

Improving the Health of the St. Clair River

The Great Lakes

The Great Lakes are a unique natural resource containing 20 percent of the world’s fresh surface water. These lakes form part of the international boundary between Canada and the United States. In order to protect water resources, address problems along their common border, and “enhance Great Lakes water quality,” Canada and the United States enacted the *Boundary Waters Treaty of 1909* and subsequently established the International Joint Commission (IJC) to implement the treaty.

Areas of Concern

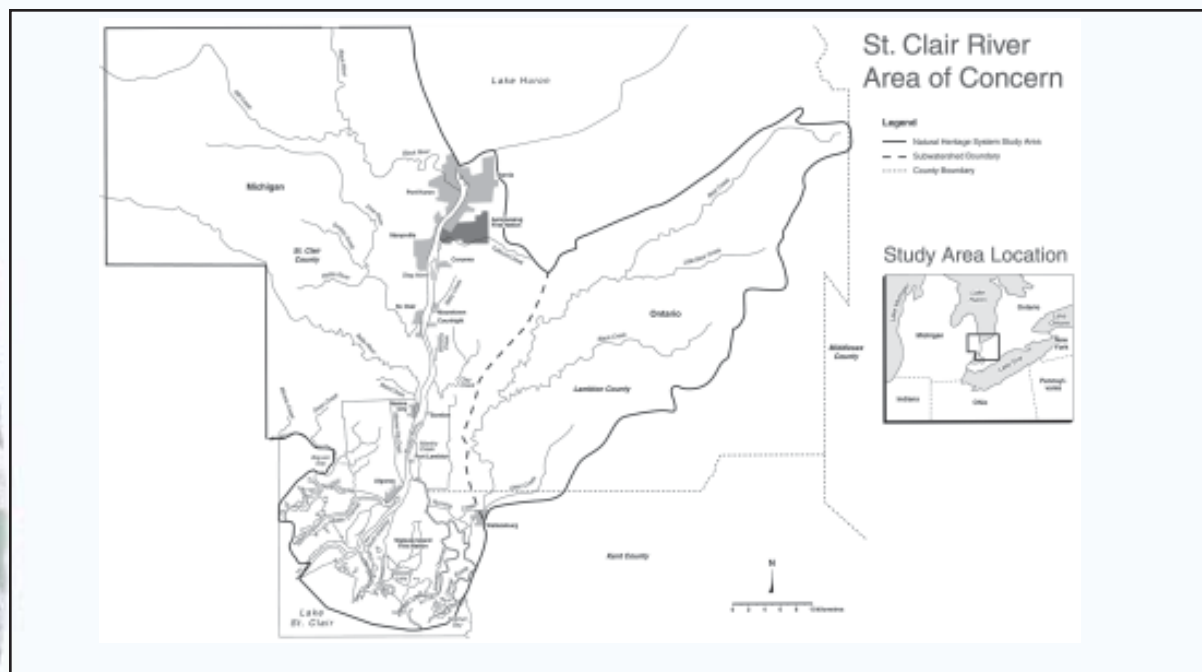
In the mid-1980s, the IJC identified specific locations throughout the Great Lakes where action was needed to control and clean up pollution. These locations are known as Areas of Concern (AOCs), “where there is known impairment of a beneficial water use.” The IJC identified the St. Clair River as one of 43 AOCs in the Great Lakes.

St. Clair River

The St. Clair River is approximately 64 kilometers (40 miles) long, flowing in a southerly direction. Together with Lake St. Clair and the Detroit River, it forms a connecting channel between Lake Huron and Lake Erie. The St. Clair River is a resource for shipping, water supply, fish and wildlife habitat, commercial and sport fishing, hunting and trapping, swimming, recreational boating, and nature studies. Fish, mammals, and waterfowl taken from the river and adjacent areas are a main food source for some people who live along the river. Unfortunately, the St. Clair River also receives wastewater discharges from industrial complexes and municipalities.

Tributaries

Canadian tributaries include Talfourd, Baby, Bowens, Clay, Marshy, and Murphy creeks, all of which are in Lambton County. The Sydenham River is the largest river on the Canadian side; it flows into Channel Ecart, which discharges into Lake St. Clair, just south of the St. Clair River. U.S. tributaries are Black, Pine, and Belle rivers, Bunce Creek, and Marine City Drain.



Watersheds

The landmass around the St. Clair River and its Lambton County tributaries in Ontario measures 41,776 hectares (103,210 acres), not including the Sydenham River watershed. In Michigan, the Black, Pine, and Belle rivers drain 780,600 acres (315,900 hectares) in Lapeer, Macomb, Sanilac, and St. Clair Counties; the watersheds around Bunce Creek and Marine City Drain are relatively small.

