Fisheries and Oceans Canada
Pêches et Océans Canada

ECOSYSTEM/SOCIOECONOMIC OVERVIEW REPORT

Oceans, Habitat and Species at Risk Publication Series, Newfoundland and Labrador Region

Social, Economic and Cultural Overview of the Quebec Region

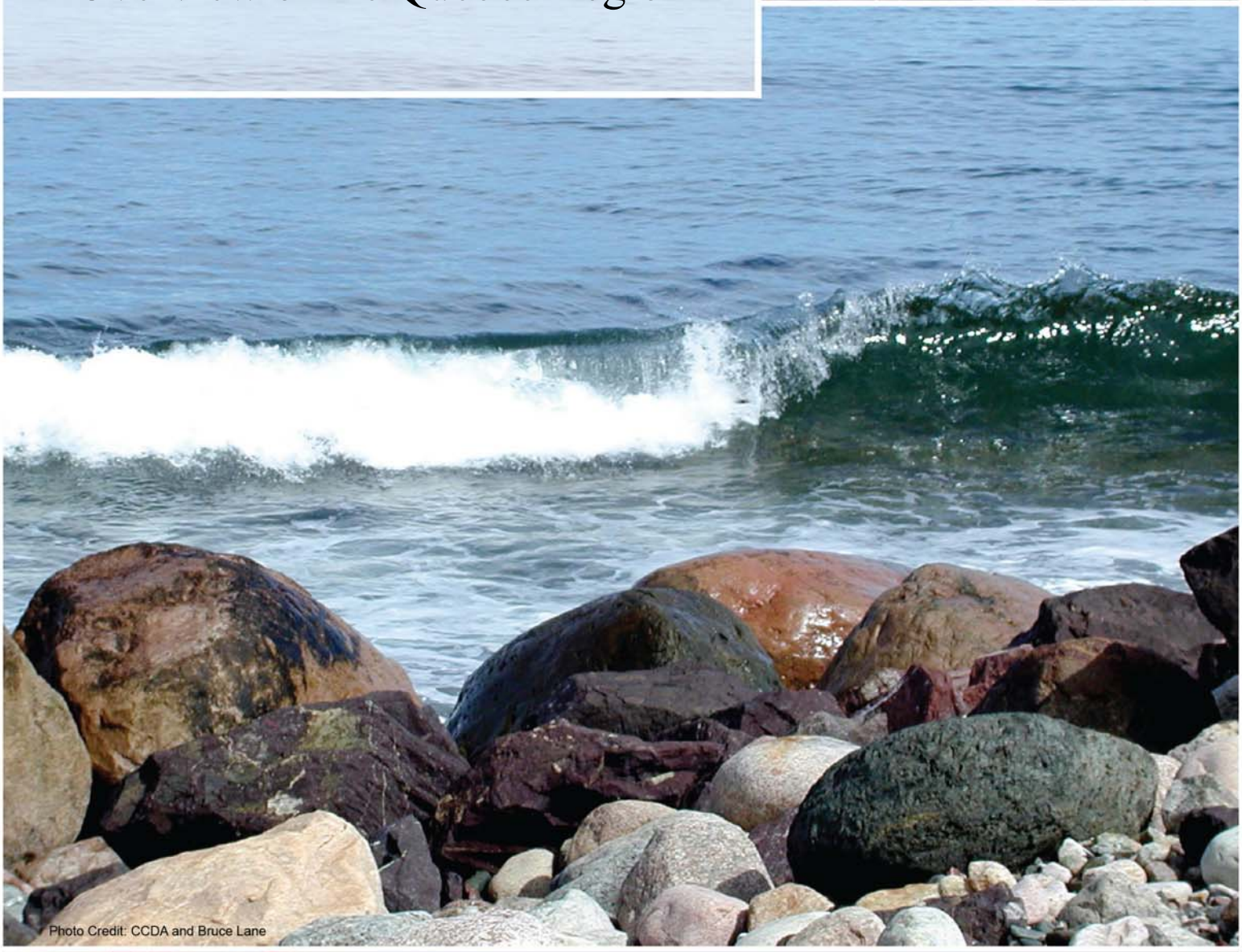


Photo Credit: CCDA and Bruce Lane

Canada

Oceans, Habitat and Species at Risk Publication Series,
Newfoundland and Labrador Region
No. 0007

March 2009

Social, Economic, and Cultural Overview of the Quebec Region

Prepared by

Fisheries and Oceans Canada
Policy and Economics Regional Branch
Quebec Region[1]

Published by

Fisheries and Oceans Canada
Newfoundland and Labrador Region
P.O. Box 5667
St. John's, NL A1C 5X1

[1] 104 Dalhousie Street, Québec City, QC, G1K 7Y7

Cat. No. Fs22-6/7-2011E-PDF
ISSN 1919-2193
ISBN 978-1-100-18434-0
DFO/2011-1739

Correct citation for this publication:

Fisheries and Oceans Canada. 2011. Social, Economic, and Cultural Overview of the Quebec Region. OHSAR Pub. Ser. Rep. NL Region. No. 0007: xviii + 168p.

Production Team

Writing

Francis Bilodeau, P&E, Quebec Region

Collaborators

Frédéric Lessard, P&E, Quebec Region
Marie-France Dalcourt, Oceans Directorate, Quebec Region

Text layout

Marie-Pierre Villeneuve, P&E, Quebec Region

Acronyms

GOSLIM: Gulf of Saint Lawrence Integrated Management
SLV: Saint Lawrence Vision 2000
LOMA: Large Ocean Management Zone
RMC: Regional Municipal County
LSL: Lower Saint Lawrence
GMI: Gaspésie–Magdalen Islands
NS: North Shore
MI: Magdalen Islands
ZIP: Area of Prime Concern
DFO: Fisheries and Oceans Canada
P&E: Policy and Economics Regional Branch
SCH: Small Craft Harbours
CCG: Canadian Coast Guard
ACCORD: Concerted Action for Regional Cooperation and Development
MAPAQ: Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Quebec
MRNF: Ministère des Ressources naturelles et de la Faune du Quebec
MDEIE: Ministère du développement économique, de l'Innovation et de l'Exportation du Quebec
STQ: Société des Transports du Québec

Abbreviations

K$: thousands of Canadian dollars
M$: millions of Canadian dollars
B$: billions of Canadian dollars
MW: Mega Watt
Mt: millions of tons

Acknowledgements

A special thank you to all the team of the Policy and Economics Regional Branch for its essential contribution in the redaction of this document, particularly to Ali Magassouba and Evelyne Dufault for their revision of the document in spite of a loaded schedule.

Summary

To implement a process of effective integrated management in the Saint Lawrence Gulf, the Gulf of Saint Lawrence Integrated Management (GOSLIM) initiative asks for basic information on a wide range of social, economic and cultural factors, as well as on human activities. This information will be combined with ecological data to form a complete image of the Gulf of Saint Lawrence region.

Quebec has three administrative regions that are usually considered to be marine that are the Lower Saint Lawrence, the North-Shore and the Gaspésie–Magdalen Islands. The Capitale-Nationale and Chaudière-Appalaches regions, although lining a part of the middle estuary, do not represent at all the maritime aspect demonstrated by the other regions as far as human activities are concerned and will be excluded, as will the Saguenay River. Data will be presented, as often as possible, by Regional Municipal County (RMC).

About 400,000 people live in the Quebec maritime territory. A vast territory with few people, the average population density is four times less than the average density of the Quebec province as a whole. Although the total population of this region increased slightly, the majority of RMCs experienced a population decline during the last few years. Nevertheless, certain population projections foresaw a global decline due to an aging population.

The educational level in these regions is, on average, lower than Quebec as a whole, although it has improved during the last five years. The proportion of people not having obtained any diploma is nearly twice as high in Gaspésie–Magdalen Islands and on the North-Shore as the Quebec average, while the number of individuals possessing only a secondary education diploma is similar to the overall average.

Globally, fewer people from the Gaspésie and the North-Shore claim to be in good health as compared to the rest of Quebec. Health expenses increase, sometimes more quickly than the Quebec average, but the vastness of the territory covered in these regions makes such comparisons difficult to interpret. Only the North-Shore seems to present a different profile of mortality from the rest of Quebec. Moreover, it is in this region that the number of smokers and alcohol consumption are the highest and exceed the overall Quebec average.

Of the 20 RMCs of the region, 17 lie along the Saint Lawrence River, as do a hundred municipalities. Additionally, 11 Aboriginal communities representing 3 different nations lie within the territory: Innus, Mi'kmaq and Malecites. Since the end of 1980's, an action plan was developed to protect the Saint Lawrence River. This plan, called Saint Lawrence Vision 2000, is presently in its fourth phase and is responsible for the creation of numerous committees for Areas of Prime Concern (ZIP) that represent the communities' interests within the integrated

management plans.

The unemployment rate is generally higher in the maritime regions than in the rest of Quebec. The activity and unemployment rates are lower than the Quebec average in all RMCs, except that of Sept-Rivières which has a higher activity rate. Certain communities depend either mainly or averagely on activities from the primary sector such as forestry and fishing or mining. It is on the North-Shore that one finds per capita disposible income higher due to the mining industry. Per capita disposable income within the Gaspésie–Magdalen Islands and the Lower Saint Lawrence RMCs is always lower than the Quebec average, but increases more rapidly than in the Lower Saint Lawrence. The economic dependence is two to three times more important in the Gaspésie–Magdalen Islands than it is for the Quebec average. A considerable asymmetry exists at this level on the North-Shore because of the mining industry. The maritime regions' gross domestic product (GDP), which is 4.4 % of the Quebec total, increases less quickly, particularly for the Gaspésie–Magdalen Islands.

The number of active fishermen decreased by half in Quebec since moratoriums on groundfish began at the beginning of the 1990's. However, the value of landings increased during this same period, mainly because of the increased value of snow crab and lobster and an increase in shrimp landings. Landings of groundfish and pelagic species fell sharply during the last twenty years. Commercial fishermen are aging and few young people seem to want to enter this industry. The major landing ports are situated in Gaspésie–Magdalen Islands. The First Nations established their place in the commercial fishing industry at the beginning of the 21st century. Sales of transformed products are twice as large as the value of total landings and amounted to $290 M in 2006. On the whole, more than 8,000 employees depend directly on the marine products industry.

Aquaculture in Quebec limits itself to mollusk production, principally blue mussels, followed by scallops. Although the industry experienced considerable growth during the past few years, it remains an emergent industry. The same can be said for biotechnologies and marine industries.

Marine transportation is an important activity in this region, where about 10,000 journeys occur every year. Sept-Îles and Port-Cartier are the most active ports and export mainly iron ore and cereals from the Canadian West. Certain industries, such as pulp and paper, depend on this less expensive means of transportation. About ten ferryboat services assure connection among various islands and along the Saint Lawrence coastline, while more than 2,000 jobs depend directly on this industry. Although the ports of Quebec and Montreal are excluded from the zone, these ports are a source of significant traffic of dangerous materials on the river.

Expenses connected with recreational activities and tourism in general in these regions amounted to $478 M in 2006. Tourism specifically connected to maritime activities engendered expenses of $190 M. Other activities, such as international cruises or excursions, recreational fishing and pleasure boating, resulted in economic benefits of more than $220 M.

Few oil sites are presently being exploited, although the region's potential seems to be very promising. A significant wind energy project has just been established in the Gaspésie, entailing expenses close to $5 B.

The mining industry, aluminum production, forestry and its subsequent transformation, as well as agriculture are all important economic activities for these regions. Their impacts on communities, as well as on the maritime environment, are significant because of their industrial waste.

Beyond the common human activities, maritime Quebec is the repository of an important cultural heritage. Indeed, numerous marine archeological sites, lighthouses and significant wreckage lie in the banks of the Gulf. This region has numerous protected zones to protect fauna and marine flora.

Table of Contents

Production Team iii
Acronyms iii
Abbreviations iii
Acknowledgements iv
Summary v
Table of Contents ix
List of Figures xi
List of Tables xiii
List of Appendices xvi
Preface xviii
Introduction 1
1.1 Mandate 1
1.2 Region of Study 1
1.3 Methodology 2
1.4 Sources of information 7
2. Social Portrait 8
2.1 Demography 8
2.2 Education 11
2.3 Health and Safety 15
2.3.1 Maritime Safety 19
2.4 Governance 21
2.4.1 Provincial competence 21
2.4.2 Aboriginal Communities 22
2.4.3 Municipal Governance 24
2.4.4 Partnerships in Governance along the Saint Lawrence and non governmental implication 24
2.5 Use of the coast and sea bottom 26
3. Economic portrait 28
3.1 Employment, Income and GDP 30
3.1.1 Employment by sector 32
3.1.2 Income 34
3.1.3 Gross Domestic Product 37
3.2 Well-Being Index in the RMCs 40
3.3 Housing 41
3.4 Research in the maritime industry 43
3.5 Investments in the maritime economic sector 45
3.6 Fisheries 47
3.6.1 Governance 47
3.6.2 Trends 49
3.6.3 Seal Hunting 59
3.6.4 Aboriginal fishing 61
3.7 Processing of marine products 62
3.7.1 Governance 62
3.7.2 Trends 63

3.7.3 Perspective 67
3.7.4 Pollution 67
3.8 Aquaculture 68
3.8.1 Governance 69
3.8.2 Trends 70
3.8.3 Perspective 70
3.9 Marine transportation 72
3.9.1 Governance 74
3.9.2 Trends 75
3.9.3 Perspective 81
3.9.4 Pollution 83
3.10 Recreational activities / tourism 85
3.10.1 Governance 85
3.10.2 Trends 86
3.10.3 Cruises 89
3.10.4 Wildlife activities 93
3.10.5 Recreational Navigation 96
3.11 Marine technologies and marine biotechnologies 98
3.12 Production of energy 100
3.12.1 Ocean-based petroleum and gas 101
3.12.2 Land-based petroleum and gas 102
3.13 Mines and Aluminum Plants 103
3.13.1 Pollution 104
3.14 Agriculture 105
3.15 Forestry 107
3.15.1 Pollution 109
4.0 Cultural Portrait 111
4.1 Aboriginal communities 116
Conclusion 117
Bibliography 119
Appendices 131

List of Figures

Figure 1: Map of the Administrative Regions 3
Figure 2: Geographic Map of the RMC 4
Figure 3: Map of the maritime sectors of Fisheries and Oceans Canada 5
Figure 4: Map of the First Nations of Quebec 6
Figure 5: Breakdown of the highest level of studies reached per industry for the North-Shore region, 2006 14
Figure 6: Breakdown of the highest level of studies reached per industry in the Gaspésie–Magdalen Islands region, 2006 14
Figure 7: Breakdown of the highest level of studies reached per industry for the Lower Saint Lawrence region, 2006 15
Figure 8: Number of ship accidents from 1992-2001, all categories combined and commercial vessels only, Saint Lawrence River 20
Figure 9: Maritime zones disputed in the Saint Lawrence Gulf 21
Figure 10: Aboriginal population in maritime Quebec, 2007 23
Figure 11: Underwater cables, explosion sites and dredging waste sites 27
Figure 12: Employment distribution in the Gaspésie by industrial sectors, 2006 32
Figure 13: Employment distribution in the Lower-St. Lawrence by industrial sectors, 2006 33
Figure 14: Employment distribution on the North-Shore by industrial sectors, 2006 33
Figure 15: Share of the maritime GDP in the Quebec economy by industrial sectors, according to administrative region, average from 1997 to 2006 37
Figure 16: GDP by industrial sectors, Lower-St. Lawrence, 1997 to 2006 38
Figure 17: GDP by industrial sectors, Gaspé-Magdalen Islands, 1997 to 2006 .. 38
Figure 18: GDP by industrial sectors, North-Shore, 1997 to 2006 39
Figure 19: Index of well-being in the RMCs 40
Figure 20: Evolution of total landings in Quebec, in volume, 1990 to 2007 50
Figure 21: Evolution of total landings in Quebec, in value, 1990 to 2007 50
Figure 22: Evolution of snow crab landings in Quebec, in volume, 1990 to 2007 51
Figure 23: Evolution of snow crab landings in Quebec, in value, 1990 to 2007 .. 51
Figure 24: Evolution of shrimp landings in Quebec, in volume, 1990 to 2007 52
Figure 25: Evolution of shrimp landings in Quebec, in value, 1990 to 2007 52
Figure 26: Evolution of lobster landings in Quebec, in volume, 1990 to 2007 53
Figure 27: Evolution of lobster landings in Quebec, in value, 1990 to 2007 53
Figure 28: Evolution of the landings of pelagic species in Quebec, in volume, 1990 to 2007 54
Figure 29: Evolution of the landings of pelagic species in Quebec, in value, 1990 to 2007 54
Figure 30: Evolution of groundfish landings in Quebec, in volume, 1990 to 2007 55
Figure 31: Evolution of groundfish landings in Quebec, in value, 1990 to 2007 .. 55
Figure 32: Evolution of the number of active vessels in Quebec, according to size, 1997 to 2007 56

Figure 33: Distribution of active fishers according to age, by marine sector, 2007 56
Figure 34: Number of active licence holders registered and unregistered, with landings by species, 1999 to 2007 57
Figure 35: Evolution of catches and price in the landing of Greenland seals (harp seals) in Quebec, 1990 to 2007 59
Figure 36: Evolution of species landed, in value, Aboriginal communities of maritime Quebec, 1998 to 2007 61
Figure 37: Evolution of the sales of processing companies by maritime sector, 1991 to 2006 64
Figure 38: Composition of species sold in percentage of value, 1991 to 2006.... 65
Figure 39: Evolution of the production value of processed products, 1991 to 2006 65
Figure 40: Evolution of the number of Quebec buyers of marine products, 1991 to 2006..... 66
Figure 41: Evolution of employment in the businesses of the buyers of marine products, 1991 to 2006..... 66
Figure 42: Evolution of domestic marine transportation, according to handled volume, 1996 to 2005 76
Figure 43: Evolution of domestic marine transportation, according to number of movements, 1996 to 2005 76
Figure 44: Evolution of international marine transportation, according to handled volume, 1996 to 2005 77
Figure 45: Evolution of international marine transportation, according to number of movements, 1996 to 2005..... 77
Figure 46: Evolution of volume of unloaded goods coming from abroad, Quebec, 1999 to 2005 78
Figure 47: Evolution of transported tonnage (tons-km) in internal traffic according to mode of transportation, Canada, 1984 to 2003 78
Figure 48: Reporting of tonnage of dangerous goods handled in Quebec ports, 2005..... 84
Figure 49: Evolution of compliance with waste standards of SM and CBOD5 .. 109
Figure 50: Evolution of compliance with waste standards of PCBs and hydrocarbons 110

List of Tables

Table 1: Distribution of the maritime population by RMC according to size and density, 2001 and 2006 9
Table 2: Distribution of the maritime population according to native language, 2006 9
Table 3: Distribution of the population according to sex and age group, 2006 10
Table 4: Distribution of the maritime population according to age group, 2006 10
Table 5: Projection of the maritime population by administrative region according to age group, from 2001 to 2026, scenario A 11
Table 6: Diplomas according to fields of study for the 25 to 54 year old population; Census 2006 12
Table 7: Distribution of the highest level of studies completed by those 25 year olds and more per RMC, 2001 and 2006 13
Table 8: Perception of health according to sex, in percentage, 1998 to 2003 16
Table 9: Medical practitioners by 100,000 persons according to the number of doctors, general practioners and specialists by social health region, 2003 to 2007 17
Table 10: Expenses and expenses per capita by social health region in Quebec, 1996-1997 and 2006-2007[1] 17
Table 11: Mortality according to cause and life expectancy, 1998 to 2005 18
Table 12: Proportion of the total number of smokers 12 years and more, according to sex, by administrative region, 2001 to 2005 18
Table 13: Proportion of the population 12 years and more having consumed 5 or more alcoholic drinks on the same occasion, at least 12 times during a 12 month period, by administrative region, 2001 to 2005 18
Table 14: Geometrical averages of the concentrations of mercury, DPB (AROCLOR1260) and DDT (DDE's) metabolites in the blood of different groups of fishermen and local residents 18
Table 15: Canadian Coast Guard fleet activities in Quebec, December 31, 2008 19
Table 16: Provincial ministries and legislation applicable to the ocean sector 22
Table 17: Municipalities which possess a network of sewer not linked with a station of purification, near the St-Lawrence, April, 2007 26
Table 18: Municipality using only a degrillage as method of purge in the region of maritime Quebec, on 2008 27
Table 19: Evolution of the unemployment rate by RMC, 2001 to 2006 30
Table 20: Evolution of the participation rate by RMC, 2001 to 2006 31
Table 21: Evolution of the employment rate by RMC, 2001 to 2006 31
Table 22: Disposable income per capita, by RMC, 2003 to 2007 34
Table 23: Proportion of economic dependence, by RMC, 2002 to 2006 35
Table 24: Maritime communities dependent on natural resources, 2001 35
Table 25: Evolution of GDP by administrative region, 1997 to 2006 37
Table 26: Evolution of public and private investments by economic sectors, Eastern Quebec, 1998 to 2009 41

Table 27: Evolution of the housing market in Eastern Quebec, from 1996 to 2009 42
Table 28: List of institutes and research centers dealing with the maritime industry in maritime Quebec, 2006 43
Table 29: Niches of excellence of the ACCORD project for the regions of maritime Quebec 45
Table 30: Minimum investment necessary for the realization of the 2006 to 2011 action plan of the Resources, maritime sciences and technologies niche, by field 46
Table 31: Evolution of the number of assistant fishers in Quebec, 2004 to 2007 57
Table 32: List of the five most important fishing ports according to the landing average, 1998 to 2007, by species 57
Table 33: Number of active hunters in the Magdalen Islands, 2001 to 2008 60
Table 34: Number of active hunters on the North-Shore, 2002 to 2007 60
Table 35: Purchase of fisheries products, Quebec, 1996 to 2006 63
Table 36: Pollution of aquaculture company sales in maritime Quebec, in volume and in value, 1996 to 2007 70
Table 37: List of the major commercial ports and their activities 73
Table 38: Evolution of internal and international marine transportation in Quebec, 1996 to 2005 75
Table 39: Evolution of marine transportation in the region of maritime Quebec, 2003 to 2007 79
Table 40: Ferries and river buses of maritime Quebec, 2001 80
Table 41: Distribution of non-navigation employment of the marine transportation industry, 2007 81
Table 42: Distribution of navigation employment of the marine transportation industry, 2007 81
Table 43: Comparison of inspected vessels presenting imperfections and vessels held in Canada, 1995 to 2000 83
Table 44: Share of regional employment attributed to the tourist industry, 2005 85
Table 45: Tourist offerings on the shores of the Saint Lawrence 87
Table 46: Maximum employment generated by the tourism industry, maritime Quebec, 2004 to 2007 88
Table 47: Tourist spending by administrative region, 1998 to 2006 ($M) 88
Table 48: Volume of tourists in Quebec, by administrative region, 1998 to 2006 (thousands of persons) 88
Table 49: Characteristics of maritime tourism in Quebec, 2000 to 2006 89
Table 50: Recreational touristic days spent in a maritime area, 2006 89
Table 51: Number of cruise tourists and crew members on the Saint Lawrence 90
Table 52: Number of stopovers of international cruises at the Quebec port, 1992 to 2007 90
Table 53: Relative use landing capacities for excursion-cruises, by region of origin, 2003 91
Table 54: Recreational salt water fishing in Quebec, 1990 - 2005 93
Table 55: Principal salmon rivers, by administrative region 94
Table 56: Economic impact of salmon fishing (M$) 94

Table 57: Direct and indirect jobs connected with salmon fishing (pers.-year).... 95
Table 58: Families possessing at least one boat, maritime Quebec, 2004 96
Table 59: Sea route for sea kayaking in the maritime region..... 97
Table 60: Companies connected to the field of science and maritime technology **, maritime** Quebec, 2008 98
Table 61: Status and perspective of the number of innovative companies 99
Table 62: Employment associated with the first phase of wind farm construction 100
Table 63: Business and active sites inventories, maritime Quebec, 2008..... 103
Table 64: Gross domestic product for basic prices in the mining extraction and oil and gas extraction industries (K$), 1998 - 2006 104
Table 65: Gross domestic product for basic prices for the industry of Agricultural and Breeding, 2002 - 2006, (K$) 106
Table 66: Land in cultivation (excluding Christmas trees farms), 2001 - 2006 .. 106
Table 67: Variation of the number of hectares having been treated for agriculture, according to the product type used by administrative region, 2000 - 2005. 106
Table 68: Loss of jobs in forestry and pulp and paper sectors, as of January 9, 2009 since April 1, 2005..... 107
Table 69: Reporting of turnover in the forestry, the wood transformation, and pulp and paper sectors, 2004*..... 108
Table 70: Reporting of direct and indirect employment in the forestry, wood transformation, and pulp and paper sectors, 2007*..... 108
Table 71: Distribution and theme of the main riverside archeological sites..... 111
Table 72: Maritime heritage with cultural value..... 112
Table 73: Maritime cultural centre 112
Table 74: Cultural events related to the sea, date and location 112
Table 75: Maritime or coastal areas protected by federal legislation 113
Table 76: Maritime or coastal areas protected by Quebec legislation..... 114

List of Appendices

Appendix A-1: Paragovernmental and non-governmental institutions in the domain of fisheries 131
Appendix A-2: Organizations related to the fisheries sector 131
Appendix A-3: Non-governmental institutions in the aquaculture field 132
Appendix A-4: Governance in the industry of maritime transport 133
Appendix A-5: Groups and associations related to the field of maritime tourism 134
Appendix A-6: Groups and associations related to environment and pollution .. 134
Appendix A-7: Groups and associations related to the integrated management field 135
Appendix A-8: Native governance on the North Shore 136
Appendix A-9: Native governance in Gaspésie and Lower Saint Lawrence 137
Appendix B-1: Legislative jurisdiction of the parliaments of Canada and Quebec under sections 91, 92 and 92A of the Constitution Act of 1867 138
Appendix C-1: Groups and associations related to the field of teaching 141
Appendix C-2: Highest level of education attained for the fishery industry, per DFO maritime sector, 2006 142
Appendix C-3: Highest level of education attained for the Seafood product preparation and packaging industry, per DFO maritime sector, 2006 143
Appendix D-1: Preliminary statistics of maritime events happening in Canada, 2006 144
Appendix E-1: Disposable Income per capita 146
Appendix E-2: Employment 147
Appendix E-3: Education 148
Appendix E-4: Health 149
Appendix E-5: Economic Dependency Index 150
Appendix E-6: Final Index 151
Appendix F-1: Evolution of fish landings in Gaspésie, volume, 1990-2007 152
Appendix F-2: Evolution of fish landings in Gaspésie, value, 1990-2007 152
Appendix F-3: Evolution of fish landings on the North-Shore, volume, 1990-2007 153
Appendix F-4: Evolution of fish landings on the North-Shore, value, 1990-2007 153
Appendix F-5: Evolution of fish landings in the Magdelen Islands, volume, 1990-2007 154
Appendix F-6: Evolution of fish landings in the Magdalen Islands, value, 1990-2007 154
Appendix F-7: Active shipping vessel on the North-Shore, by length, 1997-2007 155
Appendix F-8: Active shipping vessel in Gaspésie , by length, 1997-2007 155
Appendix F-9: Active shipping vessel in the Magdalen Islands, by length, 1997-2007 156
Appendix F-10: Active shipping vessel, Saint-Lawrence, by length, 1997-2007 157

Appendix F-11: Number of fishermen by Community and Main Species Landed, 2006 157
Appendix G-1: Ports under Transport Canada, Quebec region (gulf) 160
Appendix G-2: Port activities, Quebec region (gulf), 2008 160
Appendix H-1: Wind-powered energy production, Quebec, maritime region 161
Appendix H-2: Hydro electricity within Quebec's maritime region 163
Appendix I-1: Mining exploitation waste, North-Shore, 2000 - 2005 164
Appendix J-1: Farms reporting land inputs, census 2001 and 2006 165
Appendix K-1: Pulp and paper mills along the river, 2004 to 2006 166
Appendix L-1: Recap table 167
Appendix L-2: Main stressors resulting from human activities in the gulf and estuary of the Saint Lawrence River 168

Preface

This publication is part of a multi-volume assessment of the social, economic and cultural features of the Gulf of St. Lawrence Large Ocean Management Area. Responsibility for oceans management in this area is shared among three DFO administrative regions (Quebec, Gulf, and Newfoundland and Labrador). Each of these regions prepared their own social, economic and cultural assessment, while a synopsis of all three assessments was also completed. The three assessments and the synopsis comprise the four volumes in this series. These publications were published in both English and French.

Introduction

1.1 Mandate

Canada's Oceans Act (OA) supplies a framework for coastal zone and ocean management initiatives through its use of integrated management. Integrated management is an ecosystemic approach for the coastal and oceanic environments that regroup social, economic and cultural dimensions. The Oceans Act defines itself as a method of global economic planning for the management of human activities in such a way as they do not enter into conflict with each other and that all factors are considered for conservation, sustainable marine resource use and shared use of the oceans.

The Canadian government identified five Large Ocean Management Zones (LOMA) as priorities for the development and implementation of integrated management plans. The Gulf LOMA is one of these priorities and encompasses the entire Saint Lawrence Gulf and its estuary, including the coastal zones of five provinces.

To implement effective integrated management in the Saint Lawrence Gulf, the Gulf of Saint Lawrence Integrated Management Initiative (GOSLIM) will ask for basic information on a wide range of social, economic and cultural factors as well as on human activities. This information will be combined with ecological data to form a complete image of the Gulf of Saint Lawrence region.

The purpose of this report is to present existing relevant information regarding the overall social, economic and cultural problems of Quebec, as well as to provide information on the important human activities that also occur. This report does not include an evaluation of impacts associated with these activities. Furthermore, conflict use problems will not be approached within the framework of this work.

1.2 Region of Study

The border of maritime Quebec is determined by the presence of saltwater. Thus, all of the territory downstream from the point east of Orleans Island, being the middle estuary, the marine estuary and the Saint Lawrence Gulf all represent the Quebec region of the Gulf. However, geographic divisions were not made according to hydrographic sections and as such require a certain adjustment.

In Québec, the Lower Saint Lawrence, the North-Shore and the Gaspésie–Magdalen Islands administrative regions are the three maritime regions. The Capitale-Nationale and Chaudière-Appalaches regions, although lining a part of the middle estuary, do not represent at all the maritime aspect that the other

regions demonstrate as far as human activities. So, the regional municipal counties (RMCs) of Charlevoix, Charlevoix-Est, Île d'Orléans and Côte-de-Beaupré on the north bank as well as L'Islet, Montmagny and Bellechasse on the south bank will not be included in this study although they make up part of the middle estuary. With such a division, one eliminates the socio-cultural aspects associated with the coastal zone, while recognizing that they can be significant locally.

However, DFO has traditionally used a different definition within the area of fisheries. The fishing industry and the transformation of marine products will thus be presented according to definitions that, while similar, will be different from those of the administrative regions. Other data will also be presented according to these sectors. The Magdalen Islands will be handled individually, contrary to the administrative region of Gaspé Peninsua–Magdalen Islands.

The Ministère du Tourisme du Québec also uses a different division with regard to the Gaspésie, the Magdalen Islands and certain regions of the North-Shore.

1.3 Methodology

This document presents an overview of the current available information in connection with human activities of the Quebec maritime regions within the framework of GOSLIM.

The present document considers respectively social, economic and cultural dimensions so as to focus on regional peculiarities, without however describing regional portraits.

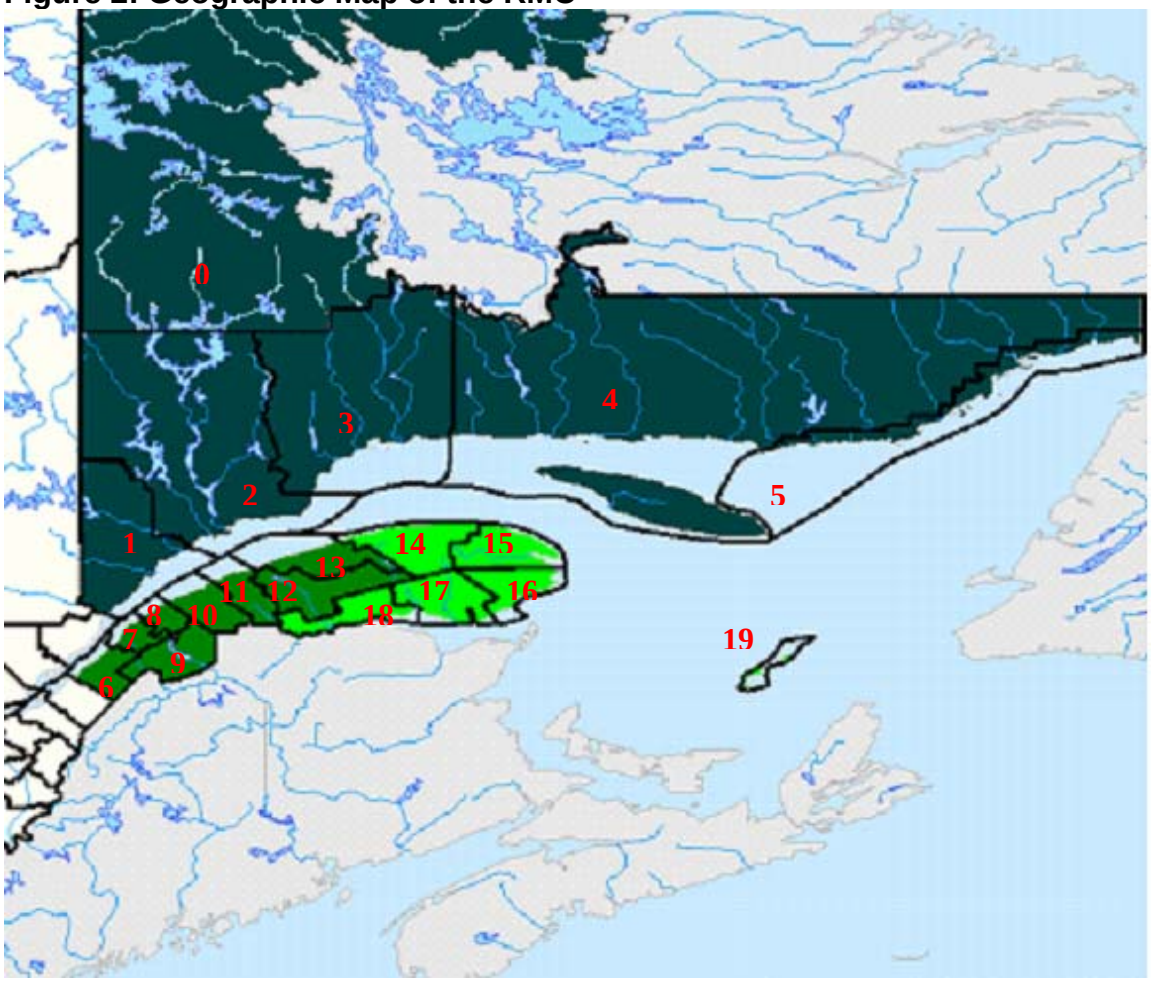
Information relevant to the social dimension comes mainly from the 2001 and 2006 censuses; information further back in time to determine tendencies was not considered. The elements touched upon are notably demography, education, health and governance. Various industries important to the marine sector will be presented according to recent tendencies in employment and production in the economic sector. In the majority of cases, economic data will be presented according to the North America Industries Classification System (NAICS). The economic data, distributed in 24 broad categories, represents all economic activities. Afterward, each of these categories can be divided more precisely into subcategories and classified according to a system from two to six figures. This study will limit itself to the first level of classification (two figures), except for the fishing industry (1141) and the marine product transformation industry (3117).

A particular effort was made to determine possible sources of pollution within the marine environment in every industry, as well as determining short-term perspectives. The cultural dimension accounts for such things as protected or archaeological national sites that are important to Quebec maritime communities. The culture of Aboriginal communities will be also approached in this section.

Figure 1: Map of the Administrative Regions

Source: Fisheries and Oceans Canada (DFO). Système d'information pour la gestion de l'habitat du poisson (SIGHAP). *Communauté de pratique en évaluation environnementale*, [Online]. http://sighap-fhamis.qc.dfo-DFO.gc.ca/imf-ows/imf.jsp?site=CDP_EE

Figure 2: Geographic Map of the RMC



0) Caniapiscau	1) Upper-North-Shore
2) Manicouagan	3) Sept-Rivières
4) Minganie	5) Lower-North-Shore
6) Kamouraska	7) Rivière-du-Loup
8) Les Basques	9) Témiscouata
10) Rimouski-Neigette	11) La Mitis
12) La Matapédia	13) Matane
14) La Haute-Gaspésie	15) La Côte-de-Gaspé
16) Le Rocher-Percé	17) Bonaventure
18) Avignon	19) Magdalen Islands

Source: Fisheries and Oceans Canada (DFO). Système d'information pour la gestion de l'habitat du poisson (SIGHAP). *Communauté de pratique en évaluation environnementale*, [Online]. http://sighap-fhamis.qc.dfo-DFO.gc.ca/imf-ows/imf.jsp?site=CDP_EE

Figure 3: Map of the maritime sectors of Fisheries and Oceans Canada

Source: DFO - SIGHAP, special request by the P&E, Quebec Region, 2008

Figure 4: Map of the First Nations of Quebec

Source: Indian and Northern Affairs Canada. 2008. *Carte « Les Nations »*, [Online]. http://www.ainc-inac.gc.ca/ai/scr/qc/aqc/mp-fra.asp

1.4 Sources of information

Several information sources were used to complete this report. The Internet was the main search tool which provided access to the sites of Statistics Canada, DFO, Institut de la Statistique du Québec, Saint Lawrence Vision 2000 (SLV2000) and to search engines such as Google.

Social, economic and cultural data as well as descriptions of human activities will be presented according to available information from governmental publications, unpublished data, scientific literature, industry reports, economic planning documents and the Internet. The majority of information collected results from secondary sources.

Furthermore, personal meetings, phone consultations and e-mail exchanges enabled excellent direct information from various levels to be obtained. Experts, such as scientific researchers, governmental agents or industry representatives were able to add priceless information to this report.

Certain sections can not be as complete as others, mainly because of the lack of official publications for a given sector. In any case, the absence of information for important subjects is indicated. However, we consider on no account to have made an exhaustive overview of all possible sources of information.

2. Social Portrait

This chapter relates to the social environment variables that allow one to characterize the Quebec maritime region which extends over about 3,600 kilometres of coastline. Certain variables are presented by RMC, while others will be presented by administrative region, according to their availability. Data relating to demography will allow identification of population characteristics, while those of education and health could, in a future stage, allow one to establish indicators of prosperity and population resilence. The section on governance describes globally the federal, provincial and municipal organizations, as well as Aboriginal communities, that are affected by an ocean management plan. It is also relevant to present the principal non-governmental bodies affected by GOSLIM. Finally, certain human activities that may affect a maritime environment, but which do not involve any economic activity, are considered.

2.1 Demography

The Quebec maritime region represents only 5 % of the total Quebec population, although the territory occupies more than 21 % of its geographical area. In 1971, the region's population represented 7.1 % of the Quebec population. Between 2001 and 2006, the population of the study zone increased 1.4 %, contrary to Quebec as a whole where the total population increased by 4.3 %. It is thus a region with low population density that is isolated from the economic centres of Quebec. The most important conglomerations by administrative region are Rimouski, Sept-Îles and Gaspé. On the whole, 14 municipalities have a population of more than 5,000 inhabitants, 7 of which have more than 10,000. Only the larger urban areas experienced a population increase between 2001 and 2006: Rimouski, Rivière-du-Loup and Magdalen Islands. It is estimated that more than a third of this population lives within 500 m of the coastline and 90 % are within 5 km[1]. The North-Shore and Gaspésie have experienced significant population declines for several years and these regions well represent the rural exodus effect. Demographic projections suggest that this phenomenon will continue over the following years.

Generally, Gaspésie and Lower Saint Lawrence populations are slightly older than the Quebec average, while the population of the North-Shore is younger in all age categories. However, the population is aging in all regions and it is expected that by 2026 between 26 % and 33 % of the population will be more than 65 years old. Presently, 14 % of the Quebec population is 65 or older.

Women seem to live longer than men in the region studied, but difference is less pronounced than what is seen for the Quebec average. Indeed, women represent 55 % of the 65 year old and over age group in the maritime population, compared to 58 % for Quebec. This proportion increases to 63 % for those more than 80 years old.

[1] Bourque and Simonet, 2008

Table 1: Distribution of the maritime population by RMC according to size and density, 2001 and 2006

RMC	%	2001	2006	Variation in %	Area in km²	Density per km²
La Matapédia	5 %	19 920	19 199	- 3.6	5 373	3.6
Matane	6 %	22 507	22 247	- 1.2	3 318	6.7
La Mitis	5 %	19 326	19 364	0.2	2 279	8.5
Rimouski-Neigette	13 %	52 289	53 193	1.7	2 716	19.6
Les Basques	2 %	9 848	9 475	- 3.8	1 122	8.4
Rivière-du-Loup	8 %	31 826	33 305	4.6	1 273	26.2
Témiscouata	8 %	22 420	31 785	- 2.8	3 904	5.6
Kamouraska	6 %	22 494	22 084	- 1.8	2 242	9.8
Magadalen Islands	3 %	12 824	13 091	2.1	205	63.7
Le Rocher-Percé	5 %	19 298	18 437	- 4.5	3 077	6.0
La Côte-de-Gaspé	4 %	18 545	17 888	- 3.5	4 097	4.4
La Haute-Gaspésie	3 %	12 722	12 329	- 3.1	5 066	2.4
Bonaventure	4 %	18 267	17 948	- 1.7	4 375	4.1
Avignon	4 %	15 268	14 643	- 4.1	3 486	4.2
Upper-North-Shore	3 %	12 894	12 303	- 4.6	11 611	1.1
Manicouagan	8 %	33 620	33 052	- 1.7	35 699	0.9
Sept-Rivières – Caniapiscau	10 %	38 931	38 661	- 0.7	100 858	0.4
Minganie – Lower-North-Shore	3 %	12 321	11 895	- 3.5	99 457	0.1
All of Quebec		7 237 479	7 546 131	4.3	1 356 366	5.6

Source: Statistics Canada. *Recensement de 2006*, [Online]. http://www12.statcan.ca/census-recensement/2006/dp-pd/index-fra.cfm

Table 2: Distribution of the maritime population according to native language, 2006

RMC	English	French	Unofficial language[2]	English and French	Other
La Matapédia	0.3 %	99.3 %	0.4 %	0.1 %	0.0 %
Matane	0.6 %	98.4 %	0.9 %	0.1 %	0.0 %
La Mitis	0.9 %	98.2 %	0.6 %	0.2 %	0.0 %
Rimouski-Neigette	0.7 %	97.9 %	1.1 %	0.2 %	0.1 %
Les Basques	0.2 %	98.2 %	1.6 %	0.0 %	0.0 %
Rivière-du-Loup	0.3 %	99.0 %	0.5 %	0.2 %	0.0 %
Témiscouata	0.5 %	98.6 %	0.6 %	0.2 %	0.0 %
Kamouraska	0.5 %	98.4 %	1.0 %	0.1 %	0.0 %
Magdalen Islands	6.4 %	92.7 %	0.5 %	0.4 %	0.0 %
Le Rocher-Percé	7.2 %	91.3 %	1.3 %	0.2 %	0.1 %
La Côte-de-Gaspé	10.9 %	87.3 %	1.0 %	0.6 %	0.2 %
La Haute-Gaspésie	0.2 %	98.7 %	1.0 %	0.0 %	0.1 %
Bonaventure	15.7 %	82.7 %	1.1 %	0.4 %	0.1 %
Avignon	11.7 %	82.9 %	4.8 %	0.4 %	0.2 %
Upper-North-Shore	0.4 %	98.3 %	1.0 %	0.1 %	0.2 %
Manicouagan	0.6 %	91.3 %	7.9 %	0.2 %	0.1 %
Sept-Rivières – Caniapiscau	2.5 %	86.3 %	10.4 %	0.5 %	0.3 %
Minganie – Lower-North-Shore	29.7 %	48.9 %	21.1 %	0.3 %	0.0 %
All of Quebec	7.7 %	79.0 %	11.9 %	0.6 %	0.7 %

Source: Statistics Canada. *Recensement de 2006*, [Online]. http://www12.statcan.ca/census-recensement/2006/dp-pd/index-fra.cfm

[2] First Nations Languages

Table 3: Distribution of the population according to sex and age group, 2006

RMC	0-14 years		15-64 years		65 years and more		Total		80 years and more	
	M	F	M	F	M	F	M	F	M	F
La Matapédia	49 %	51 %	51 %	49 %	45 %	55 %	50 %	50 %	38 %	61 %
Matane	54 %	47 %	50 %	50 %	44 %	56 %	49 %	51 %	34 %	66 %
La Mitis	50 %	50 %	51 %	49 %	45 %	55 %	50 %	50 %	38 %	62 %
Rimouski-Neigette	51 %	49 %	49 %	51 %	41 %	59 %	48 %	52 %	32 %	68 %
Les Basques	51 %	49 %	51 %	49 %	45 %	55 %	49 %	51 %	39 %	61 %
Rivière-du-Loup	52 %	48 %	50 %	50 %	42 %	58 %	49 %	51 %	34 %	66 %
Témiscouata	52 %	48 %	51 %	49 %	45 %	55 %	50 %	50 %	38 %	62 %
Kamouraska	51 %	49 %	51 %	49 %	44 %	56 %	50 %	50 %	36 %	64 %
Magdalen Islands	52 %	48 %	49 %	51 %	43 %	57 %	49 %	51 %	36 %	63 %
Le Rocher-Percé	53 %	47 %	50 %	50 %	45 %	56 %	49 %	51 %	40 %	60 %
La Côte-de-Gaspé	51 %	49 %	49 %	51 %	44 %	56 %	49 %	51 %	38 %	63 %
La Haute-Gaspésie	51 %	49 %	50 %	50 %	44 %	56 %	49 %	51 %	37 %	63 %
Bonaventure	50 %	50 %	50 %	51 %	45 %	55 %	49 %	51 %	39 %	61 %
Avignon	51 %	49 %	49 %	51 %	44 %	55 %	49 %	51 %	39 %	61 %
Upper-North-Shore	50 %	50 %	51 %	49 %	49 %	51 %	50 %	49 %	43 %	55 %
Manicouagan	50 %	50 %	52 %	48 %	46 %	54 %	51 %	49 %	37 %	63 %
Sept-Rivières – Caniapiscau	51 %	48 %	51 %	49 %	49 %	51 %	51 %	49 %	37 %	63 %
Minganie – Lower-North-Shore	52 %	48 %	50 %	50 %	45 %	55 %	50 %	50 %	36 %	64 %
All of Quebec	51 %	49 %	50 %	50 %	42 %	58 %	49 %	51 %	33 %	67 %

Source: Statistics Canada. *Recensement de 2006*, [Online]. http://www12.statcan.ca/census-recensement/2006/dp-pd/index-fra.cfm

Table 4: Distribution of the maritime population according to age group, 2006

RMC	0-14 years	15-64 years	65 years and more
La Matapédia	15.9 %	67.2 %	17.0 %
Matane	13.5 %	68.9 %	17.6 %
La Mitis	15.5 %	67.0 %	17.5 %
Rimouski-Neigette	14.5 %	69.9 %	15.6 %
Les Basques	13.5 %	64.9 %	21.6 %
Rivière-du-Loup	15.0 %	68.7 %	16.3 %
Témiscouata	15.2 %	67.3 %	17.5 %
Kamouraska	14.9 %	67.2 %	18.0 %
Magdalen Islands	14.3 %	70.1 %	15.6 %
Le Rocher-Percé	13.4 %	68.4 %	18.2 %
La Côte-de-Gaspé	13.6 %	69.4 %	17.0 %
La Haute-Gaspésie	13.4 %	67.2 %	19.4 %
Bonaventure	14.2 %	67.0 %	18.8 %
Avignon	15.9 %	66.9 %	17.3 %
Upper-North-Shore	15.6 %	69.6 %	14.8 %
Manicouagan	16.9 %	71.1 %	12.1 %
Sept-Rivières – Caniapiscau	19.0 %	70.2 %	10.8 %
Minganie – Lower-North-Shore	19.4 %	68.2 %	12.4 %
All of Quebec	16.6 %	69.1 %	14.3 %

Source: Statistics Canada. *Recensement de 2006*, [Online]. http://www12.statcan.ca/census-recensement/2006/dp-pd/index-fra.cfm

Table 5: Projection of the maritime population by administrative region according to age group, from 2001 to 2026, scenario A

Administrative Region	0-19 years	20-64 years	65 years and more	Total
		Lower-St. Lawrence		
2001	23 %	61 %	15 %	204 304
2006	21 %	63 %	17 %	200 458
2011	19 %	62 %	20 %	196 696
2016	17 %	59 %	24 %	192 890
2021	17 %	55 %	28 %	188 822
2026	16 %	51 %	33 %	184 022
		Gaspésie-Magdalen Islands		
2001	23 %	62 %	16 %	98 661
2006	20 %	63 %	18 %	94 682
2011	17 %	62 %	21 %	90 669
2016	15 %	59 %	26 %	87 069
2021	14 %	55 %	31 %	83 821
2026	14 %	50 %	36 %	80 621
		North-Shore		
2001	26 %	64 %	10 %	99 761
2006	23 %	65 %	12 %	94 813
2011	21 %	64 %	15 %	91 692
2016	19 %	63 %	18 %	88 458
2021	18 %	60 %	22 %	85 162
2026	18 %	56 %	26 %	81 707

Source: Institut de la Statistique du Quebec. 2004. *Perspectives demographiques, Quebec et regions, 2001-2051, edition 2003*, [Online]. http://www.stat.gouv.qc.ca/donstat/societe/demographie/persp_poplt/pers2001-2051/

2.2 Education

The educational level in the Quebec maritime regions is lower than the Quebec average. The proportion of people without a diploma is higher, 27 %, versus the rest of Quebec, 17 %. However, the number of individuals having obtained a diploma of professional studies (DPS) is higher in the maritime regions than elsewhere, whereas those with only a high school diploma is similar to the rest of the province. The Cégep graduation rate is slightly lower in maritime regions, while the proportion of individuals with a university diploma is significantly lower, at 14 % versus 26 % for Quebec as a whole. In each case, the Lower Saint Lawrence population is slightly more schooled than those in the Gaspésie, followed by the North-Shore population. Since 2001, the situation has improved. Indeed, the age group that is 25 years old and more seems to have more education and this is true for all regions. In 2006, there were fewer people who did not have a diploma or who had only a high school diploma and more who, in fact, had a professional, collegial or university diploma. In general, the proportion of people who studied in humanities is lower than in maritime region than in Quebec, but it is higher for those studying architecture, engineering and social services.

