



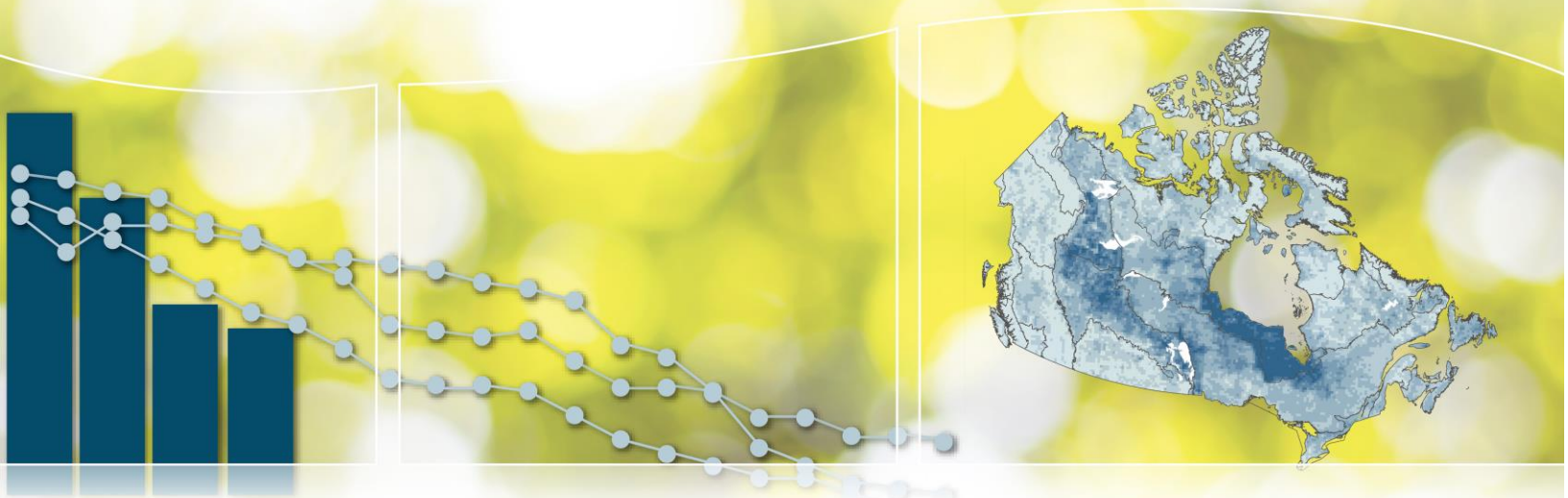
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Canadian Environmental Sustainability Indicators

Restoring the Great Lakes Areas of Concern



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Canadian Environmental Sustainability Indicators

Restoring the Great Lakes Areas of Concern

October 2017

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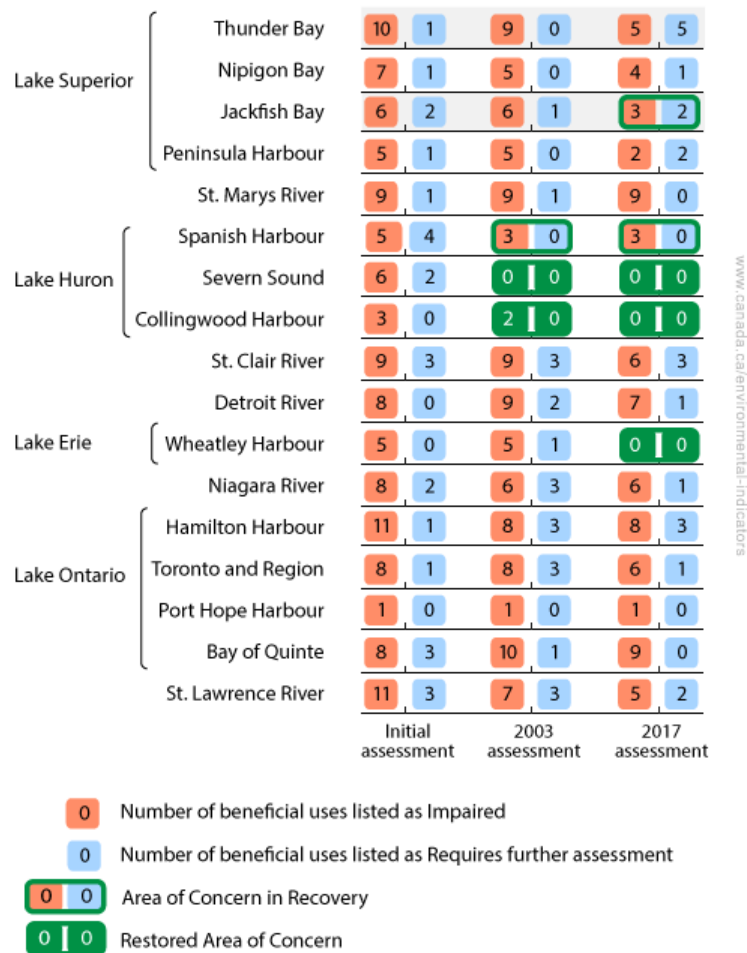
Restoring the Great Lakes Areas of Concern indicator

