



St. Marys River

AREA OF CONCERN

Canadian Section – 2013 Update

Why are we concerned about the St. Marys River?

There are a number of locations around the Great Lakes where historical pollution and habitat degradation have caused negative environmental impacts. The St. Marys River is one of these Areas of Concern.

Past pollution from industrial sources, partially treated municipal and private sewage, untreated stormwater, and physical alterations to the river and its shoreline are factors that have contributed to the degradation of the St. Marys River.

In 1987, the St. Marys River was recognized as an Area of Concern under the Great Lakes Water Quality Agreement between Canada and the United States. A commitment was made to develop and implement a remedial action plan to restore the health of the river.

In the 1990s, the federal government passed environmental legislation for pulp and paper mill effluents, and the provincial government introduced regulations under the Environmental Protection Act. Today, all industrial effluents must meet strict requirements and cannot be lethal to fish or aquatic insects.



While environmental quality has improved in recent decades, there are some long-term issues that need to be addressed.



This project was undertaken with the financial support of:



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This project has received funding support from the Government of Ontario. Such support does not indicate endorsement by the Government of Ontario of the contents of this material.

Canadian and U.S. Areas of Concern in the Great Lakes–St. Lawrence River Basin



What is an Area of Concern?

The term Area of Concern (AOC) identifies hotspots where the environment has been harmed to the point that it affects the use and enjoyment of that area. Consequences may include beach postings, loss of fish and wildlife habitat, and restrictions on the amount of fish people can eat.

In 1987, the Canada-U.S. *Great Lakes Water Quality Agreement* identified 43 AOCs around the Great Lakes. The agreement was amended in 2012 and reaffirms the commitment to implement Remedial Action Plans for each AOC taking a collaborative, scientific, and ecosystem-based approach.

As of 2013, three Canadian locations have been remediated and removed from the list of AOCs, and two others are in a state of natural recovery.

What is a Remedial Action Plan?

Each Area of Concern has a Remedial Action Plan that defines the nature, extent, and causes of environmental problems and recommends actions to restore and protect the environment. For the St. Marys River AOC, Canada and the United States, along with provincial and state governments, work together with conservation authorities, municipalities, Aboriginal communities, environmental groups, industry, special interest groups, and others to implement the plans, which proceed in three stages.

Stage 1: Identify environmental problems and sources of pollution

Stage 2: Evaluate and carry out actions to restore the area

Stage 3: Confirm that the actions have been effective and that the environment has been restored

Canadian St. Marys River Remedial Action Plan Participants

- Algoma Public Health
- Algoma University
- Binational Public Advisory Council
- City of Sault Ste. Marie, Ontario
- Environment Canada
- Fisheries and Oceans Canada
- Local Aboriginal Communities
- Ontario Ministry of Natural Resources
- Ontario Ministry of the Environment
- Sault Ste. Marie Region Conservation Authority
- St. Marys River Fisheries Task Group

How is the St. Marys River affected?

Summary of Environmental Challenges in St. Marys River

Each AOC is described in terms of 14 environmental issues:

ENVIRONMENTAL ISSUE	Status
Restrictions on Fish and Wildlife Consumption	
➤ Restrictions on fish consumption	I
➤ Consumption of wildlife	NI
Tainting of Fish and Wildlife Flavour	NI
Degradation of Fish and Wildlife Populations	
➤ Health of fish populations	I
➤ Contaminant levels of fish	I
➤ Health of wildlife populations	RFA
➤ Contaminant levels of wildlife	NI
Fish Tumors and Other Deformities	I
Bird and Animal Deformities or Reproductive Problems	RFA
Degradation of Benthos (worms and insects that live on the bottom of river)	
➤ Health of benthic populations	I
➤ Contaminant levels of benthic organisms	I
Restrictions on Dredging Activities	I
Eutrophication or Undesirable Algae	I
Restrictions on Drinking Water Consumption or Taste and Odour Problems	NI
Beach Closures	I
Degradation of Aesthetics	I
Added Cost to Agriculture and Industry	NI
Degradation of Phytoplankton and Zooplankton	NI
Loss of Fish and Wildlife Habitat	I
I = Impaired; RFA = Requires Further Assessment; NI = Not Impaired	