The 2006 census data indicates that individuals working in the fishing industry and in the fish transformation sector usually have little education. About 50 % of

the fishermen and 60 % of industry employees have no diploma. Employment alternatives for this low-level educated population would be in the accommodation and construction sectors, both of which are very sensitive to economic cycles. The following figures help to better understand the distribution of educational levels according to industrial and geographic branches.

Table 6: Diplomas according to fields of study for the 25 to 54 year old population; Census 2006[3]

RMC	Education	Visual arts and interpretation, communication technologies	Humanities	Social Sciences and behavior, Law	Business, Management and Public Administration	Physical and Life Sciences, Technology	Mathematics and Computer Sciences	Architecture, Engineering and Related Services	Agriculture, Natural Resouces and Conservation	Health, Parks and Recreation and Physical Education	Human Resources, Transportation Safety
Magdalen Islands	8 %	2 %	2 %	6 %	25 %	1 %	2 %	19 %	7 %	16 %	12 %
Le Rocher-Percé	10 %	1 %	2 %	5 %	24 %	2 %	2 %	24 %	4 %	14 %	12 %
La Côte-de-Gaspé	8 %	2 %	4 %	6 %	28 %	2 %	2 %	19 %	4 %	14 %	12 %
La Haute-Gaspésie	10 %	2 %	3 %	6 %	21 %	0 %	1 %	25 %	5 %	14 %	13 %
Bonaventure	7 %	2 %	2 %	5 %	23 %	2 %	2 %	28 %	5 %	15 %	9 %
Avignon	8 %	2 %	2 %	6 %	25 %	1 %	2 %	19 %	7 %	16 %	12 %
La Matapédia	7 %	2 %	2 %	6 %	24 %	0 %	1 %	28 %	10 %	13 %	9 %
Matane	7 %	3 %	3 %	6 %	24 %	2 %	2 %	27 %	6 %	11 %	8 %
La Mitis	7 %	2 %	3 %	6 %	20 %	4 %	2 %	25 %	8 %	14 %	9 %
Rimouski-Neigette	8 %	2 %	4 %	7 %	24 %	4 %	3 %	21 %	4 %	13 %	8 %
Les Basques	7 %	1 %	4 %	4 %	22 %	2 %	1 %	27 %	5 %	11 %	16 %
Rivière-du-Loup	6 %	3 %	3 %	5 %	21 %	1 %	2 %	29 %	6 %	13 %	11 %
Témiscouata	8 %	1 %	2 %	4 %	23 %	1 %	2 %	28 %	7 %	13 %	11 %
Kamouraska	8 %	1 %	3 %	6 %	18 %	2 %	2 %	30 %	10 %	11 %	9 %
Upper-North-Shore	8 %	1 %	1 %	3 %	21 %	1 %	1 %	33 %	10 %	8 %	12 %
Manicouagan	7 %	1 %	2 %	5 %	21 %	2 %	2 %	36 %	4 %	10 %	10 %
Sept-Rivières – Caniapiscau	7 %	2 %	3 %	5 %	21 %	2 %	3 %	35 %	2 %	10 %	11 %
Minganie – Lower-North-Shore	10 %	1 %	4 %	4 %	15 %	3 %	1 %	31 %	2 %	17 %	12 %
All of Quebec	6 %	4 %	5 %	10 %	24 %	3 %	5 %	22 %	2 %	11 %	7 %

The total of the individual sections may differ as much as 100 % for reasons of rounding.
Source: Statistics Canada. *Recensement de 2006*, [Online]. http://www12.statcan.ca/census-recensement/2006/dp-pd/index-fra.cfm

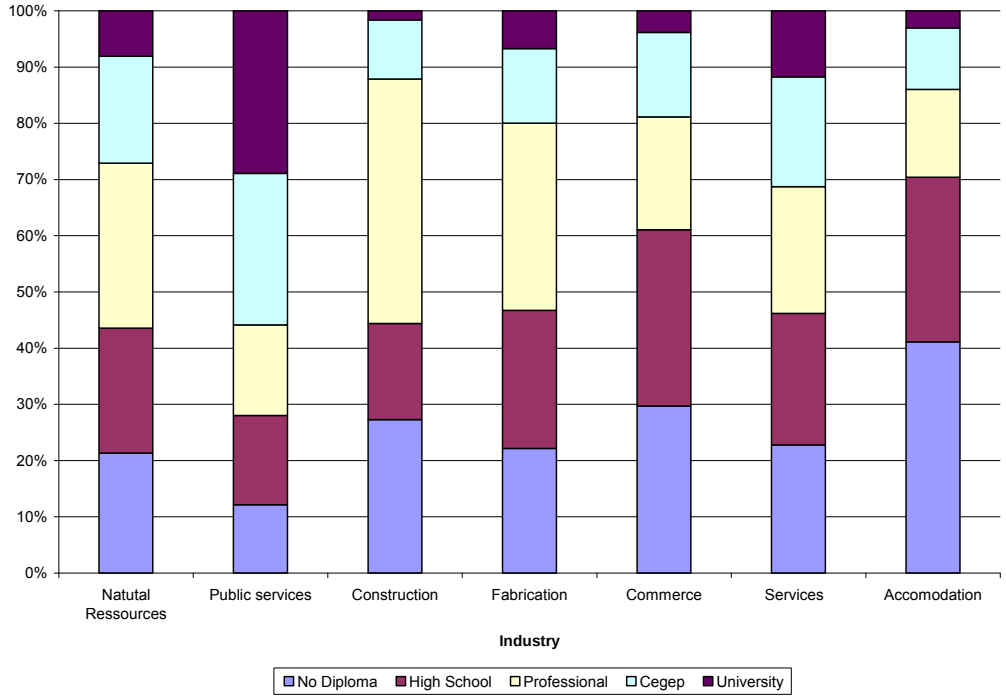
[3] Total value may not add up to 100 % due to round up.

Table 7: Distribution of the highest level of studies completed by those 25 year olds and more per RMC, 2001 and 2006

RMC	No Diploma	High School	Professional Diploma	College Diploma	University
2006					
La Matapédia	27 %	21 %	27 %	15 %	11 %
Matane	26 %	18 %	23 %	18 %	15 %
La Mitis	25 %	22 %	23 %	14 %	15 %
Rimouski-Neigette	14 %	20 %	18 %	22 %	26 %
Les Basques	29 %	23 %	23 %	13 %	12 %
Rivière-du-Loup	19 %	20 %	27 %	18 %	16 %
Témiscouata	32 %	19 %	24 %	13 %	12 %
Kamouraska	22 %	18 %	24 %	19 %	16 %
Magdalen Islands	30 %	20 %	20 %	16 %	14 %
Le Rocher-Percé	37 %	22 %	17 %	14 %	10 %
La Côte-de-Gaspé	26 %	18 %	18 %	21 %	17 %
La Haute-Gaspésie	36 %	19 %	21 %	14 %	10 %
Bonaventure	23 %	21 %	25 %	16 %	15 %
Avignon	26 %	17 %	24 %	16 %	18 %
Upper-North-Shore	30 %	21 %	26 %	12 %	11 %
Manicouagan	20 %	23 %	24 %	18 %	14 %
Sept-Rivières – Caniapiscau	24 %	20 %	23 %	19 %	14 %
Minganie – Lower-North-Shore	43 %	18 %	17 %	12 %	11 %
All of Quebec	17 %	21 %	18 %	18 %	26 %
2001					
La Matapédia	34 %	29 %	17 %	10 %	9 %
Matane	37 %	23 %	13 %	14 %	12 %
La Mitis	33 %	28 %	13 %	12 %	13 %
Rimouski-Neigette	19 %	26 %	12 %	19 %	24 %
Les Basques	38 %	28 %	15 %	9 %	9 %
Rivière-du-Loup	25 %	25 %	19 %	16 %	15 %
Témiscouata	42 %	22 %	16 %	10 %	10 %
Kamouraska	32 %	23 %	15 %	16 %	14 %
Magdalen Islands	43 %	19 %	12 %	16 %	10 %
Le Rocher-Percé	48 %	19 %	11 %	13 %	9 %
La Côte-de-Gaspé	37 %	23 %	11 %	16 %	13 %
La Haute-Gaspésie	46 %	23 %	12 %	10 %	9 %
Bonaventure	36 %	23 %	16 %	14 %	10 %
Avignon	35 %	21 %	17 %	16 %	12 %
Upper-North-Shore	42 %	23 %	16 %	11 %	9 %
Manicouagan	28 %	27 %	16 %	18 %	12 %
Sept-Rivières – Caniapiscau	33 %	24 %	16 %	15 %	11 %
Minganie – Lower-North-Shore	51 %	18 %	12 %	8 %	10 %
Ensemble du Québec	24 %	25 %	13 %	16 %	22 %

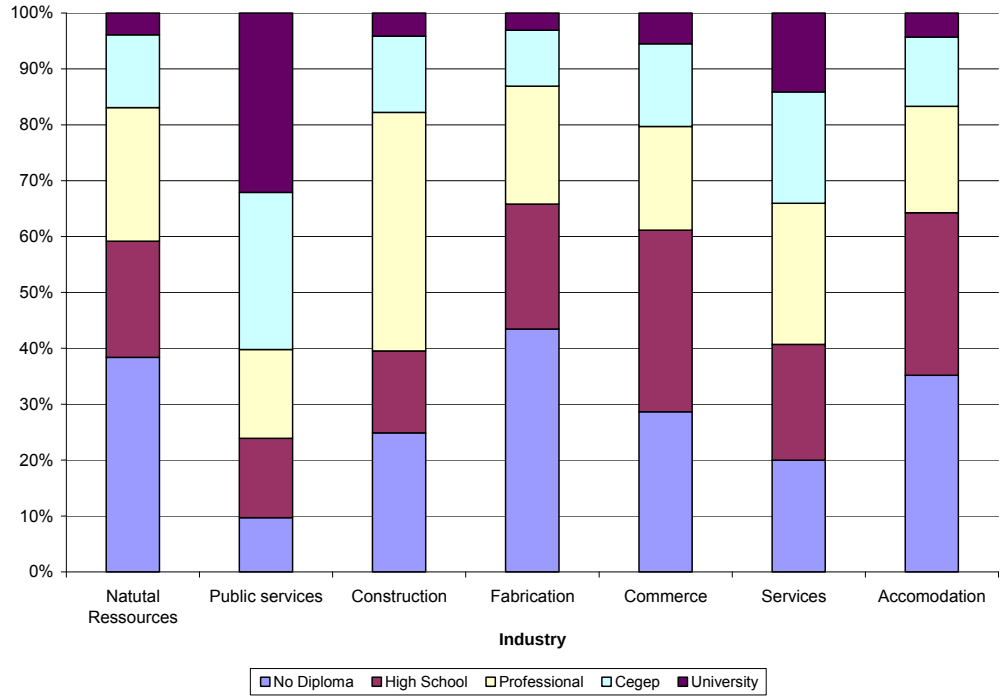
Source: Statistics Canada. *Recensement de 2006*, [Online]. http://www12.statcan.ca/census-recensement/2006/dp-pd/index-fra.cfm

Figure 5: Breakdown of the highest level of studies reached per industry for the North-Shore region, 2006



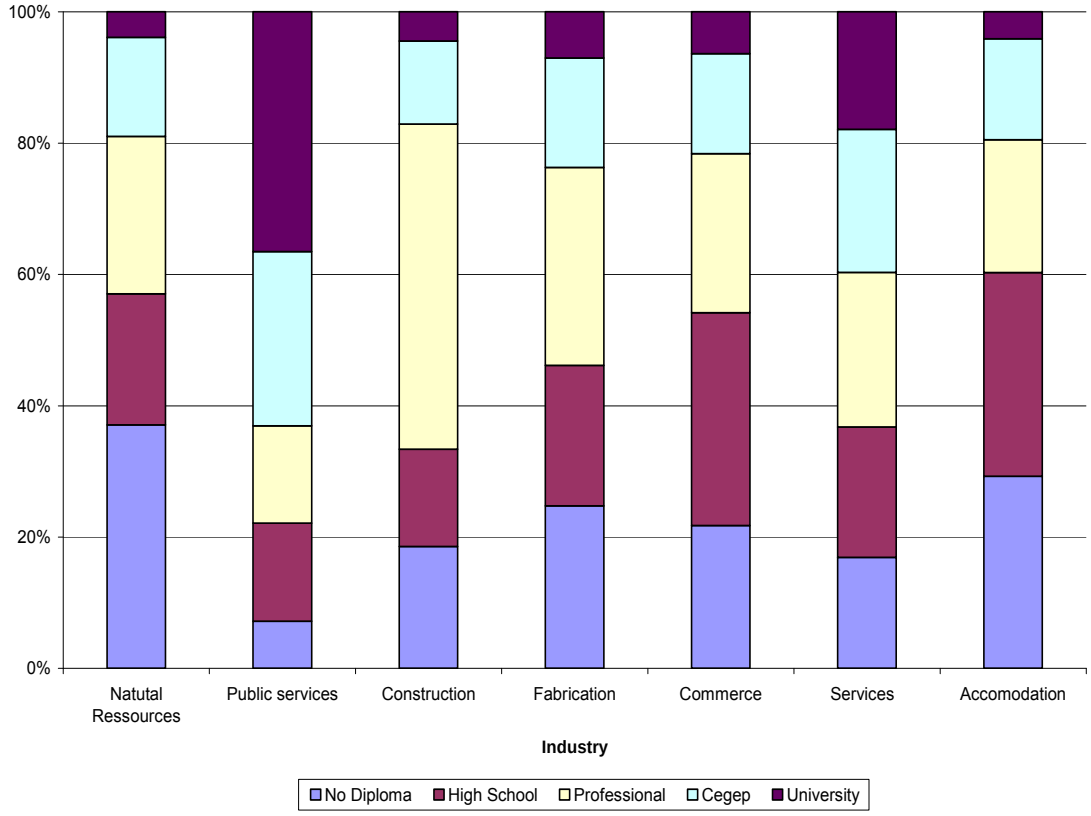
Source: Statistics Canada. 2008. Recensement 2006, special compilation DFO-P&E, Québec

Figure 6: Breakdown of the highest level of studies reached per industry in the Gaspésie–Magdalen Islands region, 2006



Source: Statistics Canada. 2008. Recensement 2006, special compilation, DFO-P&E, Québec

Figure 7: Breakdown of the highest level of studies reached per industry for the Lower Saint Lawrence region, 2006



Source: Statistics Canada. 2008. Recensement 2006, special compilation, DFO-P&E, Québec

2.3 Health and Safety

It is clear that there are challenges to be dealt with in order to develop a better understanding of the link between the maritime environment and human health. Environmental changes affect human health and it is important to identify the indicators that have enough sensitivity and specificity to detect these changes. Mortality and morbidity charts can not help keep watch over the evolution of the environment, because most chronic diseases are multifactorial; they result from genetic and environmental factors as well as from lifestyle. Thus, it is not very likely that rates of cancer or mortality are going to supply a useful indication of the evolution of the oceans impact on human health. Furthermore, there is often a delay of 10 to 20 years between the exposure to environmental risk factors and the subsequent appearance of certain diseases. However, morbidity registers concerning the acute toxicity of diseases such as poisoning by marine toxins in seafoods, which are compulsory in most countries, could supply useful information pertaining its frequency over the course of time. Clinical effects related to contaminants were the object of numerous epidemiological studies. Nevertheless, it is important to provide a portrait of the maritime communities with the aim of identifying characteristics particular to these regions or different from the Quebec average.

Overall, the North-Shore and Gaspésie–Magdalen Islands inhabitants are considered to be in less good health than the Quebec average. One finds there are also more smokers and the North-Shore population has more episodes of high alcohol consumption than the rest of Quebec. Governmental expenses related to health care per capita are superior to the Quebec average, as well as are the number of general practitioners. However, the number of specialists is lower than the Quebec average. The average life expectancy increased in the three maritime regions between 1998 and 2005, without showing a large difference from the Quebec average.

Most of ocean contaminants, such as mercury and persistant organic pollutants, lead to the contradictory results in epidemiological studies. Regrettably, cohort or age-class analyses are extremely expensive in time and resources and require teams of multi-disciplinary scientists[4]. However, the Lower-North-Shore seems to be more at risk for certain pollutants than are other regions (Table 14).

There are sectors within the Saint Lawrence Gulf where the spring collection of seagull or eider duck eggs is part of certain communities' local traditions, notably on the North-Shore. Analyses showed that PCB concentrations measured in herring gull eggs were 14 times higher that that measured in cod liver and 200 times higher than that found in the seal meat. Thus, the consumption of some gull eggs can result in elevated levels of bodily organic chlorides, as has been demonstrated by certain studies conducted among the Lower-North-Shore populations[5].

Table 8: Perception of health according to sex, in percentage, 1998 to 2003

Perceptions of Health		Lower- St. Lawrence	North Shore	Gaspé Peninsua–Magdalen Islands	All of Quebec
		2003			
Men					
	Excellent or very good health	59.9 %	50.8 %	50.6 %	58.5 %
	Good health	28.7 %	35.9 %	35 %	31.6 %
	Average or bad health	11.5 %*	13.3 %*	14.4 %	9.9 %
Women					
	Excellent or very good health	53.8 %	54.7 %	50 %	54.6 %
	Good health	34.2 %	32.4 %	33.8 %	33 %
	Average or bad health	12.1 %	12.9 %*	16.2 %	12.4 %
Total					
	Excellent or very good health	56.8 %	52.7 %	50.3 %	56.5 %
	Good health	31.5 %	34.2 %	34.3 %	32.3 %
	Average or bad health	11.8 %	13.1 %	15.3 %	11.2 %
		1998			
Men					
	Excellent or very good health	51.3 %	50.5 %	54.2 %	56.0 %

[4] Knap, Dewailly et al., 2002
[5] Saint Lawrence Vision 2000. Domaine d'intervention Santé humaine, 2004

	Good health	34.1 %	36.6 %	30.5 %	33.6 %
	Average or bad health	14.6 %	13.0 %	15.3 %	10.4 %
Women					
	Excellent or very good health	51.1 %	50.0 %	45.6 %	52.6 %
	Good health	34.2 %	37.8 %	40.1 %	35.7 %
	Average or bad health	14.7 %	12.3 %	14.3 %	11.7 %
Total					
	Excellent or very good health	51.2 %	50.2 %	49.8 %	54.3 %
	Good health	34.2 %	37.2 %	35.4 %	34.7 %
	Average or bad health	14.7 %	12.6 %	14.8 %	11.0 %

* Variance coefficient between 15 % and 25 %, interpret with care.
Source: Statistics Canada. *Profils de la region administrative*, [Online]. http://www.stat.gouv.qc.ca/regions/profils/profil01/01ra_index.htm#sante

Table 9: Medical practitioners by 100,000 persons according to the number of doctors, general practioners and specialists by social health region, 2003 to 2007

Social Health Regions	2003	2004	2005	2006	2007
Lower Saint Lawrence					
Number of general practioners	115	118	119	120	127
Number of specialists	93	91	91	95	99
Gaspésie–Magdalen Islands					
Number of general practioners	170	171	174	182	185
Number of specialists	87	86	87	96	103
North-Shore					
Number of general practioners	142	146	153	157	162
Number of specialists	61	60	66	72	76
All of Quebec					
Number of general practioners	101	101	102	101	102
Number of specialists	103	104	105	107	109

Source: Statistics Canada. *Profils de la region administrative*, [Online]. http://www.stat.gouv.qc.ca/regions/profils/profil01/01ra_index.htm#sante

Table 10: Expenses and expenses per capita by social health region in Quebec, 1996-1997 and 2006-2007[1]

Social Health Regions	($)	
	1996-1997	2006-2007
Lower Saint Lawrence	443 609 000	735 023 000
Per capita	2 125	3 667
Gaspésie–Magdalen Islands	239 041 000	417 620 000
Per capita	2 244	4 411
North-Shore	224 954 000	368 593 000
Per capita	2 148	3 888
All of Quebec	14 645 539 000	26 380 893 000
Per capita	2 021	3 470

1. This pertains to gross expenditures; those that cover principal activities and accessories, without considering deductions and income realized by businesses.
Source: Éco-Sante. *Les bases de donnees Éco-Sante Online,* [Online]. http://www.ecosante.fr

Table 11: Mortality according to cause and life expectancy, 1998 to 2005

Causes	Lower-St. Lawrence		North-Shore		Gaspésie–Magdalen Islands		All of Quebec	
	1998	2005	1998	2005	1998	2005	1998	2005
Mortality according to cause and number of average annual deaths (average over 5 years)								
Mortality – malignant tumor	30 %	31 %	34 %	37 %	31 %	34 %	30 %	32 %
Mortality – circulatory	35 %	29 %	27 %	25 %	35 %	28 %	35 %	29 %
Mortality – respiratory	10 %	10 %	8 %	8 %	8 %	8 %	9 %	8 %
Mortality – suicides	3 %	3 %	5 %	4 %	2 %	2 %	3 %	2 %
Mortality – combined	1 713	1 763	555	589	885	889	52 995	55 332
Average life expectancy at birth (average over 5 years)								
Men (age)	74.8	76.8	73.2	75.9	73.6	76.2	74.6	77.0
Women (age)	81.0	82.9	80.3	81.7	81.2	82.7	81.0	82.3

Source: Éco-Sante. *Les bases de donnees Éco-Sante en ligne,* [Online]. http://www.ecosante.fr

Table 12: Proportion of the total number of smokers 12 years and more, according to sex, by administrative region, 2001 to 2005

Administrative Region	2001		2003		2005	
	M	F	M	F	M	F
Lower-St. Lawrence	31.0 %	27.8 %	23.7 %	20.6 %	22.0 %	22.2 %
Gaspésie–Magdalen Islands	34.8 %	30.6 %	27.5 %	27.4 %	28.0 %	24.4 %
North-Shore	35.4 %	36.3 %	30.3 %	28.2 %	26.5 %	30.8 %
All of Quebec	31.1 %	27.9 %	27.1 %	24.6 %	25.4 %	23.4 %

Source: Éco-Sante. *Les bases de donnees Éco-Sante en ligne,* [Online]. http://www.ecosante.fr

Table 13: Proportion of the population 12 years and more having consumed 5 or more alcoholic drinks on the same occasion, at least 12 times during a 12 month period, by administrative region, 2001 to 2005

Administrative Region	2001		2003		2005	
	M	F	M	F	M	F
Lower-St. Lawrence	15.8 % -	4.4 %*	19.3 %	6.1 %*	23.8 %	7.2 %
Gaspé-Magdalen Islands	22.0 %	5.4 %*	25.1 %	7.5 %*	26.1 %	7.6 %*
North-Shore	31.2 %+	10.8 %*	34.3 %	12.2 %*	34.6 %+	11.3 %
All of Quebec	22.1 %	7.7 %	24.8 %	8.9 %	24.3 %	9.5 %

- : Statistically lower than all of Quebec

+ : Statistically higher than all of Quebec

** : interpret with care*

Source: Éco-Sante. *Les bases de donnees Éco-Sante en ligne,* [Online]. http://www.ecosante.fr

Table 14: Geometrical averages of the concentrations of mercury, DPB (AROCLOR1260) and DDT (DDE's) metabolites in the blood of different groups of fishermen and local residents

Region and collection year	Groups studied	Mercury (µg/l. sang)	PCB (AROCLOR^{1260}) (µg/l. plasma)	DDE (µg/l. plasma)
Saguenay – Winter	Heavy consumer	2.8	3.5	1.48

2000				
Saguenay – Winter 2000	Light consumer	1.3	2.5	1.2
Sept-Îles – 1998	Non-Native fishers	1.68	3.46	1.47
Uashat-Mallotenam 1998	Aboriginal fishers	2.06	4.73	1.91
Sept-Îles	General population (women, aged 17 to 40)	0.80	1.52	0.76
Lower-North-Shore – 1990	Commercial fishers and their spouses	5.4	35.20	8.70
Target value		20	20 (5)*	200

* Among women of child-bearing age.

Source: Saint Lawrence Vision 2000. Domaine d'intervention Sante humaine. 2004. *Le Saint-Laurent et la sante humaine, l'etat de la question II*, [Online]. http://www.slv2000.qc.ca/

2.3.1 Maritime Safety

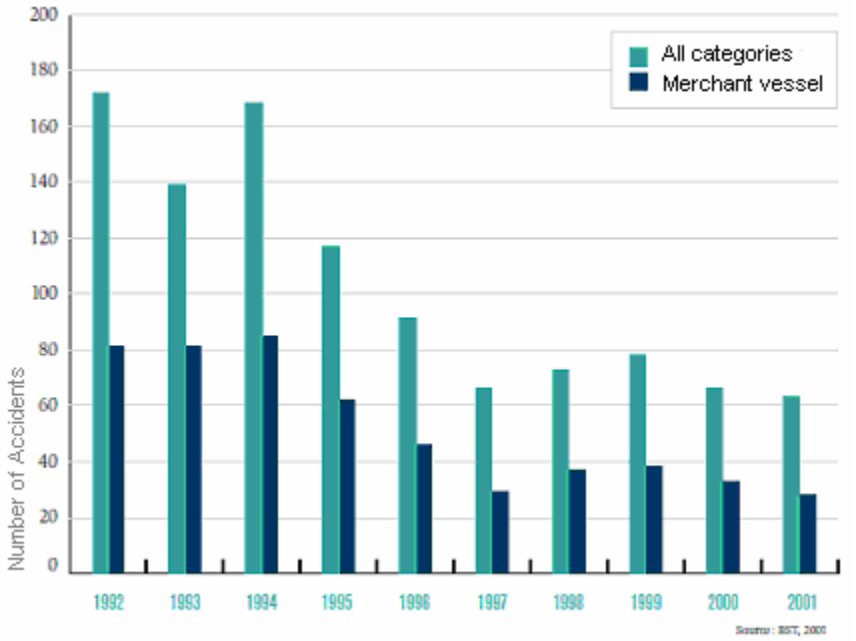
Directly associated to the health and survival of individuals, the importance of investments attributed to maritime safety is crucial. The situation has improved greatly since the early 1990's. Appendix D-1 lists the various accidents that have happened at sea since 2001. In the Quebec region, the CCG has a fleet that reflects the diversity of its activities.

Table 15: Canadian Coast Guard fleet activities in Quebec, December 31, 2008

Ship	Position	Activity
Terry Fox	Gros Cacouna	Icebreaking/Assistance to traffic – Vessel on standby at 60 min notice
Amundsen	Les Mechins	Drydocks
Des Groseilliers	Quebec, section 27	Icebreaking/Flood Control – Assigned SAR for sector 141 – Vessel on standby at 60 min notice
Pierre Radisson	Trois-Rivières, section 3	Icebreaking/Flood Control – Assigned SAR for sector 140 – Vessel on standby at 60 min notice
Martha L. Black	Baie-Comeau	Assistance to traffic – Assigned SAR
Tracy	Côte Ste-Catherine	Assistance to traffic
Sipu Muin	Île Charron	Assistance to traffic
Waban-Aki	Trois-Rivières	Planned maintenance
Cap-Aux-Meules	Cap-Aux-Meules	Assigned SAR – Vessel on standby at 60 min notice
Helicopter	**Position**	**Activity**
GC 358 (B0-105)	Quebec	Available
GC 364 (B0-105)	Quebec	In response to DFO, CCG, and emergencies
GC 365 (B0-105)	Quebec	In response to DFO, CCG, and emergencies
GC 366 (B0-105)	Trois-Rivières, section 3	On board the NGCC Pierre Radisson
GC 124 (Bell 206-L)	Quebec	In response to DFO, CCG, and emergencies

Source: Fisheries and Oceans Canada (DFO). Quebec Region. Canadian Coast Guard. *Marinfo*, [Online]. http://www.marinfo.gc.ca/fr/flotte/Activite.asp

Figure 8: Number of ship accidents from 1992-2001, all categories combined and commercial vessels only, Saint Lawrence River



Source: Saint Lawrence Vision 2000. *Phase III – Stratégie de navigation durable pour le Saint-Laurent*, [Online].
http://www.slv2000.qc.ca/plan_action/phase3/navigation/SND/plan_action/pa_rejets_eaux_f.htm

Capacity of the federal search and rescue service (SAR)

The 2007 analysis of SAR needs was done to determine and analyze risk areas for clients and to propose certain modifications to the SAR system to ease these risks.

Along Quebec's Lower-North-Shore, the SAR administrators count on transport ships and the Canadian Coast Guard Auxiliary (CCGA) to make interventions, although CCGA units are available. In 2009, it was announced that a new station would be established at Kegaska.[6]

MarInfo (Quebec)

MarInfo supplies daily information on the state of the Saint Lawrence River's shipping lane, such as: ice bulletins, ice charts, maps with recommended ice routes, navigation notices including the presence of shoals, and seasonal buoy tending operations. The site offers also information on operations and services of the CCG, Quebec region.[7]

[6] Canadian Coast Guard, http://www.ccg-gcc.gc.ca/f0003782#_Toc197850142
[7] Marinfo, http://www.marinfo.gc.ca/fr/flotte/Activite.asp

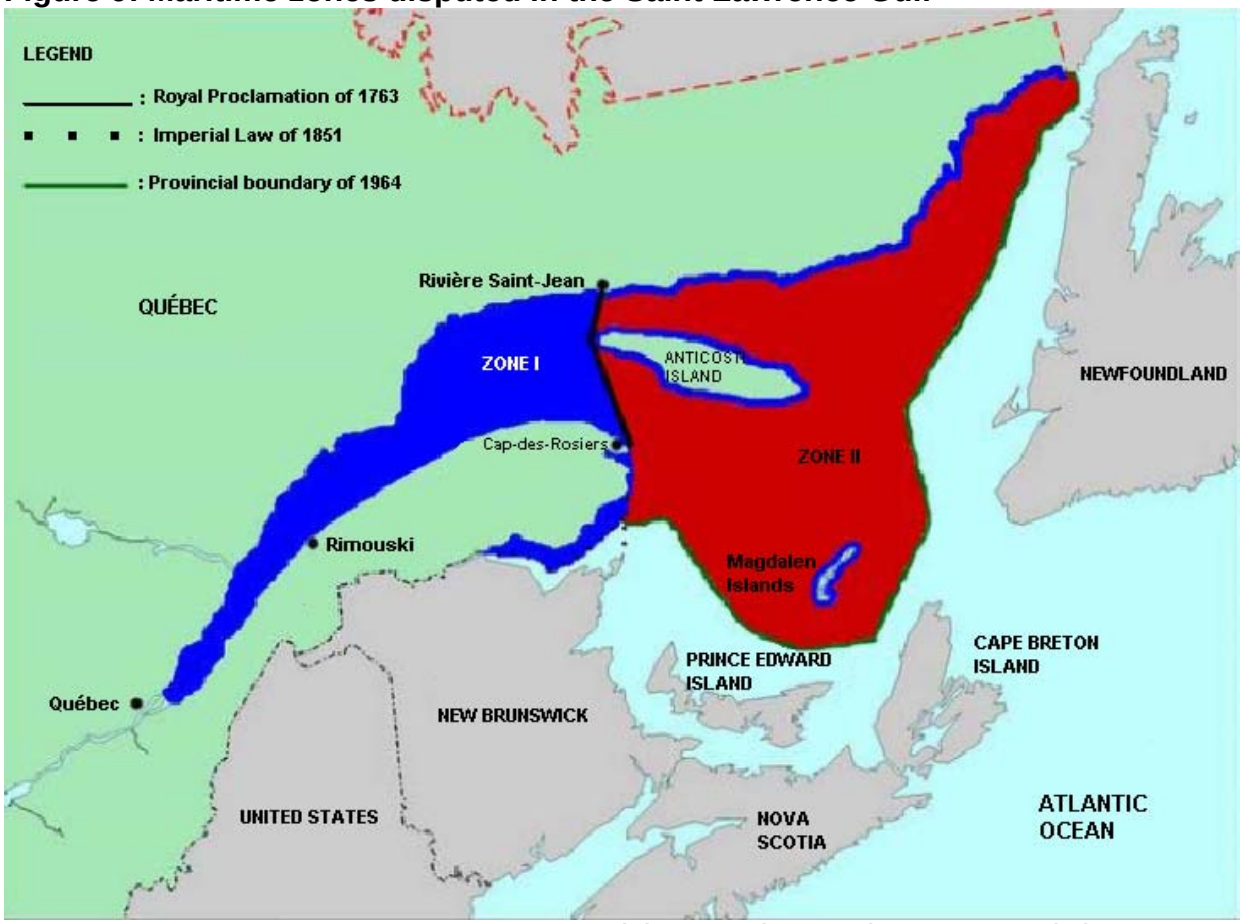
2.4 Governance

2.4.1 Provincial competence

The various areas of government competencies are available in the appendix. Overlappings arise between federal and provincial laws because each government can adopt similar laws by virtue of its competencies. If there is incompatibility between a federal law and a provincial law, the federal law takes priority. Furthermore, various agreements were signed between the federal and provincial government[8]:

- Collaborative Canada-Quebec agreement in environmental evaluation (2004)
- Canada-Quebec Agreement on the St-Lawrence 2005-2010 (2005)
- Agreement between the government of Canada and the government of Quebec for the creation of the Saguenay-Saint Lawrence maritime park (1990)

Figure 9: Maritime zones disputed in the Saint Lawrence Gulf



Source: Unisféra. 2006. *Portrait des droits de propriété et compétences législatives du Fédéral et de la Province de Québec, ainsi que des pouvoirs des municipalités, dans l'estuaire et le golfe du Saint-Laurent*.

[8] Unisféra, 2006

Zone I of Figure 9 presents the "territory" that belongs to Quebec and the status of which is accepted or not formally disputed by the Canadian government. **Zone II** includes waters situated between the limit established by the Royal Proclamation of 1763 and the interprovincial marine limit established in 1964. The federal and Quebec governments are not in consensus regarding the territorial status of **Zone II**. As a result, each of government claims **Zone II** as part of its "territory". Legally, this uncertainty risks to continue until the Supreme Court of Canada decides the issue. In practice, federal-provincial agreements were concluded in other provinces to avoid going to court.[9]

Table 16: Provincial ministries and legislation applicable to the ocean sector

Departments	Laws
Ministère de l'Agriculture, des Pêcheries et de l'Alimentation (MAPAQ)	Law on the National importance of fishing and aquaculture Law on Commercial aquaculture Regulations on Categories of aquaculture permits Law on the Financing of commercial fishing Law on the Fishers and fishers' assistants Accreditation Bureau of Quebec Law on Commercial fisheries and the commercial harvest of marine vegetation Law on the Transformation of agricultural, food and fisheries products Law on the Minister of Agriculture, Fisheries and Food Law on the Transformation of marine products Law on the Commercialization of marine products Law on Wildlife conservation and enhancement
Ministère des Transports	Law on Transportation
Ministère des Ressources naturelles et de la Faune (MRNF)	Law on Hunting and fishing rights in the territories of James Bay and New-Quebec Law on the Assistance program for Inuit beneficiaries within the James Bay and Northern Quebec Convention for hunting, fishing and trapping Law on Wildlife conservation and enhancement
Code civil du Québec	Regulations on the responsibility of the maritime transporter
Ministère du Développement durable, de l'Environnement et des Parcs	Law on the Saguenay–Saint Lawrence Marine Park Law on Wildlife conservation and enhancement

Source : Alexander, D.W., et al. 2008. *Gulf of Saint Lawrence: Human Systems Overview Report*.

2.4.2 Aboriginal Communities

Aboriginals right for self government was recognized and confirmed by the Constitutional Act of 1982 as an ancestral right stemming from treaties, as was the Ocean Act. The Canadian Parliament has competence over the "Indians and the lands reserved for the Indians." While traditional agreements focused only on competence of a municipal and local nature, more recent agreements, such as those with the Innus, recognized powers usually conferred by the provinces, as education or health.[10]

[9] Unisféra, 2006
[10] Otis, 2004

Three different nations coexist along the Saint Lawrence Gulf: the Innus (Montagnais), Mi'kmaq and Malecites. The mission of the department of Indian and Northern Affairs Canada (INAC) is to support, promote and develop a favorable socioeconomic environment for Aboriginals. To do this, the department is inspired by different laws that take into account the Aboriginals particular status and it provides numerous assistance programs.[11]

Quebec's Secrétariat aux affaires autochtones is responsible for insuring ties between the various Aboriginal communities and the Quebec government. It attempts to facilitate access to governmental resources or to modify governmental programs to better adapt to their needs.[12]

Figure 10: Aboriginal population in maritime Quebec, 2007

Communities	Total	Residents	Non residents
Malecite			
Cacouna and Whitworth	775	1	774
Micmac			
Gaspé	503	0	503
Gesgapegiag	1 236	562	674
Listuguj	3 287	1 944	1 343
Innu			
Betsiamites	3 503	2 761	742
Essipit	416	182	234
La Romaine	1 037	978	59
Mingan	522	507	15
Natashquan	917	861	56
Pakuashipi	299	298	1
Uashat and Maliotenam	3 544	2 885	659

Source: Indian Affairs and Northern Canada. *Peuples et collectivités autochtones*, [Online]. http://www.ainc-inac.gc.ca/ai/scr/qc/index-fra.asp

The First Nations Assembly of Quebec and Labrador regroups the leaders of 43 communities and represents 10 First Nations. Its mission is to defend and support the political and economic rights of First Nations.

In addition to various reserves located in the Quebec territory, there are those who give up their Aboriginal status and decide to live outside these reserves. The Native Alliance of Quebec, with 26,000 members, represents Canadians of Amerindian descent whose status is not recognized under the Indian Act of Canada.[13]

[11] Indian Affairs and Northern Canada, http://www.ainc-inac.gc.ca/ai/scr/qc/index-fra.asp
[12] Secrétariat aux affaires autochtones, http://www.saa.gouv.qc.ca/index.asp
[13] Alliance autochtone du Québec, http://www.aaqnaq.com/

2.4.3 Municipal Governance

Near hundred municipalities and 20 RMC lie along the Quebec region of the Saint Lawrence Gulf. The principal duties of local municipalities is: town planning and zoning, culture, recreation, community activities and parks, local economic development, energy production and community telecommunication systems, environment, cleanliness, order, safety and transportation.[14]

The main competencies of the RMC are, among others: planning and development, waste management, fire protection and civil safety planning, administration of unorganized territories, management of local development centers, land evaluation and water management.[15]

Furthermore, 4 out of 21 Conférence regionale des élus (CRE), a grouping of regional elected officials, are situated along the Quebec coast of the Saint Lawrence Gulf. They were created in 2004 to discuss regional development issues with the provincial government and to exercise competence defined by law through dialogue and regional development planning.[16]

2.4.4 Partnerships in Governance along the Saint Lawrence and non governmental implication

As one can notice, governmental competence is shared at all levels: federal, provincial and municipal. Furthermore, numerous speakers and the populations concerned seek a greater implication in the choice of action priorities that dictate long-term development along the Saint Lawrence.

The notion that the governments and population work together in protecting and developing the Saint Lawrence is not recent. The several action plans developed among the ministries, the two levels of government and the population have marked the history of governance along the Saint Lawrence for more than 20 years.

The **Action Plan Saint Lawrence, of 1988-1993**, was the first agreement of harmonization signed between the governments of Canada and Quebec. By working together and out of respect for their respective domains, the government fixed objectives in different areas of intervention along the Saint Lawrence: conservation, restoration, protection and condition of the environment. This agreement favored the harmonization of governmental actions to better protect the Saint Lawrence within a context of sustainable development.[17]

---

[14] Publications Québec, http://www2.publicationsduquebec.gouv.qc.ca
[15] MAMROT, *Municipalité régionale de comté (MRC)*, http://www.mamrot.gouv.qc.ca
[16] MAMROT, http://www.mamrot.gouv.qc.ca/regions/regi_conf.asp
[17] Saint Lawrence Vision 2000, http://www.slv2000.qc.ca/plan_action/phase1/resultats_f.htm

The **Action plan SLV 2000 - Phase II (1993-1998)** followed, still with the objective of better harmonizing activities aiming at cleaning up and protecting the Saint Lawrence. The areas of intervention in Phase II were: biodiversity, agriculture, community implication, decision-making, health and safety / restoration. An even larger number of ministries, from both the Canadian and Quebec governments, were invited to participate. This second plan aimed to encourage the active participation of partners in the private sector, universities, environmental groups, research centers and local organizations[18].

It was during Phase II that the Areas of Prime Concern (ZIP) program was set up to favor the participation of local residents in various ecological rehabilitation projects. Ten ZIP committees were established during this period to develop and implement Ecological Remedial Action Plans (ERAP). ZIP committees regrouped within Strategies Saint Lawrence, whose mission is to represent them in governmental organizations and to facilitate the exchange of information, dialogue and the development of members' competencies. The Community Interaction Program, which brings financial aid for community projects, was also established in Phase II.

The **Action Plan SLV 2000 - Phase III (1998-2003)** enabled reflection and brought about the collective action of numerous governmental and non governmental partners. The areas of intervention of Phase III were: agriculture, biodiversity, community involvement, industrial / urban, navigation and human health. During Phase III, the number of ZIP committees went from 10 to 14. Of this number, six ZIP committees are within the area of study.[19]

Both the Quebec and Canadian governments wished to develop a stable, integrated management approach for the Saint Lawrence. This cooperation was expressed in the **Canada-Quebec Agreement on the Saint Lawrence 2005-2010 (Phase IV)** and is defined, among other things, by the objective to develop a concept of integrated management for the Saint Lawrence.[20]

The greater involvement of the Quebec population and area residents in water governance becomes a reality in **watershed management of the Saint Lawrence**. Thirty one of 33 principal watersheds identified in the National Water Policy are tributaries of the Saint Lawrence and 7 of those are in the study zone. The Regroupement des organisations de bassin versant du Québec (ROBVQ), an association of watershed organizations, was created in 2001 and their members work to develop and promote their watershed plan. The ROBVQ is recognized by the Ministère du Développement durable, de l'Environnement et des Pars du Québec as its agent for the implementation of integrated watershed management in Quebec.[21]

---

[18] Saint Lawrence Vision 2000, http://www.slv2000.qc.ca/plan_action/phase2/accueil_f.htm#concertation
[19] Saint Lawrence Vision 2000, http://www.slv2000.qc.ca/plan_action/phase3/accueil_f.htm
[20] Saint Lawrence Plan, http://www.planstlaurent.qc.ca/index_f.html
[21] Collectivités écologiques Bas-Saint-Laurent, http://www.co-eco.org/

Furthermore, several **integrated coastal zone management committees** were established in 1996. The first committees were set up in the preparatory phase for the implementation of the Oceans Act while the more recent committees were inspired by results obtained from the first ones. These committees are unequally separated along the Saint Lawrence and cover vast territories. They are borne out of the desire of certain communities to use an integrated management approach to encourage the sustainable use of marine resources and coastal zones. Management committees integrated have no formal grouping, but several exchanges and collaborations have occurred over the course of the years on a voluntary basis.[22] New initiatives continue to appear, often under the leadership of municipal organizations and without any formal framework or material obligations.