The Great Lakes basin is Canada's most populated region. Its large population, together with the industry, agricultural and urban development it supports, places a strain on the ability of the lakes to support healthy ecosystems.

Key results

- Environmental quality in Canada's 17 Great Lakes Areas of Concern has improved since the restoration program began in 1987.
- In 2017, 1 Impaired beneficial use was restored in the Bay of Quinte and the final impairment requiring assessment was resolved.

Figure 1. Progress on Canadian Great Lakes Areas of Concern, 1987 to 2017



[Data for Figure 1](#)

Note: The initial assessments were published between 1988 and 1993, with the exception of Wheatley Harbour and Port Hope Harbour, which were produced in 1998 and 2003, respectively. The number of beneficial uses that are Impaired or Require further assessment for 2017 is based on progress reported as of March 31, 2017.

Source: Environment and Climate Change Canada's Great Lakes Area of Concern Office.

In 1987, the Canada–United States Great Lakes Water Quality Agreement identified 43 Areas of Concern around the Great Lakes. Of these Areas of Concern:

- 26 were entirely in American waters and 4 have been restored: Oswego River (2006), Presque Isle Bay (2013), Deer Lake (2014) and White Lake (2014)
- 12 were entirely in Canadian waters and 3 have been restored: Collingwood Harbour (1994), Severn Sound (2003) and Wheatley Harbour (2010)
- 5 were shared by both countries

In addition, the Spanish Harbour (1999) and Jackfish Bay (2011) Areas of Concern in Canada have been designated as Areas of Concern in Recovery. To be considered in recovery, all restoration actions are complete and the area requires time to recover naturally.

Figure 2. Status of the Canadian Great Lakes Areas of Concern, 2017



Source: Environment and Climate Change Canada's Great Lakes Area of Concern Office.

About the indicator

What does the indicator measure

This indicator assesses progress towards the restoration of Canada's 12 Areas of Concern and the 5 Areas of Concern shared with the United States.

An Area of Concern is a region in the Great Lakes that has experienced a high level of environmental damage from human activity. There are 14 beneficial uses that are considered in order to decide whether an area should be classified as an Area of Concern. An Impaired beneficial use has experienced enough changes to the chemical, physical or biological integrity of the area to restrict human use or to restrict the area's ability to support plants and animals. A beneficial use that is listed as Requires further assessment is one that requires scientific study to determine whether it is impaired or not. When all objectives for the Impaired beneficial uses listed in the remedial action plan have been achieved, the Area of Concern is restored and removed from the list. An Area of Concern in Recovery is an area where, on the basis of consensus, all reasonable actions have been carried out and time is required for the environment to recover.

The status of a beneficial use is determined by monitoring and conducting scientific studies in the Area of Concern. The study results are compared to the findings for reference sites and targets listed in the site's remedial action plan and other update reports. For more information about the reports that have been published for an Area of Concern, please see Table 1..

