

Monitoring the State of the St. Lawrence River

SOME ENCOURAGING NEWS

HOW IS THE ST. LAWRENCE RIVER CHANGING? ARE THINGS STARTING TO GET BETTER OR IS THE DETERIORATION CONTINUING?

Photo: The Biosphere

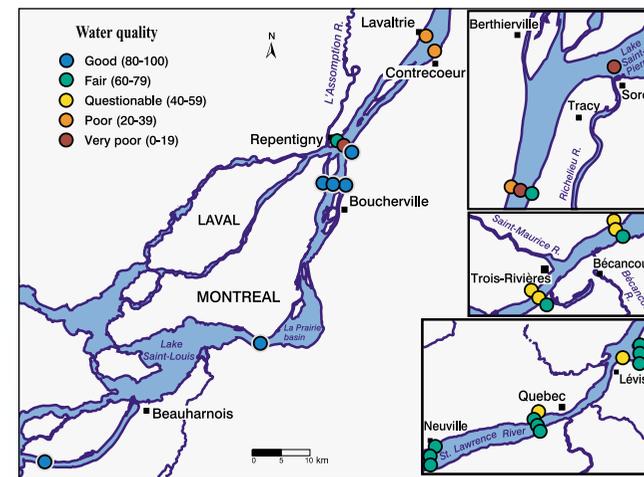
The St. Lawrence River is in better shape now than it has been since the 1970s. That is the conclusion drawn in the *Overview of the State of the St. Lawrence River*, which explains that:

- the bacteriological and physicochemical quality of the river is relatively good
- contamination of water, sediments and biological resources by toxic substances has decreased
- some animal populations, specifically the Northern Gannet and Great Blue Heron, have recovered, while others, such as the Striped Bass, are poised to do so
- marine organisms and freshwater fish are, generally speaking, safe to eat
- in many areas, water quality is nearing guidelines for recreational use more than 70% of the time
- wetlands that provide favourable breeding and feeding habitat for abundant and diverse wildlife are less subject to encroachment.

However, some concerns remain, including:

- restrictions on certain uses due to bacteriological contamination
- the long-term impact of toxic substances
- emerging toxic substances
- invasive exotic plant and animal species.

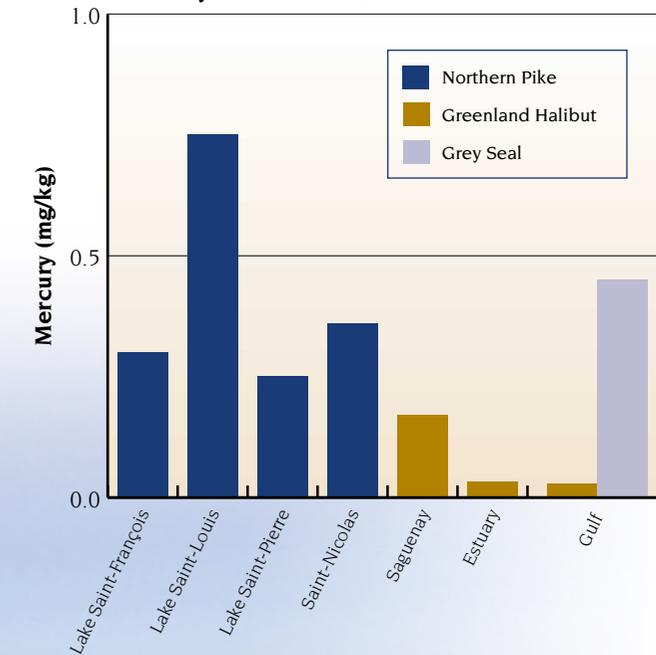
Bacteriological and physicochemical quality of water in the St. Lawrence River, summer 2000 and 2001



Water quality is good up until the Island of Montreal, but then deteriorates further downstream. Bacteriological contamination starts to drop in Lake Saint-Pierre, but remains perceptible until Bécancour. In the Québec City area, the quality of the river's large water masses is acceptable, but decreases near the shore.

SOME TELLING FIGURES

Mercury concentrations (mg/kg, wet weight) in the tissue of fish and Grey Seals in the St. Lawrence



Although mercury levels are generally below the 0.5 mg/kg guideline for marketing fishery products, contamination is greater in the freshwater portion of the St. Lawrence than in the estuary and gulf. The higher levels measured in Lake Saint-Louis and the Saguenay Fjord reflect the proximity of point sources of pollution.

The mercury levels recorded in Grey Seals are proof that, even if contamination of the marine environment is low, contaminants accumulate and concentrate in long-lived predators such as marine mammals.

A PROGRAM, A VISION

The State of the St. Lawrence Monitoring Program was developed within the framework of the St. Lawrence Vision 2000 Action Plan, Phase I of which was launched in 1988. Two other phases followed in 1993 and 1998.

In phases I and II, environmental indicators were identified for the purpose of achieving an overview of the state of the St. Lawrence and the main issues affecting it. With this experience behind them, the Action Plan partners agreed during Phase III to introduce a long-term monitoring program for the purpose of reporting on the state of the St. Lawrence on a regular basis.

A COLLECTIVE COMMITMENT

Environment Canada, the Ministère de l'Environnement du Québec, Fisheries and Oceans Canada, and the Société de la faune et des parcs du Québec pooled their knowledge to develop the State of the St. Lawrence Monitoring Program. Riverside communities also became involved through *Stratégies Saint-Laurent*, an organization that co-ordinates action by communities and supports the Priority Intervention Zone (ZIP) committees.