More than twenty years of dialogue resulting from the four phases of Saint Lawrence plans have generated socioeconomic benefits and tangible environmental consequences such as water quality improvement, participation of the population in improving the Saint Lawrence ecosystem and mobilization of local rivers and coastal communities in the definition of local objectives and implementation of targeted actions.

2.5 Use of the coast and sea bottom

For more than ten years, the proportion of the population of the study zone served by a water-treatment plant has gone from 10 % to 90 %.[23] There are only a dozen Quebec municipalities which do not have a water purification station or which have not yet requested one. However, several maritime municipalities possess only a screening that does not at all protect the river from toxic run-offs.

In Quebec, it is forbidden to dump snow in the river or to store it nearby. Furthermore, no study was conducted to estimate the importantance of maritime waste found along the banks of the gulf, contrary to other provinces.[24] A Canada-Quebec agreement regarding financial contribution for the implementation of an underwater optical cable project for the Magdalen Islands occurred in 2005.

Table 17: Municipalities which possess a network of sewer not linked with a station of purification, near the St-Lawrence, April, 2007

Administrative Region	Municipality not requesting assistance
Lower-St. Lawrence	2
Gaspésie	2
North-Shore	6

Source: Jean-Pierre Beaumont, MAMR, personal conversation

[22] Saint Lawrence Vision 2000, http://www.slv2000.qc.ca/index_f.htm
[23] Saint Lawrence Vision 2000, http://www.slv2000.qc.ca
[24] Topping, 2000

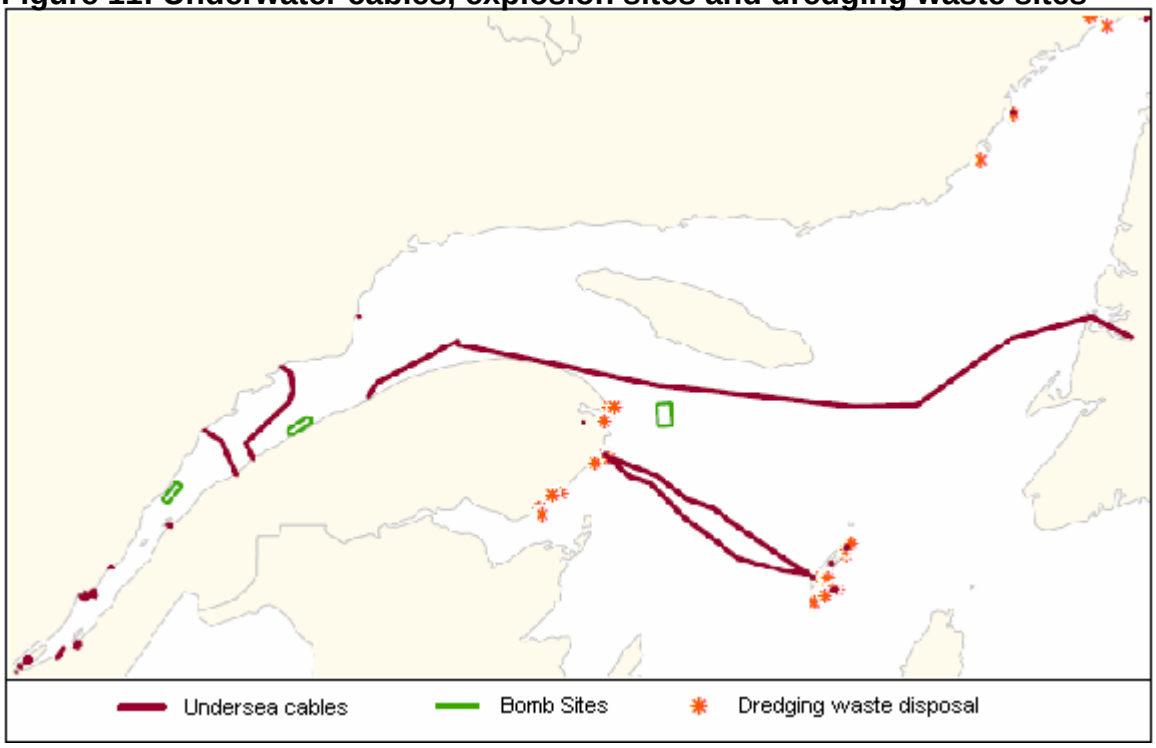
Table 18: Municipality using only a degrillage as method of purge in the region of maritime Quebec, on 2008

Water Treatment Station	Population	Date of operation (a.m)	Population concept*	Average Outflow*	Average Charge*	% Population Served
Les Méchins	1 182	2002.08	1 228	1 145	61	1.04
Baie-Johan-Beetz	107	1996.09	147	51	7	1.37
Blanc-Sablon	1 306	1999.01	172	101	10.1	0.59
Blanc-Sablon (Lourdes)		1999.01	595	344	52.5	
Bonne-Espérance	836	1996.09	510	131	26	1.02
Bonne-Espérance		1996.09	345	87	17	
Les Escoumins	2 095	2000.08	1 903	2 500	105	0.91
Anticosti Island	300	1999.06	352	156	18	1.17
Sept-Îles	26 044	1999.01	2 408	776	122	
Tadoussac	871	2004.04	819	970.3	156.2	0.94
Chandler (Newport)		2001.02	2 419	3 540	9	
Gaspé (Rivière-au-Renard)	1 502	1999.04	2 566	5 198	144	
Grande-Vallée	1 272	1999.02	1 234	1 341	100	0.97

Source: MAMROT, *Répertoire des municipalités du Québec*, [Online]. http://www.mamrot.gouv.qc.ca/repertoire_mun/repertoire/repertoi.asp

Figure 11 indicates the placement of underwater cables, explosion sites and dredging waste sites. Although these sites have no impact on the environment, their presence is important to indicate.

Figure 11: Underwater cables, explosion sites and dredging waste sites



Source: MPO, SIGHAP, Human Activities, 2008

3. Economic portrait

The Quebec government recognizes three administrative regions as being part of maritime Quebec: the North-Shore, the Gaspésie-Magdalen Islands and the Lower-St. Lawrence. It is mainly in these regions that economic activities that both depend on and affect the ocean occur.

Several industrial sectors identified as being part of the maritime industry will be described in this chapter. A portrait of their economic importance, using production volume, employment level, trends and perspectives will be provided to give an idea of what the industries within maritime Quebec represent, with an emphasis on maritime activities. This portrait constitutes a step towards the future elaboration of sustainable development objectives and indicators to allow integrated marine resource management for the communities' benefit. However, this would be incomplete if it did not take into account dry-land activities affecting the sea, especially when these occur on the shores.

Here is a list of the maritime economic activities described further in the text:

- Resource harvest
- Resource transformation
- Aquaculture
- Marine transportation
- Tourism and recreational activities
- Emerging industries

The following dry-land activities are also discussed in the document relative to their potential influence on the maritime environment:

- Energy, gas and petroleum
- Mines and aluminium
- Agriculture
- Forestry and pulp and paper

The world economic situation during the writing of this report makes any predictions very difficult. Several reports or assessments were published at the beginning of 2008 indicating either increasing or decreasing perspectives for an industry, not knowing that a recession was going to happen. Any predictions or perspectives for the future made in this report should be interpreted in the light of the present economic situation.

Furthermore, it is important to relate general information that is not specific to industrial sectors, such as employment level, income, GDP, infrastructure, research and government subsidies.

Maritime industry of Eastern Quebec[25]

Quebec's maritime industry is composed of various sub-sectors such as aquaculture, fishing and transformation of marine resources, shipbuilding, maritime equipment, maritime science and technology, as well as other activities connected to the maritime domain. This industry is dominated by micro and small firms, more than half of which have fewer than 20 employees. This proportion is even higher if one considers the group of companies with fewer than 100 employees (79.2 % of companies). There are few large companies and those that exist are active mainly in shipbuilding and the transformation of maritime products. The majority of these companies were created after 1990, especially those dealing with maritime technologies, and few were created after 2000.

In spite of the relative youth of this industry, maritime companies do not seem to be very innovative, since only 40 % of companies have introduced new products and processes. This rate is considerably lower than both regional and Quebec averages. Innovations introduced by companies consist mostly of minor improvements, and few business services are proposed to them. These services are nevertheless essential to the development of the industry, whether they be for marketing, distribution management or searching for new markets. The distance between cities and the large size of the territory can damage relations that are essential to the development of such an industry. Therefore, maritime Quebec is not equipped to offer the frequency, volume and quantity of interactions required to revitalize this industry.

However, a concentration of companies working in similar domains and grouped around the same geographic pole, such as Rimouski (marine sciences and technologies) and Gaspé (aquaculture, fishing, and transformation of marine resources) is one of the bases that the Quebec maritime industry should use.

[25] Doloreux and Melançon, 2006

3.1 Employment, Income and GDP

The macroeconomic indicators presented in this section allow one to understand the economic situation of maritime Quebec. The data from the censuses of 2001 and 2006 indicate that the unemployment rate at that time was much higher than the national average. The Lower-St. Lawrence was less affected than the Gaspésie. The situation on the North-Shore is split because certain regions with large industrial concentrations have a low unemployment rate, while other areas' situations resemble that of the Gaspésie. In all cases, the unemployment rate decreased between 2001 and 2006. The economic situation being difficult to predict, it is impossible to draw general tendencies. It is important to mention that numerous jobs in these regions are seasonal, which can explain the high unemployment rate. Furthermore, it is in maritime Quebec that one finds the highest rate of involuntary part-time employment, where the workers cannot find a full-time job.[26]

The working population of maritime Quebec is lower than the Quebec average. The Gaspésie had a rate of activity of 54 %, the Lower Saint Lawrence 58 % and the North-Shore 63 %, whereas the participation rate for the province of Quebec was 65 % in 2006. The situation is also worrisome as far as the employment rate is concerned. It was 44 %, 53 % and 53 % respectively for the maritime regions, while the province as a whole was situated at 60 % in 2006. In both cases, the situation improved since 2001.

Table 19: Evolution of the unemployment rate by RMC, 2001 to 2006

RMC	2001	2006	Variation
La Matapédia	20.2 %	17.6 %	-2.6 %
Matane	18.0 %	11.5 %	-6.5 %
La Mitis	15.6 %	11.6 %	-4.0 %
Rimouski-Neigette	11.0 %	8.0 %	-3.0 %
Les Basques	15.4 %	12.3 %	-3.1 %
Rivière-du-Loup	9.4 %	6.7 %	-2.7 %
Témiscouata	15.7 %	12.0 %	-3.7 %
Kamouraska	9.4 %	7.5 %	-1.9 %
Magdalen Islands	17.5 %	14.9 %	-2.6 %
Le Rocher-Percé	29.7 %	18.1 %	-11.6 %
La Côte-de-Gaspé	16.7 %	16.8 %	0.1 %
La Haute-Gaspésie	27.4 %	19.3 %	-8.1 %
Bonaventure	21.2 %	19.7 %	-1.5 %
Avignon	23.3 %	17.5 %	-5.8 %
Upper-North-Shore	23.9 %	17.9 %	-6.0 %
Manicouagan	12.2 %	9.2 %	-3.0 %
Sept-Rivières – Caniapiscau	13.2 %	8.4 %	-4.8 %
Minganie – Lower-North-Shore	25.8 %	26.3 %	0.5 %
All of Quebec	8.2 %	7.0 %	-1.2 %

Source: Statistics Canada. *Recensement de 2006*, [Online]. http://www12.statcan.ca/census-recensement/2006/dp-pd/index-fra.cfm

[26] Charest and Poulin, 2007

Table 20: Evolution of the participation rate by RMC, 2001 to 2006

RMC	2001	2006	Variation
La Matapédia	54.5 %	55.0 %	0.5 %
Matane	56.6 %	55.8 %	-0.8 %
La Mitis	54.3 %	57.2 %	2.9 %
Rimouski-Neigette	64.0 %	63.2 %	-0.8 %
Les Basques	50.9 %	56.1 %	5.2 %
Rivière-du-Loup	62.5 %	64.1 %	1.6 %
Témiscouata	55.5 %	55.6 %	0.1 %
Kamouraska	58.6 %	59.5 %	0.9 %
Magdalen Islands	63.4 %	63.4 %	0.0 %
Le Rocher-Percé	49.4 %	48.2 %	-1.2 %
La Côte-de-Gaspé	54.7 %	56.3 %	1.6 %
La Haute-Gaspésie	49.1 %	47.4 %	-1.7 %
Bonaventure	51.8 %	53.0 %	1.2 %
Avignon	56.0 %	54.0 %	-2.0 %
Upper-North-Shore	55.8 %	57.4 %	1.6 %
Manicouagan	61.7 %	64.9 %	3.2 %
Sept-Rivières – Caniapiscau	64.4 %	65.3 %	0.9 %
Minganie – Lower-North-Shore	62.4 %	62.9 %	0.5 %
All of Quebec	64.2 %	64.9 %	0.7 %

Source: Statistics Canada. *Recensement de 2006*, [Online]. http://www12.statcan.ca/census-recensement/2006/dp-pd/index-fra.cfm

Table 21: Evolution of the employment rate by RMC, 2001 to 2006

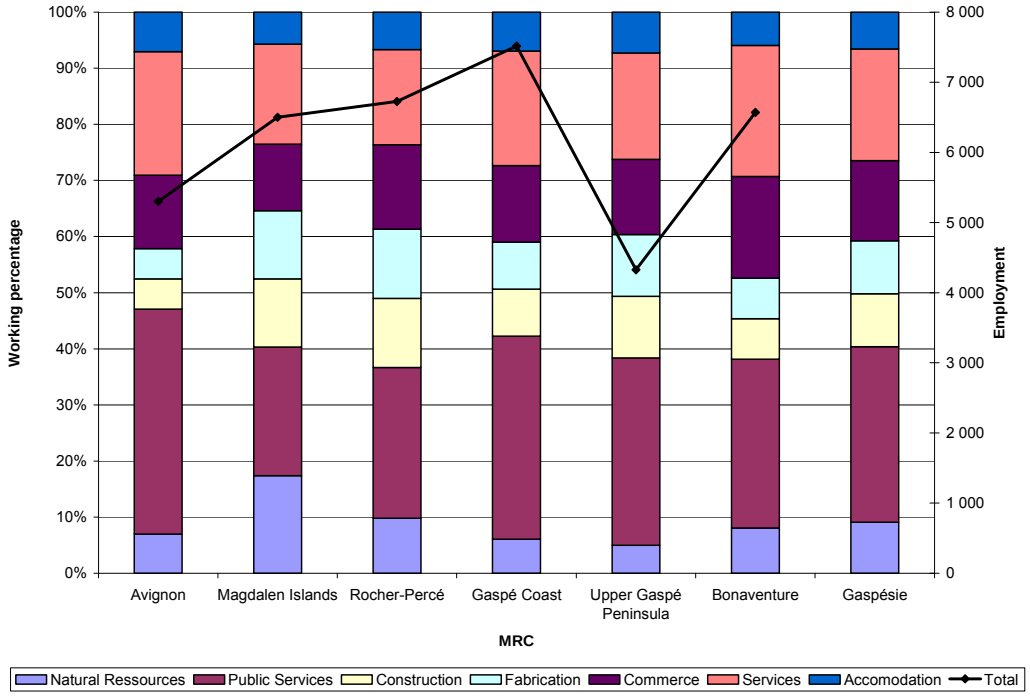
RMC	2001	2006	Variation
La Matapédia	43.5 %	45.4 %	1.9 %
Matane	46.4 %	49.4 %	3.0 %
La Mitis	45.8 %	50.6 %	4.8 %
Rimouski-Neigette	56.9 %	58.2 %	1.3 %
Les Basques	43.1 %	49.1 %	6.0 %
Rivière-du-Loup	56.6 %	59.8 %	3.2 %
Témiscouata	46.8 %	48.9 %	2.1 %
Kamouraska	53.1 %	55.1 %	2.0 %
Magdalen Islands	52.3 %	53.9 %	1.6 %
Le Rocher-Percé	34.8 %	39.4 %	4.6 %
La Côte-de-Gaspé	45.5 %	46.9 %	1.4 %
La Haute-Gaspésie	35.6 %	38.3 %	2.7 %
Bonaventure	40.8 %	42.6 %	1.8 %
Avignon	42.9 %	44.6 %	1.7 %
Upper-North-Shore	53.1 %	47.2 %	-5.9 %
Manicouagan	42.4 %	58.9 %	16.5 %
Sept-Rivières – Caniapiscau	54.2 %	59.9 %	5.7 %
Minganie – Lower-North-Shore	55.9 %	46.4 %	-9.5 %
All of Quebec	58.9 %	60.4 %	1.5 %

Source: Statistics Canada. *Recensement de 2006*, [Online]. http://www12.statcan.ca/census-recensement/2006/dp-pd/index-fra.cfm

3.1.1 Employment by sector

It is in the administrative region of the Lower-St. Lawrence that the largest numbers of jobs were found in 2006, around 90,000. These jobs were especially concentrated in the RMCs of Rimouski and Rivière-du-Loup. This region has the peculiarity of having a higher proportion of jobs in the manufacture and construction sectors than other maritime regions, but a lower proportion of jobs in the public sector.[27] It is in Gaspésie that the public utilities industry is most important. Contrary to the Quebec average, there are more jobs related to the housing sector in the maritime regions. On the whole, the region employed 35,000 people in 2006. In the Lower-North-Shore and Minganie RMCs, there are less than 5,000 jobs, while 40 % of these jobs are in public utilities. Overall, on the North-Shore, there were 43,000 jobs in 2006. Jobs connected with the fishing and fish processing sectors represent only 4 % of the active jobs on the North-Shore and 8 % of those of Gaspésie, but 26 % of the active jobs in the Magdalen Islands and 15 % on the Lower-North-Shore.

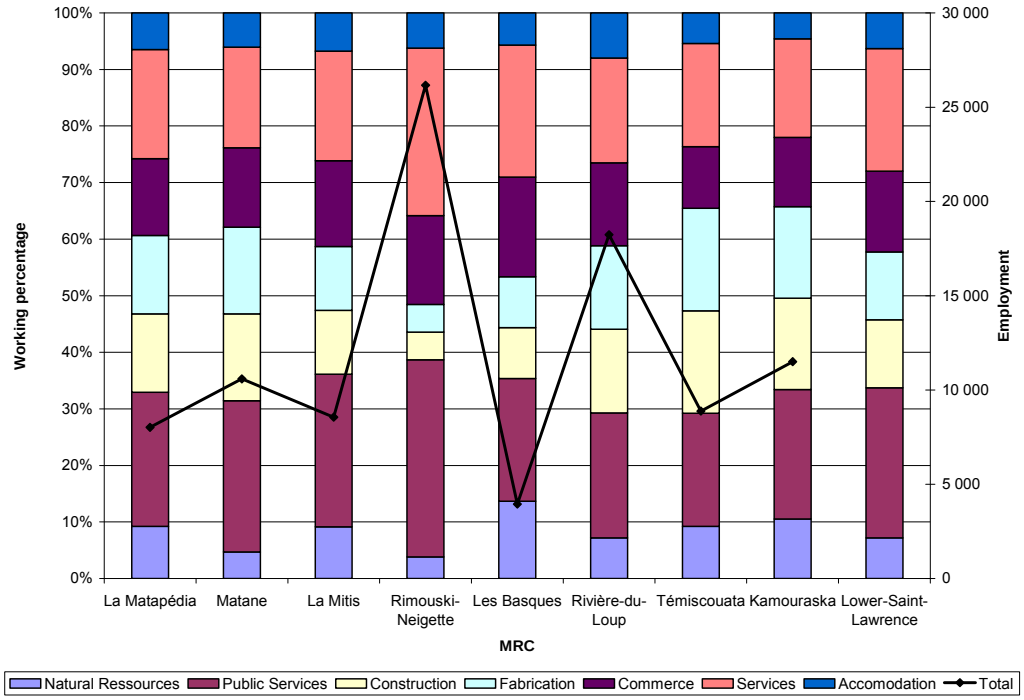
Figure 12: Employment distribution in the Gaspésie by industrial sectors, 2006



Source: Statistics Canada 2008, recensement 2006, special compilation DFO-P&E Québec

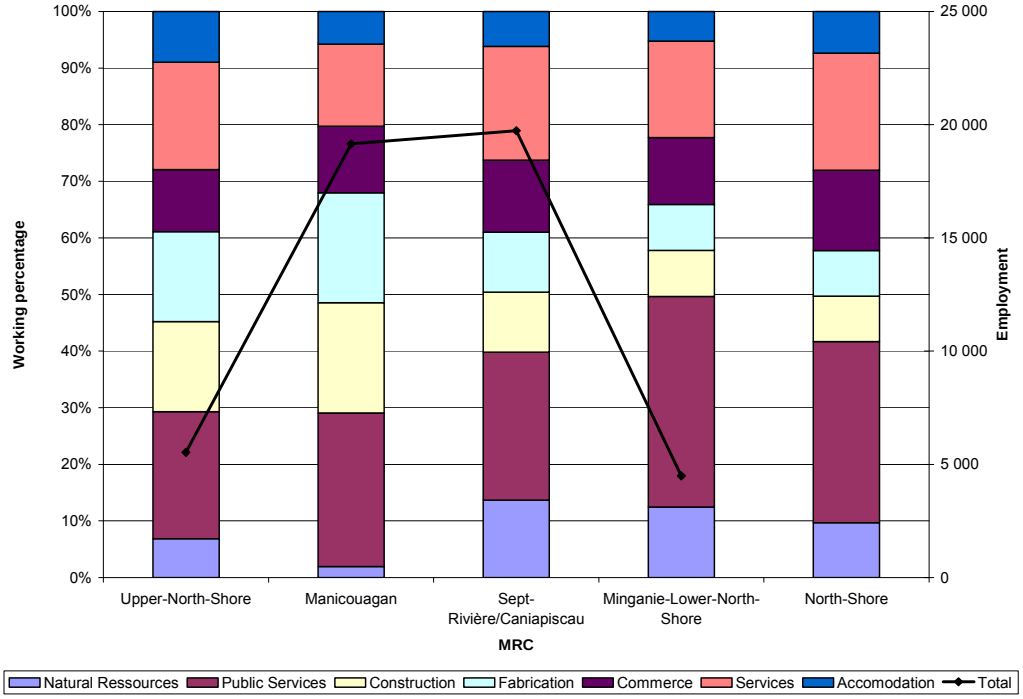
[27] Are considered public services SCIAN industrial sectors: Utilities (22), Educational Services (61), Health Care and Social Assistance (62) and Public Administration (91). However, those sectors are not entirely composed of gouverment jobs. Primary sector includes Agriculture, Forestry, Fishing and Hunting (11) and Mining and Oil and Gaz Extraction (21). Commerce includes Wholesale Trade (41) and Retail Trade (44-45). Sevicies include group 48, 49, 51, 52, 53, 54, 55, 56, 71 and 81.

Figure 13: Employment distribution in the Lower-St. Lawrence by industrial sectors, 2006



Source: Statistics Canada 2008, recensement 2006, special compilation DFO-P&E Québec

Figure 14: Employment distribution on the North-Shore by industrial sectors, 2006



Source: Statistics Canada 2008, recensement 2006, special compilation DFO-P&E Québec

3.1.2 Income

From 2003 to 2007, the disposable income per capita increased in all Quebec maritime regions. Only the region of Gaspésie–Magdalen Islands experienced an increase lower than the Quebec average, particularly the Rocher-Percé RMC. The Caniapiscau and Sept-Rivières RMCs have the highest disposable income per capita and also experienced the largest increase.

It is also in Gaspésie and Magdalen Islands RMCs that the proportion of economic dependence is highest, more than 250 % above the Quebec average. As far as maritime Quebec is concerned, only three RMCs of the North-Shore are above this average. The Rocher-Percé RMC is particularly dependent on transfer payments: for every segment of $100 of employment income, $72 comes from government support. The Quebec average is about $21. The disposable income per capita in the Gaspésie–Magdalen Islands increased more quickly than in the province as a whole during the last five years.

Natural resources remain an important economic activity for the remote regions and certain communities are dependent on such activity. The fishing, forestry, mining, agriculture and energy sectors can sometimes support an entire community, as is shown in Table 24.

Table 22: Disposable income per capita, by RMC, 2003 to 2007[28]

RMC	2003	2004	2005	2006	2007	Variation
			$			%
Lower-St. Lawrence	**17 853**	**18 792**	**19 187**	**19 717**	**20 869**	**17 %**
Kamouraska	17 418	18 432	18 504	19 020	19 872	14 %
La Matapédia	15 637	16 701	16 689	17 254	18 556	19 %
La Mitis	16 219	17 037	17 473	18 018	19 106	18 %
Les Basques	16 121	17 417	17 391	17 771	18 921	17 %
Matane	17 367	18 258	18 755	19 220	20 277	17 %
Rimouski-Neigette	19 838	20 628	21 462	22 058	23 374	18 %
Rivière-du-Loup	19 736	20 668	20 905	21 480	22 593	14 %
Témiscouata	15 446	16 463	16 719	17 052	18 110	17 %
Gaspésie–Magdalen Islands	**17 924**	**18 744**	**18 710**	**18 699**	**20 175**	**13 %**
Avignon	18 767	19 424	19 542	19 650	20 990	12 %
Bonaventure	17 530	18 203	18 180	18 199	19 619	12 %
La Côte-de-Gaspé	18 655	19 574	19 828	20 122	21 939	18 %
La Haute-Gaspésie	15 765	16 347	16 283	16 629	17 922	14 %
Le Rocher-Percé	16 965	17 595	17 459	17 191	18 439	9 %
Magdalen Islands	19 972	21 570	21 103	20 483	22 181	11 %
North-Shore	**27 772**	**29 515**	**29 955**	**30 868**	**33 762**	**22 %**
Lower-North-Shore	15 504	17 178	16 579	16 896	17 322	12 %
Caniapiscau	28 767	30 945	31 577	34 286	37 323	30 %
Upper-North-Shore	18 002	18 796	18 616	18 732	20 069	11 %
Manicouagan	21 771	22 843	23 205	23 828	26 003	19 %

[28] Disposable income per capita = Total Income – (Taxes + Government Paiements)

Minganie	20 581	21 647	21 200	22 130	23 305	13 %
Sept-Rivières	21 648	23 097	23 834	24 453	26 989	25 %
All of Quebec	**21 191**	**21 962**	**22 520**	**23 294**	**24 455**	**15 %**

Source: Institut de la statistique du Québec. 2008. *Banque de données des statistiques officielles sur le Québec (BDSO)*, [Online]. http://www.bdso.gouv.qc.ca

Table 23: Proportion of economic dependence, by RMC, 2002 to 2006[29]

	$ per $100 of employment income					Variation
RMC	2002	2003	2004	2005	2006	%
Lower-St. Lawrence	**30.95**	**30.9**	**29.94**	**31.45**	**33.22**	**7 %**
Kamouraska	29.16	30.88	29.5	31.87	34.91	20 %
La Matapédia	42.23	42.33	40.57	43.64	46.97	11 %
La Mitis	38.39	37.73	36.4	38.05	39.7	3 %
Les Basques	46.88	46.69	45.02	46.28	50.19	7 %
Matane	38.11	37.7	36.94	37.96	38.46	1 %
Rimouski-Neigette	22.88	23.11	22.96	23.79	24.93	9 %
Rivière-du-Loup	25.74	24.95	24.08	25.83	27.23	6 %
Témiscouata	39.1	39.17	36.55	38.5	41.73	7 %
Gaspésie – Magdalen Island	**48.55**	**47.54**	**46.78**	**49.9**	**52.79**	**9 %**
Avignon	42.92	44.32	40.95	42.96	45.25	5 %
Bonaventure	47.65	44.95	45.14	49.57	54.22	14 %
La Côte-de-Gaspé	37.44	37.67	36.65	39.06	40.13	7 %
La Haute-Gaspésie	60.77	61.37	59.07	63.29	65.54	8 %
Le Rocher-Percé	68.83	62.71	64.4	67.32	72.59	5 %
Magdalen Islands	41.73	41.78	41.7	44.92	47.31	13 %
North-Shore	**21.57**	**21.13**	**19.91**	**21.36**	**22.1**	**2 %**
Lower-North-Shore	53.51	51.1	50.96	53.74	52.38	-2 %
Caniapiscau	9.26	7.76	6.01	6.91	6.53	-29 %
Upper-North-Shore	39.38	37.45	35.65	37.63	40.78	4 %
Manicouagan	16.56	16.67	16.27	17.34	18.73	13 %
Minganie	32.33	33.13	29.01	32.06	31.71	-2 %
Sept-Rivières	19.66	18.97	17.51	19.08	19.31	-2 %
All of Quebec	**19.44**	**19.32**	**19.16**	**20.14**	**20.88**	**7 %**

Source: Institut de la statistique du Québec. 2008. *Banque de données des statistiques officielles sur le Québec (BDSO)*, [Online]. http://www.bdso.gouv.qc.ca

Table 24: Maritime communities dependent on natural resources, 2001

Communaute	Industry dependent	RMC	Population	Dependency Index
Baie-Trinité	Fishing	Manicouagan	604	32 %
Rivière-au-Tonnerre	Fishing	Minganie	415	59 %
Longue-Pointe-de-Mingan	Fishing	Minganie	505	44 %
Aguanish	Fishing	Minganie	343	44 %
North-Shore of Saint Lawrence Gulf	Fishing	Lower-North-Shore	1 183	44 %
Bonne-Espérance	Fishing	Lower-North-Shore	852	36 %
Percé	Fishing	Le Rocher-Percé	3 614	37 %
Sainte-Thérèse-de-Gaspé	Fishing	Le Rocher-Percé	1 165	88 %

[29] Proportion of economic dependance represents the amount of governmental transfer payments for each slice of $100 of employment income.

Grande-Rivière	Fishing	Le Rocher-Percé	3 556	33 %
Sainte-Germaine-de-l'Anse-aux-Gascons	Fishing	Le Rocher-Percé	1 126	62 %
Port-Daniel	Fishing	Le Rocher-Percé	1 559	36 %
Havre-Saint-Pierre	Mines	Minganie	3 291	50 %
Moisie	Mines	Sept-Rivières	930	44 %
Sept-Îles	Mines	Sept-Rivières	23 791	71 %
Galix	Mines	Sept-Rivières	671	61 %
Port-Cartier	Mines	Sept-Rivières	6 412	79 %
Franquelin	Mines	Manicouagan	378	70 %
Baie-Comeau	Mines	Manicouagan	23 079	44 %
Pointe-Lebel	Mines	Manicouagan	1 931	42 %
Pointe-aux-Outardes	Mines	Manicouagan	1 413	58 %
Fabreville	Energy	Manicouagan	3 748	38 %
Saint-Léandre	Agriculture	Matane	654	35 %
Padoue	Agriculture	La Mitis	285	75 %
Saint-Mathieu-de-Rioux	Agriculture	Les Basques	601	35 %
Saint-Éloi	Agriculture	Rivière-du-Loup	340	42 %
L'Isle-Verte	Agriculture	Rivière-du-Loup	1 519	38 %
Saint-Paul-de-la-Croix	Agriculture	Rivière-du-Loup	374	53 %
Saint-Georges-de-Cacouna	Agriculture	Rivière-du-Loup	674	36 %
Saint-Arsène	Agriculture	Rivière-du-Loup	1 156	31 %
Saint-Alexandre-de-Kamouraska	Agriculture	Kamouraska	1 849	59 %
Sainte-Helène	Agriculture	Kamouraska	946	44 %
Saint-Germain	Agriculture	Kamouraska	303	67 %
Kamouraska	Agriculture	Kamouraska	700	54 %
Saint-Denis	Agriculture	Kamouraska	474	31 %
Pointe-Lebel	Forestry**	Manicouagan	1 931	38 %
Pointe-aux-Outardes	Forestry	Manicouagan	1 413	30 %
Ragueneau	Forestry	Manicouagan	1 584	40 %
Chute-aux-Outardes	Forestry	Manicouagan	1 968	48 %
Rivière-Saint-Jean	Forestry	Minganie	287	43 %
Forestville	Forestry	Upper-North-Shore	3 748	36 %
Sainte-Anne-de-Portneuf	Forestry	Upper-North-Shore	922	34 %
Longue-Rive	Forestry	Upper-North-Shore	1 352	45 %
Les Escoumins	Forestry	Upper-North-Shore	2 106	34 %
Sacré-Cœur	Forestry	Upper-North-Shore	2 053	78 %
Grande-Vallée	Forestry	La Côte-de-Gaspé	1 309	33 %
Marsoui	Forestry	La Haute-Gaspésie	373	63 %
La Martre	Forestry	La Haute-Gaspésie	266	58 %
Sainte-Félicité	Forestry	Matane	1 256	33 %
Matane	Forestry	Matane	11 635	32 %
Saint-Adelme	Forestry	Matane	530	49 %
Saint-Luc-de-Matane	Forestry	Matane	839	63 %
Price	Forestry	La Mitis	1 800	46 %
Luceville	Forestry	La Mitis	1 351	39 %
Sainte-Luce	Forestry	La Mitis	1 478	47 %
Saint-Eugène-de-Ladrière	Forestry	Rimouski-Neigette	474	37 %
Esprit-Saint	Forestry	Rimouski-Neigette	453	69 %
Saint-Antonin	Forestry	Rivière-du-Loup	3 395	43 %

* This index is calculated based upon total employment income from primary and secondary industries related to one of the natural resource, compared to the total employment income from all industry within the community.

** Some communities too far away from the coast were excluded from this list.

Source: Natural Resources Canada. *Atlas du Canada*, [Online]. http://atlas.nrcan.gc.ca/site/francais/maps/economic/rdc2001

3.1.3 Gross Domestic Product

Maritime Quebec's share of industrial sectors in the provincial GDP was 5 % in 1997 and amounted to $8.7 B. Over the past few years, however, this proportion decreased, and was at 4.4% in 2006, which represents $11.5 B. The most important industrial sectors are primary resources and housing (according to the 1996 to 2007 average). Eighty-six percent of the GDP from the fishing and hunting sectors and 19 % of production in forestry comes from maritime Quebec.

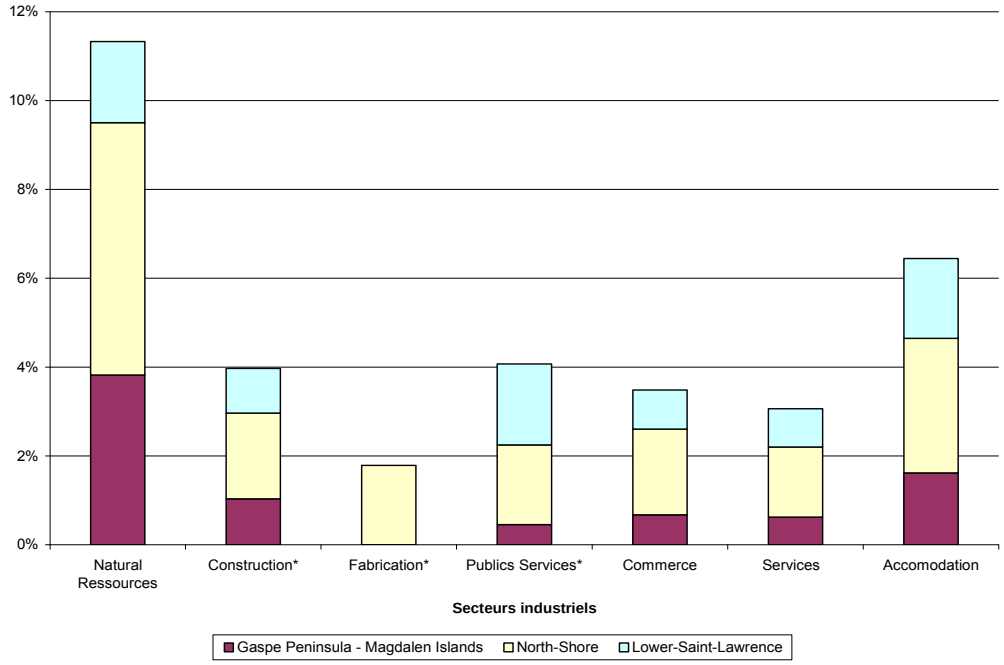
It is important to mention that certain data are not revealed for reasons of confidentiality. Certain values are therefore underestimated. It is for this reason that Figures 16 - 18 do not add up to 100 %.

Table 25: Evolution of GDP by administrative region, 1997 to 2006

	B$		Variation
Administrative Region	1997	2006	%
North-Shore	3.2	4.3	37 %
Gaspésie–Magdalen Islands	1.7	2.0	16 %
Lower-St. Lawrence	3.9	5.2	36 %
Maritime	8.7	11.5	32 %
All of Quebec	175.1	263.8	51 %

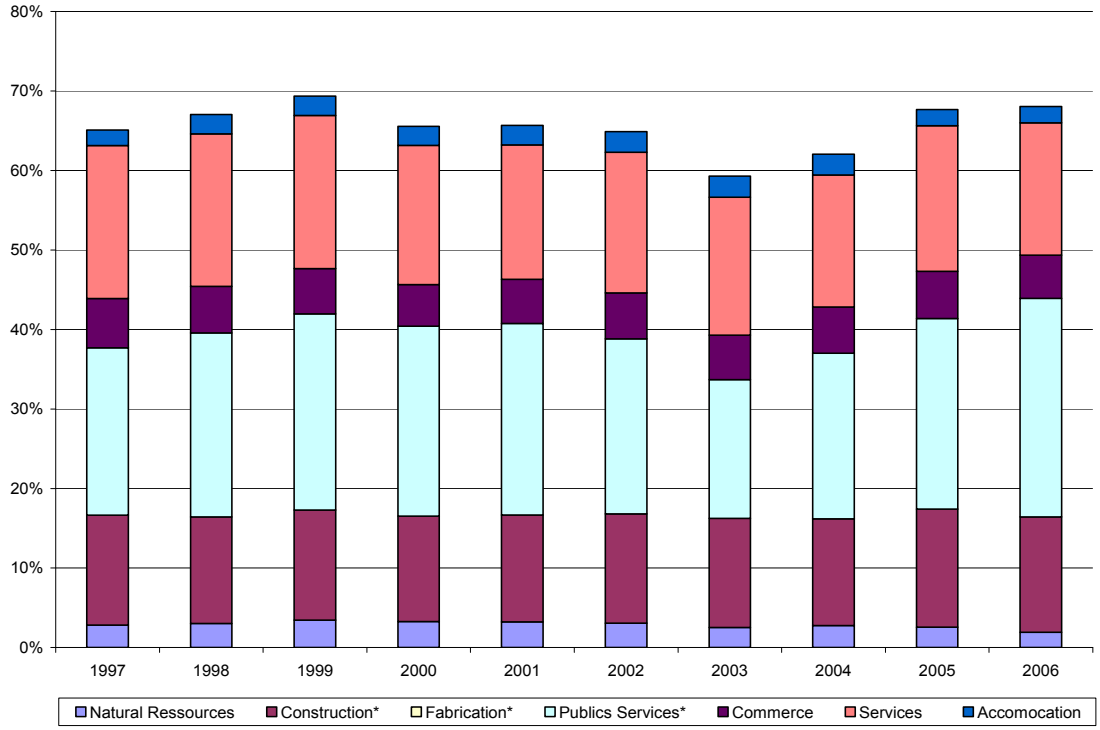
Source: Institut de la statistique du Québec. *Banque de données des statistiques officielles sur le Québec (BDSO)*, [Online]. http://www.bdso.gouv.qc.ca

Figure 15: Share of the maritime GDP in the Quebec economy by industrial sectors, according to administrative region, average from 1997 to 2006



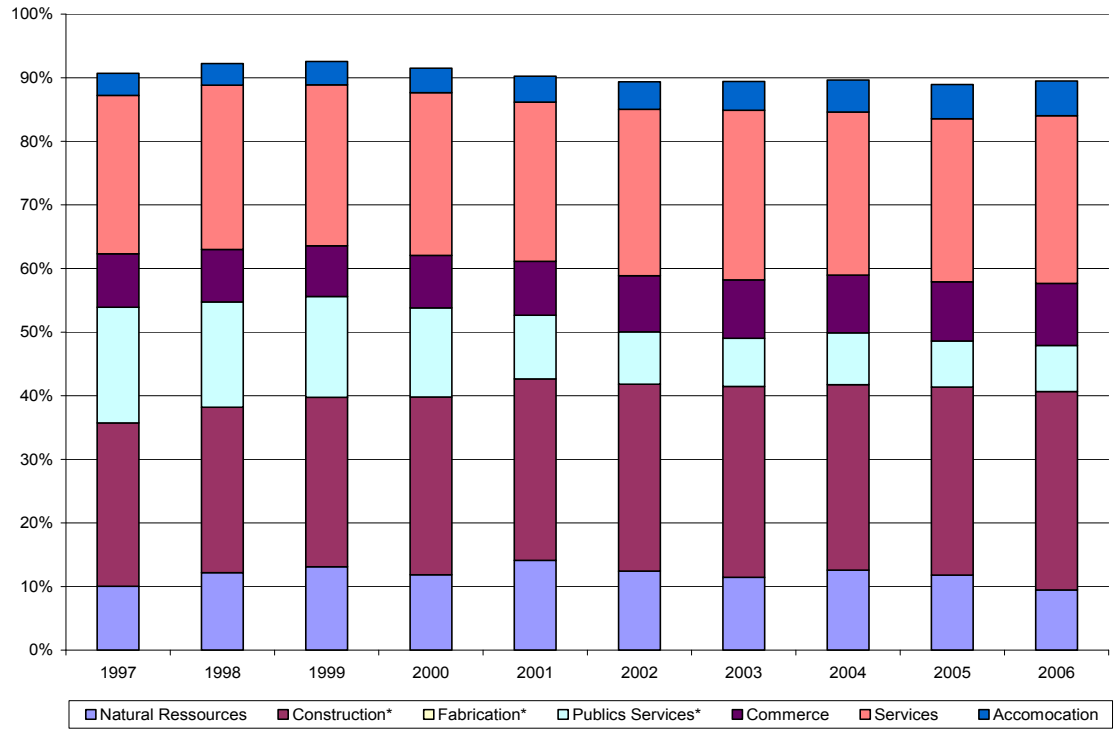
Source: Institut de la statistique du Québec. *Banque de données des statistiques officielles sur le Québec (BDSO)*, [Online]. http://www.bdso.gouv.qc.ca

Figure 16: GDP by industrial sectors, Lower-St. Lawrence, 1997 to 2006



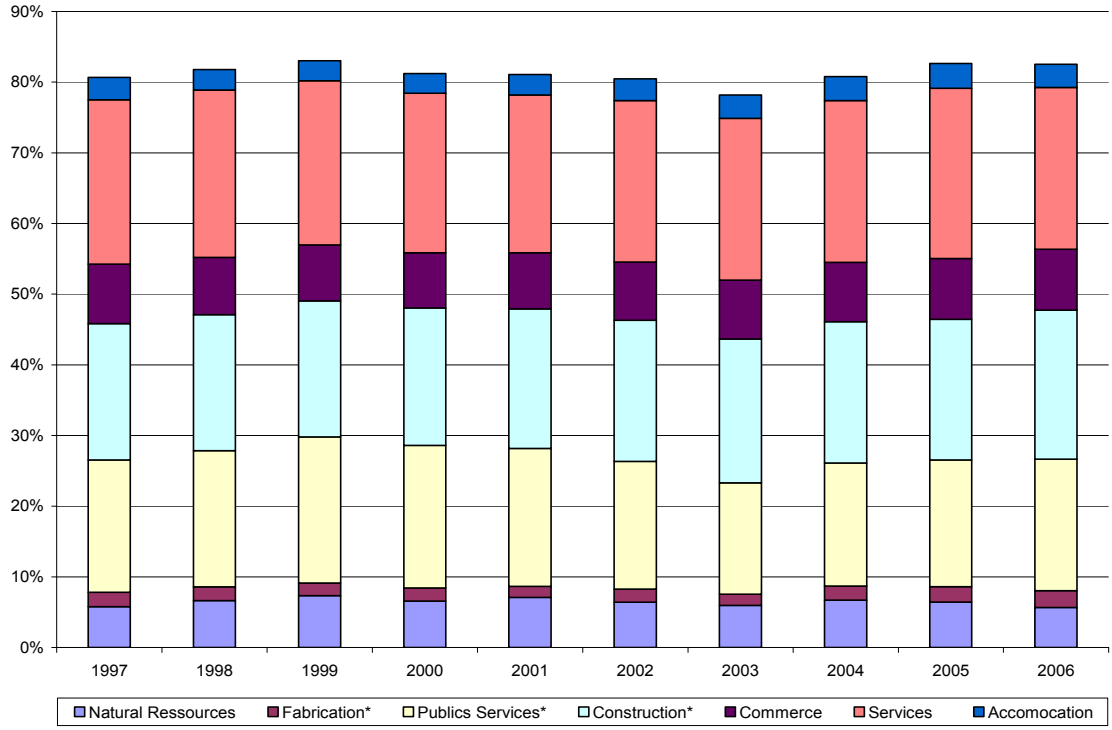
Source: Institut de la statistique du Québec. *Banque de données des statistiques officielles sur le Québec (BDSO)*, [Online]. http://www.bdso.gouv.qc.ca

Figure 17: GDP by industrial sectors, Gaspé-Magdalen Islands, 1997 to 2006



Source: Institut de la statistique du Québec. *Banque de données des statistiques officielles sur le Québec (BDSO)*, [Online]. http://www.bdso.gouv.qc.ca

Figure 18: GDP by industrial sectors, North-Shore, 1997 to 2006



Source: Institut de la statistique du Québec. *Banque de données des statistiques officielles sur le Québec (BDSO)*, [Online]. http://www.bdso.gouv.qc.ca

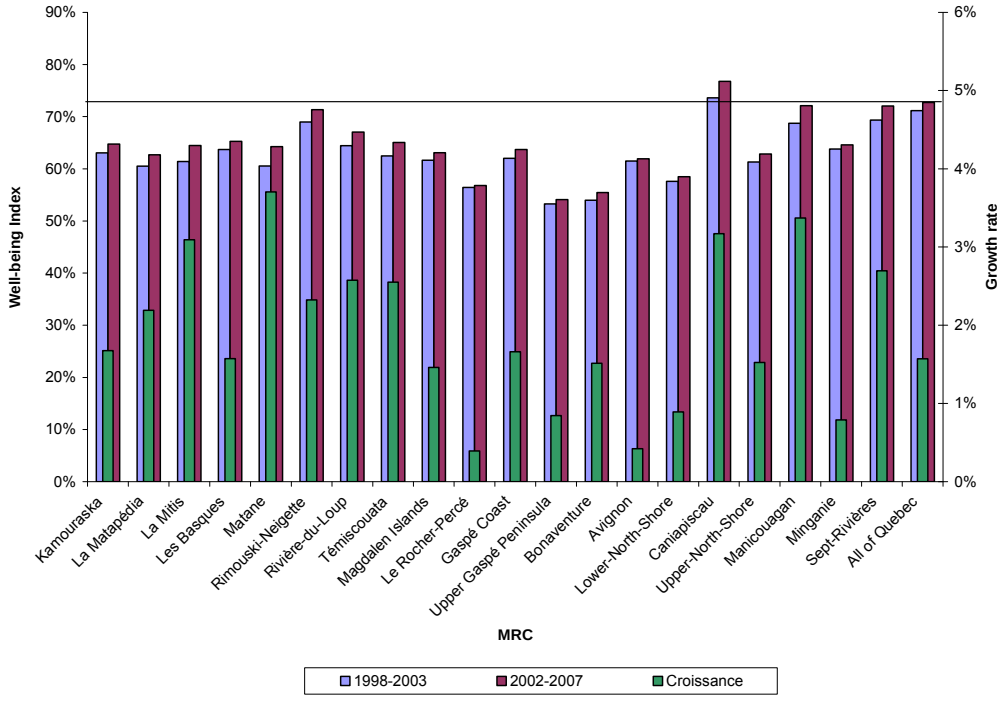
3.2 Well-Being Index in the RMCs

The index of well-being of the RMCs is based on the Human Development Index (HDI), but applied to a regional scale. This index allows one to combine several variables to better evaluate the overall quality of life in a community. To do this, five variables were compiled from the previous tables: disposable income per capita, job status (from the activity rate and the employment rate), proportion of people who only have a high school diploma and those who do not have one, proportion of people who consider themselves to be in good health and proportion of economic dependence. Each of these variables is converted into a value between 0 and 1 and accumulated into a weighted average (20 % for the five variables) to determine an overall result. Thus, every region can be compared simultaneously with the Quebec average, with regard to several variables, in order to obtain a more general view. A detailed table of the calculations is presented in the Appendix.