Why is this indicator important

This indicator tracks the work done to repair the environment at 17 Areas of Concern in Canada. In these areas, the degraded environment has disrupted fisheries, tourism and agriculture.

This indicator is used to provide information about the state of the Great Lakes and the Canadian environment. It is used to assess progress towards the implementation of the [2016–2019 Federal Sustainable Development Strategy](#).

What are the related indicators

[Phosphorus levels in the offshore waters of the Great Lakes](#) reports on the state of and trends in total phosphorus concentrations in the open waters of the Canadian Great Lakes.

[Freshwater quality in rivers](#) provides a summary of the state of and trends in water quality in Canada at a national and regional level.



Pristine lakes and rivers

This indicator supports the measurement of progress towards the following [2016–2019 Federal Sustainable Development Strategy](#) long-term goal: Clean and healthy lakes and rivers support economic prosperity and the well-being of Canadians.

Data sources and methods

What are the data sources

Environment and Climate Change Canada's [Great Lakes: Areas of Concern](#) program tracks the status of all beneficial uses in Canada's 17 Areas of Concern. This information is taken from progress reports, remedial action plans and stage reports published for each area. The most recent data available for each Area of Concern are used to calculate this indicator.

More information

The 2017 data were obtained from Environment and Climate Change Canada's Areas of Concern Office. Since 2003, progress reports summarizing the status of all beneficial uses for all Canadian Areas of Concern have been compiled every 1 to 2 years. Prior to 2003, beneficial use classifications were taken from remedial action plans and update reports.

Data coverage for this indicator begins with Severn Sound's Stage 1 report published in 1988 and includes data up to March 31, 2017. The other Areas of Concern released their Stage 1 reports between 1989 and 1993, with the majority being released in 1991. Wheatley Harbour released a combined Stage 1 and 2 report in 1998.

The Port Hope Harbour Area of Concern does not have a remedial action plan. It follows a separate program under the guidance of Natural Resources Canada because of the nature of the beneficial use impairment at this site. Only the progress reports compiled since 2003 were considered for Port Hope Harbour.

Description of the Areas of Concern process

The 1987 revision of the Canada–United States Great Lakes Water Quality Agreement identified 43 Areas of Concern in Canadian and American waters of the Great Lakes. All Canadian Areas of Concern, except the Port Hope Harbour Area of Concern, have a remedial action plan to guide restoration and protection efforts targeting specific beneficial uses.¹ These plans are developed and implemented in 3 stages.

- Stage 1 identifies which of 14 beneficial uses identified in the Canada–United States Great Lakes Water Quality Agreement are classified as Impaired, Requires further assessment or Not impaired, as well as the sources and causes of the problem
- Stage 2 establishes the goals, objectives and actions required to restore the ecosystem to a healthy state

Once all recommended actions have been implemented, the Area of Concern either becomes an Area of Concern in Recovery or enters Stage 3 to move toward being declared Restored. An Area of Concern in Recovery is an area originally identified as an Area of Concern where, on the basis of community and government consensus, all scientifically-feasible and economically-reasonable actions have been implemented and additional time is required for the environment to recover. When monitoring confirms an area achieves the criteria for the beneficial use to be considered Restored, it enters Stage 3.

- During Stage 3, progress toward restoration and protection efforts in the Area of Concern is measured against the objectives outlined in the Stage 2 report to ensure the local goals and targets have been met. When the beneficial uses are considered unimpaired, Stage 3 is complete and the Area of Concern is declared Restored.

¹ For more information on what the beneficial uses are, please see: Environment and Climate Change Canada (2017) [2012 Great Lakes Water Quality Agreement: annex 1](#). Retrieved on July 14, 2017.

