



WATER

SEDIMENTS

SHORELINES

BIOLOGICAL RESOURCES

USES

SHELLFISH WATER QUALITY

Background

The Shellfish Water Quality Protection Program (SWQPP) is a monitoring network to assess the bacterial water quality in shellfish growing areas. Its purpose is to authorize the growing and harvesting of molluscan shellfish.

When a shellfish bed is contaminated by fecal coliforms, the molluscs living there absorb and concentrate these contaminants. Coliforms have no effect on shellfish survival or growth, but they do render them unfit for human consumption. The classification of shellfish areas



Douglastown, Gaspé region

by level of contamination ensures the protection of consumer health. Because fecal coliforms are associated with the feces of warm-blooded mammals like human beings, they are indicators of unsanitary conditions in the aquatic environment. Consequently, the information collated by the Program can be used to track trends in the sanitary quality of the water along the shores of the Estuary and Gulf of St. Lawrence.

This includes such information as the location of shellfish growing areas, fecal coliform concentrations and pollution sources. The Program covers the coastal zone stretching from Baie-Sainte-Catherine to Blanc-Sablon, on the north shore, and the Gaspé peninsula from Cacouna to Miguasha, including the Magdalen Islands (Figure 1).

Figure 1. Marine area covered by the Shellfish Water Quality Protection Program

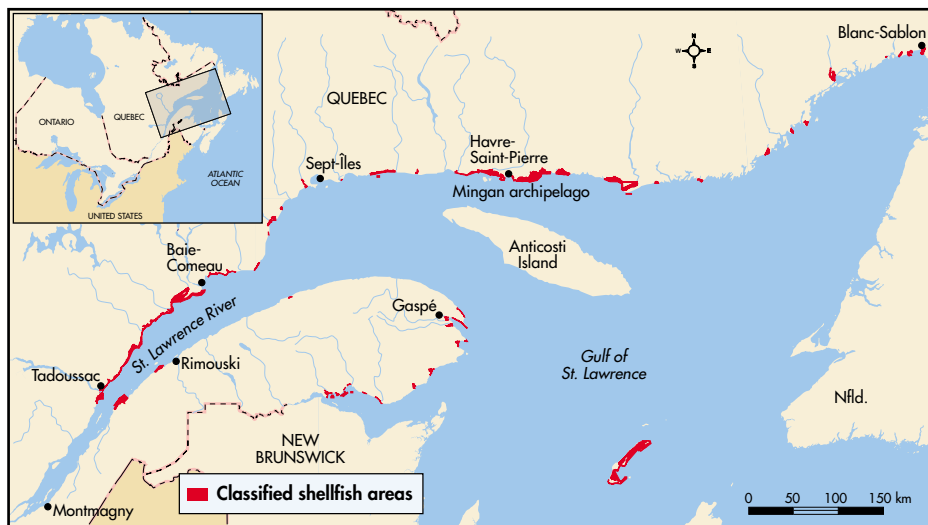


Photo: Bruno LaFortune, Environment Canada



Photo: Yves Lamontagne, Environment Canada

Carleton (Tracadigache Point), Gaspé region

Overview of the Situation

The number of shellfish areas assessed under the Shellfish Water Quality Protection Program has grown over the past 15 years, jumping from 10 in 1987 to close to 238 in 2002 (Figure 2). Of this number, 116 sectors are open to shellfish harvesting, 96 of them permanently, with the remaining 20 being open part of the year. However, 122 shellfish areas have remained closed due to persistent bacterial contamination (Figure 3).