Since the data comes from various sources, it was necessary to group the data coming from different years to form two temporal series. Therefore, two periods of five years are presented: from 1998 to 2003 and from 2002 to 2007. It would have been preferable to use data coming from the same years to build this index.

It is in the Gaspésie–Magdalen Islands that one finds the weakest indexes, with an average of 59 % versus the Lower-St. Lawrence's 66 % and the North-Shore's 68%. All the riverside RMCs have lower overall results than the Quebec average.

Figure 19: Index of well-being in the RMCs



3.3 Housing

The economic prosperity of a region is directly connected to its investment in industrial capital. The North-Shore is the region of maritime Quebec where the level of investment is the highest, reaching more than $2 B in 2004. Gaspésie–Magdalen Islands receives the least. However, when one considers the public/private investment ratio from Table 26, one realizes that it is on the North-Shore that the government is most present. On average, 42 % of investments have been made there by public organizations over the last ten years, contrary to the Lower-St. Lawrence where this ratio is only 24 %. However, it is in the Lower-St. Lawrence that the investments in housing are highest. In general, the value of houses in the maritime regions has not increased as quickly as for the whole province of Quebec. Currently, the houses in these regions are resold, on average, for two times less than those in the rest of Quebec. The number of construction sites has also increased less rapidly. However, some have noticed an increase in the number of construction projects bordering the river.[30]

Table 26: Evolution of public and private investments by economic sectors, Eastern Quebec, 1998 to 2009

Lower-St. Lawrence (M$)							
Year	Totals	Public	Private	Primary	Secondary	Tertiary	Housing
1998	651	135	516	36	88	405	123
1999	726	157	569	83	86	443	115
2000	793	131	663	46	192	435	120
2001	512	118	393	57	66	263	126
2002	724	163	561	96	65	416	147
2003	685	139	546	49	72	392	171
2004	911	198	713	41	81	576	213
2005	945	187	758	49	103	576	217
2006	898	247	651	44	97	513	244
2007r	984	282	702	44	80	545	315
2008p	1 099	331	768	42	94	622	342
2009p	1 121	339	782	40	97	639	345
Gaspésie–Magdalen Islands (M$)							
Year	Totals	Public	Private	Primary	Secondary	Tertiary	Housing
1998	284	63	220	77	52	109	46
1999	200	63	137	38	14	113	34
2000	218	105	113	17	16	150	36
2001	233	111	123	9	11	170	43
2002	257	119	138	8	15	181	54
2003	311	129	182	13	47	187	64
2004	335	147	189	10	20	226	79
2005	492	107	385	18	26	358	89
2006	482	102	380	9	19	336	118
2007r	508	151	357	8	20	353	126
2008p	606	232	374	8	23	434	142

[30] Morneau, Michaud, Lecours, Côté and Roy, 2001

2009p	624	242	382	8	30	441	145
North-Shore (M$)							
Year	Totals	Public	Private	Primary	Secondary	Tertiary	Housing
1998	1 051	440	611	255	128	608	60
1999	1 283	375	908	451	127	649	55
2000	1 555	647	908	433	273	792	58
2001	1 588	1 018	570	341	88	1 118	41
2002	1 680	1 042	638	121	216	1 292	51
2003	2 044	1 266	778	219	143	1 622	60
2004	2 060	910	1 150	130	765	1 113	52
2005	1 001	314	687	184	296	449	72
2006	748	300	530	137	82	439	90
2007r	834	215	644	182	95	441	116
2008f	1 056	253	803	262	163	502	130
2009f	1 204	304	900	300	164	600	140

r: reviewed f: forecast

Source: Desjardins. *Desjardins études économiques régionales, volume 6; régions 1, 9, 10, 11*, [Online]. http://www.desjardins.com/fr/a_propos/etudes_economiques/conjoncture_quebec/etudes_regionales/

Table 27: Evolution of the housing market in Eastern Quebec, from 1996 to 2009

	Number of resales			Average resale price ($)			Construction			
Year	Maritime	Quebec	r	Maritime	Quebec	r	GMI	LSL	NS	QC
1996	304	39 135	0.008	64 925	95 589	0.68	43	582	127	23 220
1997	269	43 463	0.006	72 156	101 831	0.71	17	336	142	25 896
1998	607	45 192	0.013	59 227	103 991	0.57	21	374	88	23 138
1999	306	49 792	0.006	66 291	107 624	0.62	18	214	47	25 742
2000	486	54 160	0.009	67 215	111 686	0.60	5	155	16	24 695
2001	495	62 351	0.008	67 237	116 029	0.58	14	223	11	27 682
2002	650	68 161	0.010	68 529	131 576	0.52	13	233	18	42 452
2003	627	67 130	0.009	74 914	152 565	0.49	16	396	48	50 289
2004	716	69 296	0.010	74 717	171 455	0.44	18	460	25	58 448
2005	788	70 649	0.011	85 735	184 986	0.46	29	422	24	50 910
2006	1 169	72 520	0.016	98 922	194 205	0.51	82	318	37	47 877
2007	1 760	80 338	0.022	104 595	208 240	0.50	75	502	99	48 553
2008f	1 650	79 000	0.021	110 000	218 000	0.50	130	570	90	46 000
2009f	1 450	75 000	0.019	115 170	223 000	0.52	90	500	95	43 000
Variation 96-07	5.8	2.1		1.6	2.2		1.7	0.9	0.8	2.1

r: maritime/Quebec f: forecast

Source: Desjardins. *Desjardins études économiques régionales, volume 6; régions 1, 9, 10, 11*, [Online]. http://www.desjardins.com/fr/a_propos/etudes_economiques/conjoncture_quebec/etudes_regionales/

3.4 Research in the maritime industry

Scientific research is essential to develop new industries or to maintain the competitiveness of those already in place. Maritime Quebec has at its disposal several public and a few private research centres that support the maritime industry. On the whole, there are over one thousand people who work at more than twenty research centres or educational institutions situated mainly in Rimouski and Gaspé.

Furthermore, there are other research centres whose main objective does not directly deal with the maritime industry, but provides support for the activities that are tied to that industry:

- The Pointe-au-Père Aquaculture Laboratory of the University of Quebec at Rimouski (UQAR);
- The MAPAQ Food Technology Institute;
- The Specialized Centre of Physical Technology of the Cégep of La Pocatière;
- The Quebec Centre of Biodietary Development (CDBQ);
- The Les Buissons Research Center;
- The Salmonids Selection and Transfer Center (CTSS).

It is difficult to estimate the economic benefits of scientific research, either because certain establishments do not specialize solely in research, or because the subjects of studies are not all focused on the maritime sector. Certain research centers, such as the Groupe interuniversitaire de recherche océanographique du Québec (GIROQ), an oceanographic research group, are not situated in the maritime region but deal with issues connected to this sector. Furthermore, because operational budgets often come from governmental subsidies, it is difficult to present this information without double counting.

Table 28: List of institutes and research centers dealing with the maritime industry in maritime Quebec, 2006

Organisation	Employees	Principal activities
Teaching and Education		
UQAR	200	Many departments offer specialized and multidisciplinary degrees with a connection to the maritime field
IMQ	175	Technical education in navigation, ship repair, scuba diving and transportation logistics
CSP	57	College education in aquaculture and marine product transformation
Research Institutes		
ISMER	22	Research and education programs for graduate students in the fields of science and marine technology
IML	400	Federal research center specializing in marine sciences
Non-profit organization, venture capital		
SODIM	7	Financing venture capital
Research and Development (R-D) and technology transfers		

IM	25	CCTT in maritime technologies in safety, professional diving, transportation and maritime management
CIDCO	6	Application of geomatic methods and data
CRBM	29	R&D Center and biomarine technologies
CCTTP	22	CCTT in the fishing, aquaculture and transformation sectors
CAM	20	Provincial aquaculture research center
CTPA	14	Provincial research center dedicated to aquaculture development in Gaspé
CeMIM	18	Regional center that directs R&D activities that support the development of the aquaculture industry
STMIM	15	Supports development of new procedures and products in fishing firms and seafood transformation firms
CATE	6	Private research center dedicated to the aquaculture development on the North-Shore
CANS	4	Committee favoring aquaculture development on the North-Shore
Development of labor competencies		
CSMOPM	7	Committee favoring the development of business competencies in fishing, aquaculture and transformation
RMQ	1	Association dedicated to defending the interests of aquaculture firms
Promoting innovation		
TMQ	3	Business network of the principal participants in the maritime sector, who are charged with favoring and promoting development of the sector at the national and international levels
Total	1031	

CACN : Centre aquacole de la Côte-Nord; **CAM** : Centre aquacole marin; **CATE** : Centre d'aide technologique aux entreprises; **CCTT** : Centres collégiaux de transfert de technologie; **CCTTP** : Centre collégial de transfert technologique des pêches; **CIDCO** : Centre interdisciplinaire de développement en cartographie des océans; **CRBM** : Centre de recherche sur les biotechnologies maritimes; **CSMOPM** : Comité sectoriel de la main-d'oeuvre des pêches maritimes; **CSP** : Centre spécialisé des pêches; **TMQ** : Technopole maritime du Québec; **CTPA** : Centre technologique des produits aquatiques; **IM** : Innovation maritime; **IML** : Institut Maurice-Lamontagne; **IMQ** : Institut maritime du Québec; **ISMER** : Institut des sciences de la mer; **RMQ** : Regroupement des mariculteurs du Québec; **SODIM** : Société de développement de l'industrie maricole; **STMIM** : Station technologique maricole; **UQAR** : Université du Québec à Rimouski; **CeMIM** : Centre Maricole des Îles-de-la-Madeleine.

Source: Doloreux and Melançon, 2006

3.5 Investments in the maritime economic sector

Over the past ten years, more than $56 M has been invested in improving research and training capacities of institutions and to organizations supporting economic development in the Quebec maritime industry.[31]

The last development plan for the maritime industry comes from the ACCORD 2006 Project (Concerted Action for Regional Cooperation and Development) introduced by the Quebec government, aiming to develop a niche of excellence, "Resources, sciences and marine technologies," for the regions of maritime Quebec. The four aspects in approaching this niche are the fields of marine products (harvest and transformation of the resource), aquaculture, marine biotechnologies and marine technologies. It should allow the engendering of private investments close to $330 M over five years in the three regions of maritime Quebec. This project is the outcome of numerous attempts to boost an economy that works in slow motion compared to the rest of Quebec. Other niches of excellence will also be developed in these regions.[32]

Table 29: Niches of excellence of the ACCORD project for the regions of maritime Quebec

Administrative Region	Niche of excellence	
Lower-St. Lawrence	Resources, sciences and marine technologies	Encourage peat and agro-environmental technologies
Gaspésie	Resources, sciences and marine technologies	Recreational tourism, health / nature, wind power
North-Shore	Resources, sciences and marine technologies	Engineering of industrial processes, mines and metallurgy

Source: Ministère du Développement économique, de l'Innovation et de l'Exportation (MDEIE). Développement régional. *Projet Accord*, [Online]. http://www.mdeie.gouv.qc.ca/index.php?id=2467

Furthermore, massive investments on the order of $100 M will be realized to encourage the development of the international cruise industry over five years. These investments should be assured through a partnership between the Quebec and Canadian governments and local communities. The Quebec government's contribution towards the implementation of this strategy is $52.5 M.[33]

In 2007, the Fishing Technological Service Program (STEP), acting as technological support to fishing companies, was created by MAPAQ and Economic Development Canada due to a fund of $8.5 M.[34]

[31] MDEIE, 2006a
[32] MDEIE, http://www.mdeie.gouv.qc.ca/index.php?id=2467
[33] Fisheries and Oceans Canada, 2008c
[34] Technopole maritime du Québec, http://www.tmq.ca/bulletin/pdf/bulletin_printemps2007.pdf

Table 30: Minimum investment necessary for the realization of the 2006 to 2011 action plan of the Resources, maritime sciences and technologies niche, by field

Field	M$
Aquaculture	86.9
Biomarine technologies	35.1
Capture and transformation	85.0
Marine technologies	53.1
Commun costs	68.4
Total	328.5

Source: Charest, J. and M. Poulin. 2007. *La formation de la main-d'œuvre dans une perspective de développement économique régional. Examen du rôle des politiques publiques, des ressources de soutien, du partenariat et des entreprises dans cinq régions du Québec*.

Strategic Regional Initiative (federal)

The policy of the Strategic Regional Initiative of the Minister of Economic Development aims to increase the regional technological capacity in order to encourage the use of technologies more suited to businesses. The project induced investments of more than $65 M in the maritime industry and contributed to the creation of several organizations (CRBM, CIDCO, TMQ, OGSL, IM, Oceanova).[35]

[35] Doloreux and Melançon, 2006

3.6 Fisheries

Commercial fishing in Quebec employed 10,000 people in 1991 and put about 2,500 vessels to sea. These jobs, in the fishing sector as well as in fish transformation, were the soul of certain communities, such as on the Lower-North-Shore, where 80 % of jobs were connected with commercial fishing. Other regions, such as the Magdalen Islands (46 %) or the Gaspésie (25 %), were also largely dependent upon this industry. Fishing revenues reached $74 M in 1990 and those of the transformation industry reached $200 M in the same year.[36]

Since the stock collapse of groundfish at the beginning of the 1990's, the socioeconomic characteristics of these regions have changed drastically. The number of fishing vessels and fishers have decreased by half and the regions formerly dependant on fisheries have experienced a population exodus because of the lack of jobs. The average age of fishers is constantly increasing, as is the average age of vessels. The commercial fishing industry employs 3,000 fishers and assistant-fishers, 4,500 factory workers and 500 seal hunters.

However, the total value of landings almost doubled from 1991 to 2007 due to the price increase of lobster and the quantities of snow crab and shrimp landed. The main fleets supporting the commercial fishing industry today are mostly involved in mollusks and crustacean (snow crab, shrimp, lobster, scallop, common crab, buccin, etc.). Greenland halibut fishing is also important in the region. The fishers in trouble following the moratoriums on groundfish are restricted in their catch allowance, but continue to practice this kind of fishing and are also supported by temporary snow crab or shrimp allowances. These two species were chosen because they were the most lucrative and the most able to support a certain degree of redistribution. Lobster fishing, although very lucrative, is the fishery on which the largest number of fishers already depends, with about 600 licences.

The most important fishing ports are Rivière-au-Renard, Grande-Entrée and Sainte-Thérèse-de-Gaspé. The mean value of the total landings of these ports amounted to $42 M between 1998 and 2006. This level differs however according to species.

3.6.1 Governance

In Quebec, as elsewhere in the country, it is the federal government that is responsible for the regulation of activities surrounding the commercial fishing of maritime species and the hunting of marine mammals. This responsibility rests with the Department of Fisheries and Oceans Canada (DFO), which uses The Fisheries Act and its regulations to carry out this task.

[36] Département de géographie, Université Laval, 1992

Activities related to commercial fisheries affecting the different kinds of fresh water, anadromous and catadromous, such as the distribution of licences, are regulated by the Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec (MAPAQ).

The aims of the MAPAQ with regard to commercial fisheries are[37]:

- To work in the general location of the fishing industry in the maritime regions and the internal waters;
- To increase the industry's capacity for continuous adaptation;
- To insure the equivalence of supply and demand for commercial aquatic products.

Furthermore, numerous agreements between Canada and Quebec have been signed by these two ministries (and other participants) to insure better fisheries management in Quebec[38]:

- Canada-Quebec Agreement for the development of fishing (1984);
- Agreement protocol concerning the harmonization of the maritime product inspection programs (1990);
- Agreement protocol of harmonization of fisheries research and technological development programs (1990);
- Canada-Quebec Agreement concerning the transition program for fisheries workers (PTTP), (1995);
- Agreement for the harmonization of statistics management for commercial fisheries in Quebec, between the DFO and the MAPAQ (1996);
- Agreement concerning intergovernmental cooperation in fisheries and aquaculture (1999);
- Cooperation agreement for the protection and reestablishment of endangered species in Quebec (2007);
- Quebec-New-Brunswick Agreement of cooperation relative to commercial fisheries and aquaculture (1992);
- Canada-Quebec Agreement relative to fisheries administration in the navigable waters of Quebec accessible by sea (1922);
- Protocol of agreement between the DFO and Transport Canada concerning the safety of commercial fishers at sea (2006).

The MAPAQ legislates the commercial activities of the fishing sector according to these laws:

- Act respecting the Accreditation Bureau of Fishers and Fishers-Assistants of Quebec;
- Act on Commercial Fisheries Financing;
- Act on Commercial Fisheries and Aquaculture;

[37] MAPAQ, http://www.mapaq.gouv.qc.ca/fr/accueil
[38] Unisféra, 2006

- Act on the national merit of fishing and aquaculture;
- Act on Commercial Fisheries and Commercial Harvest of Aquatic Vegetation;
- Act on the Minister of Agriculture, Fisheries and Food
- An Act respecting threatened or vulnerable species;

Non governmental governance

In Quebec, there are more than sixty fishers' associations distributed among the different administrative regions along the Gulf and are defined according to the types of fishing (coastal, deep-sea, species, etc.). The other participants also play a role, such as the Fisheries and Aquaculture Network of Quebec, which coordinates various maritime tables and the sector-based Committee of maritime fishing workers. A more complete, but not exhaustive, list is presented in the Appendix.

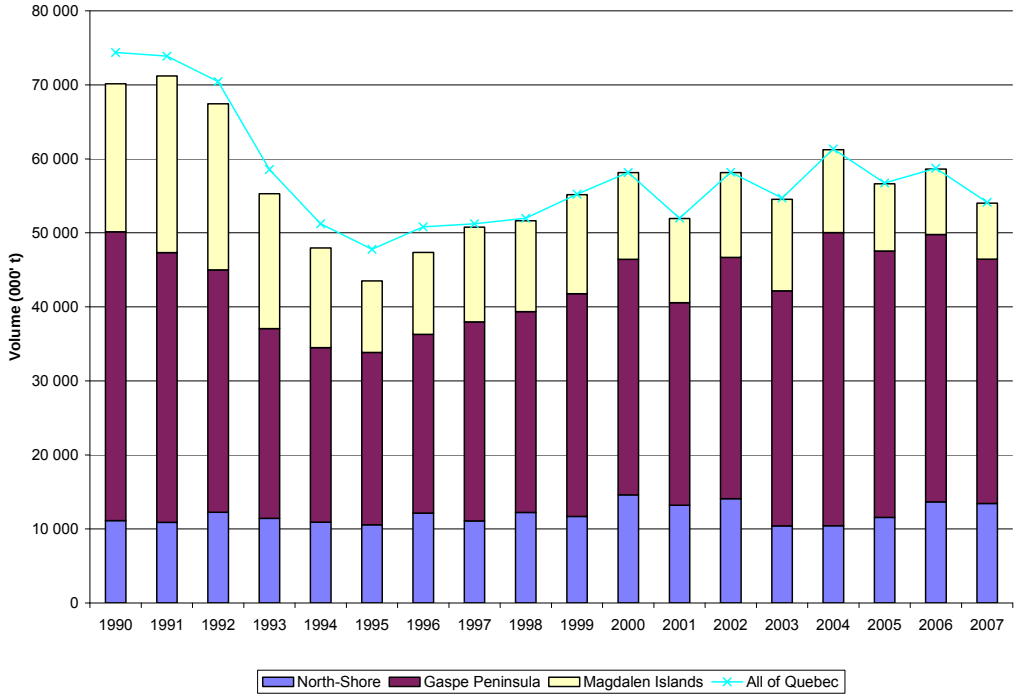
3.6.2 Trends

The graphs in this section present the statistics of resource harvesting activities in the DFO maritime sectors as presented in Figure 3, according to a grouping of standard species.

The most important species in terms of values are snow crab, lobster and shrimp. The total value of landings in Quebec in 2007 was more than $140 M, while it was only $75 M in 1990, during the stock collapse of groundfish. The increase in lobster prices, as well as the increase of shrimp landings and positive recruitment cycles of snow crab were determining factors for this improvement. However, the number of participants decreased sizeably during the same period, going from more than 2,500 in 1984 to about 1,200 in 2007. This decline in the number of fishers entailed a similar decrease in the number of registered vessels. Overall, there seem to be fewer and fewer young fishers in the industry.

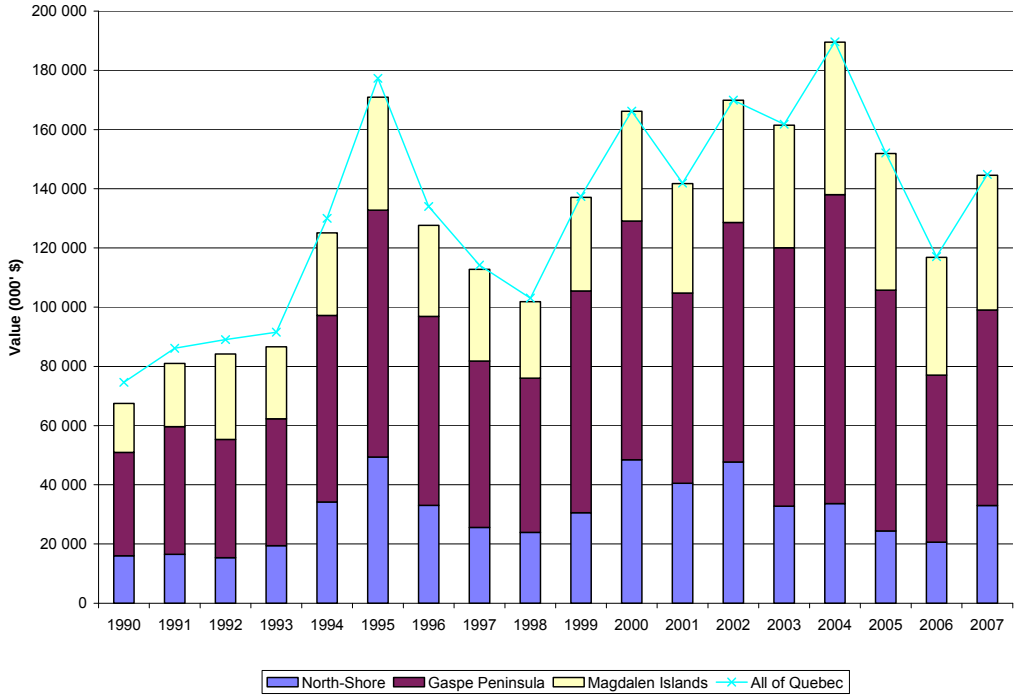
On average, since 1990, Gaspésie (49 %) has had the highest value of landings, followed by the Magdalen Islands (26 %) and the North-Shore (23 %). This proportion is constant with small variations in every sector. On average, in Gaspésie, the most important fishery in terms of value is snow crab (40 %), followed by shrimp and lobster. On the North-Shore, crab is also the most important species, but in a higher proportion (69 %). In the Magdalen Islands, it is lobster that dominates (67 %), whereas no shrimp are landed there. Little fishing is done in the Saint Lawrence sector.

Figure 20: Evolution of total landings in Quebec, in volume, 1990 to 2007



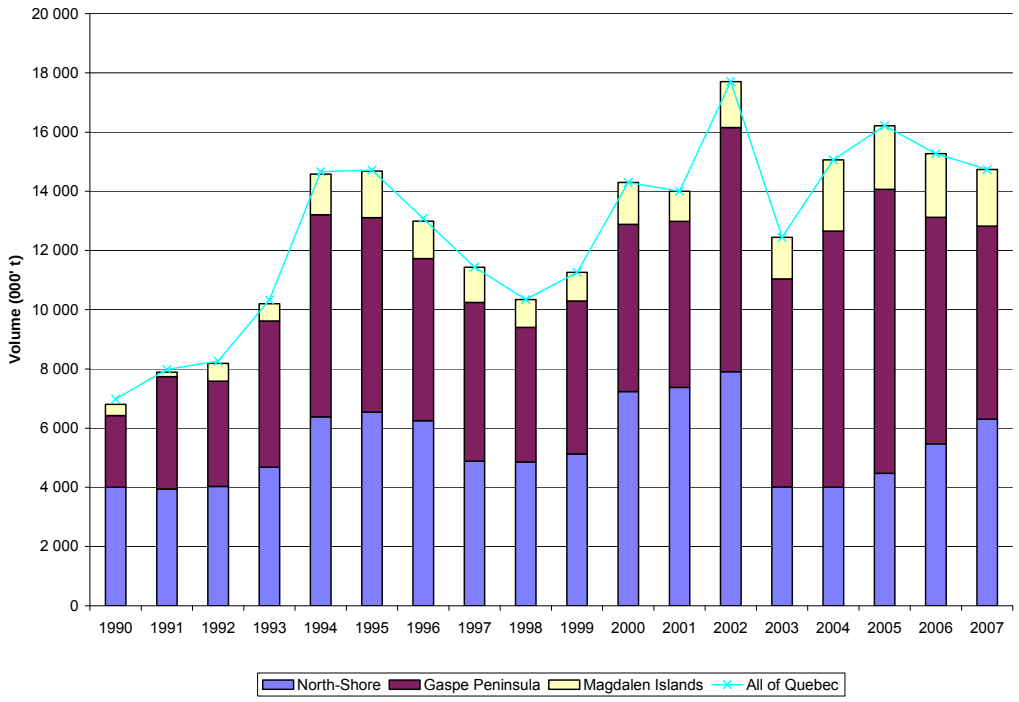
Source: Statistics Division, DFO-Québec, special compilation P&E, 2008

Figure 21: Evolution of total landings in Quebec, in value, 1990 to 2007



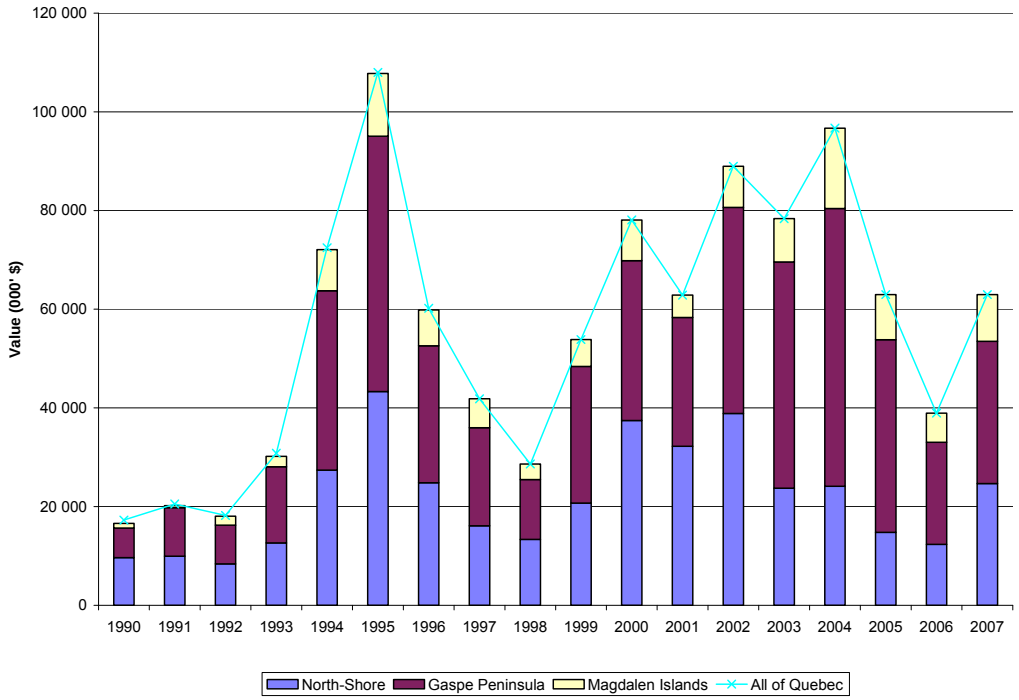
Source: Statistics Division, DFO-Québec, special compilation P&E, 2008

Figure 22: Evolution of snow crab landings in Quebec, in volume, 1990 to 2007



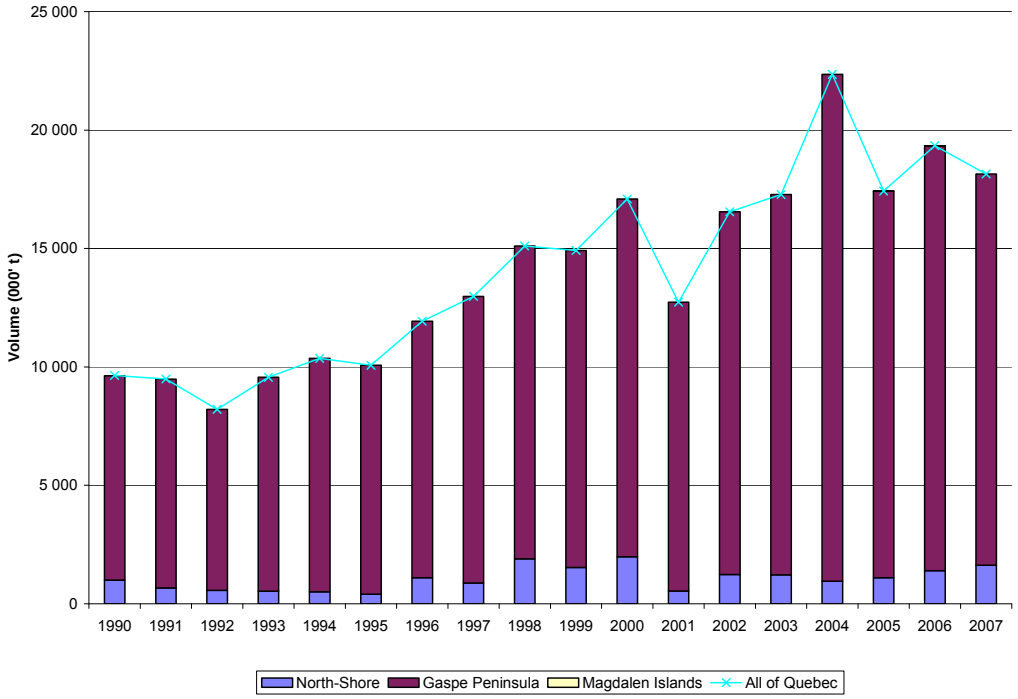
Source: Statistics Division, DFO-Québec, special compilation P&E, 2008

Figure 23: Evolution of snow crab landings in Quebec, in value, 1990 to 2007



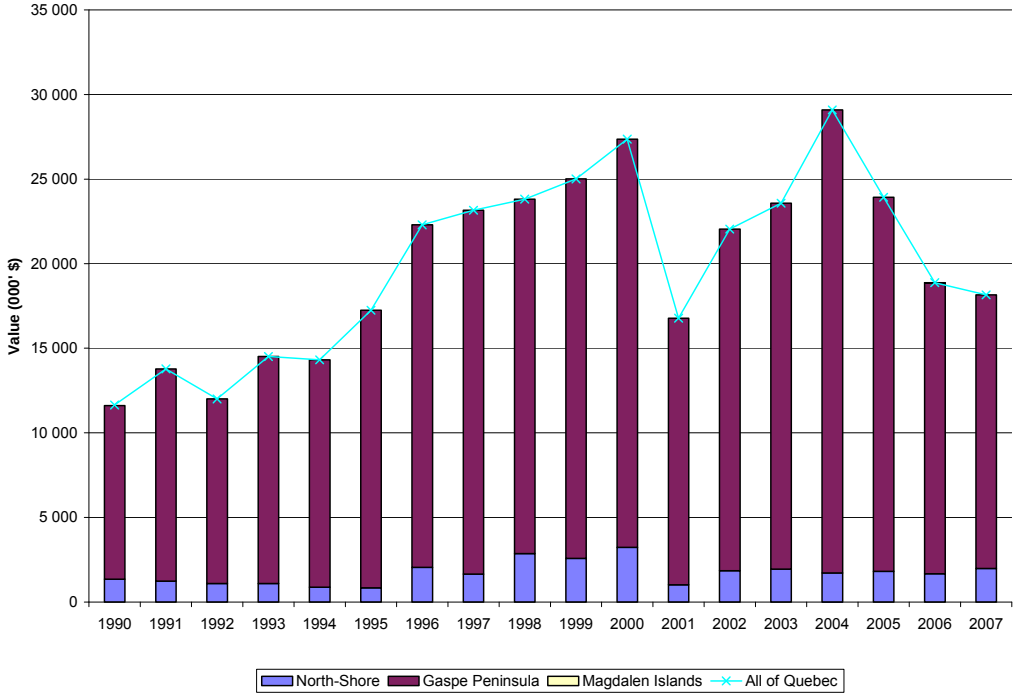
Source: Statistics Division, DFO-Québec, special compilation P&E, 2008

Figure 24: Evolution of shrimp landings in Quebec, in volume, 1990 to 2007



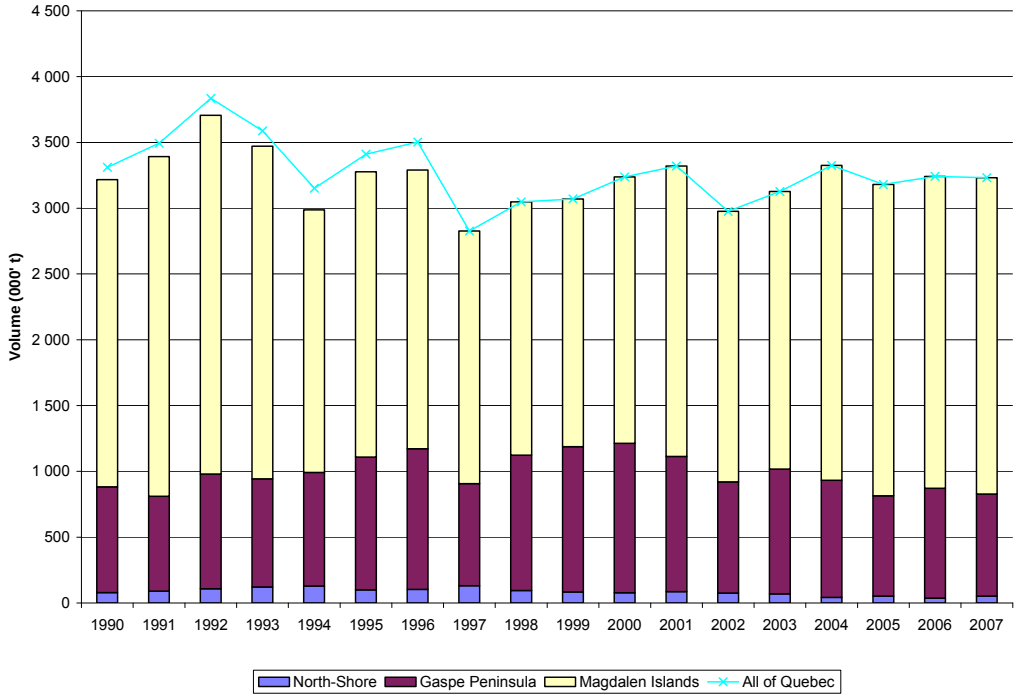
Source: Statistics Division, DFO-Québec, special compilation P&E, 2008

Figure 25: Evolution of shrimp landings in Quebec, in value, 1990 to 2007



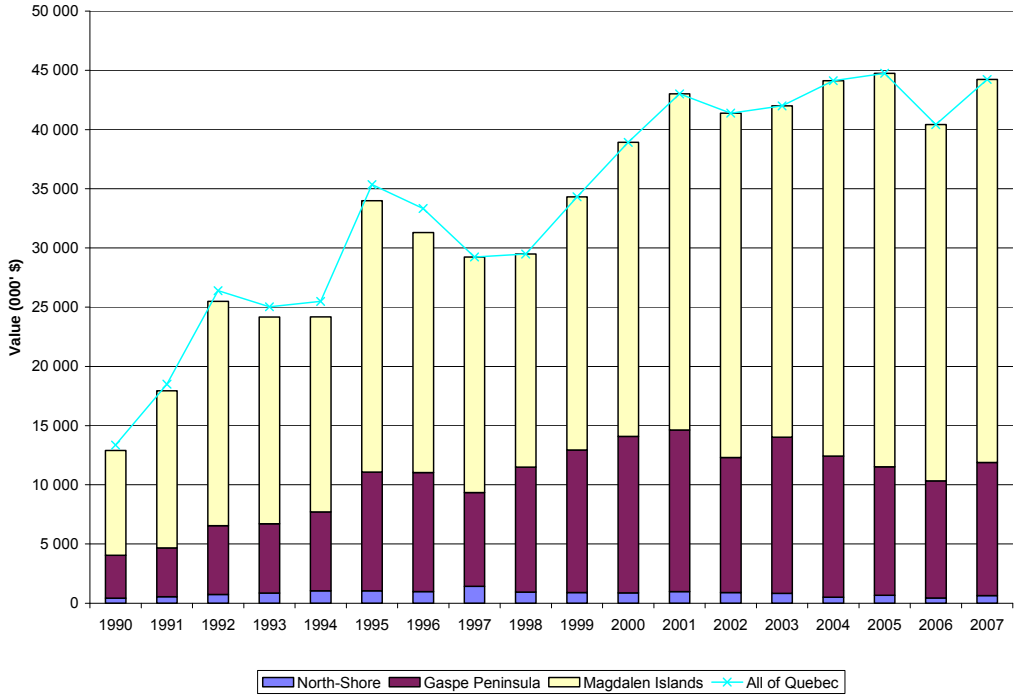
Source: Statistics Division, DFO-Québec, special compilation P&E, 2008

Figure 26: Evolution of lobster landings in Quebec, in volume, 1990 to 2007



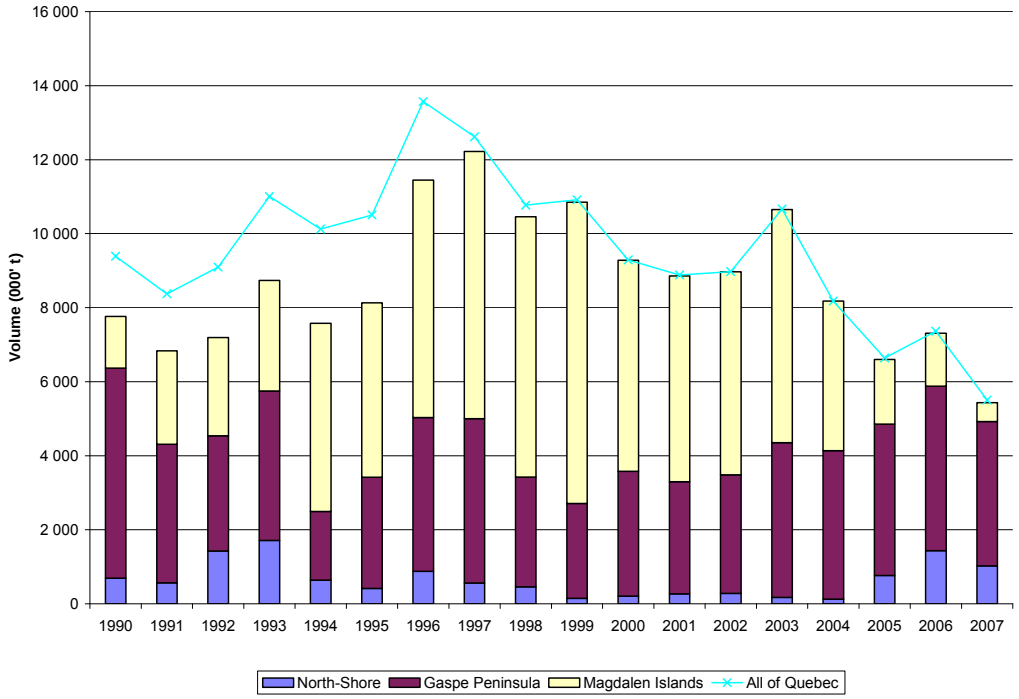
Source: Statistics Division, DFO-Québec, special compilation P&E, 2008

Figure 27: Evolution of lobster landings in Quebec, in value, 1990 to 2007



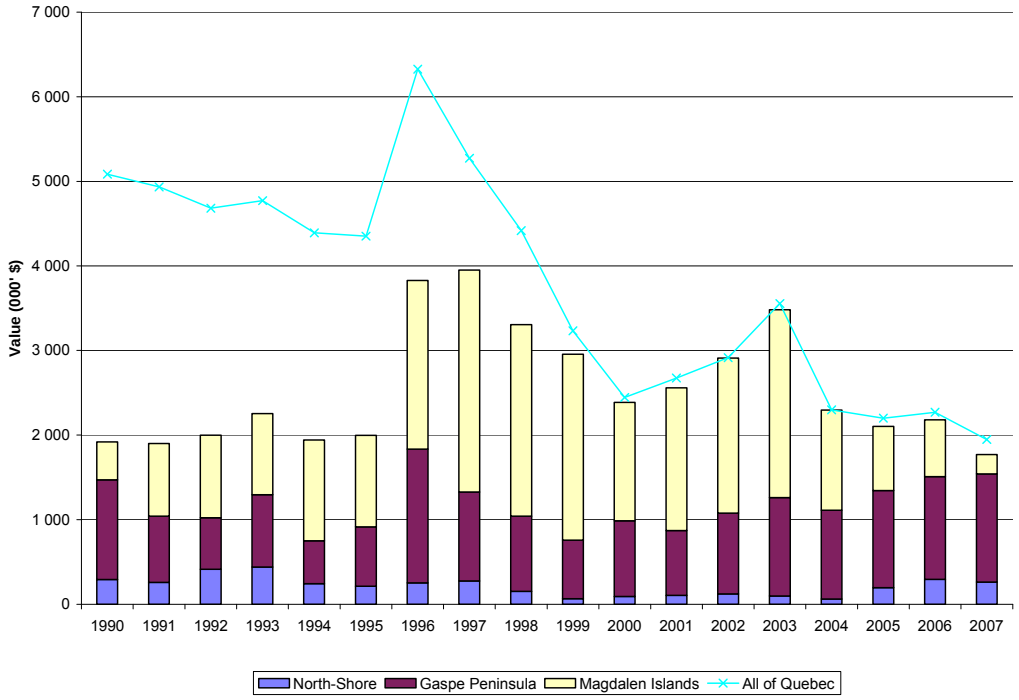
Source: Statistics Division, DFO-Québec, special compilation P&E, 2008

Figure 28: Evolution of the landings of pelagic species in Quebec, in volume, 1990 to 2007



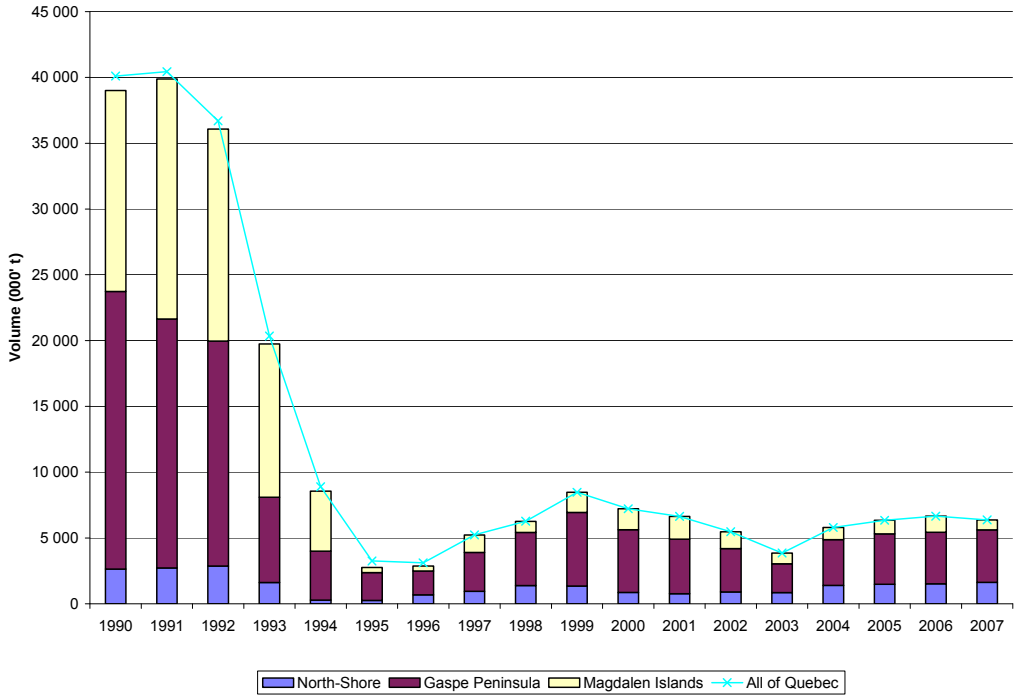
Source: Statistics Division, DFO-Québec, special compilation P&E, 2008

Figure 29: Evolution of the landings of pelagic species in Quebec, in value, 1990 to 2007