Under the 2012 Canada–United States Great Lakes Water Quality Agreement, remedial action plans will be periodically updated to reflect restoration progress. Canada:

- will remove an Impaired beneficial use designation when established criteria have been met
- may elect to identify an Area of Concern as an Area of Concern in Recovery when all actions identified in a remedial action plan have been implemented and monitoring shows recovery is progressing as anticipated
- will remove the Area of Concern or Area of Concern in Recovery designation when environmental monitoring confirms beneficial use restoration criteria have been met

The reports prepared for each Area of Concern with their reference and release date are presented in Table 1.

Table 1. Canada's 17 Areas of Concern and their associated remedial action plan reports

Areas of Concern names	Report	Reference	Notes
Bay of Quinte	Stage 1	Environment Ontario, Environment Canada, Fisheries and Oceans Canada, Ontario Ministry of Natural Resources, Ontario Ministry of Agriculture and Food (1990)	Released July 1990
Bay of Quinte	Stage 2	Bay of Quinte Remedial Action Plan Coordinating Committee, Bay of Quinte Public Advisory Committee (1993)	Released September 1993
Bay of Quinte	Update	Murray German Consulting (2006)	Released September 2006
Collingwood Harbour	Stage 1	Environment Ontario, Environment Canada (1989)	Released March 1989
Collingwood Harbour	Stage 2	Collingwood Harbour Remedial Action Plan Team, Public Advisory Committee (1992)	Released August 1992
Collingwood Harbour	Stage 3	Collingwood Harbour Action Team, Public Advisory Committee (1994)	Released June 1994
Detroit River	Stage 1	Ontario Ministry of the Environment, Michigan Department of Natural Resources (1991)	Released 1991
Detroit River	Update	Leney J and Haffner GD (2006) Great Lakes Institute for Environmental Research	Released December 2006

Areas of Concern names	Report	Reference	Notes
Detroit River	Stage 2	Green ND et al. (2010) Detroit River Canadian Cleanup	Released 2010
Detroit River	Beneficial use impairment re-designation report	Detroit River Canadian Cleanup (2011)	Released 2011
Hamilton Harbour	Stage 1	Ontario Ministry of the Environment, Environment Canada, Fisheries and Oceans Canada, Ontario Ministry of Agriculture and Food, Royal Botanical Gardens, Ontario Ministry of Natural Resources (1992)	Released October 1992
Hamilton Harbour	Stage 2	Hamilton Harbour Remedial Action Plan Technical Team and Stakeholders, Public Advisory Committee (1992)	Released November 1992
Hamilton Harbour	Update	Hamilton Harbour Remedial Action Plan Stakeholder Forum (2002)	Released 2003
Jackfish Bay	Stage 1	Ontario Ministry of the Environment, Environment Canada, Ontario Ministry of Natural Resources, Department of Fisheries and Oceans Canada (1991a)	Released September 1991
Jackfish Bay	Stage 2	Jackfish Bay Remedial Action Plan Team, Jackfish Bay Public Advisory Committee (1998)	Released February 1998
Jackfish Bay	Update	Jackfish Bay Remedial Action Plan Stage 2 Update: Area in Recovery Status Report 1 for Jackfish Bay (2010)	Released May 2011
Niagara River	Stage 1	Ontario Ministry of Environment and Energy, Environment Canada, Ontario Ministry of Natural Resources, Fisheries and Oceans Canada (1993)	Released September 1993

Areas of Concern names	Report	Reference	Notes
Niagara River	Stage 2	Ministry of Environment and Energy, Niagara River Restoration Council (1995)	Released April 1995
Niagara River	Update	Niagara River (Ontario) Remedial Action Plan Coordinating Committee (2009)	Released December 2009
Nipigon Bay	Stage 1	Ontario Ministry of the Environment, Environment Canada, Ontario Ministry of Natural Resources, Department of Fisheries and Oceans Canada (1991b)	Released September 1991
Nipigon Bay	Stage 2	Nipigon Bay Remedial Action Plan Team, Nipigon Bay Public Advisory Committee (1995)	Released October 1995
Peninsula Harbour	Stage 1	Ontario Ministry of the Environment, Environment Canada, Ontario Ministry of Natural Resources, Department of Fisheries and Oceans Canada (1991c)	Released September 1991
Peninsula Harbour	Stage 2	Taillon K (2010) Environment Canada, personal communication	Draft report; not released. Status of each beneficial use is from 2000
Port Hope Harbour		Not applicable	The evolution of the beneficial use impairment is reported in the 2003, 2010, 2012 and 2014 progress reports
St. Clair River	Stage 1	St. Clair River Remedial Action Plan Team, Ontario Ministry of the Environment, Michigan Department of Natural Resources (1991)	Released December 1991

