



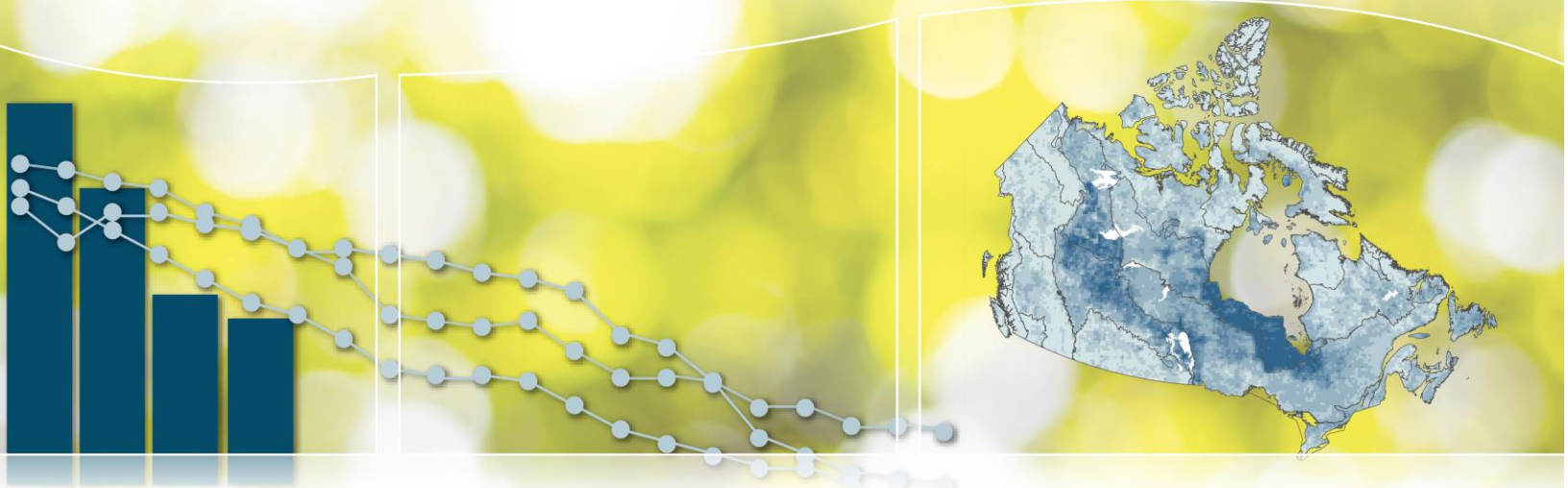
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Canadian Environmental Sustainability Indicators

Restoring the Great Lakes Areas of Concern



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Canadian Environmental Sustainability Indicators

Restoring the Great Lakes Areas of Concern

October 2018

Table of Contents

Restoring the Great Lakes Areas of Concern indicator	5
Key results	5
About the indicator	7
What the indicator measures	7
Why this indicator is important	7
Related indicators	7
Data sources and methods	8
Data sources	8
Methods	10
Recent changes	10
Caveats and limitations	10
Resources	10
References	10
Related information	10
Annex	11
Annex A. Data table for the figures presented in this document	11

List of Figures

Figure 1. Progress on Canadian Great Lakes Areas of Concern, 1987 to 2018 5
Figure 2. Status of the Canadian Great Lakes Areas of Concern, 2018..... 6

List of Tables

Table 1. Impaired beneficial use and category of impact 8
Table A.1. Data for Figure 1. Progress on Canadian Great Lakes Areas of Concern, 1987 to 2018
..... 11