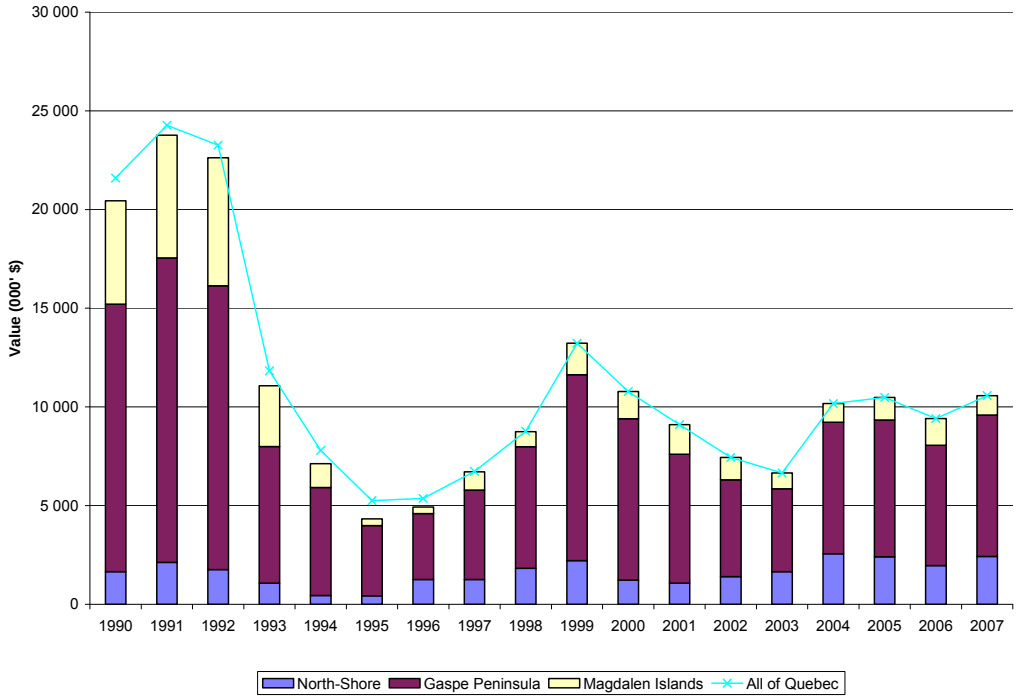
Source: Statistics Division, DFO-Québec, special compilation P&E, 2008

Figure 30: Evolution of groundfish landings in Quebec, in volume, 1990 to 2007



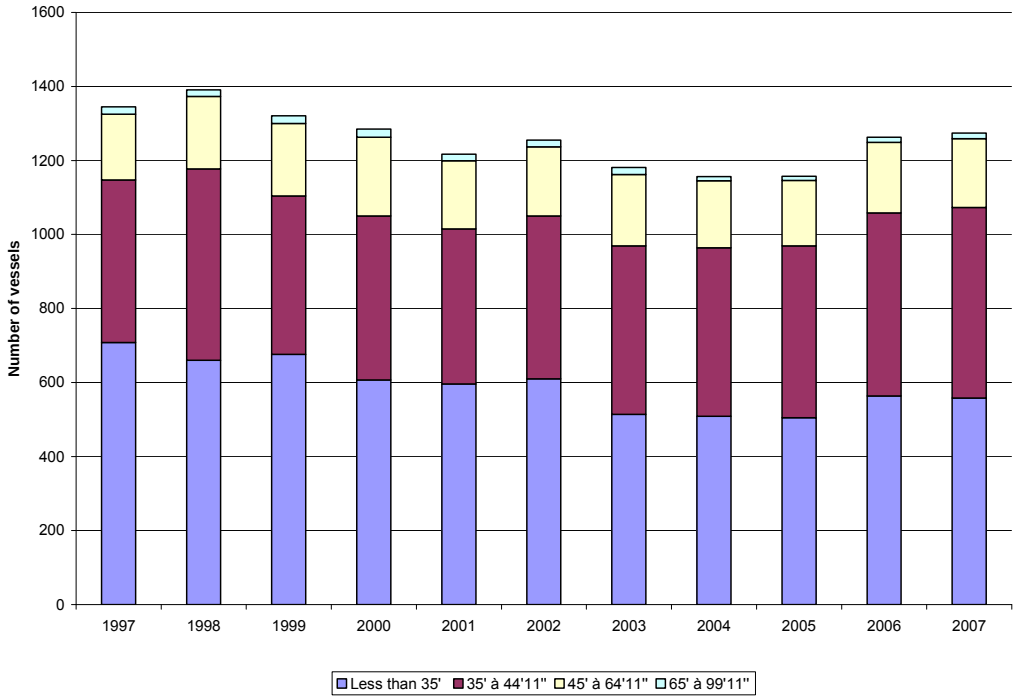
Source: Statistics Division, DFO-Québec, special compilation P&E, 2008

Figure 31: Evolution of groundfish landings in Quebec, in value, 1990 to 2007



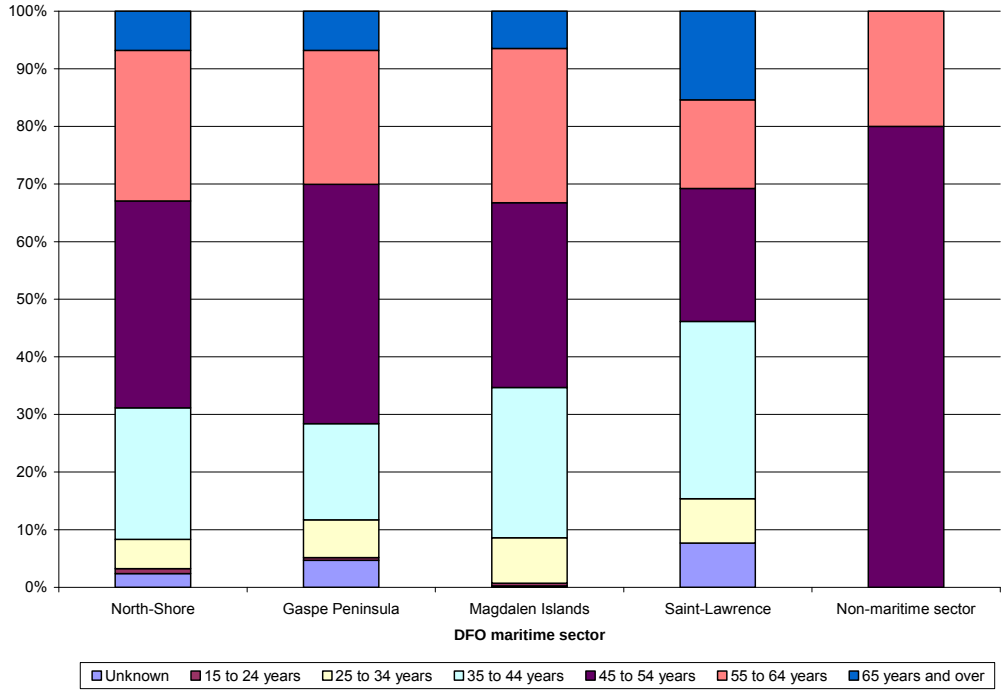
Source: Statistics Division, DFO-Québec, special compilation P&E, 2008

Figure 32: Evolution of the number of active vessels in Quebec, according to size, 1997 to 2007



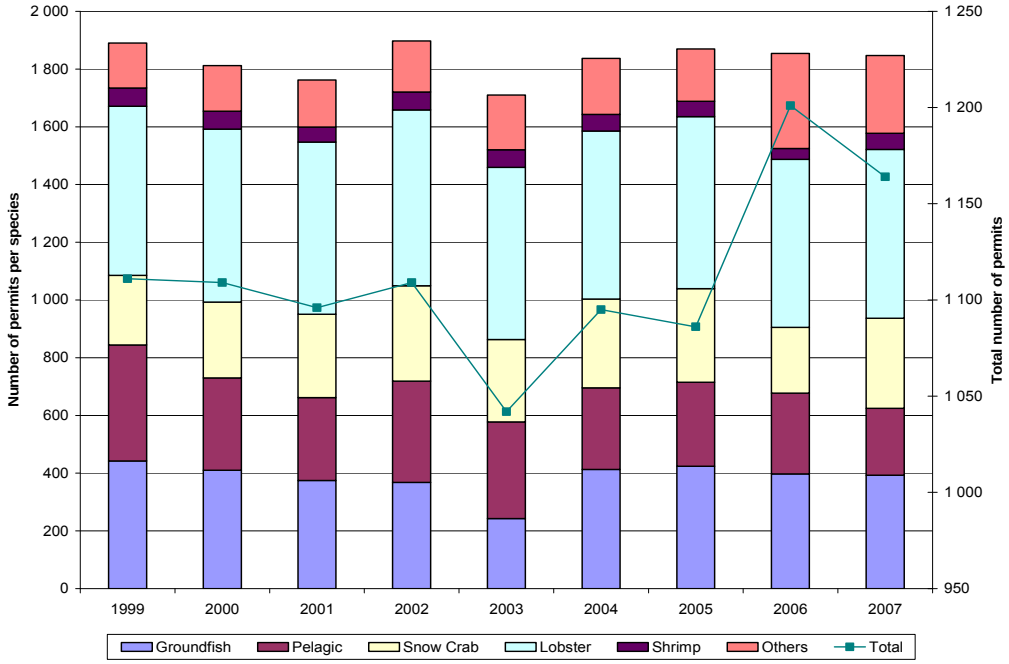
Source: Statistics Division, DFO-Québec, special compilation P&E, 2008

Figure 33: Distribution of active fishers according to age, by marine sector, 2007



Source: Statistics Division, DFO-Québec, special compilation P&E, 2008

Figure 34: Number of active licence holders registered and unregistered, with landings by species, 1999 to 2007[39]



Source: Statistics Division, DFO-Québec, special compilation, P&E, 2008

Table 31: Evolution of the number of assistant fishers in Quebec, 2004 to 2007

	2004	2005	2006	2007p
Fishers Assistants [e]	1871	1873	1817	1822

Source: Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec (MAPAQ). 2009. *Profil sectoriel de l'industrie bioalimentaire du Québec, edition 2008.*
e: estimated p: preliminary

Table 32: List of the five most important fishing ports according to the landing average, 1998 to 2007, by species

Species/Ports	Average K$ (1998-2007)
Groundfish	
Rivière-au-Renard	1 696
Cloridorme	852
Sainte-Thérèse -de-Gaspé	809
Cap-aux-Meules	769
Grande-Rivière	626
Pelagic species	
Grande-Entrée	391
Cap-aux-Meules	341
Grande-Rivière	333
L'Étang-du-Nord	183
Grosse-Île	177
Lobster	

[39] Active registered licence holders refers to everyone enlisted at the Bureau d'accréditation des pêcheurs et aides-pêcheurs du Québec (BAPAQ) and who handles liscenced fishing gear. This definition excludes assistant fishermen. Non registered liscence holders include firms, mollusc harvesters, First Nation fishermen, successions and bougth-back licences.

	Grande-Entrée	9 308
	Cap-aux-Meules	3 150
	Grosse-Île	3 110
	Pointe-Basse	2 978
	L'Étang-du-Nord	2 752
Shrimp		
	Rivière-au-Renard	15 137
	Sainte-Anne-des-Monts	2 824
	Matane	2 672
	La Tabatière	1 119
	Sept-Îles	584
Snow Crab		
	Sainte-Thérèse -de-Gaspé	9 673
	Paspébiac	4 967
	Cap-aux-Meules	4 946
	Sept-Îles	3 774
	Rimouski-Est	3 544
Total		
	Rivière-au-Renard	19 604
	Grande-Entrée	11 521
	Sainte-Thérèse -de-Gaspé	11 437
	Cap-aux-Meules	9 581
	Paspébiac	5 415

Source: Statistics Division, DFO-Québec, special compilation P&E, 2008

Ghost Fishing

Other than commercial catch and poaching, there is another activity that harvests the resource. One speaks of ghost fishing when equipment is lost at sea but continues fishing. A study made on the Lower-North-Shore suggests that losses associated with lost nets are small.[40] These equipments lose their harvesting capacity quickly and are not very numerous since the 1994 moratorium, which limits fishing capacity. This is, however, regional data and conclusions could be different in other regions and for different fisheries (such as turbot fishing). Another study indicates that lost chain nets would also capture snow crab, which would be attracted by dead captured fish.[41]

However, the situation is different with crab traps. It would seem that traps continue to fish continuously when they are lost at sea. Because of crab's cannibalism and thus, self-baiting, traps continue to attract other crabs. Since the traps are made of non-biodegradable materials, there is no chance of escape for the crabs. It is estimated that traps lost at sea can have an impact on the resource, especially on a population that is already in decline. These lost traps come from commercial fishing as well as poaching.

Another impact of ghost fishing is that they negatively affect navigation. Ends of rope or buoys can damage engines or even completely prevent navigation in certain regions if the risk factors are too high.[42]

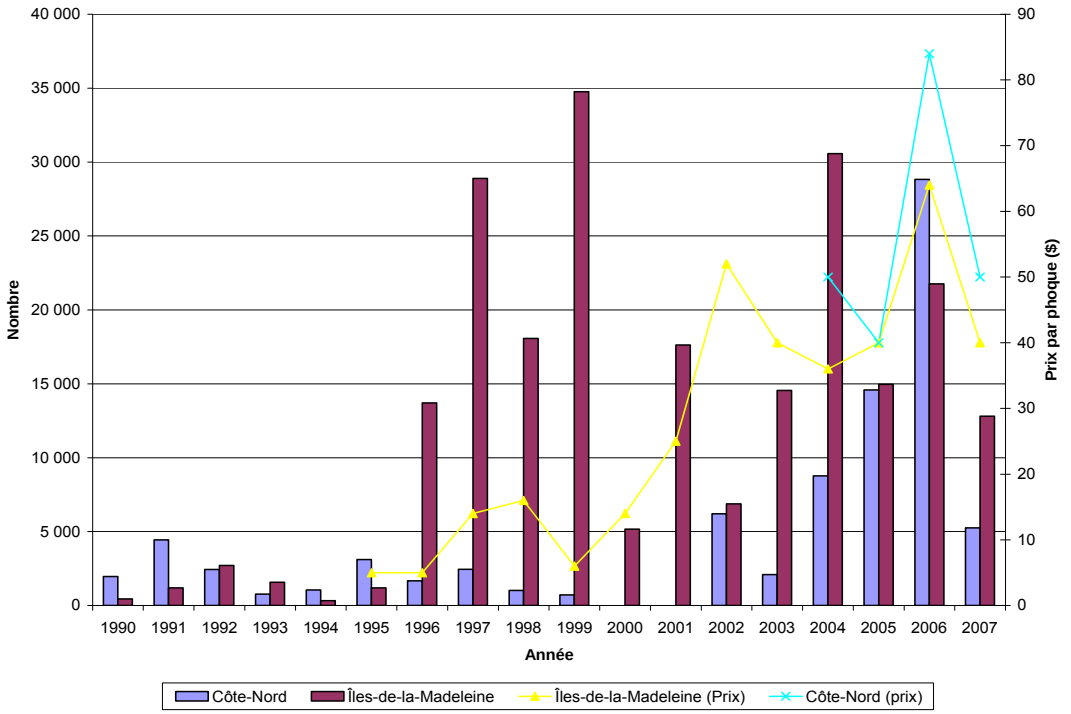
[40] Lussier, 2005
[41] Regroupement des pêcheurs professionnels du Nord de la Gaspésie (RPPNG), 1991
[42] Lussier, 2005

3.6.3 Seal Hunting

The commercial hunting of Greenland seals (also known as harp seals) on the Atlantic coast took its current shape towards the end of 1980's, following the collapse of the traditional whitecoat seal skin markets of Europe. From 1983 to 1995, the annual average capture of Greenland seals amounted to only 51,000 individuals, even though the total allowable catch (TAC) was 186,000. The seal skin market then improved beginning in 1996, when in light of new scientific opinions, the TAC for Greenland seals was changed to 250,000 individuals.[43]

The 2006-2010 management plan established a TAC of 325,000 seals in Canada in 2006. The last one offered a comparable TAC, at 975,000 seals from 2003 to 2005. In 2006, the Gulf region was granted 30 % of the total, which is 92,343 heads. The North-Shore received 8 % of the total and the Magdalen Islands 20 %. The Aboriginal communities have subsistence hunting rights, with a quota estimated at 6,000 heads. The total capture depends on both economic and climatic factors. Only the Greenland seal has a significant commercial importance for Quebec.[44] The hunters on the North-Shore have been more and more active over the last five years, following a price increase. The number of hunters went from 340 in 2002 to 500 in 2007, which represents an increase of 47 %.

Figure 35: Evolution of catches and price in the landing of Greenland seals (harp seals) in Quebec, 1990 to 2007



Source: Fisheries and Oceans Canada (DFO). 2008a. Cap-aux-Meules

[43] MPO, 2008b
[44] Ibid

In 2005, Newfoundland and Labrador processing companies bought, in total, 289,908 Greenland seal skins and 334 skins from other species of seals, for a value at landing of $16.3 M. The rest of the commercial hunting (valued at $1 million) was landed in Quebec and in the other Atlantic provinces. The meat and other products were estimated at about $260,000. The DFO no longer participates in financing and promotion activites for these products (seal skins (fur and leather), seal meat, seal oil, seal fins, seal organs).[45]

Besides the economic advantages that hunting procures, seals are an important food source, as well as a considerable element in the social and cultural life of Aboriginals and other residents of Quebec.

Table 33: Number of active hunters in the Magdalen Islands, 2001 to 2008

Years	Land-based hunters	Ships under 35'	Ships 35'-45'	Ships over 45'	Total
2002	N.D	9	60	70	139
2003	0	0	15	70	85
2004	N.D	42	155	100	297
2005	103	42	150	100	395
2006	23	42	205	110	380
2007	14	15	110	120	259
2008	75	15	130	100	320

The number of active fishers is determined as a function of an average according to ship type :
Ships under 35' : 3 fishers
Ships from 35’ to 44.11' : 5 fishers
Ships over 45' : 10 fishers
The captain is included in the number of fishers per category of ship
Source: Fisheries and Oceans Canada (DFO). 2008a. Cap-aux-Meules

Table 34: Number of active hunters on the North-Shore, 2002 to 2007

Years	Land-based hunters	Ships under 35'	Ships 35'-45'	Ships over 45'	Total
2002	N.D.	189	5	7	201
2003	8	183	N.D.	7	198
2004	N.D.	138	N.D.	21	159
2005	1	312	35	49	397
2006 Aboriginal .	0	0	0	7	7
2006	30	315	55	63	463
2007	2	84	35	63	184

The number of active fishers is determined as a function of an average according to ship type :
Ships under 35': 3 fishers
Ships from 35’ to 44.11' : 5 fishers
Ships over 45': 7 fishers
The captain is included in the number of fishers per category of ship
Source: Fisheries and Oceans Canada (DFO). 2008d. Sept-Îles

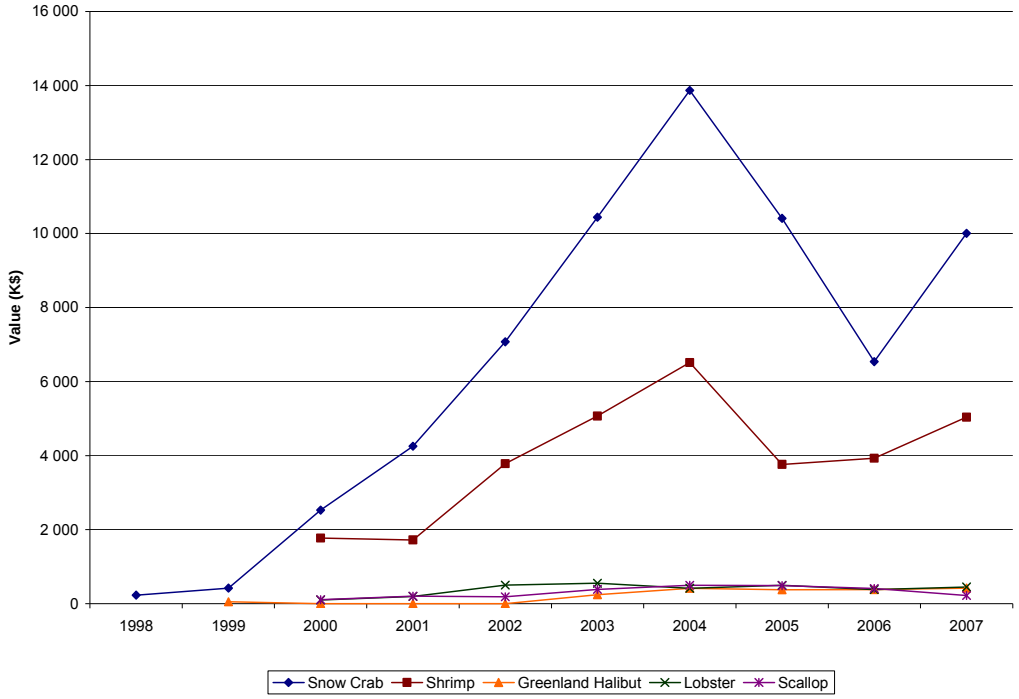
[45] Ibid

3.6.4 Aboriginal fishing

The Marshall ruling (2000) for Gaspésie and Lower-St. Lawrence, and the Sparrow Ruling (SRAPA) for the North-Shore, allowed the establishment of bases that allow the First Nations of Quebec to access the commercial fishing industry, thus creating a new economic contribution of several million dollars for these communities.

It is in the Gaspésie that the Aboriginal communities, notably the Listiguj community, are the most active in the commercial fishing industry. Snow crab and shrimp are the species with the most landings. The number of jobs connected with Aboriginal fishing varied between 110 and 275 from 2001 to 2005.[46]

Figure 36: Evolution of species landed, in value, Aboriginal communities of maritime Quebec, 1998 to 2007



Source: Source: Statistics Division, DFO-Québec, special compilation, P&E, 2008

[46] Statistics Division, DFO-Québec, special compilation, P&E, 2008

3.7 Processing of marine products

The marine products processing industry depends mainly on the volume of Quebec landings. In 2006, half of the 113 companies that buy marine products directly from fishers were situated in Gaspésie, while only three were situated in a non-maritime region. However, the MAPAQ indicates that there were 70 processing factories in this region in 2007; therefore, certain processing plants do not buy directly from the fishers. Furthermore, even though a processing factory receives a licence for a given species, it is not certain that the factories really process the species for which they hold the license.

On the whole, there are 4,500 jobs in the maritime region[47] that depend on this industry, of which about three quarters are seasonal, working less than 25 weeks a year.[48] Snow crab is the most important species for Quebec, although crab requires little processing intensity. Out of this total production, about 70 % is sold to foreign buyers, mainly to the United States.[49] The Gaspésie is classified first in sales, while the other regions occupy a similar long-term market share.

This is one of the industrial niches of excellence of maritime Quebec's development strategy. Its main weaknesses are: dependence on an unstable and declining supply, ineffectiveness in processing imported species within the region, lack of diversification in products or of processed species and difficulty entering into product markets with added value.[50]

Since 1983, Atlantic Canada has had a virtual moratorium on public investment in the primary processing of fish, which insures that investments in this sector are only directed towards added value processing. Considering the crisis that the groundfish sector experienced and the number of processing factories which are on standby, public investment in the fishing industry has limited itself to research projects and development, market penetration, added value secondary transformation, and aquaculture, as well as the rationalization and consolidation of processing facilities and the reduction of capture capacity.[51]

3.7.1 Governance

The Quebec government is responsible for the treatment of the fish, as well as putting the products in local markets, while exports and marketing outside the province rests with the government of Canada. The MAPAQ establishes rules regarding the purchase, sale, transportation for selling purposes, classification,

[47] Note that these figure reprent the maximum number of employees having been hired by the firms and not full-time equivalent.
[48] Zins Beauchesne and associates, 2003
[49] MAPAQ, 2006
[50] MDEIE, 2006e
[51] DFO, 2001

the transport of marine products and the marketing associated with it. The department has also established regulations concerning transfers, purchase for purposes of resale, delivery and processing of the product or canning. Furthermore, according to the rules on the minimal standards of processing for seafood products, any products landed in Quebec must undergo a certain amount of processing within the province before being marketed.[52]

In Quebec, it is the MAPAQ which takes charge of regulating the activities of factories that process seafood products and issues licences according to the following Acts:

- An Act respecting the Marketing of marine products
- The Marine Products Processing Act
- Regulation respecting minimum standards for processing marine products
- Regulation respecting permits for acquirers of marine products

Non-governmental governance

Numerous organizations help to better develop this industry, such as the Association québécoise de commercialisation de poissons et fruits de mer (AQCMER) and the Association québécoise de l'industrie de la pêche (QFPA). A more complete, but not exhaustive list is presented in Appendix A.

3.7.2 Trends

Traditionally, the processing factories had their own fishing fleet to provide the catch needed. However, this situation is not representative today, when the majority of suppliers are independent fishers.[53] For the past few years, the processing companies began to stock up at other Quebec processing companies or have even gone abroad to insure their supply.

Table 35: Purchase of fisheries products, Quebec, 1996 to 2006

	1996	2001	2006
Total volume bought by one fishing firm from another fishing firm (lbs.)	3 261	7 790 376	17 323 058
Volume purchased outside of Quebec (lbs.)	0	190 285	5 838 384
Percentage from outside	0 %	2.4%	33.7%

Source: Statistics DFO-Québec, special compilation, P&E

The decrease in landings of groundfish will inevitably have affected the production of transformed products. Snow crab and lobster are now the two most important species in terms of value, whereas in 1997, groundfish and crab dominated. An important proportion of the produced value comes from primary processing, without much added value, while cooked products are becoming more and more important. The growth of the industry seems, moreover, to result

[52] Unisféra, 2006

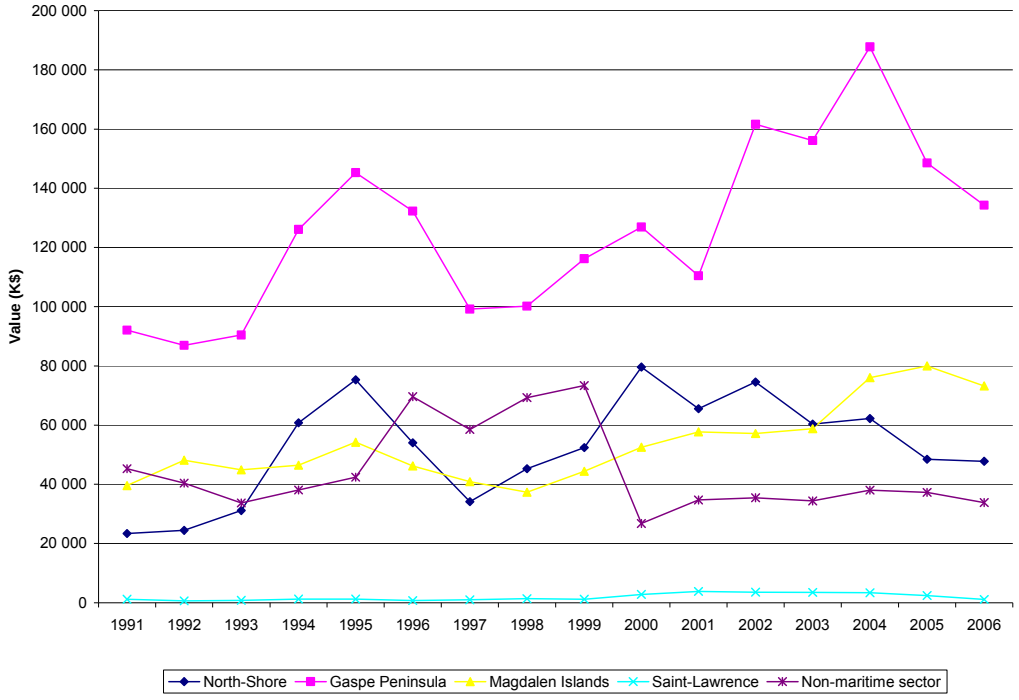
[53] Human Resources and Skills Development Canada. *Industrie de la transformation du poisson*, [Online]. http://www.rhdsc.gc.ca/fra/pip/prh/ps/profils_industriels/transformation_du_poisson.shtml

from secondary processed products, because the value of primary products, although stable since 1991, has gone from 60 % to 37 %.

For approximately the last twenty years, in Quebec, the number of buyers of marine products has been between 100 and 120 companies. During rush periods, they can employ, at most, between 3,700 and 5,000 people a year. However, the majority of these jobs are seasonal. It is important to note that a sharp rise in employment has occurred in the Gaspésie since 2001, while an important decline in employment occurred in 2002 in the Magdalen Islands.

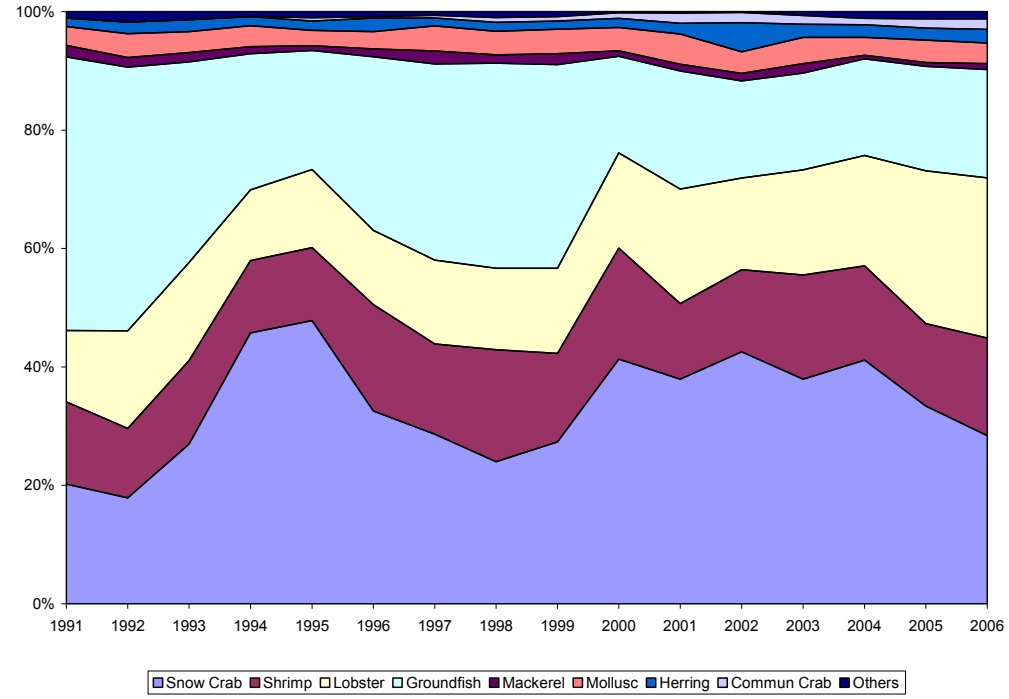
Total production amounted to $290 M in 2007, whereas it was $200 M in 1991. In 2004, it reached a peak of over $350 M. The evolution of sales remains dependent on landing cycles and the price of snow crab, the species with the highest selling rate.

Figure 37: Evolution of the sales of processing companies by maritime sector, 1991 to 2006



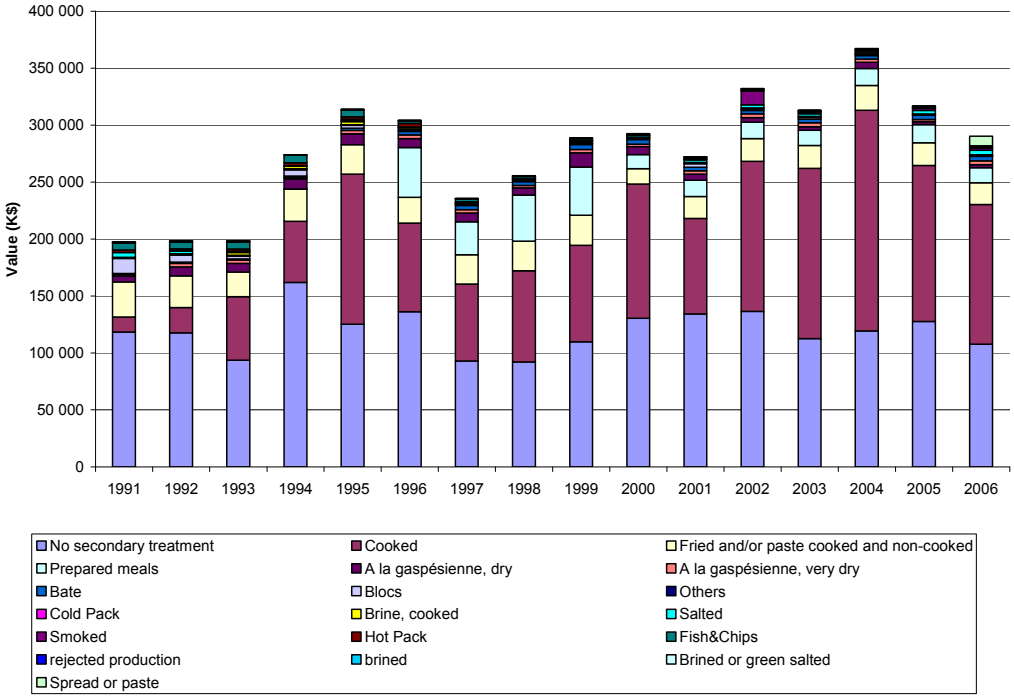
Source: Statistics Division, DFO-Québec, special compilation P&E, 2008

Figure 38: Composition of species sold in percentage of value, 1991 to 2006



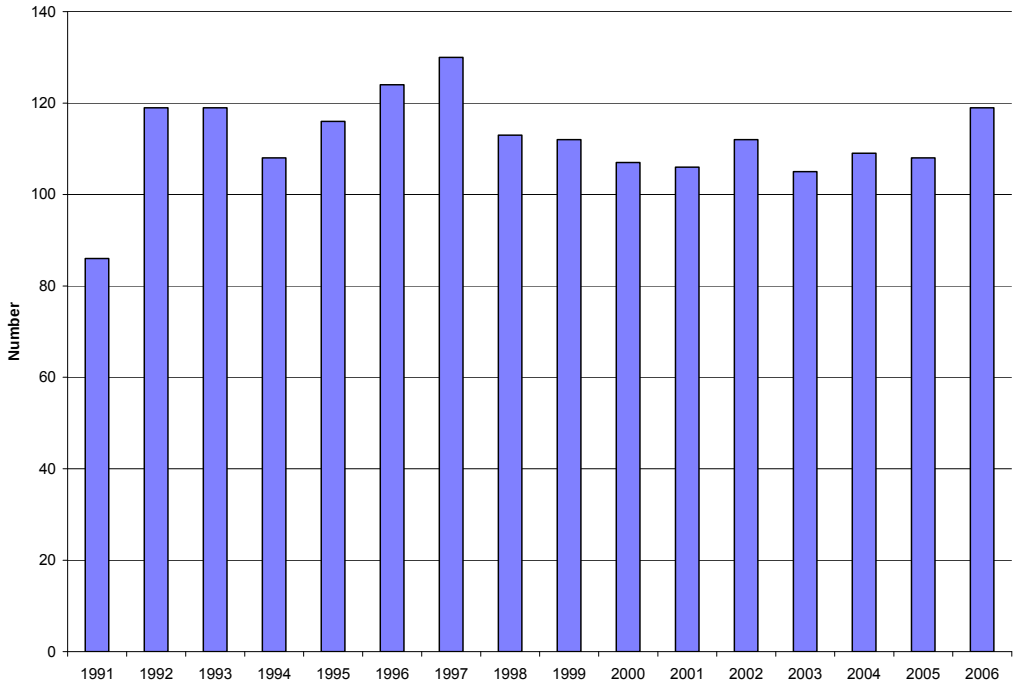
Source: Statistics Division, DFO-Québec, special compilation P&E, 2008

Figure 39: Evolution of the production value of processed products, 1991 to 2006



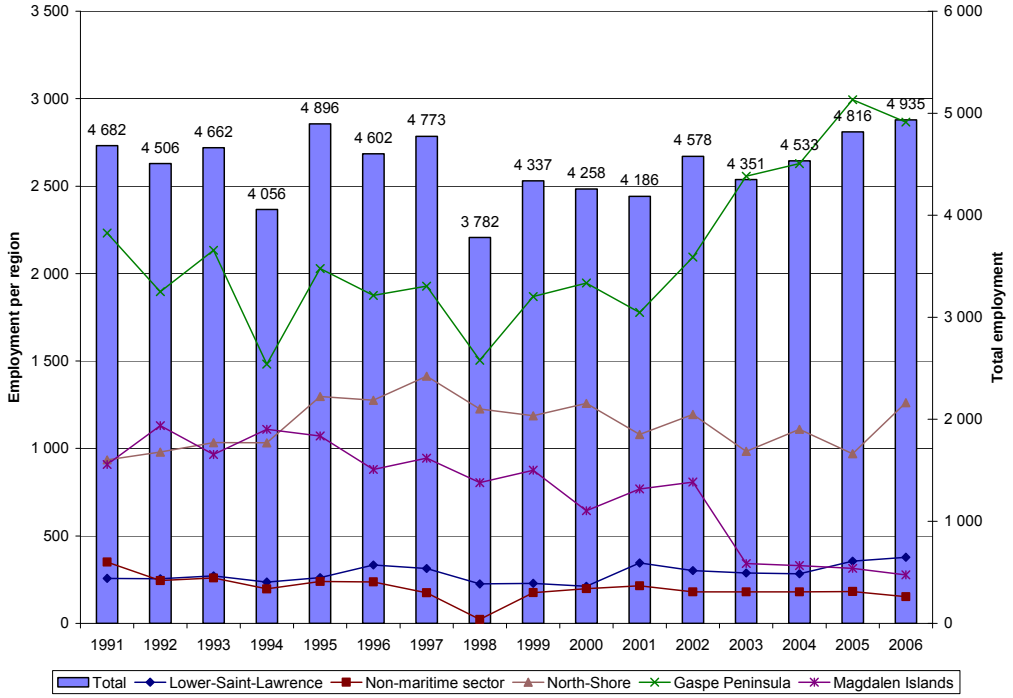
Source: Statistics Division, DFO-Québec, special compilation P&E, 2008

Figure 40: Evolution of the number of Quebec buyers of marine products, 1991 to 2006



Source: Statistics Division, DFO-Québec, special compilation P&E, 2008

Figure 41: Evolution of employment in the businesses of the buyers of marine products, 1991 to 2006



Source: Statistics Division, DFO-Québec, special compilation P&E, 2008

3.7.3 Perspective

According to the ACCORD development plan, the development perspectives of the seafood products processing industry seem to be positive. This plan suggests developing five new species and about twenty new products by 2016. The instigators of the plan hope to increase total sales by 10 % in 10 years.

However, the economic situation can hinder any possibilities of development. Indeed, since 70 % to 80 % of the products are sold in foreign markets, an unfavourable economic situation in the United States (or Japan or Europe) could decrease sales.

3.7.4 Pollution

The types of effluents produced by processing factories differ according to the species being transformed and the desired end product. Although certain factories treat their waste water before releasing it back into the environment, others send it directly to the municipal sewers. The proportion of factories which directly pour their waste water into the municipal sewers varies between 3 % and 42 % for the other maritime provinces, and is higher for Ontario.[54] No data exists for the amount of toxic waste in Quebec.

Few studies have been produced concerning the level of toxicity in effluents, having been more focused on the oxygen demand, suspended particles, and nitrates, as well as oil and grease. However, the Canadian Food Inspection Agency allows the factories to use certain chemicals that are non-toxic for humans, but whose impact on aquatic flora and fauna are unknown.[55]

A study conducted with eight processing factories (out of 1,300) revealed that out of the 46 chemicals discovered in the effluents, some were toxic due, in part, to their bioaccumulation. Out of the sixteen samples taken, fourteen presented positive toxicity tests. Generally, the results of the study suggest that the effluents of primary processing present a weaker toxicity level than those of the tertiary transformation industry. Overall, a better follow-up should be made where processing factories are concerned. Special attention should be paid to the concentration of chlorine in industrial residues and to a better knowledge of the relationship between the environment and effluents.[56]

[54] Environment Canada, 2007
[55] Ibid.
[56] Ibid.

3.8 Aquaculture

The period from 1980 to the middle of the 1990's represents the first phase of development. The first aquaculture production experiment took place at the end of the 1970's, using blue mussels as the species of interest for experimental attempts. This was followed by the commercial production of mussels in the mid-1980's in the Magdalen Islands and later in Gaspésie and on the North-Coast. After the moratorium on groundfish in the 1990's, new activities evolved around mussel and scallop production in Gaspésie and the Magdalen Islands. Most of the aquaculture companies of the region have a low production volume and large difficulties not only in terms of production, but also in market strategy. Consequently, the aquaculture industry developed slowly during the first phase.[57]

In the second period (from 1995 on), new institutions and programs were set up to support the development of the aquaculture industry. The Strategic development plan for aquaculture, adopted in 1996, was the first initiative to establish a profile of the industry and to propose a support strategy for its development. In this plan, considerable attention was paid to the creation of new organizations, the Soiciété de development de l'industrie maricole du Québec (SODIM). During this second period, new companies were created. In 2002, the region was home to 23 aquaculture companies that employed 150 people. The share of the aquaculture industry in maritime Quebec is small: it represents only 3.9 % of the total number of companies and less than 1 % of regional employment, all sectors combined. The Quebec aquaculture industry is also small with regard to its contemporaries in the other Canadian provinces, such as New Brunswick and British Columbia, which dominate the industry.[58]

Most of the aquaculture companies of the Quebec coastal region are micro-companies of less than five employees with an annual turnover of less than $100,000. In 2006, the most important employers, Échinord and Pec-Nord, employed 66 and 30 people, respectively. Aquaculture companies mainly serve national and provincial markets; a single company sells its products on national and foreign markets.[59]

The aquaculture industry is concentrated in Gaspésie and in the Magdelen Islands (15 companies), followed by the North-Shore (9 companies) and the region of the Lower-St. Lawrence (2 companies). It is important to note that certain companies can possess an aquaculture licence without being active in production or without having reached commercial production levels. However, for reasons of confidentiality, these companies cannot be differentiated from one another.[60]

[57] Doloreux, Isaksen, Asleen and Melançon, 2008
[58] Ibid.
[59] Ibid.
[60] Ibid.

Between 1995 and 2000, Canada represented 0.27 % of world production and Quebec represented 0.44 % of Canada's production. In 2005, aquaculture production in Quebec totaled 915 tons. The annual average growth rate of production from 1996 to 2005 was 32%. Mussel farming is the most important production, totalling 753 tons in 2005, which represents 82 % of the total production. However, over the last two years, the producers have not obtained expected returns and the total sales decreased to 355 tons in 2006, but went back up to 624 tons in 2007. Mussel production dominates, followed by scallops, clams and sea urchins.[61]

The development period was much longer than planned, and several companies are in a difficult financial situation in spite of investments of more than $20 M over the past few years. Because sales were below forecasts, companies accumulated significant losses. Thus, the companies' capitalization rate has steadily eroded over the years. The average debt rate of aquaculture companies was 80 % in 2004. Although there are no data that would allow us to compare these indicators to those of a similar sector, these figures show the vulnerability of the companies.[62]

3.8.1 Governance

The Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec (MAPAQ) is in charge of administering the Act respecting commercial aquaculture and Commercial aquaculture Regulation. They supervise aquaculture activities.

The Ministère du Développement durable, de l'Environnement et des Parcs du Québec is responsible for ensuring the application of the Environment Quality Act, the Watercourses Act and the Public Water Regulation. They insure the delivery of license certificates and provincial aquaculture leases to aquacultors.

The Ministère des Ressources naturelles et de la Faune (MRNF) is responsible for the administration of the Act respecting the conservation and development of wildlife, and Regulation respecting aquaculture and the sale of fish. By these laws and rules, the ministry insures protection of Quebec wildlife and its environment and establishes aquaculture zoning to which companies in Quebec must conform.

- Agreement on the development of commercial aquaculture. (1987)
- Quebec-New Brunswick cooperation agreement related to fisheries and commercial aquaculture. (1992)
- Agreement concerning intergovernmental cooperation related to fisheries and aquaculture (1999)

[61] MDEIE, 2006a
[62] SODIM, 2005

Non governmental governance

Several organisations were created over the last few years to help aquaculture companies, such as the Regroupement des mariculteurs du Québec (RMQ) and SODIM. A more complete, but not exhaustive list is presented in the Appendix A.

3.8.2 Trends

Total aquaculture production increased by a factor of 10 over the last ten years. However, the volume remains small. In 2006, returns were well below expectations. The main species produced is the blue mussel, followed by scallops.

Table 36: Pollution of aquaculture company sales in maritime Quebec, in volume and in value, 1996 to 2007

Sales by aquaculture firms per principal species by volume (tonnes)				Sales by aquaculture firms per principal species by Estimated value (M$)		
Year	Mussels	Others	Total	Mussels	Others	Total
1996	66	10	76	0.09	0.02	0.1
1997	121	6	127	0.16	0.02	0.18
1998	98	20	118	0.13	0.05	0.17
1999	197	25	222	0.26	0.03	0.28
2000	314	58	372	0.41	0.09	0.5
2001	493	147	640	0.64	0.27	0.91
2002	377	204	581	0.49	0.34	0.83
2003	499	143	642	0.65	0.36	1.01
2004	495	271	766	0.64	0.71	1.35
2005	753	162	915	0.98	1.19	2.17
2006	331	25	355	0.43	0.25	0.68
2007	614	10	624	0.8	0.02	1.01

Source: MPO, Statistics Division, special compilation, P&E, 2008
Note: All values are estimated.

3.8.3 Perspective

Possibilities for farming, in terms of existing industry growth and for the implementation of new species, were identified for maritime Quebec: large breeding scallops (larva collected from artificial collectors and deposited on the bottom) and princess scallops (it is a large scallop, but the size at sale differs from those in commercial fisheries), sea wolves and American oysters. The success of this development must, however, go by various conditions such as a market-centered approach, intensive and effective marketing of aquaculture

products, governmental support and better company performance.[63]

By 2016, the ACCORD plan foresees the emergence of ten new companies involved in the aquaculture field in the territory of maritime Quebec and a 400 % growth of aquaculture production sales (from 750 tons to 3,000 tons). The mussel farming industry should supply 30 % of the mussel demand in the Quebec market in 2011.[64]

[63] MDEIE, 2006c
[64] MDEIE, 2006a

3.9 Marine transportation

Generally speaking, marine transportation is a growing industry worldwide, and specifically in Canada, whether it is for transport of merchandise or people. An average yearly growth of handled tonnages on the order of 3 % was observed in the main Quebec ports between 2003 and 2007.[65]

Quebec has ten deep water ports that remain open all year long, for example those in Montreal and Quebec. Only four ports handle about 75 % of the tonnage in Quebec: Montreal, Quebec, Sept-Îles and Port-Cartier. Even though the Montreal and Quebec ports are not part of maritime Quebec, vessels going to these ports often have to pass by the Saint Lawrence Gulf. It is important to understand the importance and the characteristics of these ports in order to analyze the evolution of marine transportation. In the Gulf region, 20 of 48 Quebec ports are used for the transportation of goods. Although the ports of Matane and Baie-Comeau receive the largest number of domestic journeys, their total handled volume is much lower than the ports in Sept-Îles or Port-Cartier. On the other hand, for international traffic, these last two ports dominate as much from the perspective of handled volume as in the number of journeys. Minerals (iron, aluminum and others) account for almost 70 % of merchandise loaded in Quebec, while fuel and chemicals are the main unloaded goods, with about 60 % of the total volume, mainly in the port of Quebec.[66]

The biggest part of the international trade volume in Quebec is made by marine transportation, which is one of the cheapest modes of transportation.[67] However, the relative use (tons per kilometre) inside Quebec with regard to the other modes of transportation seems to have diminished over the past twenty years.