As shown in Table 1, the bacterial quality of the water in the Magdalen Islands and on the North Shore is better than in the Gaspé region and Lower St. Lawrence. Indeed, in the Magdalen Islands, only four areas were closed out of a total of 41, whereas 71 areas of a total of 96 were permanently closed in the Gaspésie–Lower St. Lawrence. These shutdowns are due in large part

Figure 2. Number of CSSP-classified shellfish growing areas, 1987 to 2002

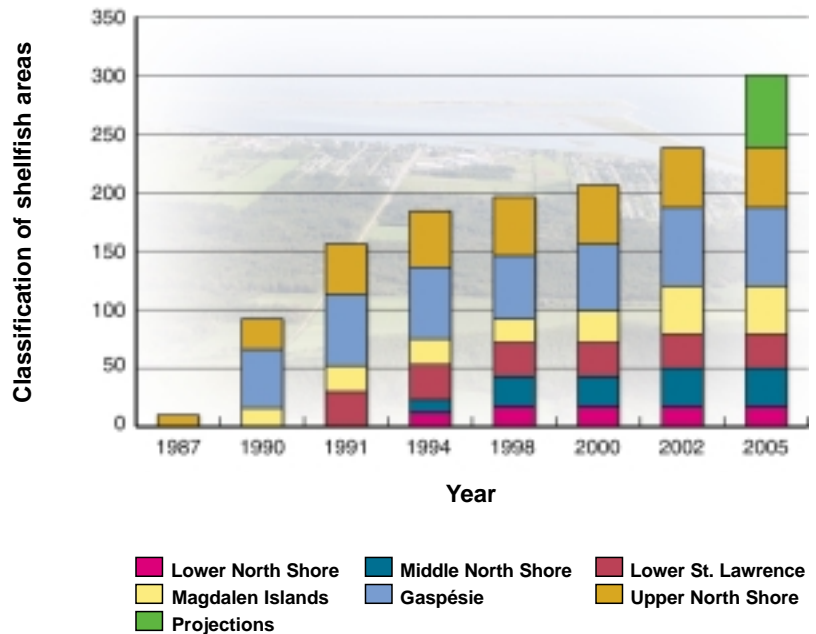


Figure 3. CSSP classification of Quebec shellfish growing areas, by region, in 2002

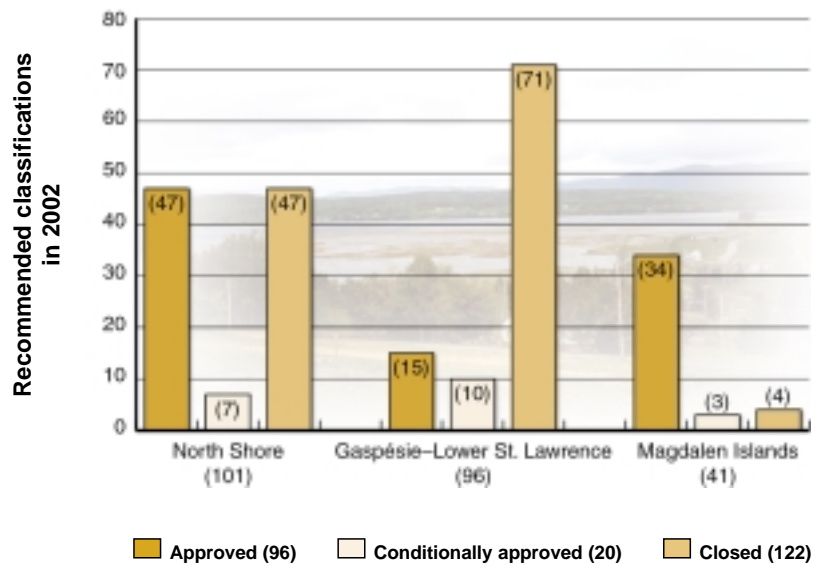
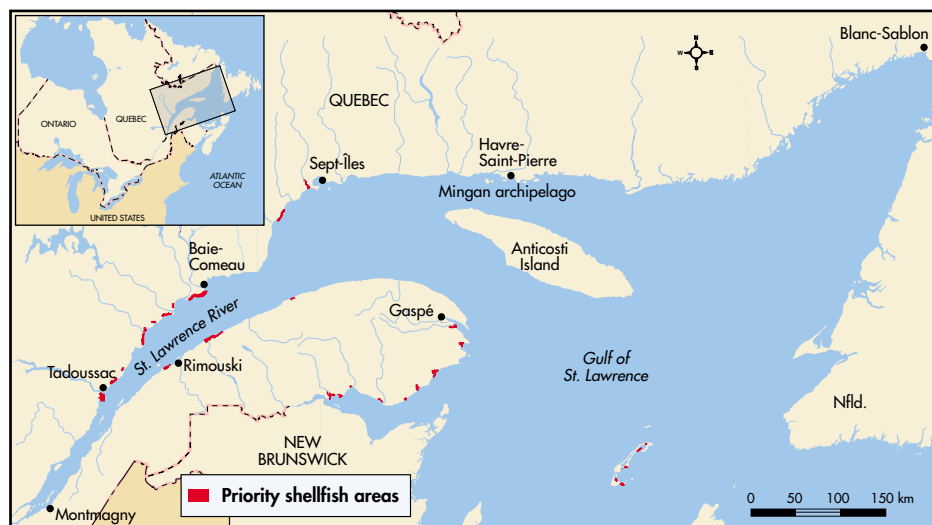