Land Usage

Much of the shoreline on both sides of the St. Clair River is urbanized and industrialized. A majority of the watershed away from the river in both Ontario and Michigan is used for agriculture. A few forest and wetland remnants are present, although their area has declined significantly since the advent of European settlement.

Islands

Stag Island lies between Corunna and Marysville. Fawn Island can be seen from Marine City. Walpole, Seaway, Bassett, Squirrel, Pottawatamie, St. Anne, Dickinson, and Harsens islands are located where the St. Clair River flows into Lake St. Clair; these islands form St. Clair Flats, the only major river delta in



Aerial view of the main industrial complex along the Canadian shore of the St. Clair River near Sarnia, Ontario.

the Great Lakes and the largest freshwater delta in North America. Six of the islands in this delta are the land of Walpole Island First Nation.

Land Habitat

Land areas of the St. Clair River shoreline and flats consist of two biological zones: upland and transitional, both of which are normally above the water table, but which may be flooded periodically. The upland forests consist of deciduous species, many of which are near their northern climatic limit. Most presettlement trees have been cleared for agriculture, industry, or urbanization. Remaining forest stands, such as oak savannas as well as lakeplain prairies, are found along the southern reaches of the river, particularly on the islands of the St. Clair River Delta and on the mainland in Algonac State Park.

Transitional species are abundant in the low-lying regions, categorized as shrub ecotones, wet meadows, sedge marshes, and island shorelines and beaches. This habitat is home to water and land mammals, including humans, as well as songbirds, waterfowl, insects, pollinators, reptiles, and amphibians.

Aquatic Habitat

The aquatic habitat of the St. Clair River ranges from deep and fast near the Blue Water Bridge to shallow and slow in the lower river. Each area provides a unique habitat for aquatic life: macrophytes (visible marine plants), benthic macroinvertebrates (organisms that live at

Habitat	Life Forms
Fast current, rocky bottom	Spawning grounds for large fish, such as sturgeon.
Shallows with benthic soils	Macrophytes, benthic macroinvertebrates, and zooplankton.
Shallows with rocky bottom	Spawning grounds for many fish, including walleye and bass.
Shallows with sandy bottom	Macroinvertebrates and bottom-burrowing zooplankton that emerge after sunset, and minnows that feed at night.
Manmade rock or concrete shoreline	Spawning grounds for many fish species.
Emergent vegetation	Food and resting cover for waterfowl, such as ducks and geese, and for land-and-water mammals, such as beaver and otters.
Steel seawalls	Artificial water-land barrier that exacerbates damaging wave action and harms aquatic life.

the bottom of a lake or stream), phytoplankton and zooplankton (floating plants and animals), emergent vegetation (plants seen above the water surface), and fish (from minnows to large sport fish).

St. Clair River AOC

The St. Clair River AOC includes the entire river, from the Blue Water Bridge to the southern tip of Seaway Island, west to St. Johns Marsh and east to include the north shore of Mitchells Bay on Lake St. Clair. Anchor Bay is not included.



The IJC listed the St. Clair River as an AOC because of pollutants such as bacteria, heavy metals, and toxic organics, which had come from municipal and industrial discharges, urban and rural runoff, combined sewer overflows (CSOs), and contaminated sediments.

Remedial Action Plan

Through the Great Lakes agreement, the IJC created a mechanism for the AOC to initiate cleanup measures. This mechanism is known as a Remedial Action Plan (RAP). A RAP consists of six steps:

1. Evaluation of remedial measures in place;
2. Evaluation of alternative additional measures to restore beneficial uses;
3. Selection of additional remedial measures to restore beneficial uses and a schedule for their implementation;
4. Identification of persons, agencies, or organizations responsible for implementing selected remedial measures;
5. Evaluation of implementation and effectiveness of remedial measures; and
6. Surveillance and monitoring processes to track the effectiveness of remedial measures, leading to eventual confirmation of restoration of beneficial uses.

RAP Team

The RAP for the St. Clair River AOC was initiated in 1985. A binational group, called the RAP Team, was established in 1987 to develop the plan and ensure adequate and appropriate public involvement. The RAP Team included representatives from federal, state, and provincial governments.

Binational Public Advisory Council

The St. Clair River Binational Public Advisory Council (BPAC) was created in early 1988 to work with and advise the RAP Team and government representatives on a regular basis during development of the Remedial Action Plan. Its role, at that time, was to convey public opinion and views regarding RAP goals. BPAC also offered advice on problem identification, planning methodology, public involvement, technical information, identification of available remedial options, selection of remedial actions, and plan recommendations.