The total tonnage of the freight loaded and unloaded in Quebec has gone from 110.6 million tons in 1996 to 107.8 million tons in 2005. This has, therefore, been relatively stable during the last ten years, with a slight decline in 2001 and 2002. In 2005, internal marine transportation represented only 28 % of cargo loaded and unloaded in Quebec, following a rather stable trend over the past ten years. Based on previous studies[68], the total revenues of ports in maritime Quebec were estimated at $292 M in 2005.[69]

On average, during the last five years, about 10,000 journeys[70] of all kinds of commercial vessels took place on the Saint Lawrence River between Quebec

[65] Zins Beauchesne and associates, 2008
[66] Statistics Canada, 1996 to 2005
[67] SODES, 2003
[68] Michaud, Dion, Rioux, Diop and Laflamme, 2002
[69] Michaud et al. estimated Quebec marine transport value to be around $ 514 M in 1998. Adjusting this value for Quebec marine region and the year, based on total cargo handled and Consumption Price Index (100 = 2002) from 1998 to 2005, we obtained $ 292 M.
[70] A journey in INNAV system is defined as a passing of ships with a start point and an arrival, inside or outside canadien water. Only large vessels, i.e. over 20m, are taken into account.

and Matane and about 9,000 journeys downstream from Matane. During the last three years, about 90 % of journeys took place between April and November, since sea traffic is much less heavy in the winter due to the fact that certain vessels do not respect the standards necessary for navigation in frozen waters. The majority of vessels are merchant ships or tankers.[71]

Due to their socio-geographic location and the importance of the Saint Lawrence River, ferryboat services are essential for numerous communities, notably for those of the Lower-North-Shore. A system of maritime ferryboats exists for the Middle and Lower-North-Shore, such as the Relais-Nordik, once a week. There are about ten ferries that service the region of study.[72]

In Quebec in 2007, the marine transportation industry had more than 12,000 direct and 18,000 indirect employees, including both navigation and non-navigation personnel. The industry consists of transport by boat (37 %), tourist transport (14 %) and transport support activities, such as vessel's mechanics or the dockers (49 %). About 2,300 of these direct jobs are situated in Quebec's maritime regions: the North-Shore, Gaspésie–Magdalen Islands and the Lower-St. Lawrence. These jobs come from several fields, such as shipowners, ferries, harbour services and the staff aboard vessels. However, the cruise industry will be dealt with in the following section concerning tourism and recreational activities.[73]

Marine transportation is a source of stress for the marine environment in several ways. There are risks associated with dangerous material spills, introduction of invasive species, waste water, contamination of waters with "anti-stain" paint, and disturbance of marine mammals because of noise and accidental collisions.

Furthermore, DFO is in charge of the exploitation and maintemance of a national network of ports, with the aim of supplying commercial fishers with safe and accessible installations. The mandate of small craft harbours (SCH) is to keep the ports that are essential to the fishing industry open and in good condition.[74]

Table 37: List of the major commercial ports and their activities

Port	Principal goods traded
Baie-Comeau	Exports of aluminum, paper and grains brought in from the central part of Canada
Blanc Sablon	Ferryboat service with other ports of the Lower-North-Shore and Sainte-Barbe in Newfoundland
Cap-aux-Meules	Exports salt
Gaspé	Imports petroleum and general merchandise
Havre-Saint-Pierre**	Transportation of titanium and iron

[71] INNAV Database, Canadian Coast Guard, Québec Region
[72] Chaire de Tourisme de l'École des sciences de la gestion, 2003
[73] Zins Beauches and associates, 2008
[74] Small Craft Harbours, http://www.dfo-mpo.gc.ca/sch-ppb/home-accueil-fra.htm

La Malbaie (Pointe-au-Pic)	Transportation of pulp and paper
Matane	Transportation of paper and other wood products
Port-Alfred*	Transportation of aluminum
Port-Cartier*	Transportation of iron minerals and grains brought in from the center of Canada
Port-Saguenay	Transportation of pulp and paper and granite
Rimouski	Transportation of petroleum and wood
Rivière-du-Loup/Gros-Cacouna	Transportation of paper and other wood products and salt
Sept-Îles	Transportation of iron minerals

Source: Alexander et al. 2008. *Gulf of Saint Lawrence: Human Systems Overview Report*
* Private harbour **Conceeded Harbour

3.9.1 Governance

In Quebec, the Ministère des Transports du Québec (MTQ) must insure the mobility of the people and goods by effective and secure transportation systems. The MTQ's mission is to insure circulation by taking care of the infrastructures and the transportation systems which contribute to the development of Quebec due to the Transport Act. Two different organisations help the MTQ with this task: the Commission des transports du Québec whose activities aim to increase public safety in marine transportation and Société des traversiers du Québec (STQ), that is in charge of the ferryboats which insures transportation services for passengers and vehicles by ferryboat. In 2001, the department established a sea and river transport policy. This policy aims, among other things, to develop the cruise industry and water sports on the Saint Lawrence River. L'Alliance Verte, a voluntary group within the industry, envisions a concrete and measurable improvement of the environmental performance of the Saint Lawrence maritime industry.[75]

Provincial legislation supervising marine transportation refers to the following laws:

- The Transport Act
- Act respecting the Quebec Association of Ferryboats
- Act respecting the rail port of Baie-Comeau-Hauterive
- Act concerning the Compagnie de gestion de Matane, Inc.
- Watercourses Act
- Environment Quality Act
- Municipal Powers Act
- Act respecting Land use planning and development
- Act respecting Petroleum products and products
- Act respecting threatened or vulnerable species
- Act respecting the Saguenay-Saint Lawrence Marine Park

[75] Alliance Verte, http://www.allianceverte.org/

3.9.2 Trends

Internal sea traffic experienced only few variations during the last ten years, except that one observes a decline of the total volume handled since 2002 at the Sept-Îles port, but an increase for Quebec as a whole. On average since 1996, internal marine transportation represents between 25 % and 31 % of marine transportation in Quebec. The number of movements in the ports followed approximately the same trend. According to the statistics posting system of Statistics Canada, quay movements within the same port are considered movements. Therefore, the observed reduction does not necessarily represent a decline in crowding.

Few variations were also observed at the level of international transport. Ports in maritime regions follow the national trend. Only the Sandy Beach port (Gaspésie) experienced an important change since the closing of the mine in Murdochville. Since 2002, Gaspésie's (Sandy Beach) harbour activities have reduced to almost zero.

Europe is Quebec's main commercial partner in marine transportation with 34 % of the unloaded total tonnage.[76] The importance of the United States has decreased at this level: the total volume coming from our southern neighbours has gone from 26 % to 18 %. Since 1999, Quebec ports unloaded more goods coming from Africa and South America than from the United States (Figure 48).

According to studies conducted within the framework of the Saint Lawrence Plan 2000, trucking, air transportation and railway transportation should follow the same rising trend in the years to come. Only marine transportation could experience an significant decline. Very often, only economic issues are considered in the choice of a means of transport. Theoretical simulations were, however, made and suggest an important decrease in the levels of greenhouse gases if marine transportation was used more often.[77]

The number of journeys downstream from Matane increased slightly during the last five years, while the number of journeys between Quebec and Matane decreased. Merchant ships represent more than two thirds of the vessels over 20 metres.

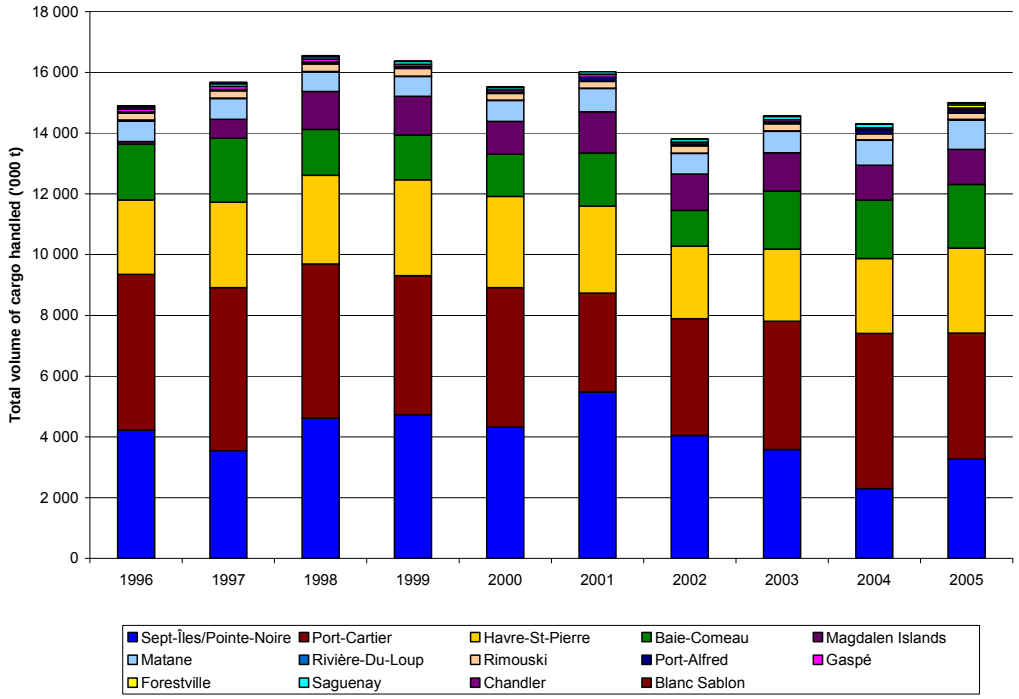
Table 38: Evolution of internal and international marine transportation in Quebec, 1996 to 2005

Year	Ttransportation within Quebec	International transportation
1997	26%	74%
1999	28%	72%
2001	31%	69%
2003	26%	74%
2005	28%	72%

[76] Including Ports of Québec and Montréal

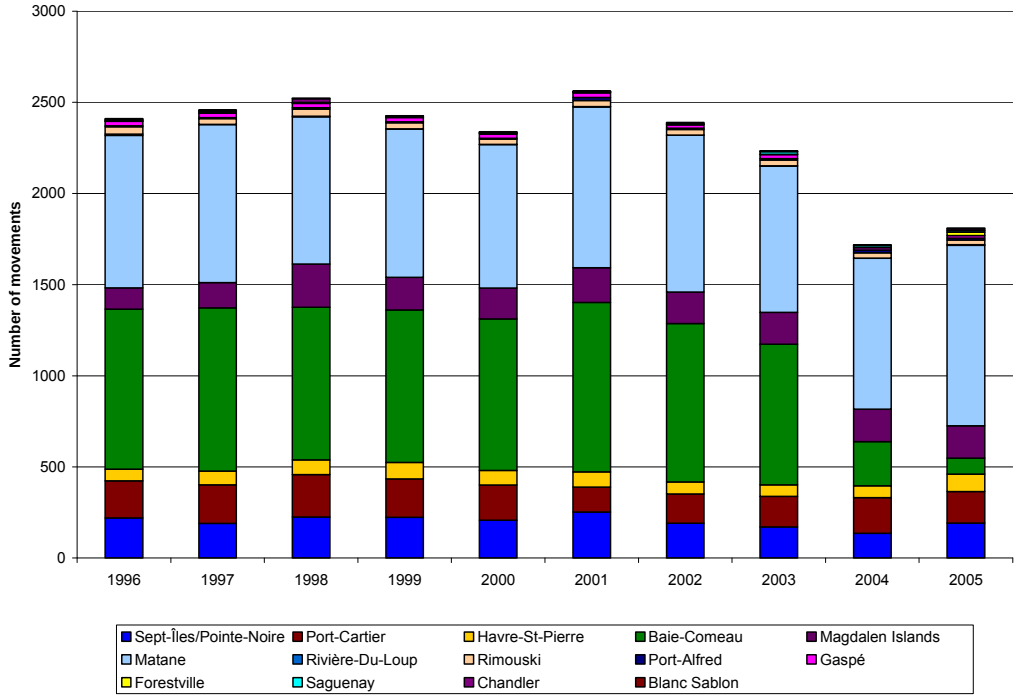
[77] Saint Lawrence Vision 2000, http://www.slv2000.qc.ca/plan_action/phase3/navigation/SND/plan_action/pa_developpement_f.htm

Figure 42: Evolution of domestic marine transportation, according to handled volume, 1996 to 2005



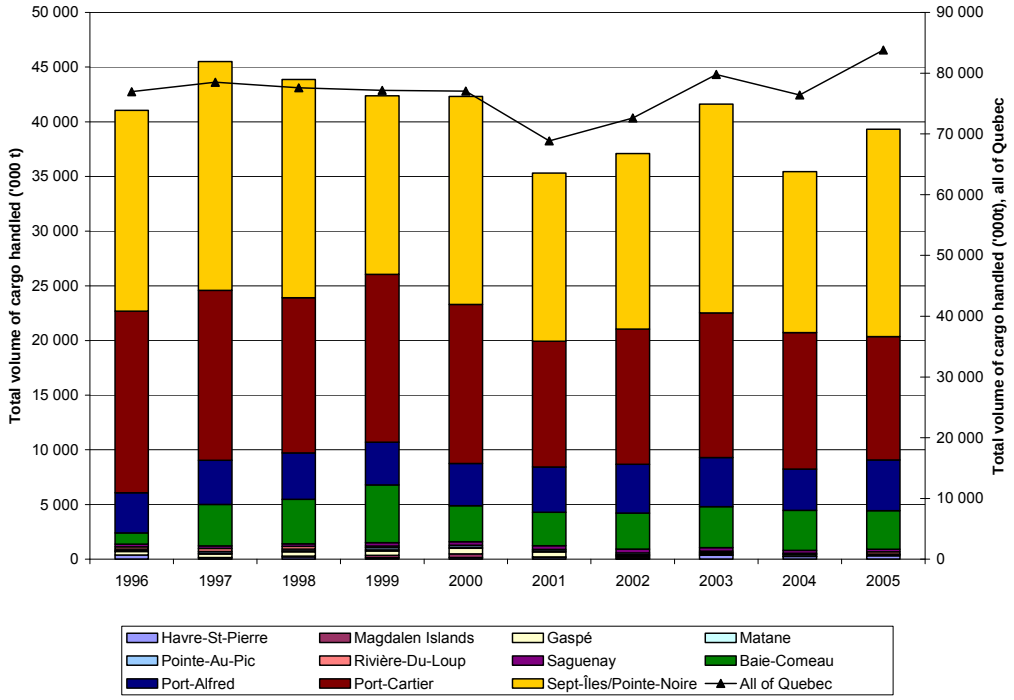
Source: Statistics Canada. 1996 to 2005. *Le transport maritime au Canada*

Figure 43: Evolution of domestic marine transportation, according to number of movements, 1996 to 2005



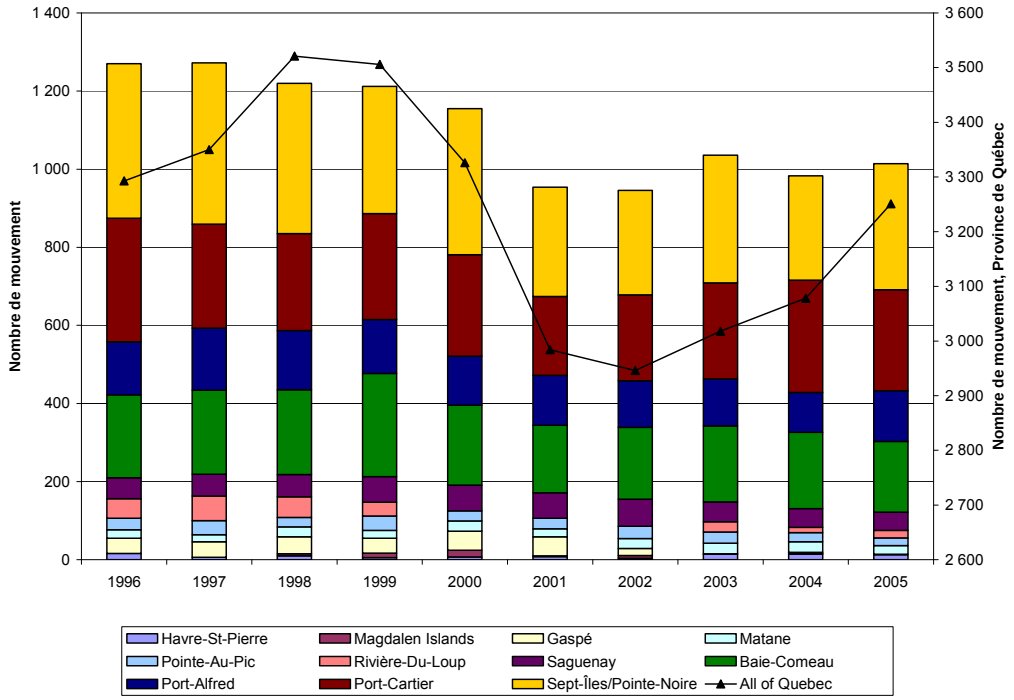
Source: Statistics Canada. 1996 to 2005. *Le transport maritime au Canada*

Figure 44: Evolution of international marine transportation, according to handled volume, 1996 to 2005



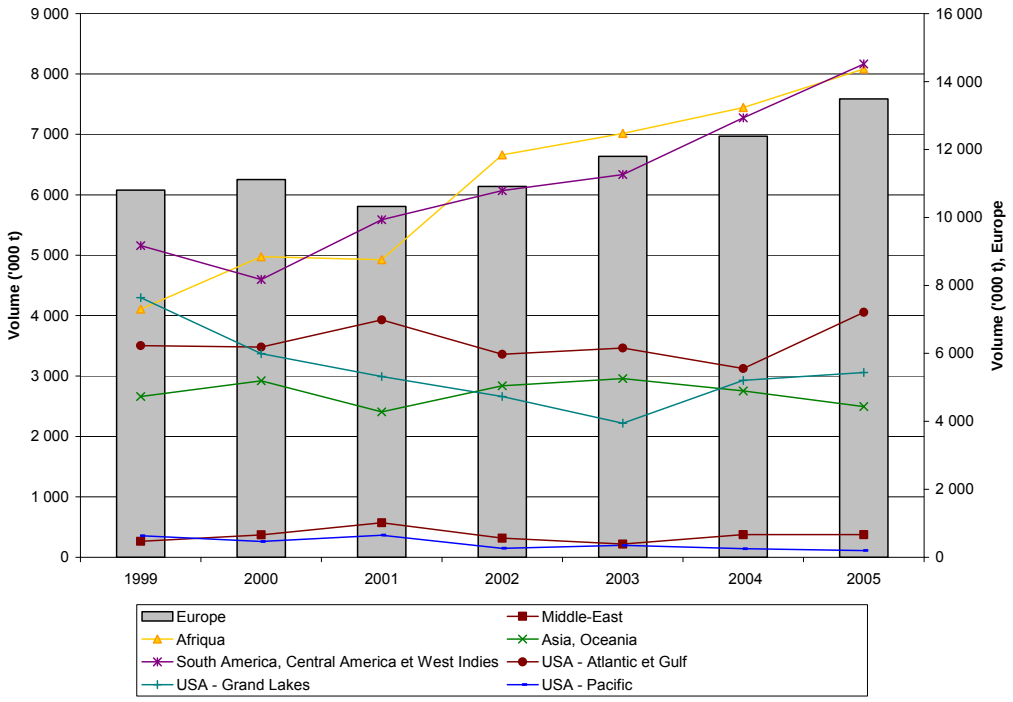
Source: Statistics Canada. 1996 to 2005. *Le transport maritime au Canada*

Figure 45: Evolution of international marine transportation, according to number of movements, 1996 to 2005



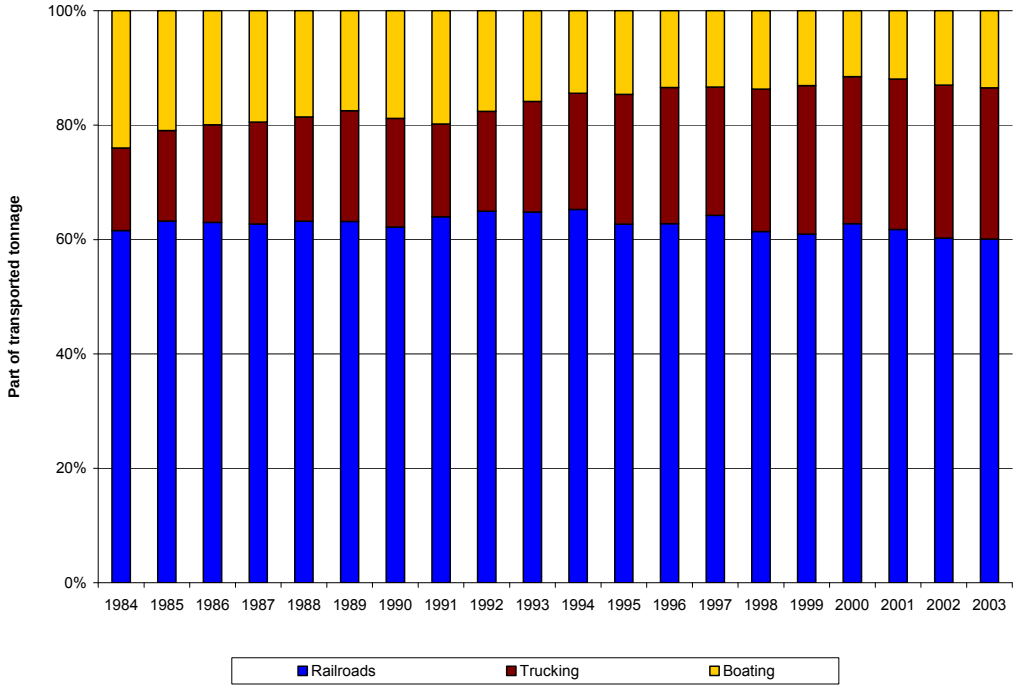
Source: Statistics Canada. 1996 to 2005. *Le transport maritime au Canada*

Figure 46: Evolution of volume of unloaded goods coming from abroad, Quebec, 1999 to 2005



Source: Statistics Canada. 1996 to 2005. *Le transport maritime au Canada*

Figure 47: Evolution of transported tonnage (tons-km) in internal traffic according to mode of transportation, Canada, 1984 to 2003



Source: Statistics Canada. 1996 to 2005. *Le transport maritime au Canada*

Table 39: Evolution of marine transportation in the region of maritime Quebec, 2003 to 2007

Maritime traffic in the Baie-des-Chaleurs					
Type of Ship	2003	2004	2005	2006	2007
Sub-total Barges	1	2	3	2	3
Sub-total Coast Guard	14	16	20	13	13
Sub-total DFO	4	4	9	14	23
Sub-total Fishing	0	0	0	0	1
Sub-total Tugboat	48	29	45	26	18
Sub-total Freighter	250	277	230	230	262
Sub-total Special function	9	4	3	20	8
Sub-total Tanker	57	72	73	56	52
Sub-total Yacht	3	4	0	0	0
Total	386	408	383	361	380
Maritime traffic downstream from Matane, in the region of Quebec					
Type of Ship	2003	2004	2005	2006	2007
Sub-total American	3	1	0	0	0
Sub-total Barges	65	247	164	79	91
Sub-total Coast Guard	104	112	181	136	121
Sub-total DFO	105	103	120	124	141
Sub-total Fishing	46	45	42	40	29
Sub-total Tugboat	1 285	1 237	1 293	1 369	1 254
Sub-total Freighter	5 927	5 837	6 038	6 360	6 276
Sub-total Others	0	1	0	0	0
Sub-total Special function	250	112	156	186	105
Sub-total Tanker	1 021	1 077	1 265	1 287	1 317
Sub-total Warship	15	22	9	18	22
Sub-total Yacht	51	48	55	57	36
Total	8 872	8 842	9 323	9 656	9 392
Maritime traffic bandween the ports of Quebec and Matane					
Type of Ship	2003	2004	2005	2006	2007
Sub-total American	3	1	0	0	0
Sub-total Barges	289	285	283	215	197
Sub-total Coast Guard	480	360	566	552	543
Sub-total DFO	167	184	80	69	79
Sub-total Fishing	9	11	34	9	20
Sub-total Tugboat	646	656	514	454	489
Sub-total Freighter	7 393	7 747	6 834	6 821	6 360
Sub-total Others	0	10	3	1	2
Sub-total Special function	273	234	271	264	268
Sub-total Tanker	880	944	1 145	1 138	1 213
Sub-total Warship	10	26	4	16	16
Sub-total Yacht	48	51	70	54	34
Total	10 198	10 509	9 804	9 593	9 221

Source: INNAV Database, Canadian Coast Guard, special compilation P&E, Québec region

Ferryboats

Since the Saguenay fjord is too deep and too wide at the point where it meets the Saint Lawrence River to allow for the construction of a bridge, a ferryboat service insures the constant road juncture between the two banks, from Baie-Sainte-Catherine to Tadoussac. Numerous other ferryboat services exist all along the length of the Saint Lawrence. Besides providing an essential service to communities, about 40 % of the ferry users' first motivation is tourism and leisure activities. Operating expenses associated with the ferryboats of the Société des traversiers du Québec (STQ) and other ferry services reached approximately $47 M in 2000.[78] By calculating the STQ ferries in the maritime region, as well as the private ferries of the same region, the proportion of passengers transported in the maritime region is 57 %. The incomes of the ferries in the region of study amounted to $26.8 M. According to an ISQ publication, the number of passengers using the STQ ferry services went from 5,444,000 in 2001 to 5,281,000 in 2006, for Quebec as a whole, which is the 1997 level.[79,80]

Table 40: Ferries and river buses of maritime Quebec, 2001

Businesses	Ferryboat	Total Capacity of the Ferryboat	Region	Number of passengers
STQ	Rivière-du-Loup/Saint-Siméon	386	Lower-St. Lawrence/North-Shore	171 694
STQ	Saint-Joseph-de-la-Rive/L'Isle-aux-Coudres	400	North-Shore	601 092
STQ	Baie-Ste-Catherine/Tadoussac	800	North-Shore	1 990 854
STQ	Baie-Comeau/Matane/Godbout	600	North-Shore/Gaspésie	226 241
STQ	Cap-aux-Meules/Île d'Entrée	24	Magdalen Islands	4 558
Ferryboat Rimouski-Forestville Inc.	Rimouski/Forestville	175	Lower-St. Lawrence/North-Shore	65 000*
La compagnie de Navigation des Basques	Les Escoumins/Trois-Pistoles	195	North-Shore/Lower-St. Lawrence	36 023*
Coopérative de Transport Maritime and Aérien	Souris (I-P-É)/Magdalen Islands	750	Magdalen Islands	96 610
Société Inter-Rives de l'Île Verte inc.	L'Isle-Verte/Notre-Dame-des-Sept-Douleurs (Île Verte)	49	Lower-St. Lawrence	15 759*
Andrew Ransom	Harrington Harbour/Chevery/Aylmer Sound	7	North-Shore	1 227

[78] Chaire de tourisme de l'École des sciences de la gestion, 2003
[79] Institut de la statistique du Québec, 2008
[80] MPO, 2002

Employment

The employment levels of the marine transportation industry affect numerous domains. Maritime Quebec has more than 2,300 direct employees in the sector

Table 41: Distribution of non-navigation employment of the marine transportation industry, 2007

	Lower-St. Lawrence		North-Shore		Gaspésie		Maritime	
Type of employment	%	Number	%	Number	%	Number	%	Number
Shipowner	0.4	15	2.1	81	11.2	433	13.7	530
Cruises – excursions	2.1	23	0	0	6.1	67	8.2	90
Ferryboats	27.8	205	12.2	90	0	0	40.0	295
Ports and port administration	3.6	21	16.7	98	5.1	30	25.4	149
Port services	6.9	50	12.9	94	1.3	9	21.1	154
Total		314		363		539		1218

Source: Zins Beauchesne and associates. 2008. "Étude sectorielle sur les effectifs de la main-d'oeuvre maritime au Québec". [Online]. http://www.csmoim.qc.ca/MyScriptorBD/documents/33215/Rapport%20final%20d%C3%A9finitif%2012-05-2008.pdf

Table 42: Distribution of navigation employment of the marine transportation industry, 2007

	Lower-St. Lawrence		North-Shore		Gaspésie		Maritime	
Type of employment	%	Number	%	Number	%	Number	%	Number
Shipowner	2.2	48	1.7	37	37.4	810	41.3	894
Cruises-excursions	3.7	23	1.3	8	3	18	8.0	49
Ferryboats	26.5	109	15.8	65	0.5	2	42.8	177
Ports and port administration	0	0	0	0	0	0	0.0	0
Port services	0	0	6.7	27	0	0	6.7	27
Maritime services	0	0	11.1	20	0	0	11.1	20
Total		180		157		830		1167

Source: Zins Beauchesne and associates. 2008. "Étude sectorielle sur les effectifs de la main-d'oeuvre maritime au Québec". [Online]. http://www.csmoim.qc.ca/MyScriptorBD/documents/33215/Rapport%20final%20d%C3%A9finitif%2012-05-2008.pdf

3.9.3 Perspective

International transport of goods

Some factors might increase marine transportation in Quebec. First, the ports on the west coast of North America are used to their full capacity. Certain experts are interested in the Panama Canal route to remedy the situation. This route would increase the distance the vessels travel by 300 miles. Additionally, the population of Panama approved the enlargement of the canal to allow more vessels to get through. Second, strong demand in raw materials from the Asian

countries could perhaps be filled in this way by the industries of the North-Shore. According to some, an increase in production of the iron mines is expected to meet the demand.[81] The enlargement of the Panama Canal, planned for 2015, could entail an increase of the traffic from Asia.[82]

Domestic marine transportation

Two factors could increase the use of short sea shipping in Quebec: clogging of the main dryland transportation routes and a new social trend in favour of the environment. In reality, coastal navigation is still far from becoming commonplace in Quebec, but the interest of the governments and the expeditors is present. The arrival of large container ships of 12,000 and 14,000 T.E.U. (about twenty feet) in the ports of Halifax and New York could favor the appearance of a maritime redistribution service.[83]

Domestic passenger transport

The domestic transportation of passengers is made up of ferry services, as well as cruises and tourist excursions. The crowding of Quebec ferryboats, in large majority operated by the Société des traversiers du Québec, is based on general economic activity and on tourism. Results were very stable over the last five years, with a slight rising trend. This tendency will probably be maintained in the short or middle term.[84]

Liquified Natural Gas (LNG) ports

Gros-Cacouna's port was selected for the construction of a port which could receive 500 million cubic feet of liquefied natural gas (LNG) per day. The expected traffic is about one vessel a week. The project would generate economic benefits of $237 M per year.[85] However, LNG's scarcity on an international scale, tensions concerning investment costs, superfluous capacity of North-American regazification and economic data about natural gas all over the world incited the partnership to put the project on ice for an indefinite amount of time on December 31, 2008.[86] Lévis's port is also trying to obtain the necessary licenses to build a LNG terminal. The project still seems to be open in spite of the 2009 economic crisis.[87]

A new project for a propane terminal is presently being studied for the Sandy Beach port in Gaspé. Propane would be brought by boat from Europe and then be sent by train to the urban centers of North America. This project has an

[81] CSMOIM, 2007
[82] Wikipédia, http://fr.wikipedia.org/wiki/Canal_de_Panam%C3%A1
[83] CSMOIM, 2007
[84] Ibid.
[85] Grand Québec.com, http://grandquebec.com/economie-quebec/port-methanier-gros-cacouna/
[86] Energy Cacouna, http://www.energiecacouna.ca
[87] Rabaska est toujours sur les rails, http://www.radio-canada.ca/regions/Quebec/2009/01/20/001-rabaska-crise.shtml?ref=rss

estimated value of between $40 M and $50 M. Every year, between eight and ten vessels containing 40 million liters of propane would land at the Gaspé quay. The project, which is still only being studied and considered, could take between 2 to 7 years to come to fruition.[88]

Saguenay's port has been trying for several years to acquire the rights to install a LNG port at Grande-Anse. The project would need a total investment of $1 B and would employ 1,000 people for its construction over a period of three years.[89] Contrary to other similar projects in Quebec (Lévis and Cacouna), this project is not as controversial because it would be situated in an isolated zone that is very sparsely populated.[90]

3.9.4 Pollution

The impact of marine transportation on the marine environment manifests itself in many ways, such as dangerous material spills, introduction of invasive species, anti-stain paint or dumping waste water. The region of Quebec is particularly sensitive to the problem of the transportation of dangerous materials, given the importance of this activity on the Saint Lawrence.

Navigation on the Saint Lawrence River is difficult and risky, especially in winter, because of the possibility of sinking or other accidents linked to marine transportation. The impact of these accidents increases considerably when vessels transport dangerous materials, a situation which can result in toxic gas emissions and spills entailing the disturbance of maritime ecosystems as well as human health. The risk is also present in ports during the products' handling.

Table 43: Comparison of inspected vessels presenting imperfections and vessels held in Canada, 1995 to 2000

Status	1995	1996	1997	1998	1999	2000
Inspections	1 348	1 184	1 011	1 191	1 076	1 070
Presence of defects	692	568	470	587	563	583
Detentions	149	118	118	142	125	103
Detects/Inspections (%)	51.3	47.9	46.4	49.3	52.3	54.5
Defects/Inspections (%)	11.1	9.9	11.7	11.9	11.6	9.6

Source: Saint Lawrence Vision 2000. 2004. Stratégie de navigation durable pour le Saint-Laurent

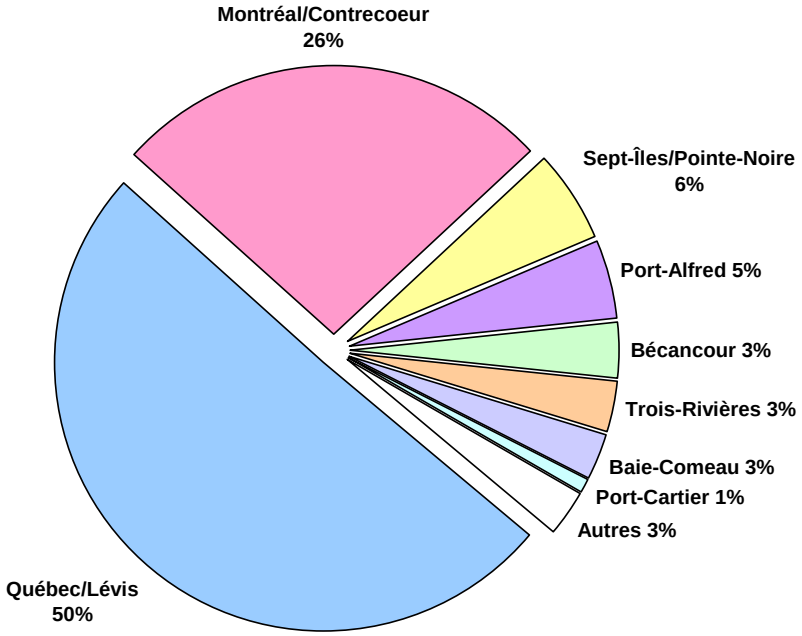
The most commonly transported dangerous goods by ships in the region of Quebec are crude oil, fuel oil, gasoline, various petroleum products and chemicals. Hydrocarbons represent about 90 % of the total dangerous goods handled. The total number of journeys with these goods on board amounted to 3,555 in 2005, where the majority of dangerous materials were unloaded in the port of Quebec.

[88] Gaspésie.com, http://www.gaspesie.com/cgi/bulletin/article.cgi?no_article=7866&contexte=web
[89] Le Quotidien. 21 juin 2005. *Projet d'Énergie Grande-Anse. Un port méthanier de 1 milliard$*, [Online]. http://www.cyberpresse.ca
[90] Le Quotidien. 22 septembre 2005. *Terminal méthanier à Grande-Anse : Une alternative valable à Lévis et Cacouna*. Nouvelles générales, p. 4

In spite of the relatively lesser importance of chemical products within the group of dangerous materials, the U.S. Coast Guard estimated that the cleaning of chemical spills costs on average ten times more that in the case of hydrocarbon spills and can take up to five times more time.[91] However, the rigorous supervision of navigation on the Saint Lawrence seems to be effective. According to Figure 8 (p. 20), in 2001 there were nearly three times fewer accidents than in 1992.

In Quebec, the majority of recorded spills take place in port during loading or unloading operations (≈ 80 % of cases between 1975 and 1994 for five large ports).[92] The quantities are generally small (< 1 000 liters) and in certain cases, they are contained on the quay or the vessel. In Quebec, CCG conducts between 25 and 35 environmental interventions concerning commercial vessels and recreational boats, as well as dryland spills whose source is unknown.[93] It is estimated that a catastrophic spill (> 10 000 tons) could occur every fifteen years in Canada.[94]

Figure 48: Reporting of tonnage of dangerous goods handled in Quebec ports, 2005



Tonnage total manutentionné de marchandises dangereuses dans les ports du Québec en 2005: 31 158 611 tonnes

Source : Statistics Canada. Compilation: P&E, Fisheries and Oceans Canada, Québec region

[91] Brander-Smith, 1990
[92] Environment Canada, 1996
[93] Saint Lawrence Vision 2000. Comité de concertation navigation, 2004
[94] Brander-Smith, 1990

3.10 Recreational activities / tourism

The maritime Quebec region abounds with tourist activities and tourism is considered to be an increasingly important economic pole. People go to, either, admire nature in one of the natural or wildlife reserves, or to practice their favorite sport, whether it be aquatic or dry-land, or to observe marine mammals. The cultural wealth of these regions also attracts many travellers.

Table 44: Share of regional employment attributed to the tourist industry, 2005

Region	%
Lower-St. Lawrence	3.20
Gaspésie–Magdalen Islands	4.80
North-Shore and Northern Quebec	4.40
All of Quebec	3.60

Source: Ministère du Tourisme du Québec. 2006. *Le tourisme, une industrie importante pour le Québec edition 2006*

Three circuits were developed to encourage promotion of the maritime regions by way of the highways that follow the coast for several hundred or even several thousand kilometres, otherwise known as the Route des Baleines, the Route des Phares and the Tour de la Gaspésie. It is also possible to admire these regions by the sea route aboard cruise vessels or by paddling along the coast, following the maritime paths in a sea kayak.

Different recreational activities related to the ocean can be practiced, such as the observation of marine mammals, excursions at sea, sea kayaking or recreational fishing. Although certain tourist activities which have no relation to the sea are accumulated in general data, more attention will be paid to maritime activities. Non-maritime tourism, nevertheless, contributes to the economy of maritime regions. However, cruises, wildlife activities and recreational navigation will be approached individually within this chapter without making distinctions as far as governance, tendencies or pollution is concerned.

It is important to note that the Ministère du Tourisme du Québec uses a geographic division other than the administrative regions. The North-Shore is divided into two sections; Duplessis and Manicouagan, whereas the Magdalen Islands represent a region independant from the Gaspésie, which has different borders than the RMC of the Gaspésie–Magdalen Islands. However, these sub-regions were grouped together with the other sections of this report for purposes of homogeneity.

3.10.1 Governance

In Quebec, it is the Ministère du Tourisme du Québec that is in charge of management of the tourist industry through encouragement, dialogue and by having a partnership with the public and private sector participants, as well as

through the development of the tourism industry from a perspective of economic prosperity and sustainable development. The department aims to:

- Direct and arrange governmental and private action related to tourism;
- Insure the marketing of Quebec and its tourist experiences;
- Begin the implementation of sustainable tourism;
- Implement and support the development of tourism products;
- Offer and supervise tourist customer services in the form of reception, information and tourist reservations;
- Insure the implementation of the human resource management plan.

To do accomplish this, the department uses the following legislation:

- Act respecting the Ministère du Tourisme
- Act respecting assistance for tourist development
- Regulation respecting assistance for tourist development
- An Act respecting tourist accommodation establishments
- Regulation respecting tourist accommodation establishments
- Cultural Property Act
- Regulation respecting the register of recognized and classified cultural property
- Municipal Powers Act

Non-governmental governance

Numerous associations exist throughout Quebec to promote and coordinate the industry's activities, whether it is at national or regional levels or by activity sector. A non-exhaustive list is presented in Appendix A.

3.10.2 Trends

The ACCORD project, a joint action of regional cooperation and development, is a strategic plan for regional economic development. It aims to build a competitive structure both in North America and the world through the identification and development of niches of excellence. For the Gaspésie, the second niche of development for the 2007-2012 plan is health and nature recreational tourism. Therefore, planning has begun to support and develop this industry, especially where cruise ship activities are concerned.[95]

The tourism industry in maritime Quebec experienced a period of significant growth during the course of the last few years. The number of tourists visiting maritime Quebec increased by about 20 % from 1998 and 2004, except for the Gaspésie, where growth was weaker than elsewhere during the same period. The North-Shore and the Magdalen Islands were able to attract more people, with a clientele increase of 47 % and 188 %, respectively, between 1998 and

[95] MDEIE, http://www.mdeie.gouv.qc.ca

2004. It is important to note that not all of the tourism in maritime regions is related to maritime tourism, as we can see in Tables 47 to 49.

According to the Canadian Travel Survey (CTS) lead by Statistics Canada, the number of journeys related to maritime tourism increased by almost 40 % between 2000 and 2006, with the following activities counting for over $190 M: coastal hiking, tourism, camping, walking, birdwatching, going to the beach, and canoeing / kayaking (see Table 49). Other recreational tourism, of which some are in emergence, activities can be also practiced in these regions.

Some figures demonstrate the tourist industry's potential from the viewpoint of job creation. Employment Quebec's most recent forecasts indicate that the growth of employment in the tourism sector (6.6 %) will be superior to that of the economy as a whole (5.3 %) between 2005 and 2009.[96] However, nothing indicates if this increase will particularly affect the maritime regions which are an important tourist destination.

Table 45: Tourist offerings on the shores of the Saint Lawrence

Categories	Distinctive elements of the experience	Products concerned
Introductory products used for commercial activities in out of province markets	Thematic river routes and circuits (L) Observation and interpretation of wildlife on the river (L) or during a cruise-excursions (M) National Parks (L and M) Maritime heritage, islands and lighthouses	Ecotourism and adventure tourism Cultural tourism Nautical tourism
Support products with "added-value" for the marketing of the experience	Bicycle on the islands and over the Green Route on each side of the river Products from the sea and land (L and M) Sea kayak (M)	Agro-tourism Cycle-tourism Ecotourism and adventure tourism Cultural tourism
Emerging products	Anticosti Island and access to other islands and lighthouses in the river (L and M) River cruises (M) Pleasure boating on the river and its tributaries (M) Fishing on the river (M) Maritime path along the Saint Lawrence	Ecotourism and adventure tourism Nautical tourism

(M) Marine activities (L) Land-based activities

Source: Ministère du Tourisme du Québec. 2007. *Le Québec du Saint-Laurent, Plan intégré de l'expérience : Diagnostic et orientation*

[96] Ministère du Tourisme du Québec, 2006

Table 46: Maximum employment generated by the tourism industry, maritime Quebec, 2004 to 2007

	Maximum Employment			
Administrative Region	2004	2005	2006	2007
Lower-St. Lawrence	2 800	2 900	N.d.	3 700
Gaspésie–Magdalen Islands	1 500	1 600	N.d.	1 300
North-Shore / Northern Quebec	1 600	2 400	N.d.	2 700
Maritime	5 900	6 900	N.d.	7 700

Source: Ministère du Tourisme. Le tourisme en chiffres 2004, 2005, 2007

Table 47: Tourist spending by administrative region, 1998 to 2006 ($M)

Year	Lower-St. Lawrence	North-Shore**	Gaspésie	Magdalen Islands**	Quebec
1998	110	75	165	15	4 815
1999	133	98	158	26	5 346
2000	124	113	198	16	5 750
2001	121	115	216	22	6 185
2002	184	215	238	16	7 286
2003	181	127	210	29	6 711
2004	218	146	196	39	7 230
2005	Nd	Nd	Nd	Nd	Nd
*2006**	*133*	*97*	*225*	*23*	*6 978*

* Preliminary data taken from the Canadian Travel Survey and Travel Suvey of Residents of Canada by StatCan. However, because of a methodology modification, 2006 data cannot be compared with previous years.
** Non significant value induced by small sample size.
Sources: Ministère du Tourisme du Québec. 2008. *Le tourisme en chiffres édition 2004 à 2007*
Ministère du Tourisme du Québec. 2005. *Le Tourisme au Québec en bref édition 1998 à 2004*

Table 48: Volume of tourists in Quebec, by administrative region, 1998 to 2006 (thousands of persons)

Year	Lower-St. Lawrence	North-Shore**	Gaspésie	Magdalen Islands**	Quebec
1998	874	421	675	26	24 927
1999	928	509	646	54	25 968
2000	897	532	731	38	26 274
2001	753	461	733	23	26 274
2002	1 024	627	826	37	30 491
2003	1 205	496	785	58	29 992
2004	1 095	609	856	75	30 941
2005	Nd	Nd	Nd	Nd	Nd
*2006**	*829*	*392*	*690*	*37*	*28 389*

* Preliminary data taken from the Canadian Travel Survey and Travel Suvey of Residents of Canada by StatCan. However, because of a methodology modification, 2006 data cannot be compared with previous years.
** Non significant value induced by small sample size.
Sources: Ministère du Tourisme du Québec. 2008. *Le tourisme en chiffres édition 2004 à 2007*
Ministère du Tourisme du Québec. 2005. *Le Tourisme au Québec en bref édition 1998 à 2004*

Table 49: Characteristics of maritime tourism in Quebec, 2000 to 2006

	2000	2001	2002	2003	2004	2005	2006
Pers. (000)	917	910	1 028	1 053	1 085	1 170	1 256
Expense M$	146.7	156	185	176.6	190	190	190.3

Sources: Statistics Canada. 2006a. *Enquête sur les voyages des résidants du Canada*
Statistics Canada. 2005. *enquête sur les voyages des Canadiens*

Table 50: Recreational touristic days spent in a maritime area, 2006

Activities	Walking	Tourism	Camping	Hiking	Bird Watching	Beach	Canoe-Kayak
Pers. (000)	1 203	416	154	206	97	204	111

Sources: Statistics Canada. 2006a. *Enquête sur les voyages des résidants du Canada.*
Statistics Canada. 2005. *Enquête sur les voyages des Canadiens*

3.10.3 Cruises

In this section, three types of cruises will be discussed: international, excursion cruises and observation of marine mammals (OMM). These are not all governed by the same authorities because international cruises supply an extraprovincial marine transportation service in several cases. Indeed, the constitutional Law of 1867 gives exclusive competence in navigation, merchant marines and in extraprovincial transport to the government of Canada. Transport Canada, as well as CCG (DFO) are the authorities who are responsible for the legislation of these activities.[97]

The international cruise industry on the Saint Lawrence offers beautiful vacation opportunities for tourists from around the world. Cruise ship tourists look for new destinations in cold waters to compensate for the saturation of the market in Alaska. However, the cruise industry experienced a slight slow down due to a decline of tourist clientele caused by the SARS epidemic and the Iraq War.[98] In Quebec, the number of cruise ship tourists increased 220 % between 2000 and 2008, while the number of journeys increased quickly, and then decreased in 2003-2004 (Tables 51 and 52).