Table 1. Classification of shellfish areas in 1988, 1993, 1998 and 2002

Region	A r e a s			Total
	Approved	Conditionally approved	Closed	
1988				
Magdalen Islands	–	–	–	0
Gaspésie–Lower St. Lawrence	4	–	15	19
North Shore	7	–	4	11
Total	11		19	30
1993				
Magdalen Islands	19	1	4	24
Gaspésie–Lower St. Lawrence	6	11	74	91
North Shore	30	15	14	59
Total	55	27	92	174
1998				
Magdalen Islands	14	2	4	20
Gaspésie–Lower St. Lawrence	7	6	69	82
North Shore	35	11	47	93
Total	56	19	120	195
2002				
Magdalen Islands	34	3	4	41
Gaspésie–Lower St. Lawrence	15	10	71	96
North Shore	47	7	47	101
Total	96	20	122	238

Figure 4. Location map of 42 closed shellfish growing areas deemed a priority to reopen to harvesting



to the lack of adequate wastewater treatment systems, storm-sewer overflows and poorly maintained or obsolete septic systems near the shoreline, not to mention the ill-considered farming practices of some municipalities.

Since 1992, the staff of the Shellfish Water Quality Protection Program have worked in co-operation with local and government partners to remedy the pollution problem. Their goal is to provide renewed access to some 42 closed and potentially resource-rich shellfish areas. Among them, 22 are located in the Lower St. Lawrence–Gaspé region, 15 are on the North Shore, and 5 are in the Magdalen Islands.

Riverside municipalities in 12 of the 42 identified areas have introduced or upgraded existing wastewater treatment systems and the water quality has been vastly improved (Figure 4). Nonetheless, municipal wastewater overflows and contaminant loads from neglected septic systems on isolated properties continue to be a source of contamination.



Baie des Homards, North Shore

Photo: Yves Lamontagne, Environment Canada



Photo: Yves Lamontagne, Environment Canada

Mistassini Point, North Shore

These efforts aside, and based on the standards of the Shellfish Water Quality Protection Program, not a single shellfish area has yet been re-opened to harvesting. However, a number of different partners have come together to undertake a recovery and enhancement project involving about ten shellfish growing areas in the southern Gaspé region, where funding has been secured to deal with the pollution problem caused by isolated residences.

Outlook

The reasons for closing shellfish areas in Quebec, just as in the Pacific and Atlantic regions, can be traced back to isolated homes and municipal sewer systems.

The safety of shellfish resources is the joint responsibility of Fisheries and Oceans Canada, Environment Canada, and the Canadian Food Inspection Agency (CFIA).