Drawing on the data gathered in the course of their regular environmental monitoring activities, the government partners developed a series of indicators for the main components of the St. Lawrence River ecosystem: water, sediments, biological resources, uses and, in future, the shoreline.

The territory covered by the program extends from the Ontario–Quebec border to the Gulf of St. Lawrence, but excludes the tributary rivers of the St. Lawrence.

The integration and analysis of indicator data provided an initial profile of changes in the state of the St. Lawrence River. The findings are summarized in a collection of fact sheets that were used to prepare the *Overview of the State of the St. Lawrence River*.

AN EVOLVING PROGRAM

Although this initial profile is positive, the ecosystem remains vulnerable and will continue to be studied and analysed. The knowledge gained will be used to improve the indicators and the resulting profile. The partners in the State of the St. Lawrence Monitoring Program have agreed to continue collecting data and disseminating information and to share their findings until at least 2010.

These publications can be viewed on the SLV 2000 Web site:
www.slv2000.qc.ca

Paper copies of this pamphlet are also available from:
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STATE OF THE ST. LAWRENCE MONITORING PROGRAM

SCHEDULE OF DISSEMINATION OF RESULTS

PARTNER ¹		MONITORING ACTIVITY (indicators)	2003	2004	2005	2006	2007	2008	2009	2010
PUBLICATIONS: Fact sheets										
WATER	Various partners	Hydrometric network (water level and flow)	●					●		
	EC	Toxic substances at the inlet (Wolfe Island) and outlet (Lévis) of the fluvial section	●			●			●	
	MENV	Organic toxic substances at the mouths of the Richelieu and Yamaska rivers	●			●			●	
	MENV	Physicochemical and bacteriological parameters of water (river) ²	●			●			●	
	DFO	Physicochemical parameters of water (estuary and gulf)	●					●		
	EC	Quality of shellfish waters in the estuary and gulf ²	●			●			●	
	MENV	Water quality in potential freshwater swimming areas ²	●	●	●	●	●	●	●	●
SEDIMENTS	EC	Contamination of sediments in Lake Saint-François by toxic substances	●							●
BIOLOGICAL RESOURCES	EC	Surface area of freshwater wetlands	●			●				●
	EC	Invasive plant species in freshwater wetlands	●			●				●
	FAPAQ	Monitoring of freshwater fish communities	●		●					●
	MENV	Contamination of freshwater fish by toxic substances ²	●					●		
	DFO	Contamination of marine resources by toxic substances ²	●					●		
	DFO	Phytoplankton communities in the estuary and gulf	●					●		
	DFO	Zooplankton communities in the estuary and gulf	●					●		
	DFO	Monitoring of toxic algae in the estuary and gulf	●					●		
	EC	Status of seabird populations	●			●				●
	EC	Status of the Northern Gannet population	●		●					●
EC	Status of the Great Blue Heron population	●					●			
DFO	Status of the Beluga Whale population	●					●			
FAPAQ	Reintroduction of Striped Bass	●					●			
PUBLICATIONS: Overview			●					●		
EVENTS: Forum					●			●		

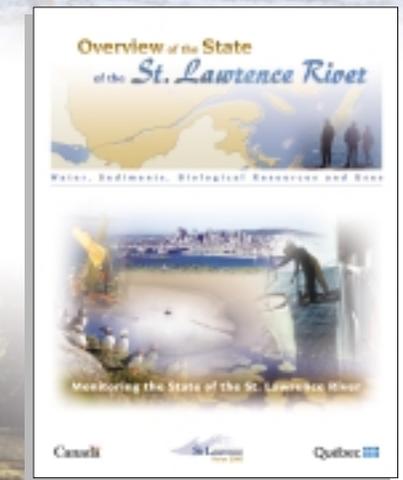
1. EC: Environment Canada; DFO: Fisheries and Oceans Canada; MENV: Ministère de l'Environnement du Québec; FAPAQ: Société de la faune et des parcs du Québec.
2. Link to a use.

The indicators are measurements or statistics related to the water, sediments and biological resources of the St. Lawrence River; some of them are also related to its use. These indicators are based on current monitoring activities being carried out by the program's partners: Environment Canada (EC), the Ministère de l'Environnement du Québec (MENV), Fisheries and Oceans Canada (DFO), and the Société de la faune et des parcs du Québec (FAPAQ).

ACCESSIBLE SCIENTIFIC INFORMATION



Photo: Jean Guénette



The fact sheets present the results of the environmental indicator analyses. Abundantly illustrated with photographs, figures and tables, the collection covers the physicochemical quality of water, sediment quality, biological resources (bird and fish communities, wetlands) and various uses (fish consumption, shellfish harvesting, swimming).

The information is organized under the following headings: Background, Overview of the Situation, Key Variables (approaches or tools used to facilitate interpretation) and Outlook. Bibliographical references are provided for anyone wanting more detailed information about specific aspects.

The *Overview of the State of the St. Lawrence River* summarizes the findings of the indicators documented in the fact sheets. The first section describes the State of the St. Lawrence Monitoring Program, while the second part covers changes in the state of the St. Lawrence. The third section looks at changes in contamination of the river by toxic substances. It concludes with an outlook for the future of the St. Lawrence River.