Impairments to the River

In 1991, BPAC published an extensive document called the *St. Clair River Stage 1 Remedial Action Plan* that showed evidence of, or the need for:



Deformities such as this cross-billed cormorant were linked to the use of DDT pesticides

- Restrictions on fish consumption
- Bird and animal deformities
- Degradation of benthos
- Restrictions on dredging activities
- Restrictions on drinking water consumption or drinking water taste and odour problems
- Beach closings
- Degradation of aesthetics
- Added cost to agriculture and industry
- Loss of fish and wildlife habitat



Accomplishments

Through cleanup efforts by BPAC and others, as well as natural recovery processes, environmental conditions of the St. Clair River have improved so that there are:

- No restrictions on drinking water consumption and no evidence of taste and odour problems
- No added cost to agriculture or industry
- No tainted fish and wildlife flavour
- No increased incidence of bird or animal deformities or reproductive problems

Future Endeavors

With this progress, the future of the St. Clair River is promising. However, efforts must continue to:

- Remove contaminated sediments and improve sediment quality, thereby improving the benthos and fish and wildlife habitats
- Protect, restore, and rehabilitate fish and wildlife habitat
- Reduce or eliminate sport fish advisories through on-going control of potential pollution sources
- Eliminate all other listed impairments and seek opportunities for continued improvement

BPAC will continue to involve communities and citizens so that all individuals who work, live, and recreate in the St. Clair River watershed understand their role and responsibility for a healthy, beautiful, and bountiful river system.

BPAC Members

BPAC consists of 56 members from both Ontario and Michigan who represent a cross-section of communities and who have contributed extensive knowledge and time toward the Remedial Action Plan. BPAC members represent the public sectors of:

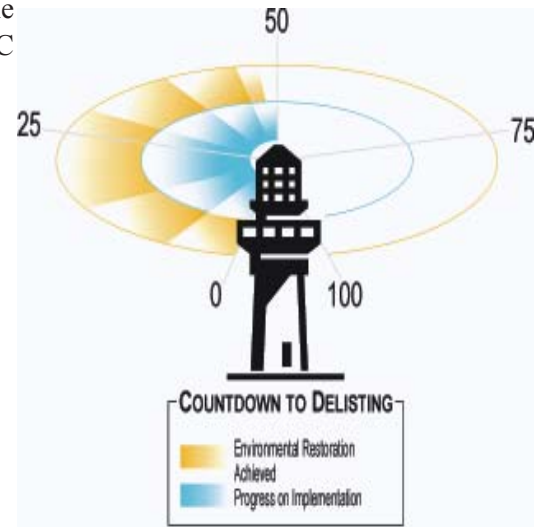
- Agriculture
- Business and industry
- Citizens-at-large
- Community groups
- Conservation and environment
- Education
- Fishery
- Health
- Labour
- Municipalities
- Native peoples
- Provincial/state agencies
- Shipping
- Tourism and recreation

Government Agencies

Government agencies participating with BPAC include:

- Environment Canada (DOE)
- Fisheries and Oceans Canada (DFO)
- U.S. Environmental Protection Agency (USEPA or EPA)
- Ontario Ministry of the Environment (MOE)
- Ontario Ministry of Natural Resources (MNR)
- Michigan Department of Environmental Quality (MDEQ)
- Walpole Island First Nation

Progress Indicator



This fact sheet was created by the St. Clair River Binational Public Advisory Council (BPAC). BPAC is a dedicated group of individuals who represent a cross section of society in both Ontario and Michigan. BPAC provides a channel for informed and continuous public participation regarding the health and environmental quality of the St. Clair River and its nearby surrounding lands. BPAC works in conjunction with Friends of the St. Clair River, Ontario, and Friends of the St. Clair River, Michigan, non-profit organizations dedicated to achieving improvements in the environmental quality of the St. Clair River.

For more information, visit the Friends website at www.friendsofstclair.ca

This fact sheet is part of a series on such topics as BPAC Overview, Water Quality and Spills, Sediments, Habitat, and Pollution Source Control, all of which were created and published in March, 2003. Fact sheets on other topics may have been created and published since.



These fact sheets were made possible through grants from the Great Lakes Commission and the Ontario Trillium Foundation. The Great Lakes Commission is a binational agency that promotes the orderly, integrated and comprehensive development, use and conservation of the water and related natural resources of the Great Lakes basin and St. Lawrence River. The Ontario Trillium Foundation, an agency of the Ministry of Culture, receives \$100 million annually in government funding generated through Ontario's charity casino initiative.

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Illustrations by or courtesy of: MOE, BPAC, Paul Smith Design Ltd.

Printed on recycled paper using soy based ink