Areas of Concern names	Report	Reference	Notes
St. Clair River	Stage 2	St. Clair River Remedial Action Plan Team, St. Clair River Bi-National Public Advisory Council, Ontario Ministry of Environment and Energy, Michigan Department of Natural Resources (1995)	Released March 1995
St. Clair River	Update	Geomatics International Inc. (1997)	Released February 1997
St. Clair River	Summary	Mayne G (2005) Environment Canada	Summary table with data from 3 previous reports. Released 2005
St. Clair River	Update	Briggs T, Kok S, Lafrance C and White A (2012) St. Clair River Area of Concern Canadian Remedial Action Plan Implementation Committee Work Plan 2007-2010: Summary of Accomplishments	Released June 2012
St. Lawrence River	Stage 1	St. Lawrence Remedial Action Plan Team (1992)	Released August 1992
St. Lawrence River	Stage 2	Dreier, SI, J Anderson, J Biberhofer, M Eckersley, R Helliard, MBC Hickey, L Richman, F Stride, St. Lawrence River (Cornwall) Remedial Action Plan Public Advisory Committee (1997)	Report released 1997
St. Lawrence River	Update	Raisin Region Conservation Authority (2010)	Draft of Remedial Action Plan Stage 3, Section 3. Report not available online
St. Marys River	Stage 1	Ontario Ministry of the Environment, Michigan Department of Natural Resources (1992)	Released March 1992

Areas of Concern names	Report	Reference	Notes
St. Marys River	Stage 2	Environment Canada, United States Environmental Protection Agency, Ontario Ministry of Environment, Michigan Department of Environmental Quality (2002)	Released December 2002
Severn Sound	Stage 1	Environment Ontario, Environment Canada, Ontario Ministry of Natural Resources Huronia District, Ontario Ministry of Agriculture and Food (1988)	Released September 1988
Severn Sound	Stage 2	Environment Canada, Ontario Ministry of Environment and Energy, Ontario Ministry of Natural Resources, Ontario Ministry of Agriculture and Food, Department of Fisheries and Oceans (1993)	Released April 1993
Severn Sound	Stage 3	Environment Canada, Ontario Ministry of Environment and Energy (2002)	Released June 2002
Spanish Harbour	Stage 1	Taillon K (2010) Environment Canada, personal communication	Released 1993
Spanish Harbour	Stage 2	Taillon K (2010) Environment Canada, personal communication	Released 1999
Thunder Bay	Stage 1	Ontario Ministry of the Environment, Environment Canada, Ontario Ministry of Natural Resources, Department of Fisheries and Oceans (1991)	Released September 1991
Thunder Bay	Stage 2	Vander Wal J, Cullis K, Chase M. Morash M, Cano T (2004) Lake Superior Programs Office	Released May 2004
Thunder Bay	Update	Lakehead University RAP Office (2012)	Released 2012
Toronto and Region	Stage 1	Environment Canada, Environment Ontario, Ministry of Natural Resources, Metropolitan Toronto and Region Conservation Area (1989)	Released May 1989