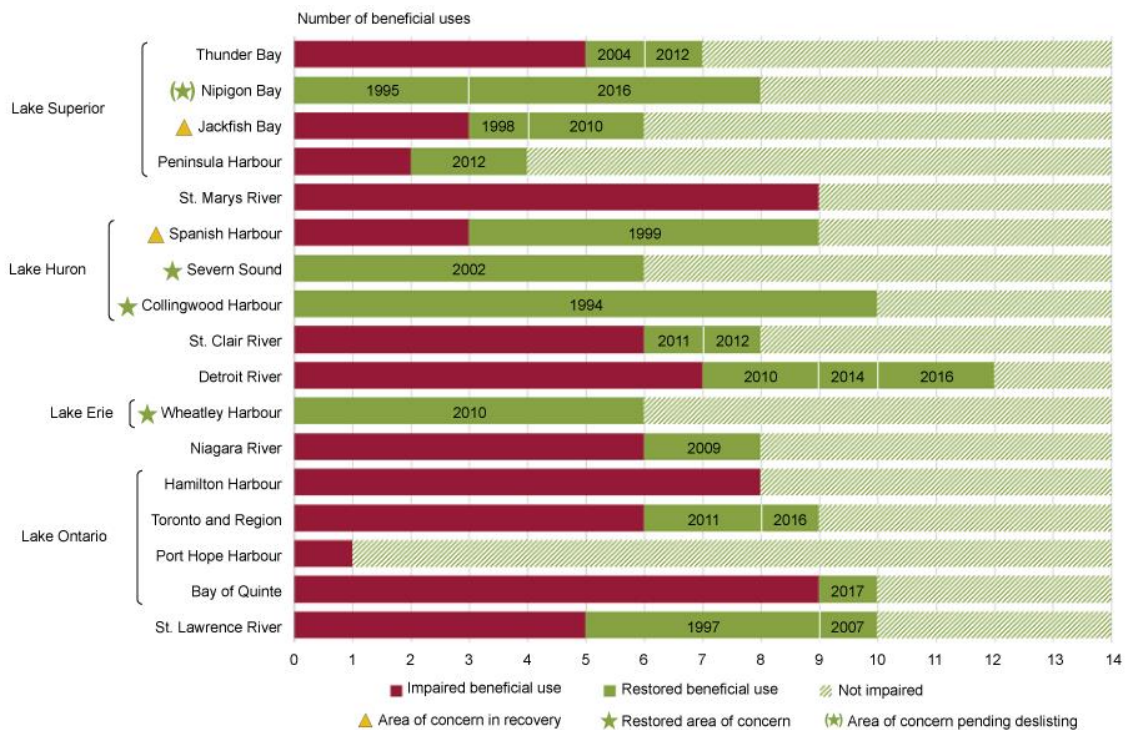
Restoring the Great Lakes Areas of Concern

The Great Lakes basin is Canada's most populated region. Its large population and extensive development places a strain on ecosystem health and benefits to people. This indicator assesses progress on restoring areas with high levels of environmental damage.

Key results

- Environmental quality in Canada's 17 Great Lakes Areas of Concern has improved since the restoration program began in 1987
- As of 2018, 4 Areas of Concern have had all impaired beneficial uses restored

Figure 1. Progress on Canadian Great Lakes Areas of Concern, 1987 to 2018



[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 for 2018 is based on progress reported as of March 31, 2018. While the category "Area of Concern pending delisting" is not an official designation in the Canada–United States Great Lakes Water Quality Agreement, it refers to an Area of Concern where all impaired beneficial uses have been restored and the delisting (designating as a restored area of concern) is pending final approval of the completion report.

Source: Environment and Climate Change Canada (2018) 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 and 5 are shared with the United States

To date, considerable progress has been made towards the restoration of Canada's 17 Areas of Concern. Of the 12 Areas of Concern entirely in Canadian waters:

- 3 have been fully restored and delisted: Collingwood Harbour (1994), Severn Sound (2002) and Wheatley Harbour (2010)
- 1 is in the process of being restored: Nipigon Bay (2016)
- 2 have been formally designated as Areas of Concern in recovery, signifying that we are continuing to monitor the natural recovery of the ecosystem following completion of remedial actions: Spanish Harbour (1999) and Jackfish Bay (2011)

Figure 2. Status of the Canadian Great Lakes Areas of Concern, 2018



Source: Environment and Climate Change Canada (2018) Great Lakes Area of Concern Office.

At the 17 Areas of Concern, 61 beneficial uses have been restored to a Not impaired status since the beginning of the program. In addition, 7 beneficial uses, which required further assessment to determine their status, have been confirmed to be Not impaired. Efforts continue to restore the remaining 70 Impaired beneficial uses.

About the indicator

What the indicator measures

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. Beneficial uses describe how an aquatic ecosystem benefits the economy, human health and the environment: they are the ecological services that are available to the population and the environment when the ecosystem is healthy (not impaired). 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.

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.

Why this indicator is 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/or 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](#).