International cruises generate average expenses of $236 per passenger and $144 per crew member, for each port of call. The total of expenses on land amounted to $26 M for the passengers and $6.3 M for the crew members in 2006. However, direct, indirect and induced effects are $150 M for Quebec, generating more than 1,100 full or part-time jobs, often seasonal. These visits depart from either eastern Canada/New England or Europe.[99]

[97] Unisféra, 2006
[98] Alexander et al., 2008
[99] BREA, 2008

Table 51: Number of cruise tourists and crew members on the Saint Lawrence

Ports	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009**
Québec	35855	49134	67980	59323	71285	66097	65801	66152	78902	116876
Montréal	22506	23829	37867	28509	37503	28579	33037	28688	33314	43568
Saguenay					666		11399	12843	10602	27998
Baie-Comeau							920	850		11395
Havre-Saint-Pierre									77	
Gaspésie							200	1083	230	8229
Sept-Îles										5619
Magdalen Islands				814			100		30	3516
Trois-Rivières							520	520	528	1648
Passengers	58361	72963	105847	87832	109454	94676	111977	110136	123683	228300
Crews	ND	ND	ND	30314	44570	37677	41803	43814	46889	86754
Total	58361	72963	105847	118146	154024	132353	153780	153950	170582	315054

** Predictions 2009 based on ships maximal capacity
Source: Lisianne Ross, Saint Lawrence Cruise

Recent attempts have been made to extend the cruise industry to other ports in the Saint Lawrence. However, the lack of infrastructure to welcome large numbers of tourists has limited such development. The Quebec and Canadian governments decided to invest about $100 M over the next five years to develop a network of harbour stopovers in order to increase the number of cruise ships on the Saint Lawrence. The objective of these investments is to enrich both the tourists' experience and reception infrastructures of certain coastal municipalities to attract cruise ship tourists. The targeted ports are Saguenay, Sept-Îles, Baie-Comeau, Gaspé, Havre-Saint-Pierre and the Magdalen Islands. According to the Association of Saint Lawrence Cruise Ships, the addition of six stopovers on the river could increase the annual number of cruise ship tourists to 400,000 by 2014, which is four times more than in 2006. A new cruise ship route is presently available for a reduced number of tourists that departs from Quebec with planned ports of call in Tadoussac, the Saguenay fjord, Île-aux-Lièvres, Malbaie and Grosse-Île.[100]

Table 52: Number of stopovers of international cruises at the Quebec port, 1992 to 2007

Year	# of port of calls	Year	# of port of calls
1992	121	2000	62
1993	88	2001	87
1994	80	2002	97
1995	82	2003	112
1996	55	2004	104
1997	61	2005	87
1998	68	2006	77
1999	58	2007	74

Source: Port Authority of Québec and Montréal, special compilation: DFO-P&E, Québec region

[100] DFO, 2008c

Excursion-Cruises

Quebec takes charge of the commercial sector of intraprovincial marine transportation of individuals and goods, such as ferryboats and ferryboat services of the Lower-North-Shore and excursion-cruises.[101]

Outside the activities of observation of marine mammals, different types of cruises exist for the Gulf region. There are cruises for marine waterfowl observation, particularly at Rocher-Percé, natural heritage cruises at the Archipel-de-Mingan, and cruises centred on the discovery of historical heritage or lighthouse visits. If one includes the activities of observation of marine mammals (OMM), about 1.2 million passengers used the services of excursion-cruises in Quebec in 2000. It is about an increase of 33 % compared to 1996. This value tends to be rather stable since the estimated number passenger in 2007 was 1.2 million. However, it can be difficult to estimate the exact number of guests going on cruises in the maritime Quebec region, because certain vessels which have Montreal as their port of registry can go down the river. According to Table 53, which presents the number of passengers by region of the vessel's origin, the number of tourists on excursion-cruises in the maritime region is estimated at over 432,000 persons in 2003.[102]
Direct economic benefits of excursion-cruises were estimated at $52 M and at $69 M for indirect benefits in 2001, thus creating more than 1,610 seasonal jobs throughout Quebec. By applying a ratio of the number of travelers for the region with regard to the province as a whole, the direct and indirect effects in the maritime region are $24.7 M and $32.8 M, and the employment effect is 765 seasonal jobs. It is an industry where 90 % of the revenues are realized during the summer, from June 24th until September 30th.[103]

Table 53: Relative use landing capacities for excursion-cruises, by region of origin, 2003[104]

Regions	Number de passengers	Utilization Ratio
Lower-St. Lawrence	26 164	38 %
Charlevoix	134 221	41%
Gaspésie*	120 593	53%
Magdalen Islands	7 100	43%
Saguenay	20 398	25%
Duplessis (North-Shore)	16 185	26%
Manicouagan (North-Shore)	108 079	33%
All of Quebec	910 754	-

*Value largely estimated because of the refusal to participate in the study
Source: Chaire de tourisme de l'École des sciences de la gestion. 2003. *Plan intégré de développement de promotion des croisières-excursions du Québec.*

[101] Transport Québec. Transport maritime.
http://www.mtq.gouv.qc.ca/portal/page/portal/entreprises/transport_maritime
[102] Chaire de tourisme de l'École des sciences de la gestion, 2003
[103] Ibid.
[104] Total number of passengers differs between this table and the numbers previously defined for reasons that were not defned in the reference document. However, the document mostly refers to 1.2 Million of passenger.

Table 53 indicates, however, that the ratio of use is situated between 25 % and 50 %, according to the region, which suggests either an overcapacity of the fleet in this industry or an important concentration during a short period of time. In 2000, 76 companies had a fleet about 150 vessels.[105] It is difficult to estimate sea traffic engendered by this activity because small size vessels, such as zodiacs, are not considered by the INNAV system.[106] However, data relating to the observation of marine mammals suggests that it could be more than 10,000 journeys a year.[107]

Observation of marine mammals (OMM)

This is an activity unique to the region of maritime Quebec. This activity is part of the excursion-cruise industry but deserves a section to itself because of its importance and impact on the aquatic fauna. OMM represents more than 60% of all the excursion-cruises in Quebec.[108]

It is mainly in the region of Saguenay's marine park, notably on the North-Shore, that the majority of excursions take place. It is also possible to take excursions in the Gulf departing from Havre-Saint-Pierre, Longue-Pointe-de-Mingan, Mingan and Sept-Îles on the North-Shore and from Gaspé, Forillon and Percé in the Gaspésie. The number of observers in the Gaspésie was estimated at some 20,000 persons in 1998.[109] It is also possible to observe marine mammals from the coast, in Saguenay's marine park, as well as in the Gaspésie. However, it is not possible to estimate the frequency of this practice with exactness.

Considering the fact that OMM represents 60 % of excursion-cruises, and that these have direct and indirect expenses of $52 M and $69 M, the economic benefits of OMM are estimated at $31.2 M and $41.4 M.

It is estimated that in 2005, OMM generated 6,200 sea voyages, if small boats are considered, and 60 % of excursion-cruise activities. Depending on weather and crowding, the number of excursions is about 150 per day during the high season. Considering that the data mentioned above includes Marchant Passager vessels counted by the INNAV system, about 5,000 journeys were from vessel less than 20 m.[110] Excursion-cruises have experienced continuous annual growth since the 1990's, reaching 10 % in certain years, in large part due to the development of the OMM industry. There does not seem to be any future events that will entail such strong progress in the future. These activities depend in large part on American and European tourism.[111]

[105] Ibid.
[106] Estimations of OMM established to more than 6000 the number of sea-trips. Since OMM represents roughly 60% of all excursion-cruises, those can be evaluated to be over 10000.
[107] INNAV and MCTS Center – Les Escoumins, CCG, Québec region
[108] DFO, 2003
[109] Tecsult Environnement inc., 2000
[110] INNAV and SCTM Centre – Les Escoumins, CCG, Québec region
[111] CSMOIM, 2007

The marine mammals of the St-Lawrence are, for the most part, endangered species. Apart from the economic benefits resulting from observation activities, it is possible to attribute an existence value to these species and an estimation of the Canadian population's willingness to pay for their protection. Various scenarios suggest that on average, Canadians would be ready to pay between $82 and $242, annually by household, for a total of $ 948 M to $ 2,798 M to save these species, even if the majority will never go and observe them.[112]

3.10.4 Wildlife activities

In Gaspésie, wildlife activities (sport fishing, hunting and non-consumption activities) resulted in expenses of about $37 M and contributed to employment at the level of 400 person-years in 2005.[113] On the North-Shore, the total number of jobs with outfitters was 671 in 2002, with revenues of $22 M.[114]

Sport fishing

In Quebec, it is the provincial Ministère des Ressources naturelles et de la Faune that regulates and administers freshwater recreational fishing, anadromous (salmon) and catadromous (eels) species, while MAPAQ is in charge of issuing licences. DFO regulates this activity for marine species. Regulations pertaining to recreational fishing result from many laws:

- Fish and Game Clubs Act
- Act respecting the conservation and development of wildlife
- Act respecting threatened or vulnerable species

The DFO publishes regularly a report of recreational fishing in which one finds information on salt water fishing. However, it is not possible to disaggregate these data according to administrative regions. Data presented in that report are higher than exists in the study zone because their report also includes the Northern Quebec region. Salmon fishing is excluded for the years studied since it is considered a fresh water fish. In 2000 and 2005, data for the nonresident fishers in Quebec were not collected. However, previous reports suggest that these values represent only a small fraction of the total catch. It is difficult to obtain information about dock-fishing because one does not require a fishing licence in salt water and residents may fish as they wish.

Table 54: Recreational salt water fishing in Quebec, 1990 - 2005

Year	# of fishing days	Average # of days per fisher	# of Fishers	# Fish caught & held
1990	555 411	7.0	79 344	5 266 615
1995	198 915	5.0	39 783	2 920 463

[112] DFO, 2007b
[113] MRNF, 2006
[114] MRNF, 2007

2000	252 830	5.6	45 148	3 236 034
2005	197 444	6.5	30 376	1 543 697

Source: Fisheries and Oceans Canada (DFO). 2007a. *Enquête sur la pêche récréative au Canada 2005*.

Considering that according to the Quebec average, a fisherman spent about $120 per fishing day in 2005, the total of maritime fishers would have spent about $23.7 M during this same year.[115] It is an important decrease as compared to the year 2000, while incomes reached $66.6 M.[116] Recreational fishing's impact on wildlife and flora is not negligible due to the loss of lead weights and lead shot. This accounts for 14 % of all the unrecovered lead thrown back or lost in the environment from this activity, mainly fresh water environment.[117]

Salmon fishing

Salmon fishing is a recreational activity under the jurisdiction of the provincial government, because salmon is an anadromous species (one that lives in salt water, but reproduces in fresh water). The Ministère des Ressources naturelles et de la Faune du Québec is thus responsible for activities relating to this species.

Table 55: Principal salmon rivers, by administrative region

Region	Number of salmon rivers
Gaspésie	22
Lower-St. Laurent	3
North-Shore / Anticosti Island	22

Source: Saumon Québec. *Les rivières*, [Online]. https://www.saumonquebec.com/LesRivieres/LesRivieres.aspx

The direct and indirect economic impact of this activity is important to local communities, and amounts to about $18.7 M annually, with a large part of the revenue resulting from foreigners. On the whole, it results in more than 560 jobs (person-year) that depend on this industry. A marketing plan is presently being planned with the aim of attracting a new clientele. According to people in the industry, the number of fishing days has been rather stable for some years, being set at around 57,000 days per person. Recent demand would have been affected by the increase of the Canadian dollar as compared to the American currency.[118]

Table 56: Economic impact of salmon fishing (M$)

	Gaspésie	North-Shore	Lower-St. Lawrence	Total
Direct	9.4	4.3	2.9	16.6
Indirect	1	0.6	0.5	2.1
Total	10.4	4.9	3.4	18.7

Source: Roche (Shaw gGoup). 2005

[115] DFO, 2007a
[116] Gardner Pinfold, 2009
[117] Scheuhammer, Money, Kirk and Donaldson, 2003
[118] Roche (Shaw Group), 2005

Table 57: Direct and indirect jobs connected with salmon fishing (pers.-year)

	Gaspésie	North-Shore	Lower-St. Lawrence	Total
Direct	319	123	74	516
Indirect	22	14	13	49
Total	341	137	87	565

Source: Roche (Shaw gGoup). 2005

Hunting

This activity is governed by the Ministère des Ressources naturelles et de la faune of Quebec who is inspired by the same type of laws as recreational fishing uses to control these activities. The periods open to big game hunting can be found at the following address: http://www.mrnf.gouv.qc.ca/publications/enligne/faune/reglementation-chasse/periodes-limites/index.asp.

In Quebec, during the last ten years, hunting for small game and caribou experienced a decline in terms of the number of permits issued, while the issuance of permits for Virginia (whitetail) deer and moose experienced a sharp increase during the same period (30 % and 32 %, respectively).[119] For Anticosti Island only, the economic impact of hunting for Virginia Deer was $12 M in 2002, which was an increase of $10 M in four years.[120]

Waterfowl hunting occurs in autumn, from September until December. It is done along riverbanks or in boats either without engines or with them turned off. This activity is governed by Environment Canada according to two federal laws: the Law of 1994 on Migratory Birds Convention Act and Migratory Birds Regulations and its Regulations on migratory bird hunting, as well as by the Canada Wildlife Act and its Regulations governing wildlife reserves. Available data on the number of permits issued are valid only for Quebec as a whole, when they exist.

Since waterfowl are dependent on coastal zones, they can be affected by contaminants. Results reveal that pond ducks are generally less contaminated than diving ducks. Certain instances where the norms were exceeded were noted in samples taken in the Saint Lawrence ecosystem. However, it remains difficult to establish a link between the contamination of the Saint Lawrence and that of the waterfowl. Indeed, because of the autumnal migration, birds that have been shot down can come from areas that are very far away from the Saint Lawrence region.[121] Not knowing the number of hunters in the region, it is not possible to determine the economic impact of this activity for the regions of this study.

[119] MRNF, http://www.mrnf.gouv.qc.ca/faune/statistiques/chasse-piegeage.jsp#chasse
[120] MRNF, 2006
[121] Saint Lawrence Vision 2000. Domaine d'intervention Santé humaine. 2004, http://slv2000.qc.ca/bibliotheque/centre_docum/phase3/bilan_sante_humaine/St_Laurent_f.pdf

3.10.5 Recreational Navigation[122]

This activity includes the use of the following types of boats: motorboats, sea and river kayaks, canoes, windsurfing, rowboats, sailboats more than 20 feet and motorboats more than 10 feet. In 2002, the inhabitants of the Gulf region possessed 24,000 motorboats, 3,000 sailboats and 7,000 small boats.[123]

Table 58: Families possessing at least one boat, maritime Quebec, 2004

Regions	Number of household owning at least 1 boat	% of household owning at least 1 boat
Gaspésie–Magdalen Islands	8 883	23%
North-Shore/Lower-St. Lawrence	27 781	23%

Source: DFO, 2004. La navigation de plaisance au Québec.

Generally, according to Statistics Canada, the water sports industry in Canada has increased by 2.6 % between 2001 and 2006.[124] In Quebec in 2006, total incomes of the 240 marinas, water-sports clubs and yacht clubs were $692.2 M[125] and they employed, on average, 10 people each.[126] In 2008, there would have been 236 organisations to offer 14,685 jobs. If one considers that the available number of places did not really change between 2006 and 2008, it is possible to estimate a value for maritime Quebec by applying the proportion of total space to the incomes of the marinas. Since the study zone contains 2,612 places, which is 17.8 % of the total space for 2008, it can be estimated that in maritime Quebec, the 43 marinas generate incomes of $123 M and employ 430 people.[127]

Contrary to the other provinces and to certain American states, Quebec does not have rules for recreational sailing boats forbidding wastewater disposal directly in the sea. The environmental impact associated with this practice is impossible to deny. A study led by Swedish researchers in 1994 estimated that a fleet of 195,000 recreational boats produced, during the holiday season (two months) a volume of untreated waste water amounting to the annual waste of a population of 32,500 inhabitants. By estimating the population of the region of study at about 36,000 inhabitants, impact amounts to the untreated waste of a population of 6,000 persons over two months.[128] However, it is difficult to exactly estimate the number of sailors in this region because many boats could come from other administrative regions.

[122] This section does not comprise economic activities of manufacturers, distributors and detaillants. Only marinas income and navigation habits are presented.
[123] Environment Canada, http://www.qc.ec.gc.ca/csl/inf/inf028_f.html
[124] Business Research and Economic Advisors (BREA), 2008
[125] Genesis Public Opinion Research inc., Smith Gunther Associates. 2007
[126] Michaud, Dion, Rioux, Diop and Laflamme, 2002
[127] Québec Yachting, http://www.quebecyachting.ca/
[128] Saint Lawrence Vision 2000, http://www.slv2000.qc.ca/plan_action/phase3/navigation/SND/plan_action/pa_rejets_eaux_f.htm

The construction of marinas, quays and launching ramps along the Saint Lawrence can contribute to the loss of natural habitat and biodiversity. These three infrastructures have different effects on the environment. The impact of marinas is generally more significant.

The use of the marina can also entail a disturbance for wildlife species when nautical activity is intense and localized. Furthermore, the concentration of a large number of boats, as well as the services and activities related to tourism (restaurants, maintenance, etc…) can generate solid and liquid pollutants that affect the quality of water and sediments near or inside harbour zones, when septic disposal from establishments is not made according to current regulations.[129]

Sea kayaking and scuba diving

In Quebec, numerous routes were developed to encourage the practice of this activity.
There is no precise information to date concerning the volume and economic benefits of this activity for the whole of the maritime region. However, according an inquiry by Statistics Canada concerning the travel customs of Canadians, about 110,000 person/days would have been made for this activity in 2006. These data includes recreational sailors possessing their own canoe/ kayak, as well as activities taking place all around Quebec.

Table 59: Sea route for sea kayaking in the maritime region

Sea Kayak	Sectors
Archipel de Mingan	Réserve du Parc national de l'Archipel-de-Mingan (4 access points)
Saguenay – Saint-Laurent Marine Park	Tadoussac to La Baie (12 access points)
Blue Route North-Shore of the Gulf	Baie-Trinité to Blanc Sablon (80 rest stops)
Blue Route des Baleine	Sacré-Cœur to Baie-Trinité (80 rest stops)
Blue Route south of the estuary	Berthier-sur-Mer and Les Méchins (95 sites)
SM Magdalen Islands	31 access points all around the islands
Blue Route of the Gaspésie	Les Méchins to Matapedia

Source: Sentier maritime. *Kayak de mer – Route bleue*, [Online]. http://www.sentiermaritime.com/

A quick inquiry with a company offering these two services (kayaking and diving) indicates that employees are mostly students and that expenses engendered by the customers are on the order of $250 a day for these two activities. This company offers its services to about 3,000 persons during the high season (kayak and scuba diving). This is the only company offering this service in this touristic municipality of the Gaspésie. Numerous local residents also practice this activity, without bringing added value to the economy except for the purchase of the boat. The various scuba diving sites are listed in the document mentioned below, but are too numerous to be listed here.[130]

[129] Environment Canada, http://www.qc.ec.gc.ca/csl/inf/inf032_f.html
[130] Giguère, 2008

3.11 Marine technologies and marine biotechnologies

Marine biotechnology companies try to make and develop products intended for nutraceutical, cosmeceutical, agricultural and pharmaceutical sectors from molecules and active components extracted from shellfishes, algae and fishes. Presently, in Quebec, products are derived from shrimp carcasses or from algae, but research is also being done on crab residue.[131] The industry is still young, particularly in Quebec, where there are only five companies that are located in the maritime region and employ about 80 individuals.

The Maritime Technologies of Quebec network groups together about twenty companies whose main activity is directly connected to the maritime domain. These companies work in diverse sectors, such as navigation systems technologies, maritime communications technologies, purchase and management of data, maritime cartography and geomatic applications, integration of information systems technologies and other applications related to computers, cables and underwater telecommunications, fishing equipment, boat construction, aquaculture sites (nets, etc.), and production technologies connected to marine biomass transformation.[132]

Table 60: Companies connected to the field of science and maritime technology **, maritime Quebec, 2008**

Businesses	Established	Employees	Sales	City	Region*
Marine biotechnology					
ABK-Gaspésie	1999	26	500K$-1M$	Matane	(GMI)
Aqua-Biokem LSL	1995	4	>100K$	Rimouski	(LSL)
Biotechnologie Océanova	2004	15	N.A	Rimouski	(LSL)
Naturo Cosmétique	1999	9	1M$-3M$	Les Méchins	(LSL)
Marinard Biotech	1996	35	N.A.	Rivière-au-Renard	(LSL)
Marine imagery					
Groupe Sygif	1996	13	1M$-3M$	Rimouski	(LSL)
Groupe Trifide	2002	30	1M$-3M$	Rimouski	(LSL)
Océanide	1982	2	500K$-1M$	Rimouski	(LSL)
SPS Marine	1994	8	N.A	Matane	(GMI)
Systems of information and instrumentalization					
Geslab Enr.	1994	3	100K$-500K$	St-Simon	(LSL)
Multi-Électronique	1980	9	1M$-3M$	Rimouski	(LSL)
Seaquest Technologies	2003	12	500K$-1M$	Rimouski	(LSL)
Communication and navigation					
Atelier Roch Boudreault	2000	3	500K$-1M$	ÎdlM	(GMI)
Besmarine	1994	3	100K$-500K$	Rimouski	(LSL)
CMC Électronique	1903	3	100K$-500K$	Matane	(GMI)
FP Industrys	2001	8	500K$-1M$	Cabano	(LSL)
Marine Services					

[131] Charest and Poulin, 2007
[132] Doloreux, and Melançon, 2008

GRT Aquatechnologies	1996	2	100K$-500K$	Gaspé	(GMI)
IDS micronand Solutions	2000	10	500K$-1M$	Rimouski	(LSL)
Océanide	1982	2	100K$-500K$	Rimouski	(LSL)
Onyx Industrys	1984	14	1M$-3M$	Matane	(GMI)
Pesca Environnement	1991	25	1M$-3M$	Maria	(GMI)

* GMI – Gaspésie – Magdalen Islands; LSL – Lower Saint Lawrence;
** This list is not exhaustive and other firms could be added
Source: Doloreux, D. and Melançon, Y. 2008. *Innovation support organizations in the marine science and technology industry: the case of Québec's coastal region in Canada*

Perspective

A lot of hope rests on this niche of the maritime industry in Quebec, as is suggested in the development plan ACCORD. However, the current economic situation is particularly difficult for this type of company while venture capital is very rare.[133] The future of this industry, as well as research centers acting in support (CRBM, CIDCO), is fragile but promising and rests mainly on the government financing.

The economic objectives of the ACCORD plan are to create 150 jobs by 2012 in the maritime technologies area, and to invest $12 M in research and development, as well as in the creation of ten new companies.

Table 61: Status and perspective of the number of innovative companies

	2000	2006	2012
Marine technologies	3	8	18
Biomarine technologies	2	6	16

Source: Technopole maritime du Québec. 2008. *Développement et diversification économique de l'est du Québec : situation du secteur maritime,* [Online].
http://www.tmq.ca/publication/memoire_fev08.pdf

[133] Leduc, 2008

3.12 Production of energy

Various laws govern human activities connected with energy, such as the Dam Safety Act, Electricity Exportation Act, the Hydro-Quebec Act, and the Act respecting Municipal and private electric power systems. The production of energy includes construction and operation of hydroelectric dams and wind farms. There is no known central tidewater power plant project in development in Quebec.

Projects ensuing from the first call for tender of 1,000 MW for windpower projects that will be realized during the 2006 to 2012 period, will represent a total investment of $1.9 B, where more than $400 M will be used for the expansion and reinforcement of Hydro-Quebec's network. This call for tender has already generated an important number of jobs in several sectors. Furthermore, two towns of the Gaspésie have new industries which came into production in Spring 2006.[134]

Table 62: Employment associated with the first phase of wind farm construction

Activity Sectors	Employment Totals
Manufacturing Plants	488
Construction and maintenance of wind farms	359

Source: Survey of firms realised by MRNF, June 26th 2008

The second call for tenders opened in 2005, attempted to support the first work phase activities by adding production of 3,000 MW, enabled investments of more than $3 B, and the creation of 4,000 jobs during the construction phase and almost 800 permanent jobs for the production and maintenance of the wind farms.[135]

Furthermore, the landowners can rent space to the wind farm promoters and obtain, in return, annual payments. Lots are rented to the wind farm producers who take care of the installation and management, which enables them to receive an additional source of income.

On August 1, 2008, Quebec had 339 wind turbines with a power of by 422.25 MW on the Gaspésie and Matane RMC territories. Wind energy so produced is integrated into production within Hydro-Quebec's network.

On the North-Shore, Hydro-Quebec supplies 1,110 jobs due to hydroelectric production.[136] Several big rivers, such as the Bersimis, Outardes, Manicouagan and Saint-Marguerite rivers have a total of thirteen hydroelectric dams.[137] An

[134] MRNF, http://www.mrnf.gouv.qc.ca/energie/eolien/eolien-retombees.jsp
[135] Ibid.
[136] MRNF, 2007
[137] Ibid.

important, but controversial project that has just been accepted by the Bureau d'audiences publiques sur l'environnement (BAPE), the organization in charge of holding public hearings regarding environment matters, is in progress on the La Romaine River.

3.12.1 Ocean-based petroleum and gas

Oil exploration started along the Gaspésie in 1836 with the discovery of the oil oozing from rocky layers. The Gaspésie was the object of oil exploration until 1950's, then interest was transferred to the Lower Saint Lawrence. During 1970's, the Quebec government founded the Société québécoise d'initiative pétrolière (SOQUIP), an oil initiative company and built the Institut national de recherche scientifique (INRS-Pétrole), a national scientific research institute, to support oil and gas exploration along the Gaspésie. This initiative attracted large oil companies into the region, but interest decreased quickly because no major discovery was made. A certain number of small firms continue to lead exploration programs in the region. Since 1995, exploration increased along the Gaspésie, Anticosti Island and the Magdalen Islands, as well as in the Saint Lawrence Gulf, mainly because of the discovery of petroleum in the western Newfoundland (Port-au-Port and # 1). In 1998-99, Shell and Calpine conducted seismic tests on 400 km and drilled five exploratory wells on Anticosti Island: only one (Chaloupe Well) indicated a presence of petroleum in the region. In 2002, Junex Inc, one of the largest property owners on the Gaspésie, began exploit its gas field, Galt, and Corridor Resources Minerals Inc Foothills acquired new seismic data for the Fatima field (40,000 hectares), in the Magdalen Islands. In November 2002, the petroleum and gas division at Hydro-Quebec proposed a $330 M investment plan to explore and evaluate the potential of petroleum and gas in the estuary and Saint Lawrence Gulf. Opposition to the project prompted Environment Canada and Fisheries and Oceans Canada to proceed with an environmental assessment of the region. The Quebec government also submitted the project to a process of public audiences and to analysis by a panel of experts. Hydro-Quebec, in collaboration with Corridor Resources, obtained 25 % of the rights for the Old Harry site, located in the Laurentien Channel. Additionally, the Quebec government, in partnership with the Geological Survey of Canada undertook a series of seismic tests, between Escoumins and Pointe-des-Monts (maritime estuary). Since 1860, about 381 wells have been drilled in the sedimentary basins of Quebec. About $100 M was dedicated to oil and gas exploration in Quebec between 1990 and 2000, of which $50 M went towards seismic activities in the Lower Saint Lawrence and on Anticosti Island.[138]

A dispute between the Quebec and federal government on the division of management of petroleum exploration in the Gulf, limits project development at the Old Harry site. This constitutes three "offshore" exploration licenses, two of which are located inside the borders of Quebec and one in Newfoundland-Labrador's maritime territory. The site is situated in 80 kilometres northeast of the

[138] Alexander et al., 2008

Magdalen Islands and could contain up to two billion barrels of petroleum. The potential is twice as significant as that of the Hibernia field off the coast of Newfoundland, and three times as big as the gas field off the coast of Sand Island, Nova Scotia.[139]

3.12.2 Land-based petroleum and gas

According to tests done by Group Pétrolia, the Haldimand deposit located near Gaspé would be capable of producing 34 barrels a day of light petroleum, which corresponds to the average that wells in the western part of the country experience. June 2006 was the discovery date, but production has since stopped in order to tie up an agreement.[140] Pétrolia has interests in a mining field that represents 21 % of the Quebec territory under licence. Located mainly on the Gaspésie and on Anticosti Island, these licences are considered as the most forward-looking and represent more than 70 % of the ground oil potential in Quebec.[141]

The daily production of natural gas from the Galt deposit, located near the Haldimand deposit, can be assured with Galt #1 and Galt #3 Wells that have an estimated production capacity of about 37,000 cubic feet per day. Additionally, the Galt #3 Well produces about 5 barrels of light petroleum per day.[142]

Pétrolia is optimistic as to the potential on Anticosti Island, and considers that, along with the Gaspésie; it is the region the most likely place for the discovery of hydrocarbons on the continent. Without suggesting a possible production date, the potential would be 1,000 barrels per day, per oil well.[143]

[139] Grenier, 2008
[140] Presse canadienne, 2008
[141] Thérialut, 2008
[142] Bruckmüeller, 2008
[143] Presse canadienne, 2008b

3.13 Mines and Aluminum Plants

The provincial legislations regulating these activities are mainly the Cadastre Act, the Mining Duties Act and the Mining Act. In 2003, North-Shore mining production amounted to about $1.2 B and directly employed more than 2,600 individuals at the four large centers[144], which consist of two mines and two pellet plants. However, more than 120 companies also possess exploration permits for quarries, granites, sand quarries and others. Furthermore, Port-Cartier's private port is completely dependent on the mining industry and iron exports. In Gaspésie, the closing of the copper mine in Murdochville, in 2002, brought an end to commercial mining developments, although some sites of gravel, sand or architectural stone are present. In the Magdalen Islands, the Seleine salt operation employs 160 persons.[145]

Table 63: Business and active sites inventories, maritime Quebec, 2008

MRC	Number of businesses with active mining sites	Number of active sites
La Matapédia	6	6
La Mitis	4	9
Les Basques	1	1
Matane	7	8
Témiscouata	23	27
Magdalen Islands	5	6
Le Rocher-Percé	4	4
Bonaventure	8	10
Avignon	6	6
La Côte-de-Gaspé	3	3
La Haute-Gaspésie	6	8
Lower-North-Shore	7	27
Caniapiscau	8	32
Upper-North-Shore	16	78
Manicouagan	39	99
Minganie	22	78
Sept-Rivières	29	86

Source: Ministère des Ressources naturelles, de la Faune et des Parcs du Québec. *Cartes et fichiers du Québec minier,* [Online]. https://gestim.mines.gouv.qc.ca/ftp//cartes/carte_quebec.asp

Two aluminum plants are located on the North-Shore near the Gulf: Alcoa in Baie-Comeau and Aluminerie Alouette Inc. in Pointe-Noire near Sept-Îles. Together, they employed 2,800 persons in 2005 and produced about 36 % of Quebec's production for $2.2 B$ of the exports.[146]

China's economic development has led to a strong increase in the demand for iron ore since 2004, increasing iron prices. Emploi-Quebec foresees an

[144] MRNF, 2007
[145] MRNF, 2006
[146] Investissement Québec, http://www.investquebec.com/fr/index.aspx?page=476

employment increase from 2 % to 3 % over the next five years, which is superior to Quebec's average growth.[147]

Table 64: Gross domestic product for basic prices in the mining extraction and oil and gas extraction industries (K$), 1998 - 2006

Regions	1998	2000	2002[r]	2004[p]	2006[e]
Lower-St. Lawrence	23 667	28 883	29 454	37 887	49 204
Gaspésie	89 787	41 745	29 840	22 392	35 397
North-Shore*	-	-	-	-	-

r: revised p: preliminary e: estimated
* Data unavailable due to confidentiality reasons
Source: Institut de la statistique du Québec. *Banque de données des statistiques officielles sur le Québec (BDSO)*, [Online]. http://www.bdso.gouv.qc.ca

3.13.1 Pollution

Effluents from mining sites are made up of mine water, water released from a residual mineral outlet site (also called a mining residue park), water from a stream of tailings or a combination of these types of waters. The mine water is pumped towards the surface to keep the mine dry and to enable exploration. This water can contain contaminants resulting from dynamite activities, vehicle and other equipment use, as well as from biological or chemical reactions that occur at the surface of the bedrock.

When mining installations include a mineral treatment plant (that is, a plant where the raw ore is treated to make it concentrated), the organization of a tailings site is necessary to dispose of the treated residue. These residues are composed of finely crushed gangue (the part of raw ore which does not contain economically exploitable minerals) and a lot of water.[148]

Aluminum plants are renowned for their pollution. The factories at Baie-Comeau and Sept-Îles were classified, respectively, fourth and eighth in the list of the most polluting factories in Quebec.[149] Emissions are mainly air-borne and ground-based. There is no annual report of compliance as exists for the mining or pulp and paper sectors.

[147] Comité sectoriel de l'industrie des mines, http://www.csmomines.qc.ca
[148] Ministère du Développement durable, de l'Environnement et des Parcs, 2005
[149] Nadeau, 2006

3.14 Agriculture

Several laws and ministries govern agriculture in Quebec, which include the Ministère de l'Agriculture, des Pêcheries et de l'Alimentation (MAPAQ) and the Ministère du Développement durable, de l'Environnement et des Parcs.

Having tackled industrial pollution in its first phase (1988-1993), the St-Lawrence Plan (PSL) adopted a longer term ecosystemic approach, where work had to be done at the level of the drainage basins.

In Phase II (1993-1998), activities connected with the Agriculture component aimed especially to counter non-point-source pollution from watersheds, with a strong agricultural intensity, which affects the quality of the Saint Lawrence ecosystem. Studies conducted during this period enabled one to notice the presence of agricultural pesticides, notably, herbicides used in large cultivations (corn, soya and cereal) in several tributaries and in the Saint Lawrence River up to the level of Québec City.

In Phase III (1998-2003), the main objective of the Agriculture component was to reduce the use of pesticides and risks connected to those employed in the targeted crops (cereal, corn, soya, apple and potato). The preferred course of action was the adoption of agroenvironmental management practices for the targeted crops which on their own, represent 70 % of the agricultural pesticides used, a large part of which was herbicides.

The key in Phase IV is to promote a strategy that will accelerate a move from present agricultural practices towards management practices that will be beneficial for a majority of the agricultural companies. There are various meansof achieving this aim, such as building an information exchange network or the meshing of projects.[150]

Furthermore, there are two blueberry producers in Gaspésie. One of them acquired an old seafood processing plant in Newport that has been transformed into a factory for freezing and processing blueberries. This plant is the only one of its kind situated outside the Saguenay-Lac-Saint-Jean region. The company employs between 15 and 75 individuals, depending on the time of year.[151] Field-berry production is also present on the North-Shore, while 78 % of the north-coast's blueberry harvest is from public territory.[152] Few economic data are available for this sector.

Agriculture and its supporting activities employ about 5,000 workers.[153]

---

[150] Saint Lawrence Plan, http://www.plansaintlaurent.qc.ca/sl_bm/interventions_g/psl/phase_IV/comites/agriculture/accueil_f.html
[151] MRNF, 2006
[152] MRNF, 2007
[153] UPA, Gaspésie–Îles-de-la-Madeleine regional bureau, personal communication

Table 65: Gross domestic product for basic prices for the industry of Agricultural and Breeding, 2002 - 2006, (K$)

Regions	2002	2003	2004	2005	2006
LSL	169 035	185 511	214 325	211 576	196 282
GÎM	44 275	59 506	70 798	59 315	47 730
North-Shore	10 804	12 215	16 871	14 931	13 113

Source: Institut de la statistique du Québec. *Banque de données des statistiques officielles sur le Québec (BDSO)*, [Online]. http://www.bdso.gouv.qc.ca

Table 66: Land in cultivation (excluding Christmas trees farms), 2001 - 2006

	2001		2006	
Geography	farm	hectare	farm	hectare
Lower-St. Lawrence	**1 943**	**170 212**	**1 784**	**180 735**
La Matapédia	232	22 733	210	23 853
Matane	142	13 708	133	14 096
La Mitis	284	24 529	271	28 227
Rimouski-Neigette	222	19 701	196	21 102
Les Basques	166	15 412	149	16 741
Rivière-du-Loup	261	23 844	244	25 464
Témiscouata	222	18 065	190	17 704
Kamouraska	414	32 219	391	33 548
Gaspésie–Magdalen Islands	**255**	**15 766**	**256**	**17 955**
Magdalen Islands	17	236	22	595
Le Rocher-Percé	30	1 082	25	1 063
La Côte-de-Gaspé	16	385	16	251
La Haute-Gaspésie	26	1 350	23	1 664
Bonaventure	97	7 244	102	8 929
Avignon	69	5 470	68	5 452
North-Shore	**53**	**2 950**	**68**	**4 037**
Upper-North-Shore	33	2 177	38	2 808
Manicouagan*	20	773	30	1 229
All of Quebec	**26 036**	**1 849 938**	**23 967**	**1 933 274**

For confidentiality reasons, date of Sept-Îles, Caniapiscau, Minganie and Lower North-Shore are combined with date of Manicouagan.
Source: Statistics Canada. 2006. Recensement de l'agriculture de 2006. *Données sur les exploitations et les exploitants agricoles,* n° 95-629-XWF au catalogue

Table 67: Variation of the number of hectares having been treated for agriculture, according to the product type used by administrative region, 2000 - 2005.

Region	Herbicides	Insecticides	Fungicides	Chemical Fertilizers
Lower-St. Lawrence	+ 59 %	+ 12 %	+ 14 %	+ 22 %
Gaspésie–Magdalen Islands	+ 72 %	- 19 %	+ 41 %	+ 99 %
All of Quebec	+ 23 %	+ 33 %	+ 62 %	+ 17 %

*Agriculture is not practiced enough on the North-Shore to be presented in this table.
Source: Statistics Canada. 2006. Recensement de l'agriculture de 2006. *Données sur les exploitations et les exploitants agricoles,* n° 95-629-XWF au catalogue

3.15 Forestry

Human activities connected to the forest are mainly under the guidance of the Ministère des Ressources naturelles et de la Faune, and are based on the Forestry Credit Act, the Act to promote forest credit by private institutions, the Act respecting threatened or vulnerable species and The Forest Act.

Several economic activities revolve around the large forestry companies, such as reforestation businesses, silvicultural work or forest roads, carriers, engineering firms and equipment manufacturers. The pulp and paper industry also makes up part of the forestry sector for purposes of this report.

In Quebec, the majority of the forests are public lands, almost all of which are the object of contracts and agreements connected to the development of forestry. However, the reduced supply of woody material in public forests, the levy of American countervailing duties in 2001 and the fast ascent of the Canadian dollar against the American currency during recent years has seriously affected forestry workers and manufacturers.

Thus, in 2002, the number of jobs for the entire forestry sector represented 24 % of employment in the manufacturing goods sector, whereas in 1999, this proportion was 33.6 % for the Gaspésie region. This marked decline is a consequence mainly of the closure of La Compagnie de Papier Gaspésia, Inc., which in turn, led to a 48.4 % reduction of jobs in activities related to paper transformation. Furthermore, in August 2005, the last pulp and paper mill of the Gaspésie terminated its activities.[154]

On the other hand, the harvest of 4,500,000 kilograms of spruce branches and the manufacturing of Christmas wreaths in 2003, generated sales of $10 M and created 500 to 600 jobs for five to six weeks during the harvest and about 470 jobs during the production stage.[155]

Table 68: Loss of jobs in forestry and pulp and paper sectors, as of January 9, 2009 since April 1, 2005

Regions	Permenent factory closings	Jobs	Temporary factory closings	Jobs	Layoffs	Jobs	Total # of jobs lost
LSL	6	167	22	727	4	105	999
GMI	5	302	9	235	0	0	537
NS	4	220	9	597	1	23	840
Total	15	689	40	1559	5	128	2376

Source: Ministère des Ressources naturelles et de la Faune du Québec. *Enquête sur les pertes d'emplois dans l'industrie de la transformation du bois et du papier,* [Online]. http://www.mrn.gouv.qc.ca/forets/entreprises/entreprises-transformation-publications-statistiques.jsp

[154] MRNF, 2006
[155] MRNF, 2006

Table 69: Reporting of turnover in the forestry, the wood transformation, and pulp and paper sectors, 2004*

Sector	Quebec	Lower-St. Lawrence	North-Shore	Gaspésie/Magdalen Islands
Reforestation	100 %	9.9 %	7.1 %	5.5 %
B$	2.8	0.28	0.20	0.15
Wood Products	100 %	6.4 %	8.4 %	5.2 %
B$	9.2	0.59	0.77	0.48
Pulp and paper**	100 %	6.0 %	6.1 %	
B$	10.6	0.64	0.65	
Total (B$)	22.6	1.48	1.66***	0.59

* Net income regional distribution is based upon softwood lumber production regional distribution, of pulp and paper relative production from CIFQ, and employment division from MRNF. Values are estimated.
** 2006 Value
*** Pulp and paper net income values were regrouped for North-Shore region and Gaspésie-Magdelana Islands from the start. They were then divided based on a 100 % ratio allowed to the North-Shore to evaluate regional total employment.
Sources: Conseil de l'industrie forestière du Québec (CIFQ). Direction de l'économie, des marches et du commerce international. 2008. *Statistiques : Sciage de résineux et de feuillus, pâtes, papiers, cartons et panneaux,* [Online].
http://www.cifq.qc.ca/iDFOrts/_uploaded/file/Statistiques-2007.pdf
Ministère des Ressources naturelles et de la Faune du Québec. *Exploitation forestière*, [Online].
http://www.mrnf.gouv.qc.ca/publications/forets/connaissances/stat_edition_complete/chap08.pdf

Table 70: Reporting of direct and indirect employment in the forestry, wood transformation, and pulp and paper sectors, 2007*

Sector	Quebec	Lower-St. Lawrence	North-Shore	Gaspésie/Magdalen Islands
Reforestation	100 %	9.4 %	7.1 %	6.3 %
Forest exploitation, forestry and supporting activites	16 000	1 504	1 136	1 008
Wood products	100 %	6.4 %	8.4 %	5.2 %
1st transformation	13 600	865	1 136	711
2nd and 3rd transformation	45 000	2 862	3 757	2 353
Pulp and paper**	100 %	6.0 %	6.1 %	
1st transformation	16 200	972	988	
2nd and 3rd transformation	36 000	2 153	2189	
Total	126 700	8 356	9 206***	4 073

* Net income regional distribution is based upon softwood lumber production regional distribution, of pulp and paper relative production from CIFQ, and employment division from MRNF. Values are estimated.
** 2006 Value
*** Pulp and paper net income values were regrouped for North-Shore region and Gaspésie-Magdelana Islands from the start. They were then divided based on a 100 % ratio allowed to the North-Shore to evaluate regional total employment.
Sources: Conseil de l'industrie forestière du Québec (CIFQ). Direction de l'économie, des marches et du commerce international. 2008. *Statistiques : Sciage de résineux et de feuillus, pâtes, papiers, cartons et panneaux,* [Online].
http://www.cifq.qc.ca/iDFOrts/_uploaded/file/Statistiques-2007.pdf
Ministère des Ressources naturelles et de la Faune du Québec. *Exploitation forestière*, [Online].
http://www.mrnf.gouv.qc.ca/publications/forets/connaissances/stat_edition_complete/chap08.pdf

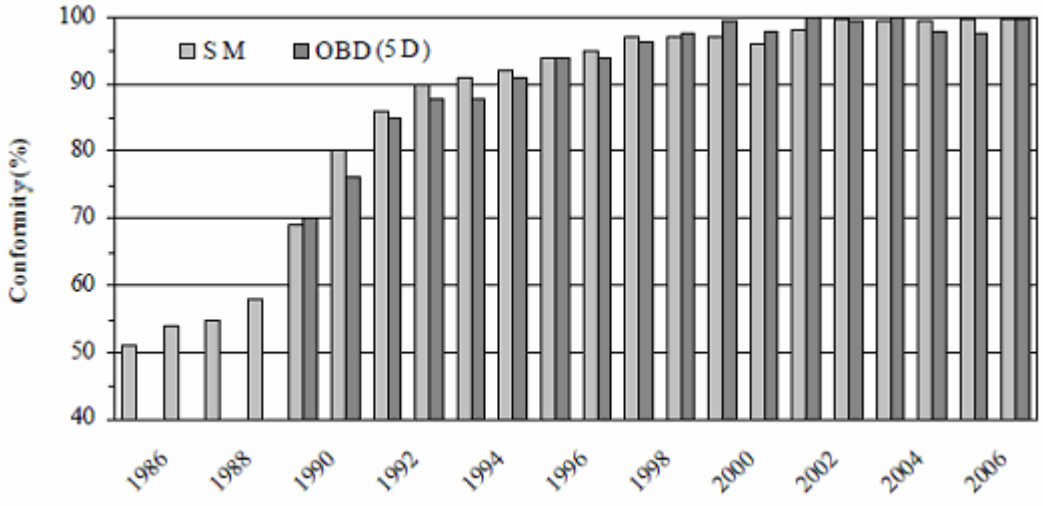
3.15.1 Pollution

Formerly renowned as large polluters, the pulp and paper mills of Quebec have decreased their discharge of water-borne suspended particulates by 90 % since 1981, and dissolved substances in this same water by 97 %, during the same period.[156]

The paper making industry ejects into streams various contaminants diluted in a large volume of water, estimated at 534.8 million cubic meters for 2006. The final effluents of production can contain:[157]

- Suspended matter, such as fibers, fine wooden particles, biological mud, ashes and additives (clay, calcium carbonate, etc.);
- Organic matter, mostly dissolved, that creates a OBD resulting from wood or, in lesser amounts, from additives;
- Inorganic compounds (metals and salts resulting from wood or additives);
- Traces of PCBs, which one finds in the effluents of certain factories using recycled fibers (resulting from coloring agents and certain chemicals);
- Hydrocarbons which result especially from loss of lubricants;
- Phenolic compounds, fatty acids and resins resulting from wood;
- Organic chloride compounds, such as dioxins and chlorinated furans, which one finds in the effluents of the factories using a chlorinated product for bleaching;
- Nutrients, composed of nitrogen and phosphorus, that are added to the biological treatment to preserve bacterial activity;
- Other substances, such as volatile or semi-volatile organic compounds, formaldehyde, polycyclics and the acetaldehyde aromatic hydrocarbons.