Areas of Concern names	Report	Reference	Notes
Toronto and Region	Stage 2	Metro Toronto and Region Remedial Action Plan Team (1994)	Released 1994
Toronto and Region	Update	Toronto and Region Conservation Authority (2010)	Beneficial use status in report is from 2007. Released 2010
Wheatley Harbour	Stage 1 and 2	Zaranko Environmental Assessment Services, The Citizens of Wheatley Harbour (1998)	Released March 1998
Wheatley Harbour	Update	Zaranko (2002)	Released November 2002
Wheatley Harbour	Stage 3	Wheatley Harbour Implementation Team (2010)	Released January 2010
All Areas of Concerns	Progress Report	Environment Canada (2003)	Released 2003
All Areas of Concerns	Progress Report	Environment Canada (2010)	Released 2011
All Areas of Concerns	Progress Report	Environment and Climate Change Canada, personal communication	Beneficial use status as of end of the Government of Canada's 2011-2012, 2013-2014, 2015-2016, 2016-2017 fiscal years

How is this indicator calculated

The number of beneficial uses listed as Impaired or Requires further assessment was counted for all Stage 1 reports and all update reports conducted up to the end of March 2017. The results include the beneficial uses for Canada's 12 Areas of Concern, covering the 4 Canadian Great Lakes and their connecting channels, as well as the 5 Areas of Concern shared with the United States.

More information

The number of beneficial uses listed as Impaired or Requires further assessment varies through time for many reasons:

- a beneficial use listed as Not impaired in a report can be reclassified as Requires further assessment on the basis of subsequent monitoring and research.
- an Impaired beneficial use can be classified as Restored if all delisting requirements for that beneficial use impairment have been met, or if the assessment determines the beneficial use was never impaired.
- a beneficial use can be delisted if the impairment is found lake-wide and not solely within the geographic extent of the Area of Concern, and sources within the Area of Concern are controlled. The impairment can also be delisted if the conditions are shown to be the result of natural conditions and not human influences. As a result, it is possible for an Area of Concern to be delisted and still have Impaired beneficial uses.

What has recently changed

No methodological changes have been made to the indicator since its last publication in 2016.

What are the caveats and limitations

This indicator does not show the continuous nature of the rehabilitation process for each Area of Concern because the status for each beneficial use impairment can only change when new reports are published. With progress reports being updated annually, the staggered change is less evident.

The reporting process is different for each Area of Concern and, as a result, data availability differs among Areas of Concern.

Port Hope Harbour follows a separate program under the guidance of Natural Resources Canada.

Resources

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Related information

[Great Lakes: Areas of Concern](#)

Annex

Annex A. Data tables for the figures presented in this document

Table A.1. Data for Figure 1. Progress on Canadian Great Lakes Areas of Concern, 1987 to 2017

Lake	Area of Concern	Initial assessment Impaired	Initial assessment Requires further assessment	Initial assessment year	2003 Impaired	2003 Requires further assessment	2017 Impaired	2017 Requires further assessment
Superior	Thunder Bay	10	1	1991	9	0	5	5
Superior	Nipigon Bay	7	1	1991	5	0	4	1
Superior	Jackfish Bay	6	2	1991	6	1	3 ^[A]	2 ^[A]
Superior	Peninsula Harbour	5	1	1991	5	0	2	2
–	St. Marys River	9	1	1992	9	1	9	0
Huron	Spanish Harbour	5	4	1993	3 ^[A]	0 ^[A]	3 ^[A]	0 ^[A]
Huron	Severn Sound	6	2	1988	0 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]
Huron	Collingwood Harbour	3	0	1989	2 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]
–	St. Clair River	9	3	1991	9	3	6	3
–	Detroit River	8	0	1991	9	2	7	1
Erie	Wheatley Harbour	5	0	1998	5	1	0 ^[B]	0 ^[B]
–	Niagara River	8	2	1993	6	3	6	1
Ontario	Hamilton Harbour	11	1	1992	8	3	8	3
Ontario	Toronto and Region	8	1	1989	8	3	6	1
Ontario	Port Hope Harbour	1	0	2003	1	0	1	0
Ontario	Bay of Quinte	8	3	1990	10	1	9	0
–	St. Lawrence River	11	3	1992	7	3	5	2

^[A] Area of Concern in Recovery.

^[B] Restored.

Note: For the complete data set from 1987 to 2017, please see the Table A.2.

