Waterfront. Most notably, the Don Mouth Naturalization and Port Lands Flood Protection Project will reroute the mouth of one of Toronto's largest rivers through wetlands and greenspace, adding approximately 14 hectares of aquatic habitat to the waterfront.

Please note, the following table includes restoration projects that are currently underway, but the list of projects will continue to evolve as we work with scientists and restoration ecologists to identify restoration needs across habitat types (e.g. wetlands, river mouths, open coasts, etc).

* *Wildlife populations and habitats were not considered impaired when Toronto was designated an AOC in 1987. However, the RAP did fund an assessment of* ***wildlife habitat and populations in Toronto and Region*** *which was released in 2018.*

Remaining Actions	Lead	2020-21	2021-22	2022-23	2023-24	2024-25	Beyond
Don Mouth Naturalization Project	WT	X	X	X	X	X	
Tommy Thompson Park Habitat Enhancements	TRCA	X	X				
Ashbridge's Bay Landform Project	TRCA	X	X	X	X		
Gibraltar Point Erosion Control Project	TRCA	X	X				
Open coast habitat restoration for the Disaster Mitigation and Adaptation Fund	TRCA	X	X	X	X	X	X
Mimico Estuary Enhancement Project	TRCA	X	X				
Eastern beaches Sand Dune Restoration Project	TRCA		X	X			
Integrated Restoration Planning Projects *(stream restoration, barrier mitigation, riparian planting)*	TRCA	X	X	X	X	X	X
Telemetry of Toronto Harbour fish	DFO TRCA	X	X	X	X	X	X
Waterfront fish community monitoring	TRCA	X	X	X	X	X	X
Nearshore trawl netting surveys	DFO			X	X		
Targeted invasive species monitoring	TRCA	X	X				
Nearshore Fish Community Index Netting (NSCIN)	MNRF		X		X		X
Walleye stocking	MNRF		X		X		X
Toronto Waterfront Aquatic Habitat Restoration Strategy (TWAHRS) update	TRCA	X					
Habitat assessment of TWAHRS projects	DFO		X	X	X	X	X
Development of a waterfront Integrated Restoration Prioritization (IRP) tool	TRCA		X	X	X		
Fish Population and Habitat BUI Status Assessment Reports	DFO	X				X	
Indigenous and public consultation	TRCA						X
Submit BUI for re-designation to "Not Impaired" status	ECCC MECP						

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BUI #8 - Eutrophication or Undesirable Algae

Status: *Impaired*

History

Phosphorus levels across the waterfront have historically exceeded desirable levels, and nuisance Cladophora growth has been observed along the western beaches. Actions have been ongoing since the early 1970's to limit the discharge of phosphorus from sewage treatment plants through improved treatment, regulation of phosphate levels in laundry detergents and soaps, implementation of new and improved stormwater management strategies, and increased public education and awareness of measures that individuals can take to limit nutrient loading to AOC tributaries.

Progress

Significant ongoing effort by the City of Toronto to capture and treat combined sewer overflows and implement the Wet Weather Flow Master Plan have reduced nutrient loadings within the AOC. The restoration and protection of riparian buffers has also contributed to reductions in nutrients entering AOC rivers and streams and being transported to the lake.

Remaining Actions	Lead	2020-21	2021-22	2022-23	2023-24	2024-25	Beyond
Don and Central Waterfront Combined Sewer Overflow Project	CoT	X	X	X	X	X	X
Wet Weather Flow Master Plan implementation	CoT	X	X	X	X	X	X
Ashbridge's Bay Treatment Plant Updates	CoT	X	X	X	X		
Support Rural Clean Water Program	TRCA	X	X	X	X	X	
Great Lakes nearshore water quality sampling	MECP	X	X	X	X		
Regional Watershed Monitoring Program	TRCA	X	X	X	X		
Eutrophication or Undesirable Algae Status Assessment Report	ECCC MECP					X	
Indigenous and public consultation	TRCA						X
Submit BUI for re-designation to "Not Impaired" status	ECCC MECP						X

Remedial Actions | Research & Monitoring | Status Assessments | Re-designation & Consultation | Communications

BUI #10 - Beach Closings

Status: *Impaired*

History

Reduced water quality due to pathogens in sewage and animal waste has resulted in beach closures. When the Toronto and Region was designated an AOC in 1987, beach closings were considered a chronic problem. Beaches with sewer outfalls (storm and combined sewers) in proximity, and those situated close to tributary mouths were the most impacted by high bacteria counts.

Progress

Thanks to substantial efforts by the City of Toronto and other partners to reduce E. coli levels, most Toronto beaches now meet international Blue Flag certification standards for water quality, beach management, safety, and environmental education. Implementation of the City of Toronto's Wet Weather Flow Master Plan, sewage treatment upgrades, beach grooming measures, and cross-connection trackdown efforts have helped to significantly reduce the numbers of unsafe or "posted days" at Toronto beaches.