Related indicators

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

The [Water quality in Canadian rivers](#) indicator 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

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 (including 5 shared with the United States). 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 2018 data were obtained from Environment and Climate Change Canada's Areas of Concern Office. Progress reports summarizing the status of all beneficial uses for all Canadian Areas of Concern have been compiled every 1 to 2 years since 2003. 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, 2018. 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

Table 1. Impaired beneficial use and category of impact

Impaired beneficial use	Category of impact
Restrictions on fish and wildlife consumption	Human health
Restrictions on drinking water consumption, or taste and odour problems	Human health
Beach closings	Human health
Tainting of fish and wildlife flavour	Economy
Restrictions on dredging activities	Economy
Degradation of aesthetics	Economy
Added costs to agriculture or industry	Economy
Degradation of fish and wildlife populations	Environment
Fish tumours or other deformities	Environment

¹ For more information on what the beneficial uses are, please see: [Environment and Climate Change Canada \(2018\)](#).

Impaired beneficial use	Category of impact
Bird or animal deformities or reproduction problems	Environment
Degradation of benthos	Environment
Degradation of phytoplankton and zooplankton populations	Environment
Eutrophication or undesirable algae	Environment
Loss of fish and wildlife habitat	Environment

Under the 1987 Great Lakes Water Quality Agreement, remedial action plans were 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 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.

Under the 2012 Canada–United States Great Lakes Water Quality Agreement, the process was modified and remedial action plans are now 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 and additional information can be found at [Great Lakes: Areas of Concern](#).

Methods

The number of beneficial uses listed as Impaired was counted for all Stage 1 reports and all update reports conducted up to the end of March 2018. 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.

An Impaired beneficial use can be classified as Restored if all delisting requirements for that beneficial use impairment have been met. Delisting requirements for a beneficial use impairment are established in consideration of conditions that can be eventually achieved on a lake-wide basis.

Recent changes

The designation "Requires further assessment" is no longer used, as it does not have an official standing in the Great Lakes Water Quality Agreement.

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 and the party (Canada) has confirmed the status as per the provisions in Annex 1 of the Great Lakes Water Quality Agreement. With progress reports being updated annually, the staggered change is less evident.

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

Resources

References

Environment and Climate Change Canada (2018) [2012 Great Lakes Water Quality Agreement: annex 1](#). Retrieved on May 23, 2018.

Related information

[Great Lakes: Areas of Concern](#)
[Canada–United States Great Lakes Water Quality Agreement](#)

Annex

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

Table A.1. Data for Figure 1. Progress on Canadian Great Lakes Areas of Concern, 1987 to 2018

Lake	Area of Concern	Initial assessment Impaired	Initial assessment year	Year and number of restored beneficial use	2018 Impaired	Total restored	Not impaired
Superior	Thunder Bay	7	1991	2004:1 2012:1	5	2	7
Superior	Nipigon Bay	8	1991	1995:3 2016:5	0 ^[A]	8	6
Superior	Jackfish Bay	6	1991	1998:1 2010:2	3 ^[B]	3	8
Superior	Peninsula Harbour	4	1991	2012:2	2	2	10
	St. Marys River	10	1992	No restored beneficial use	9	0	5
Huron	Spanish Harbour	9	1993	1999:6	3 ^[B]	6	5
Huron	Severn Sound	6	1988	2002:6	0 ^[C]	6	8
Huron	Collingwood Harbour	10	1989	1994:10	0 ^[C]	10	4
	St. Clair River	9	1991	2011:1 2012:1	6	2	6
	Detroit River	12	1991	2010:2 2014:1 2016:2	7	5	2
Erie	Wheatley Harbour	6	1998	2010:6	0 ^[C]	6	8
	Niagara River	9	1993	2009:2	6	2	6
Ontario	Hamilton Harbour	8	1992	No restored beneficial use	8	0	6
Ontario	Toronto and Region	10	1989	2011:2 2016:1	6	3	5
Ontario	Port Hope Harbour	1	2003	No restored beneficial use	1	0	13
Ontario	Bay of Quinte	11	1990	2017:1	9	1	4
	St. Lawrence River	12	1992	1997:4 2007:1	5	5	4

Note: Empty cells indicate a Great Lake tributary river. ^[A] Pending delisting. ^[B] Area of Concern in Recovery. ^[C] Restored.

Additional information can be obtained at:

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