Table A.2. Progress on Canadian Great Lakes Areas of Concern, 1987 to 2017

Lake	Area of Concern	Initial assessment Impaired	Initial assessment Requires further assessment	Initial assessment Year	Report 2 Impaired	Report 2 Requires further assessment	Report Year	Update Impaired	Update Requires further assessment	Update Year	Report 3 Impaired	Report 3 Requires further assessment	Report 3 Year
Superior	Thunder Bay	10	1	1991	9	0	2004	7	4	2012			
Superior	Nipigon Bay	7	1	1991	5	0	1995						
Superior	Jackfish Bay	6	2	1991	6	1	1998	3	2	2010			
Superior	Peninsula Harbour	5	1	1991	4	1	2000						
-	St. Marys River	9	1	1992	9	1	2002						
Huron	Spanish Harbour	5	4	1993	3 ^[A]	0 ^[A]	1999						
Huron	Severn Sound	6	2	1988	8	2	1993	1	0	2002			
Huron	Collingwood Harbour	3	0	1989	8	1	1992				2 ^[B]	0 ^[B]	1994
-	St. Clair River	9	3	1991	9	3	1995	6	3	1997			
-	Detroit River	8	0	1991	9	2	2010	10	2	2006			
Erie	Wheatley Harbour	5	0	1998				4	1	2002	0 ^[B]	0 ^[B]	2010
-	Niagara River	8	2	1993	8	2	1995	7	1	2009			
Ontario	Hamilton Harbour	11	1	1992	11	1	1992	12	0	2002			
Ontario	Toronto and Region	8	1	1989	8	3	1994	8	3	2007			
Ontario	Port Hope Harbour	1	0	2003									
Ontario	Bay of Quinte	8	3	1990	11	3	1993	10 9	1 1	2006 2009			
-	St. Lawrence River	11	3	1992	7	3	1997	3	0	2010			

Lake	Area of Concern	2003 Impaired	2003 Requires further assessment	2010 Impaired	2010 Requires further assessment	2012 Impaired	2012 Requires further assessment	2014 Impaired	2014 Requires further assessment	2016 Impaired	2016 Requires further assessment	2017 Impaired	2017 Requires further assessment
Superior	Thunder Bay	9	0	5	5	5	5	5	5	5	5	5	5
Superior	Nipigon Bay	5	0	3	1	3	1	4	1	4	1	4	1
Superior	Jackfish Bay	6	1	3	2	3 ^[A]	2 ^[A]	3 ^[A]	2 ^[A]	3 ^[A]	2 ^[A]	3 ^[A]	2 ^[A]
Superior	Peninsula Harbour	5	0	5	0	5	0	2	2	2	2	2	2
-	St. Marys River	9	1	9	1	9	1	9	1	9	0	9	0
Huron	Spanish Harbour	3 ^[A]	0 ^[A]	3 ^[A]	0 ^[A]	3 ^[A]	0 ^[A]	3 ^[A]	0 ^[A]	3 ^[A]	0 ^[A]	3 ^[A]	0 ^[A]
Huron	Severn Sound	0 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]
Huron	Collingwood Harbour	2 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]
-	St. Clair River	9	3	8	4	8	3	7	3	6	3	6	3
-	Detroit River	9	2	9	2	9	2	9	1	7	1	7	1
Erie	Wheatley Harbour	5	1	0 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]	0 ^[B]
-	Niagara River	6	3	6	1	6	1	6	1	6	1	6	1
Ontario	Hamilton Harbour	8	3	8	3	8	3	8	3	8	3	8	3
Ontario	Toronto and Region	8	3	8	2	8	2	8	1	6	1	6	1
Ontario	Port Hope Harbour	1	0	1	0	1	0	1	0	1	0	1	0
Ontario	Bay of Quinte	10	1	9	1	9	1	10	1	10	1	9	0
-	St. Lawrence River	7	3	3	0	3	0	5	2	5	2	5	2

^[A] Area of Concern in Recovery.

^[B] Restored.

Source: Environment and Climate Change Canada's Great Lakes Area of Concern Office.

Additional information can be obtained at:

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