Remaining Actions	Lead	2020-21	2021-22	2022-23	2023-24	2024-25	Beyond
Don and Central Waterfront Combined Sewer Overflow Project	CoT	X	X	X	X	X	X
Support Blue Flag Beach Program in Toronto	CoT	X	X	X	X	X	X
Implementation of Toronto Beaches Plan	CoT	X	X	X	X	X	X
Sewer Cross Connection Program	CoT	X	X	X	X	X	X
Implementation of the Wet Weather Flow Master Plan	CoT	X	X	X	X	X	X
Tributary wet weather flow monitoring	CoT	X	X				
Develop prediction tools like rapid *E. coli* testing	MECP	X	X	X	X	X	X
Beach Closures BUI Status Assessment Report	ECCC					X	
Indigenous and public consultation	TRCA						X
Submit BUI for re-designation to "Not Impaired" status	ECCC MECP						X

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BUI #13 - Degradation of Phytoplankton & Zooplankton

Status: *Requires Further Assessment*

History

When Toronto and Region was designated an AOC there was insufficient evidence to determine whether phytoplankton and zooplankton communities were considered 'Impaired'. A lack of sufficient data on local abundance and community structure, and limited ability of available research tools to distinguishing between effects due to local pollution versus lakewide influences led to uncertainty regarding the status of this BUI.

Progress

Efforts are underway to develop a cohesive approach across AOCs to tackle this BUI. Preliminary evidence indicates that this BUI is not impaired in the Toronto and Region AOC.

Remaining Actions	Lead	2020-21	2021-22	2022-23	2023-24	2024-25	Beyond
Conduct monitoring to assess the state of plankton in key habitat areas	DFO	X	X				
Review of methods to assess BUI 13	ECCC	X	X				
Zooplankton and Phytoplankton Status Assessment and Re-designation Report	TRCA			X			
Indigenous and public consultation	TRCA				X	X	
Submit BUI for re-designation to "Not Impaired" status	ECCC					X	

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BUI #11 - Degradation of Aesthetics

Status: *Not impaired*

History

Degradation of Aesthetics was originally listed as impaired due to industrial oil slicks that could be seen on the surface of the water in Toronto harbour. As the industries disappeared from the harbour, so too did the oil slicks. As time passed the Toronto waters faced a different problem - floating litter and debris. This persistent problem became the greatest aesthetic concern for Toronto waters and the focus of the BUI.

Progress

In summer 2020, the status of the "Degradation of Aesthetics" Beneficial Use Impairment was officially re-designated to "Not Impaired" in the Toronto and Region AOC pursuant to the provisions of the Great Lakes Water Quality Agreement, 2012. The criteria for re-designation were: "Waters free of any substance that produces a persistent objectionable deposit, unnatural colour or turbidity, or objectionable odour." Re-designation was recommended following extensive aesthetics monitoring across the AOC in 2012, 2013 and 2015, as well as additional monitoring in the Toronto Harbour in 2018. Although, the BUI is no longer listed as "Impaired", the Toronto and Region RAP team has committed to additional actions to ensure that the aesthetic quality of Toronto waters continues to be maintained, or even improved, beyond re-designation of the BUI.

Ongoing Actions	Lead	2020-21	2021-22	2022-23	2023-24	2024-25	Beyond
Degradation of aesthetics BUI re-designated to "Not impaired"	ECCC MECP	X					
Development and implementation of a float-ables management strategy for the Toronto Waterfront	TRCA	X	X	X	X	X	X
Continue to support community clean-ups and litter education programs	TRCA GCSC U of T	X	X	X	X	X	X
Support ongoing deployment and monitoring of seabins in Toronto Harbour	PortsToronto TRCA U of T	X	X	X	X	X	X

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Communication and Engagement

The Toronto and Region RAP continues to engage the public, stakeholders and rights holders in the Remedial Action Plan. The RAP is committed to consultation with the public, First Nations and Métis, and agency stakeholders on execution of the Toronto and Region RAP, as well as the development of status assessments and re-designation documents.

Major Actions	Lead	2020-21	2021-22	2022-23	2023-24	2024-25	Beyond
Lake Ontario Evenings	TRCA	X	X	X	X	X	X
Journal of Great Lakes Research Toronto AOC Special Issue	TRCA	X	X				
Maintain social media	TRCA	X	X	X	X	X	X
Maintain RAP website and online resources	TRCA	X	X	X	X	X	X
Annual RAP Science Seminar	TRCA		X	X	X	X	X

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The Toronto and Region Remedial Action Plan (RAP) is managed by representatives from:

Environment and Climate Change Canada
Ontario Ministry of the Environment Conservation and Parks
Ontario Ministry of Natural Resources and Forestry
City of Toronto
Toronto and Region Conservation Authority (TRCA)

For more information visit **www.torontorap.ca**