The specific role of Environment Canada (www.ec.gc.ca) is to conduct surveys of pollution sources and assess the bacterial water quality in shellfish growing areas according to the standards of the Canadian Shellfish Sanitation Program (CSSP). Environment Canada recommends the opening or closure of these areas to Fisheries and Oceans Canada (DFO) and also takes part in the restoration of closed areas.

Fisheries and Oceans Canada (www.dfo-mpo.gc.ca) has the legal authority to open or close shellfish areas and also

conducts surveillance monitoring of closed areas.

The Canadian Food Inspection Agency (www.inspection.gc.ca) controls the quality of shellfish destined for export or import and monitors marine biotoxins in shellfish.

In a bid to better manage the data generated by the Canadian Shellfish Sanitation Program (CSSP) and disseminate this information to all their partners, Environment Canada, Fisheries and Oceans Canada and the Canadian Food Inspection Agency are currently putting the finishing touches on a data management system that will be geo-referenced to the CSSP and accessible via the Internet.



Photo: Yves Lamontagne,
Environment Canada

Pointe Basse, Magdalen Islands

KEY VARIABLES

Areas are ranked by one of three classifications indicating their suitability for shellfish harvesting based on bacteriological water quality: approved, conditionally approved or closed. In order to be declared open for harvesting, a shellfish growing area must meet Canadian and American standards for sanitary control:

- a) the area must not be contaminated with fecal matter or deleterious or poisonous substances to the extent that consumption of shellfish might be hazardous;
- b) the median value of the water may not exceed 14 fecal coliforms per 100 mL of water;
- c) no more than 10% of the samples exceed 43 fecal coliforms per 100 mL;
- d) in case of paralytic shellfish poisoning (PSP), toxin levels may not exceed 80 $\mu\text{g}/100\text{ g}$ of shellfish meat, and no other shellfish neurotoxin may be detected.

When these standards are not respected, a sector is designated as closed. Some areas are closed only during set periods, when pollution levels are known to increase (in summer, for example, or near campgrounds, small farms, cattle ranches, etc.); the area is thus classified as conditionally approved.



Municipal wastewater discharges, North Shore

Photo: Yves Lamontagne, Environment Canada

Photo: Yves Lamontagne, Environment Canada



Saint-Fabien-sur-Mer, Lower St. Lawrence

To Know More

ENVIRONMENTAL PROTECTION BRANCH. 2002. *The Shellfish Water Quality Protection Program: Protecting Public Health*. Fact sheet. Environment Canada – Quebec Region, Montreal.

GOVERNMENT OF CANADA. 2002. *Harvesting Shellfish in Quebec*. Folder. Fisheries and Oceans Canada, Environment Canada and Canadian Food Inspection Agency.

Web site of the Canadian Shellfish Sanitation Program (CSSP):
<http://www.inspection.gc.ca/english/anima/fispo/csspccsme.shtml>

Web site of the Environmental Protection Branch of Environment Canada:
http://lavoieverte.qc.ec.gc.ca/dpe/Anglais/dpe_main_en.asp?dpe_home

Web site of the Shellfish Water Quality Protection Program (SWQP):
http://lavoieverte.qc.ec.gc.ca/dpe/Anglais/dpe_main_en.asp?eau_salubI

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State of the St. Lawrence Monitoring Program

Four government partners — Environment Canada, the ministère de l'Environnement du Québec, the Société de la faune et des parcs du Québec, and Fisheries and Oceans Canada — are pooling their expertise and efforts to provide Canadians with information on the state of the St. Lawrence and long-term trends affecting it. To this end, environmental indicators have been developed on the basis of data collected

as part of each organization's ongoing environmental monitoring activities. These activities cover the main components of the environment, namely water (quality and quantity), sediments, biological resources (species diversity and condition), uses and, eventually, shorelines.

For additional copies or the complete collection of fact sheets, contact the

St. Lawrence Vision 2000 Coordination Office:

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The fact sheets and additional information about the program are also available on the Web site: www.slv2000.qc.ca.

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