FACTS ABOUT PAHs

Contaminants of concern in the St. Marys River include polycyclic aromatic hydrocarbons (PAHs). PAHs occur naturally in oil, coal, tar and petroleum, and are released to the environment as by-products from the burning of these fossil fuels. PAHs mix more easily with oil than water and are often found in sediments where they persist and breakdown very slowly. In the past, industry has contributed most of the PAHs in the St. Marys River, but with new regulations and technology, the amount of PAHs discharged to the river has declined significantly.

Canadian St. Marys River Remedial Action Plan Milestones

- 1987** – St. Marys River is identified as an AOC under the *Canada-U.S. Great Lakes Water Quality Agreement*.
- 1988** – The Binational Public Advisory Council (BPAC) is formed – a stakeholder group with members from Canada and the United States that represents a variety of interests around the river.
- 1991** – The commissioning of a main filtration plant for wastewater discharged from Algoma Steel Inc.* that led to improved wastewater quality.
- 1992** – The first stage of the RAP for St. Marys River is completed. Federal and provincial government agencies worked with BPAC to identify specific environmental issues in the St. Marys River.
- 1995** – St. Marys Paper Ltd.† installs an activated sludge secondary treatment facility that improves wastewater quality.
- 1997** – The St. Marys River Fisheries Task Group is established by the Great Lakes Fishery Commission to coordinate fisheries assessment among Canadian and American agencies.
- 1997 – 1999** - Algoma Steel Inc.* invests heavily in new water technology to reduce phenol concentrations in wastewater and optimize water re-use by up to 90%.
- 2002** – The second stage of the RAP is completed, which recommends remedial actions to address the AOC's environmental challenges.
- 2003** – City of Sault Ste. Marie (ON) constructs a sanitary sewer overflow tank at Bellevue Park to address infiltration and high-flow events.
- 2006** – The City's East End Wastewater Treatment Plant is upgraded to secondary treatment using the first biological nutrient removal system in Ontario, which uses organic material instead of chemicals to reduce contaminants in wastewater.
- 2010** – The binational Sugar Island Monitoring Work Group releases the last of three reports that confirms episodes of floating solids and bacteria (*E. coli*) were due to natural causes and stormwater outfalls on both sides of the river.
- 2011** – The City establishes a stormwater master plan and policy to improve the quality and quantity of stormwater runoff around the community to minimize the input of contaminants to the river.
- 2013** – The RAP Implementation Annex is completed, which outlines the priority actions going forward to complete the AOC's restoration.

What's Next?

- Undertake priority actions outlined in the RAP Implementation Annex to continue the environmental restoration of the St. Marys River.
- Develop a sediment management strategy for priority areas in the St. Marys River.
- Develop and implement a monitoring plan to track the remaining environmental issues in the St. Marys River.

Is water quality improving?

Yes! Due to stricter environmental regulations and considerable improvements made by the City of Sault Ste. Marie and local industry, the water quality of the river has improved substantially since first being designated an AOC in the 1980s.

The City improved its wastewater quality by reducing biochemical oxygen demand (BOD) by over 96%, suspended solids by over 89%, and phosphorus levels have dropped by more than 91%.

Essar Steel Algoma reduced the amount of oil and grease entering the river via wastewater by more than 96%; suspended solids by over 94%, phenols by more than 99%, and ammonia by over 95%.

Prior to being decommissioned in 2012, St. Marys Paper Ltd. reduced the output of suspended solids by over 91%, (BOD) by more than 97%, and phenols by over 95%.

* Algoma Steel Inc. since renamed to Essar Steel Algoma
† St. Marys Paper plant decommissioned in 2012

FOR MORE INFORMATION:

Please contact Corrina Barrett at: corrina.barrett@algomau.ca

For information on Areas of Concern please visit: www.ec.gc.ca/raps-pas/