Figure 49: Evolution of compliance with waste standards of SM and CBOD5

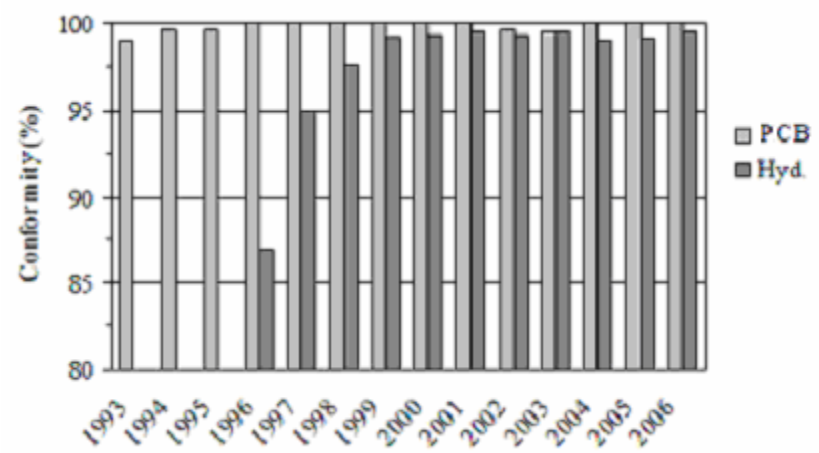


Source: Ministère du développement durable, de l'Environnement et des Parcs. 2006. *Bilan*

[156] Concerpro stratégies d'entreprises inc., 2003
[157] Ibid.

annuel de conformité environnementale, secteur des pâtes et papiers. Direction des politiques de l'eau, Québec, 2007
CBOD5: Oxygen biochemical demand evaluated over a five-day period.
SM: Suspended matter

Figure 50: Evolution of compliance with waste standards of PCBs and hydrocarbons



Source: Ministère du développement durable, de l'Environnement et des Parcs. 2006. *Bilan annuel de conformité environnementale, secteur des pâtes et papiers*. Direction des politiques de l'eau, Québec, 2007

Perspective

The industry will be forced to face the changes caused by the crisis, which will have, unmistakably, direct effects on factory jobs, but much less impact on forestry jobs. However, an increased demand for silvicultural workers is foreseen beginning in 2009-2010, because the intensification of forest management will be part of the large changes to be made.[158] The American housing crisis risks limiting the development of the industry for years to come.[159]

[158] Comité sectoriel de main d'œuvre en aménagement forestier (CSMOAF), 2008
[159] Natural Resources Canada, http://scf.rncan.gc.ca/soussite/examen-economique/emploi

4.0 Cultural Portrait

Maritime Quebec is rich in culture. Indeed, numerous archaeological sites and historic places line the coasts of the Gulf, allowing a better understanding of the history of this territory. Certain attractions such as traditional lighthouses, historic boats, important shipwrecks and maritime museums, which are unique to the maritime domain, allow one to discover the importance of this aspect for the local communities.

Additionally, maritime Quebec is a region where environmental conservation is at the centre of communities' preoccupations. In this way, numerous grounds, coastal or maritime sites are protected by either provincial or federal jurisdictions.

All these sites, although not having any monetary value, possess a non-market value for the communities of maritime Quebec. It is difficult, however, to estimate this value without proceeding with extensive studies on the subject.

Table 71: Distribution and theme of the main riverside archeological sites

Activities	Middle estuary and marine estuary	Gulf
Amerindian occupation	North-Shore Gaspésie Rimouski Le Bic Île Verte Cap Tourmente Baie-Sainte-Catherine Grandes-Bergeronnes	Magdalen Islands Blanc-Sablon
Amerindian exchange networks	Témiscouata Lac Saint-Jean Rivière aux Outardes Rivière Manicouagan Rivière Saint-Augustin	
Amerindian burial site		Mingan
Maritime activities	Îles aux Basques	Paspebiac Middle Bay Île au Bois Red Bay
Military activities		Restigouche Îles aux Œufs Brador
Commercial and industrial activites		Paspebiac Nantagamiou
Manorial activities	Îles aux Oies	Pabos

Source: Département de géographie. Université Laval. 1992. *Atlas environnemental du Saint-Laurent – Un fleuve en héritage : la conservation et la mise en valeur des patrimoines*

Table 72: Maritime heritage with cultural value

Type	Location
Location and historical site	National historical site of the Battle of Restigouche National historical site of the Jacques-Cartier Monument National historical site of Forillon National Park Registered historical site at Room's Point, Blanc-Sablon Registered historical site at Banc-de-Paspebiac, Paspebiac
Traditional lighthouses	Lighthouse of Cap-Gaspé Lighthouse of Cap-des-Rosiers Lighthouse of Rivière-Madeleine Lighthouse of Martre National historical site of the Lighthouse of Pointe-au-Père Lighthouse of l'Île Verte Lighthouse of Île du Pot and l'Eau-de-Vie Lighthouse of Pointes-des-Monts Lighthouse of l'Île Nue de Mingan
Historical ships	Schooner Marie-Clarisse II Schooner Mont-Saint-Louis Le Pelican Schooner Saint-Andre
Important wreckage sites	Marquis de Malauze Fregate le Machault L'Empress of Ireland Nipigon

Source: Département de géographie. Université Laval. 1992. *Atlas environnemental du Saint-Laurent – Un fleuve en héritage : la conservation et la mise en valeur des patrimoines*

Table 73: Maritime cultural centre

Type	Location
Maritime Museums	Musee de la mer de Rimouski Musee François-Pilote Musee de la Gaspésie Musee de la mer
Exhibition and interpretation centers	Halte côtière du Cap-de-Bon-Desir Centre culturel and d'interpretation de Havre-Saint-Pierre Manoir le Bouthillier Grande-Grève Musee du Fjord Musee les Voitures d'Eau Chantier Maritime Saint-Joseph

Source: Département de géographie. Université Laval. 1992. *Atlas environnemental du Saint-Laurent – Un fleuve en héritage : la conservation et la mise en valeur des patrimoines*

Table 74: Cultural events related to the sea, date and location

Évent	Location	Description
Fishing Festivals	Throughout Quebec	Fishing, It's real life out in nature! At the Festival of Fishing the Quebec population is invited to go fishing on numerous rivers over a period of 2 days. June 12 - June 14, 2009.
The Islands Sandcastle Contest	Magdalen Islands	On the beach at Havre-Aubert, each team must build a castle only from sand and water. Contestants may sign-up in the following categories: family, adult, artist. August 7 – 9, 2009.

Coastal Festival	Lower-North-Shore	The Lower-North-Shore is one of the best kept secrets in Canada. The Coast celebrates from one village to the next during The Coastal Festival with festivities and cultural events.
Sandcastle Contest	Sainte-Luce (Lower-St. Lawrence)	22nd year, each year, Sainte-Luce gives way to creativity during the sandcastle contest. It is at the Sainte-Luce beach (Anse-aux-Coques) that we find this contest for the less original. Come with family or friends. July 18th , or in case of rain, July 19th
Arrival of the Greenland seals	Cap-aux-Meules (Magdalen Islands)	At the end of February/beginning of March, a group of Greenland seals arrive on the banks around the islands. The females nurse their young white seals for 3 to 4 weeks. An observation package trip with helicopter flights available. February 28 – March 14, 2009
Putting out the traps and the arrival of the new lobster	Fishing port at Grande-Entree (Magdalen Islands)	Dropping the lobster traps occurs on a precise date, the 1st or 2nd Saturday of May, according to ice conditions. May 2 – July 4, 2009
A Taste of the Sea Festival. Annual food event	Site of La Côte to L'Étang-du-Nord (Magdalen Islands)	Large country-style festival where the mussel farmers and seafood producers show off their products in association with local restaurants. June 21, 2009
Small boat construction contest	La Grave, Havre-Aubert (Magdalen Islands)	Festival Acadien : come show off your shipbuilding talents! August 1, 2009
Sandcastle Contest	Portneuf-sur-Mer (North-Shore)	Let yourself be tempted by the sounds of Latin music at the beach at Fortin Point; every July; a gathering of sandcastle builders. July 18, 2009
The Blue Whale Festival	Les Bergeronnes (North-Shore)	The 32nd edition of the Blue Whale Festival presents 3 days of social-recreational activities in the company of the mascot, Pipounapi. Don't miss the parade of theme floats and the music show. July 31 – August 2, 2009

Source: Quebec Tourism websites

Table 75: Maritime or coastal areas protected by federal legislation

Categories	Laws	Responsible authority	Identification of sites located in the study area
Migratory bird refuge	*1994 Law on the Convention concerning migratory birds.* L.C. 1994, c.22.	Minister of the Environment and Canadian Wildlife Service	o Bird Refuge of Betchouane; o Bird Refuge of rochers aux Oiseaux; o Bird Refuge of l'Île Bonaventure and du Rocher Percé; o Bird Refuge of la Baie Brador; o Bird Refuge of Cap-Saint-Ignace; o Bird Refuge of l'Île du Corossol; o Bird Refuge of l'Île to la Brume; o Bird Refuge of l'Île aux Basques; o Bird Refuge of L'Isle-Verte; o Bird Refuge of L'Island; o Bird Refuge of Montmagny; o Bird Refuge of Saint-Augustin; o Bird Refuge of Îles Sainte-Marie;

			o Bird Refuge of Saint-Omer; o Bird Refuge of Trois-Saumons; o Bird Refuge of Watshishou; o Bird Refuge of Baie-des-Loups; o Bird Refuge of Gros Mecatina.
National wildlife reserves	*Law on wildlife species of Canada* R.S.Q. (1985). c. W-9 *Law on endangered species*	Minister of the Environment and Canadian Wildlife Service	o National wildlife reserve of Cap Tourmente; o National wildlife reserve of Pointe de l'Est; o National wildlife reserve of Baie de l'Isle-Verte; o National wildlife reserve of Îles de l'estuaire; o National wildlife reserve of Pointe-au-Père.
Marine protection zones	*Oceans Act*. L.C. 1996. ch. 31.	Minister of Fisheries and Oceans	Project of Marine protection zone, *Saint Lawrence Estuary*. Project of Marine protection zone, *Manicouagan*..
National Parks of Canada or Reserves with a vocation to National Parks of Canada	*Law on the National Parks of Canada* L.C. 2000. c.32.	Minister responsible at the Parks Canada Agency	o Forillon National Park of Canada; and o The Archipel-de-Mingan.Reserve of the National Park of Canada
National Marine Conservation Sites	*Law on the national marine conservation sites of Canada.* L.C. 2002. c. 18 *Law on the Saguenay–Saint-Lawrence Marine Park.* L.C. 1997. c. 37.	Minister responsible at the Parks Canada Agency	Saguenay-Saint-Lawrence Marine Park

Source: Unisféra. 2006. *Portrait des droits de propriété et compétences législatives du Fédéral et de la Province de Québec, ainsi que des pouvoirs des municipalités, dans l'estuaire et le golfe du Saint-Laurent*.

Table 76: Maritime or coastal areas protected by Quebec legislation

Categories	Laws	Responsible authority	Identification of sites located in the study area
Controlled harvesting zones (ZEC)	An Act respecting the conservation and development of wildlife R.S.Q. c. C-61.1.	Natural Resources and Wildlife Minister	o Trinite; o D'Iberville; o Oie-blanche-de-Montmagny; o Matimec; o Rivière-Moisie.
Wildlife Refuges	An Act respecting the conservation and	Minister of Natural Resources and Wildlife	o Wildlife Refuge of Pointe-de-l'Est; o Wildlife Refuge of l'Îlet-aux-Alouettes.

	development of wildlife R.S.Q. c. C-61.1.		
Wildlife Habitats	An Act respecting the conservation and development of wildlife R.S.Q. c. C-61.1.	Minister of Natural Resources and Wildlife	Types of wildlife habitats found in the study zone : o Areas of concentration of waterfowl o Heron nesting sites; o Islands or peninsulas inhabited by bird colonies; o Muskrat habitats; o Fish habitats.
Ecological Reserves	Natural Heritage Conservation Act. R.S.Q. c. C-61.01.	Minister of Sustainable Development, Environment and Parks	o Ecological Reserve of l'Île Brion; o Ecological Reserve of Pointe-Heath; o Ecological Reserve of Grand-Lac-Sale.
Aquatics Reserves	Natural Heritage Conservation Act. R.S.Q. c. C-61.01.	Minister of Sustainable Development, Environment and Parks	o Proposed aquatic reserve in the estuary of l'Ile Bonaventure.
Biodiversity Reserves	Natural Heritage Conservation Act. R.S.Q. c. C-61.01.	Minister of Sustainable Development, Environment and Parks	Proposed biodiversity reserve along the coast of Harrington Harbour
National Parks	*The Parks Act.* R.S.Q. c. P-9.	Minister of Sustainable Development, Environment and Parks	o Anticosti National Park; o Bic National Park;; o l'île-Bonaventure-and-du-Rocher-Percé National Park; o Miguasha National Park; o Proposed Harrington-Harbour National Park
Marine Parks	*Law on the Saguenay–Saint-Lawrence Marine Park.* R.S.Q. c. P-8.1	Minister of Sustainable Development, Environment and Parks	o Saguenay-Saint-Lawrence Marine Park
Protected Sites		Wildlife Foundation of Quebec	o Sand-bar of Kamouraska; and o Côte-de-Beaupre.
Exceptional geologic sites	*Mining Act.* L.R.Q. c. M-13.1.	Minister of Natural Resources and Wildlife	o Fossil sites : Parc de Miguasha; oRemarkable geological or geomorphologic landscape : Rocher Percé; o Lithological sites: La Tourelle and the Quai de l'Island.

Source: Unisféra. 2006. *Portrait des droits de propriété et compétences législatives du Fédéral et de la Province de Québec, ainsi que des pouvoirs des municipalités, dans l'estuaire et le golfe du Saint-Laurent*.

4.1 Aboriginal communities[160]

The Gaspésie and the maritime provinces constitute the ancestral territory of over 20,000 Mi'kmaq. The Mi'kmaq language is taught at school; it is still spoken in the communities of Listuguj and Gesgapegiag. Most of the Mi'kmaq of Gaspé speak French, whereas the second language of the two other groups is English. The origin of the Mi'kmaq culture lies in its adaptation to activities connected to maritime life. So, even before the arrival of the Europeans, the Mi'kmaq built boats for fishing in the open sea. Salmon fishing is part of the Mi'kmaq way of life.

In 1840, more than 200 Malecites lived on the shores of the Mitis River, and probably as many on other sites between Levis and Rimouski, or on the Viger Reserve, which was one of first land concessions granted to the Aboriginals of Quebec in 1827. Having retroceded their lands in 1869, the Malecites settled down around Cacouna and several generations lived there for a long time. For at least a century, no one talked about the Malecites. Then, in 1987, 130 members met in Rivière-du-Loup to elect a leader and a council of the nation. The council then requested official recognition from the Quebec government. In 1989, the National Assembly officially recognized the Malecites as the eleventh First Nation of Quebec.

Before the 20th century, the Innus were almost the only inhabitants of an immense territory that extends 600 kilometres from the shore into the lands along the North-Shore. They live on hunting, fishing and gathering. In the 18th century, following the establishment of trading stations, they turned towards trapping. From 1900 onwards, the arrival of mining and forestry industries and the construction of hydroelectric dams upset their way of life, accelerated their settlement and led to the creation of the nine current villages. The Innu communities are very different from one another, by their geographic situation and size, as well as by their socioeconomic development: businesses, outfitters, hunting, traditional fishing and commercial fishing.

[160] Secrétariat aux affaires autochtones, http://www.autochtones.gouv.qc.ca/relations_autochtones/profils_nations/profil.htm

Conclusion

Canada's Ocean Act supplies a framework for management initiatives of coasts and oceans, by using an integrated management approach. The Ocean Act defines this as a method of global economic planning for the management of human activities, so that they do not enter into conflict with each other and so that all factors are considered for the conservation and sustainable use of maritime resources and the shared use of the oceans. The purpose of this report is to present existing relevant information about the larger social, economic and cultural problems of Quebec, as well as the important human activities which occur.

The border of maritime Quebec is determined by the presence of salt water. Thus, all the territory downstream from the point east of Orleans Island, being the middle estuary, the maritime estuary and the Saint Lawrence Gulf, represent the Quebec region of the Gulf. However, human geographic divisions were not made according to hydrographic sections and therefore require certain adjustments. In Quebec, three administrative regions are usually considered maritime: the Lower-St. Lawrence, the North-Shore and the Gaspésie–Magdalen Islands.

Maritime Quebec extends over about 3,600 km of shore and represents 21 % of the province's territory. Although on the whole, the number of inhabitants increased during the last five years, the majority of MRCs have seen their population decrease for more than 30 years. In 2006, the total population was 400,000 inhabitants, which is 5 % of the Quebec population. The population is generally less educated and in less good health than the Quebec average. Eleven Aboriginal communities, belonging to 3 Nations, the Innus, the Mi'kmaq and the Malecites, live on the banks of the maritime Saint Lawrence.

The unemployment rate is very high, particularly in the Gaspésie and on the Lower-North-Shore. The average disposable income is generally lower than the Quebec average and almost a quarter of communities depend on natural resources. These regions' share of the provincial economy has been in decline relative to the 1997 level and now represents only 4.4 % of Quebec's GDP.

The economic situation in the commercial fisheries industry is relatively good compared to 1990. The value of landings increased, as well as the sales of transformed products. However, about 2,000 employees have withdrawn from the industry over the past 20 years and few young people seem to be inclined to take the place of their predecessors. Few communities are dependent on the commercial fishing industry.

Although the marine transportation industry is situated mostly in Quebec and Montreal, two important ports are situated in the study area: Sept-Îles and Port-Cartier. The main exports there are iron ore and grain coming from the West of the country. Shipping is an important mode of transportation for the health of

certain industries such as mines, aluminium and pulp and paper.

Tourism is an important economic sector for these regions, where the number of jobs connected with this sector is higher than the Quebec average. Expenses associated with tourism amount to $480 M. Numerous recreational activities such as the observation of marine mammals, sport fishing and pleasure boating are also popular. Economic benefits from these activities exceed $200 M.

Several other activities of these regions can be related to the sea, such as marine technologies, research or processing of marine products. Furthermore, the region welcomes different industries such as forestry and its by-products, mining, aluminium manufacture, the production of hydro-electric or wind power and agriculture. These economic activities are either dependant on, or can damage the marine environment, which argues for the importance of knowing their situation.

It is also important to remember the presence of elements which, although worthless economically, are valuable to these communities, the non-maritime communities of Quebec and future generations. Local participation in the ZIP committees reflects the importance of the environment to these communities, as does the significant number of protected sites.

Bibliography

- Agriculture and Agri-Food Canada. *Poisson et fruits de mer en direct*, [Online]. http://atn-riae.agr.ca/seafood/home-f.htm (Retrieved on March 3, 2009)
- Alexander, D.W., D.R. Sooley, C.C. Mullins, M.I. Chiasson, A. M. Cabana, I. Klvana and J.A. Brennan. 2008. *Gulf of Saint Lawrence: Human Systems Overview Report*. Oceans and Coastal Management Publication Series XXXX: xiv + 166 p.
- Alliance autochtone du Québec. *Site de l'Alliance autochtone du Québec*, [Online]. http://www.aaqnaq.com/ (Retrieved on February 27, 2009)
- Alliance Verte. *Nouvelles,* [Online]. http://www.allianceverte.org/ (Retrieved on February 27, 2009)
- Bourque, A. and G. Simonet. 2008. « Québec ». In *Vivre avec les changements climatiques au Canada : édition 2007*. D.S. Lemmen, F.J. Warren, J. Lacroix and E. Bush (editors). Government of Canada, Ottawa (Ontario), pp. 171-226
- Brander-Smith, D. 1990. *Protecting our waters: Final Report. Public Review Panel on Tanker Safety and Marine Spill Response Capability*. Ottawa, Canada
- Bruckmüller, M. 2008. « Pétrolia veut produire 5% du pétrole consommé au Québec ». In Canoë. *Argent*, [Online]. http://argent.canoe.com/infos/quebec/archives/2008/02/20080221-161130.html (Retrieved on February 27, 2009)
- Business Research and Economic Advisors (BREA). 2008. *La contribution de l'industrie des croisières internationales à l'économie canadienne en 2007*, [Online]. http://www.cruisesaintlawrence.com/FR/Medias/Retombees-economiques.aspx (Retrieved on March 2, 2009)
- Cacouna Energy. *Énergie Cacouna Energy*, [Online]. http://www.energiecacouna.ca (Retrieved on March 2, 2009)
- Canadian Coast Guard. *Analyse 2007 des besoins recherche et sauvetage*, [Online]. http://www.ccg-gcc.gc.ca/f0003782#_Toc197850142 (Retrieved on March 2, 2009)
- Chaire de tourisme de l'École des sciences de la gestion. 2003. *Plan intégré de développement et de promotion des croisières-excursions du Québec*. Université du Québec à Montréal (UQAM)
- Charest, J. and M. Poulin. 2007. *La formation de la main-d'œuvre dans une perspective de développement économique régional. Examen du rôle des politiques publiques, des ressources de soutien, du partenariat et des entreprises dans cinq régions du Québec*. École de relations industrielles. Université de Montréal
- Collectivités écologiques Bas-Saint-Laurent. « Les bassins versants prioritaires du Québec ». In Co-éco, Québec. *Gestion de l'eau*, [Online]. http://co-eco.org/gestion_de_leau/?id=bassins_versants_prioritaires&a=2007 (Retrieved on March 2, 2009)

- Comité sectoriel de main d'œuvre de l'industrie maritime (CSMOIM). 2007. *Perspective d'évolution de l'emploi –Industrie maritime du Québec; 2007-2011,* [Online]. http://www.csmoim.qc.ca/CSMOIMScriptorBD/documents/907071/Perspectives%20sect_%202007-2011%20CSMOIM%2001-07.pdf (Retrieved on March 2, 2009)
- Comité sectoriel de main d'œuvre en aménagement forestier (CSMOAF). 2008. *Perspectives sectorielles pour l'industrie « Foresterie et exploitation forestière »*
- Comité sectoriel de main-d'œuvre de l'industrie des mines. *Site du Comité sectoriel de main-d'œuvre de l'industrie des mines*, [Online]. http://www.csmomines.qc.ca (Retrieved on March 2, 2009)
- Concerpro, stratégies d'entreprises inc. 2003. « Bilan sectoriel de l'industrie des pâtes et papiers du Québec ». In Conseil de l'industrie forestière du Québec. *Conseil de l'industrie forestière du Québec, porte-parole de l'industrie forestière du Québec*, [Online]. http://www.cifq.qc.ca/iDFOrts/_uploaded/ConcerproBilan-pates.pdf (Retrieved on March 2, 2009)
- Conseil de l'industrie forestière du Québec (CIFQ). Direction de l'économie, des marchés et du commerce international. 2008. *Statistiques : Sciage de résineux et de feuillus, pâtes, papiers, cartons et panneaux*, [Online]. http://www.cifq.qc.ca/iDFOrts/_uploaded/file/Statistiques-2007.pdf (Retrieved on March 2, 2009)
- Département de géographie. Université Laval. 1992. *Atlas environnemental du Saint-Laurent – Un fleuve en héritage : la conservation et la mise en valeur des patrimoines*. Environment Canada
- Département de géographie. Université Laval. 1992. *Atlas environnemental du Saint-Laurent – Commercial Fishing Ressources: Commercial Fishing in the St-Lawrence.* Environment Canada
- Département des sciences du bois et de la forêt. Université Laval. *Perspectives sectorielles pour l'industrie « Foresterie et exploitation forestière »,* [Online]. http://www.sbf.ulaval.ca/fileadmin/sbf/lien/Perspectives_sectorielles_2008-2012.pdf (Retrieved on March 5, 2009)
- Desjardins. *Desjardins études économiques régionales, volume 6; régions 1, 9, 10, 11*, [Online]. http://www.desjardins.com/fr/a_propos/etudes_economiques/conjoncture_quebec/etudes_regionales/ (Retrieved on March 2, 2009)
- Doloreux D. and Y. Melançon. *Le pari ambitieux du cluster maritime du Québec : état de la situation et politiques publiques*, Géographie Économie Société 2006/4, Vol. 8, pp. 467-480
- Doloreux, D. and Y. Melançon. 2008. *Innovation support organizations in the marine science and technology industry: the case of Quebec's coastal region in Canada*. Marine Policy, Volume 33, Issue 1. pp.90-100

- Doloreux, D., A. Isaksen, H. W. Aslesen, Y. Melançon. 2008. *A comparative study of the aquaculture innovation systems in Quebec's coastal region and Norway*
- Éco-Santé. *Les bases de données Éco-Santé en ligne,* [Online]. http://www.ecosante.fr (Retrieved on February 27, 2009)
- Environment Canada. 2007. *Characterization and toxicity testing of fish processing plant effluent in Canada*. Atlantic Region
- Environment Canada. *Eaux usées*, [Online]. http://www.ec.gc.ca/eu-ww/default.asp?lang=Fr&n=BC799641-1 (Retrieved on March 5, 2009)
- Environment Canada. *La pratique de la navigation de plaisance sur le fleuve et dans le golfe du Saint-Laurent*, [Online]. http://www.qc.ec.gc.ca/csl/inf/inf028_f.html (Retrieved on March 3, 2009)
- Environment Canada. *La problématique environnementale liée à la navigation de plaisance sur le Saint-Laurent*, [Online]. http://www.qc.ec.gc.ca/csl/inf/inf032_f.html (Retrieved on March 3, 2009)
- Environment Canada. Protection de l'environnement. 1996. *Évaluation des risques aux ports de Montréal, Chicoutimi, Québec, Sept-Îles et Trois-Rivières, Montréal*. Québec Region. 98 p.
- Fisheries and Oceans Canada (DFO). 2001. *Politiques de gestion des pêches sur la côte Atlantique du Canada. Sommaire des politiques, lois et ententes en vigueur le 30 septembre 2001, qui influent sur la gestion des pêches sur la côte Atlantique du Canada*. Révision de la politique sur les pêches de l'Atlantique (RPPA). Ottawa
- Fisheries and Oceans Canada (DFO). 2002. *Le transport maritime au Québec : analyse des tendances*. Policy and Economics Regional Branch. Québec Region
- Fisheries and Oceans Canada (DFO). 2003. *Portrait sur les croisières-excursions au Québec.* Policy and Economics Regional Branch. Québec Region
- Fisheries and Oceans Canada (DFO). 2004. *Navigation de plaisance au Québec. Portrait 2004.* Policy and Economics Regional Branch. Québec Region
- Fisheries and Oceans Canada (DFO). 2006. *Étude sur les coûts et les revenus, 2004 – Homardiers des Îles-de-la-Madeleine, région du Québec*. Policy and Economics Regional Branch. Quebec Region
- Fisheries and Oceans Canada (DFO). 2007a. *Enquête sur la pêche récréative au Canada 2005*. Economic Analysis and Statistics, Policy Sector. Ottawa
- Fisheries and Oceans Canada (DFO). 2007b. *Estimations des bénéfices économiques du rétablissement des mammifères marins de l'estuaire du Saint-Laurent*. Policy and Economics Branch. Québec Region
- Fisheries and Oceans Canada (DFO). 2007c. Estuary and Gulf of Saint-Lawrence Ecosystem Overview and Assessment Report (EOAR). Version dated January 15th, 2007.
- Fisheries and Oceans Canada (DFO). 2008a. Cap-aux-Meules.

- Fisheries and Oceans Canada (DFO). 2008b. *Chasse au phoque de l'Atlantique, plan de gestion 2006-2010*, [Online]. http://www.dfo-mpo.gc.ca/fm-gp/seal-phoque/reports-rapports/mgtplan-plangest0610/mgtplan-plangest0610-fra.htm (Retrieved on March 2, 2009)
- Fisheries and Oceans Canada (DFO). 2008c. *Perspectives maritimes, édition mai 2008*. Policy and Economics Regional Branch. Québec Region
- Fisheries and Oceans Canada (DFO). 2008d. Sept-Îles
- Fisheries and Oceans Canada (DFO). 2008e. *Turbotiers de la Gaspésie et de la Haute et Moyenne Côte-Nord – Coûts et revenus 2004-2006*. Policy and Economics Regional Branch. Québec Region
- Fisheries and Oceans Canada (DFO). 2009. *Perspectives maritimes, édition février 2009*, numéro 24. [Online] http://mpo-rl.lau.dfo-mpo.ca/drpe/fr/Analyses/Analyses.htm (Retrieved on March 10, 2009)
- Fisheries and Oceans Canada (DFO). *Ports pour petits bateaux*, [Online] http://www.dfo-mpo.gc.ca/sch-ppb/home-accueil-fra.htm, (Retrieved on March 16, 2009)
- Fisheries and Oceans Canada (DFO). Québec Region. Canadian Coast Guard. , [Online]. http://www.marinfo.gc.ca/fr/flotte/Activite.asp (Retrieved on March 3, 2009)
- Fisheries and Oceans Canada (DFO). Québec Region. *Marinfo*. [Online] http://www.marinfo.gc.ca/fr/general/accueil.asp (Retrieved on March 3, 2009)
- Fisheries and Oceans Canada (DFO). Système d'information pour la gestion de l'habitat du poisson (SIGHAP). *Communauté de pratique en évaluation environnementale*, [Online]. http://sighap-fhamis.gc.dfo-DFO.gc.ca/imf-ows/imf.jsp?site=CDP_EE (Retrieved on March 2, 2009)
- Gardner Pinfold. 2009. *Economic Value of Marine Related Activities in Canada*.
- Gaspésie.com. 2008. « Terminal propanier, nouveau projet pour Gaspé ». In Gaspésie.com. *Bulletin hebdomadaire*, [Online]. http://www.gaspesie.com/cgi/bulletin/article.cgi?no_article=7886&contexte=web (Retrieved on March 2, 2009)
- Genesis Public Opinion Research Inc., Smith Gunther Associates. 2007. *Economic Impact of the Canadian Recreational Boating Industry: 2006,* [Online]. http://www.nautismequebec.com/doc/45_1.pdf (Retrieved on March 2, 2009)
- Giguère, L. 2008. *Livre guide des sites de plongée marine au Québec*. Édition Broquet
- Grand Québec.com. *Port méthanier – Québec*, [Online]. http://grandquebec.com/economie-quebec/port-methanier-gros-cacouna/ (Retrieved on March 3, 2009)
- Grenier, É. 2008. « Du pétrole au Québec !?! ». In Jobboom. *Blog*, [Online]. http://jobboomblog.com/2008/06/27/du_petrole_au_quebec (Retrieved on March 3, 2009)
- Human Resources and Skills Development Canada. *Industrie de la transformation du poisson*, [Online].

http://www.rhdsc.gc.ca/fra/pip/prh/ps/profils_industriels/transformation_du_poisson.shtml (Retrieved on March 3, 2009)
- Indian and Northern Affairs Canada. 2008. *Carte « Les Nations »*, [Online]. http://www.ainc-inac.gc.ca/ai/scr/qc/aqc/mp-fra.asp (Retrieved on March 5, 2009)
- Indian and Northern Affairs Canada. *Peuples et collectivités autochtones*, [Online]. http://www.ainc-inac.gc.ca/ai/scr/qc/index-fra.asp (Retrieved on March 3, 2009)
- Indian and Northern Affairs Canada. *Région du Québec*, [Online]. http://www.ainc-inac.gc.ca/ai/scr/qc/index-fra.asp (Retrieved on March 5, 2009)
- INNAV Database and Marine Communications and Traffic Services Centre - Les Escoumins, Canadian Coast Guard, Québec Region
- INNAV Database, Canadian Coast Guard, Québec Region
- Institut de la statistique du Québec. 2004. *Perspectives démographiques, Québec et régions, 2001-2051, édition 2003*, [Online]. http://www.stat.gouv.qc.ca/donstat/societe/demographie/persp_poplt/pers2001-2051/ (Retrieved on March 10, 2009)
- Institut de la statistique du Québec. 2008. *Le Québec, chiffres en main, édition 2008*, [Online]. http://www.stat.gouv.qc.ca/publications/referenc/pdf2008/QCM2008_fr.pdf (Retrieved on March 3, 2009)
- Institut de la statistique du Québec. *Banque de données des statistiques officielles sur le Québec (BDSO)*, [Online]. http://www.bdso.gouv.qc.ca (Retrieved on March 3, 2009)
- Investissement Québec. *Métaux légers, profil du secteur*, [Online]. http://www.investquebec.com/fr/index.aspx?page=476 (Retrieved on March 3, 2009)
- Junex. *Pétrole et gaz au Québec – La production,* [Online]. http://www.junex.ca/fr/oilgas/production.php (Retrieved on March 3, 2009)
- Knap, A. E. Dewailly, et al. 2002. *Indicators of Ocean Health and Human Health: Developing a Research and Monitoring Framework*. Environmental Health Perspectives. Volume 110, number 9
- Le Quotidien. 2005. « Projet d'Énergie Granse-Anse – Un port méthanier de 1 milliard $ ». In Cyberpresse.ca, [Online]. http://www.cyberpresse.ca (Retrieved on April 6, 2009)
- Le Quotidien. 2005. *Terminal méthanier à Grande-Anse – Une alternative valable à Lévis et Cacouna*. In Nouvelles générales, p.4
- Leduc, G. 2008. « Les biotechs crient à l'aide ». In Cyberpresse.ca. *Le Soleil – Actualité économique*, [Online]. http://www.cyberpresse.ca/le-soleil/affaires/actualite-economique/200812/21/01-812362-les-biotechs-crient-a-laide.php (Retrieved on March 2, 2009)
- Lisanne Ross, Cruise Saint Lawrence, personnal communication
- Lussier, J.-F., 2005. *Projet de récupération d'engins de pêche perdus et d'infrastructures aquicoles abandonnées sur la Basse Côte-Nord.* Regroupement des Associations de Pêcheurs de la Basse Côte-Nord

- Michaud, J.-C., Y. Dion, C. Rioux, N. Diop and J. Laflamme. 2002. *Estimation de la valeur économique des industries associées au domaine maritime au Québec*. Université du Québec à Rimouski
- Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec (MAPAQ). 2009. *Profil sectoriel de l'industrie bioalimentaire du Québec, édition 2008*. Centre de référence en agriculture et agroalimentaire du Québec (CRAAQ). Québec
- Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec (MAPAQ). 2007. *Les pêches et l'aquaculture commerciales : Bilan et perspective 2006*. Direction générale des pêches et de l'aquaculture commerciales. Québec
- Ministère des Affaires municipales, des Régions et de l'Occupation du territoire du Québec (MAMROT). *Composition et répartition des Conférences régionales des élus,* [Online]. http://www.mamrot.gouv.qc.ca/regions/regi_conf.asp (Retrieved on March 2, 2009)
- Ministère des Affaires municipales, des Régions et de l'Occupation du territoire du Québec. *Municipalité régionale de comté (MRC)*, [Online]. http://www.mamrot.gouv.qc.ca (Retrieved on March 3, 2009)
- Ministère des Affaires municipales, des Régions et de l'Occupation du territoire du Québec (MAMROT). *Répertoire des municipalités du Québec*, [Online]. http://www.mamrot.gouv.qc.ca/repertoire_mun/repertoire/repertoi.asp (Retrieved on March 3, 2009)
- Ministère des Ressources Naturelles et de la Faune (MRNF). 2006. *Portrait territorial – Gaspésie–Îles-de-la-Madeleine*. Direction régionale de la Gaspésie–Îles-de-la-Madeleine. Québec
- Ministère des Ressources Naturelles et de la Faune (MRNF). 2007. *Portrait territorial – Côte-Nord*. Direction régionale de la Côte-Nord. Québec
- Ministère des Ressources naturelles et de la Faune du Québec (MRNF). *Exploitation forestière*, [Online]. http://www.mrnf.gouv.qc.ca/publications/forets/connaissances/stat_edition_complete/chap08.pdf (Retrieved on March 2, 2009)
- Ministère des Ressources Naturelles et de la Faune du Québec (MRNF). *Les retombées économiques,* [Online]. http://www.mrnf.gouv.qc.ca/energie/eolien/eolien-retombees.jsp (Retrieved on March 3, 2009)
- Ministère des Ressources Naturelles et de la Faune du Québec (MRNF). *Perspectives économiques,* [Online] http://www.mrnf.gouv.qc.ca/energie/hydroelectricite/perspectives.jsp (Retrieved on March 3, 2009)
- Ministère des Ressources Naturelles et de la Faune du Québec (MRNF). *Sondage réalisé auprès des entreprises, 26 juin 2008*, [Online]. http://www.mrnf.gouv.qc.ca/energie/eolien/eolien-retombees.jsp (Retrieved on March 3, 2009)

- Ministère des Ressources Naturelles et de la Faune du Québec (MRNF). *Statistiques de chasse et de piégeage*, [Online]. http://www.mrnf.gouv.qc.ca/faune/statistiques/chasse-piegeage.jsp#chasse (Retrieved on March 3, 2009)
- Ministère des Ressources Naturelles et de la Faune du Québec (MRNF). *Enquête sur les pertes d'emplois dans l'industrie de transformation du bois et du papier*, [Online]. http://www.mrn.gouv.qc.ca/forets/entreprises/entreprises-transformation-publications-statistiques.jsp (Retrieved on March 3, 2009)
- Ministère des Ressources naturelles, de la Faune et des Parcs du Québec. *Cartes et fichiers du Québec minier*, [Online]. https://gestim.mines.gouv.qc.ca/ftp//cartes/carte_quebec.asp (Retrieved on March 2, 2009)
- Ministère des Transports du Québec. *Transport maritime*. [Online] http://www.mtq.gouv.qc.ca/portal/page/portal/entreprises/transport_maritime (Retrieved on March 16, 2009)
- Ministère du Développement durable, de l'Environnement et des Parcs. 2005. Bilan annuel de conformité environnementale, secteur minier, Quebec, 2007
- Ministère du Développement durable, de l'Environnement et des Parcs. 2006. *Bilan annuel de conformité environnementale, secteur des pâtes et papiers*. Direction des politiques de l'eau, Quebec, 2007
- Ministère du Développement durable, de l'Environnement et des Parcs. 2005. *Bilan annuel de conformité environnementale, secteur minier*. Direction des politiques de l'eau, Quebec 2006
- Ministère du Développement économique, de l'Innovation et de l'Exportation (MDEIE). Développement régional. *Projet Accord*, [Online]. http://www.mdeie.gouv.qc.ca/index.php?id=2467 (Retrieved on March 3, 2009)
- Ministère du Développement économique, de l'Innovation et de l'Exportation (MDEIE). *Accueil*, [Online]. http://www.mdeie.gouv.qc.ca/ (Retrieved on March 3, 2009)
- Ministère du Développement économique, de l'Innovation et de l'Exportation (MDEIE). 2006a. *Projet ACCORD – Créneau Ressources, sciences et technologies marines, filière aquaculture*, [Online]. http://www.mdeie.gouv.qc.ca/index.php?id=2474 (Retrieved on March 3, 2009)
- Ministère du Développement économique, de l'Innovation et de l'Exportation (MDEIE). 2006b. *Projet ACCORD – Créneau Ressources, sciences et technologies marines, filière biotechnologies marines*, [Online]. http://www.mdeie.gouv.qc.ca/index.php?id=2474 (Retrieved on March 3, 2009)
- Ministère du Développement économique, de l'Innovation et de l'Exportation (MDEIE). 2006c. *Projet ACCORD – Créneau Ressources, sciences et technologies marines, filière capture et transformation de la biomasse marine*, [Online]. http://www.mdeie.gouv.qc.ca/index.php?id=2474 (Retrieved on March 3, 2009)

- Ministère du Développement économique, de l'Innovation et de l'Exportation (MDEIE). 2006d. *Projet ACCORD – Créneau Ressources, sciences et technologies marines, filière les technologies marines*, [Online]. http://www.mdeie.gouv.qc.ca/index.php?id=2474 (Retrieved on March 3, 2009)
- Ministère du Développement économique, de l'Innovation et de l'Exportation. Projet ACCORD. 2006e. *Stratégie de développement du créneau « Ressources, sciences et technologies marines »*. Québec
- Ministère du Tourisme du Québec. 2005. *Le Tourisme au Québec en bref, édition 1998 à 2004*. Direction de l'évaluation, de la recherche et de la prospective. Québec
- Ministère du Tourisme du Québec. 2006. *Le tourisme, une industrie importante pour le Québec, édition 2006*. Direction de la recherche et de la prospective. Québec
- Ministère du Tourisme du Québec. 2007. *Le Québec du Saint-Laurent, Plan intégré de l'expérience : Diagnostic et orientations*. Direction des marchés touristiques.
- Ministère du Tourisme du Québec. 2008. *Le tourisme en chiffres, édition 2004 à 2007*, [Online]. http://www.bonjourquebec.com/mto/publications/pdf/etudes/Tourisme_chiffres2007.pdf (Retrieved on March 3, 2009)
- Morneau, F., M. Michaud, F. Lecours, L. Côté and D. Roy. 2001. *Étude d'impact sur l'environnement : projets de protection des berges le long de la route 132 autour de la péninsule gaspésienne*. Ministère des Transports du Québec, 84 p. and appendices. In Bourque and Simonet, 2008
- Nadeau, J. 2006. « Les champions de la pollution au Québec ». In Canoë – Infos. *Société*, [Online]. http://www.canoe.com/archives/infos/societe/2006/03/20060327-062900.html (Retrieved on March 3, 2009)
- Natural Resources Canada. 2008. « Examen annuel et perspectives économiques de l'industrie forestière canadienne ». In Natural Resources Canada. *Emploi*, [Online]. http://scf.rncan.gc.ca/soussite/examen-economique/emploi (Retrieved on March 2, 2009)
- Natural Resources Canada. *Atlas du Canada*, [Online]. http://atlas.nrcan.gc.ca/site/francais/maps/economic/rdc2001 (Retrieved on February 27, 2009)
- Otis, G. 2004. *Droit, territoire et gouvernance des peuples autochtones*. Les Presses de l'Université Laval, Québec, 184p.
- Port Authority of Québec and Montréal, special compilation: DFO-P&E, Québec Region
- Presse Canadienne. 2008. « Gaspésie : la production de pétrole pourrait débuter bientôt ». In Les Affaires.com. *Industrie – Détail d'article*, [Online]. http://www.lesaffaires.com/article/0/energie/2008-05-08/477758/gaspesie-la-production-de-petrole-pourrait-debuter-bientot.fr.html (Retrieved on March 2, 2009)

- Presse Canadienne. 2008. « Stelmine veut trouver du pétrole en Gaspésie ». In Les Affaires.com. *Énergie – Détail d'article*, [Online]. http://www.lesaffaires.com/article/0/energie/2008-06-09/478992/stelmine-veut-trouver-du-peteacutetrole-en-gaspeteacutesie.fr.html (Retrieved on March 3, 2009)
- Publications Québec. *Loi sur les compétences municipales*, [Online]. http://www2.publicationsduquebec.gouv.qc.ca (Retrieved on March 3, 2009)
- Québec Yachting. *Québec Yachting – Le magazine #1 au Québec*, [Online]. http://www.quebecyachting.ca/ (Retrieved on March 3, 2009)
- Radio-Canada. *Rabaska est toujours sur les rails*, [Online]. http://www.radio-canada.ca/regions/Quebec/2009/01/20/001-rabaska-crise.shtml?ref=rss (Retrieved on March 16, 2009)
- Regroupement des pêcheurs professionnels du Nord de la Gaspésie (RPPNG). 1991. *Projet pilote : Récupération d'agrès perdus en mer, région Gaspé Nord*
- Roche (Shaw Group). 2005. *Étude des retombées économiques de la pêche sportive au saumon sur le territoire québécois.*
- Saumon Québec. *Les rivières*, [Online]. https://www.saumonquebec.com/LesRivieres/LesRivieres.aspx (Retrieved on March 3, 2009)
- Scheuhammer A.M., S.L. Money, D.A. Kirk and G. Donaldson. 2003. *Les pesées et les turluttes de plomb au Canada : Examen de leur utilisation et de leurs effets toxiques sur les espèces sauvages*. Environment Canada. Canadian Wildlife Service, publication excerpt series number 108
- Secrétariat aux affaires autochtones. *Accueil*, [Online]. http://www.saa.gouv.qc.ca/index.asp (Retrieved on March 3, 2009)
- Secrétariat aux affaires autochtones. *Profils des nations autochtones du Québec*, [Online]. http://www.autochtones.gouv.qc.ca/relations_autochtones/profils_nations/profil.htm (Retrieved on March 3, 2009)
- Sentier maritime. *Kayak de mer – Route bleue*, [Online]. http://www.sentiermaritime.com/ (Retrieved on March 3, 2009)
- Société de développement de l'industrie maricole (SODIM). 2005. *Pour récolter le succès / Plan stratégique de développement de la mariculture; 2006-2011*, [Online]. http://www.sodim.org/pdf/Plan%20stratégique.pdf (Retrieved on March 3, 2009)
- Société de développement économique du Saint-Laurent (SODES). 2003. *Le transport maritime, pilier de l'économie québécoise. Bulletin spécial, Journée maritime québécoise le 28 octobre 2003*, [Online]. http://www.st-laurent.org/ressources/fichiers/bulJMQ03.pdf (Retrieved on March 5, 2009)
- Saint Lawrence Plan. *Comité de concertation Agriculture*, [Online]. http://www.planstlaurent.qc.ca/sl_bm/interventions_g/psl/phase_IV/comites/agriculture/accueil_f.html (Retrieved on March 3, 2009)
- Saint Lawrence Plan. *Plan Saint-Laurent – Pour un développement durable*, [Online] http://www.planstlaurent.qc.ca/index_f.html (Retrieved on March 3, 2009)

- Saint Lawrence Vision 2000. Comité de concertation Navigation. 2004. *Stratégie de navigation durable pour le Saint-Laurent*. Québec
- Saint Lawrence Vision 2000. Domaine d'intervention Santé humaine. 2004. *Le Saint-Laurent et la santé humaine, l'état de la question II*, [Online]. http://www.slv2000.qc.ca/ (Retrieved on March 2, 2009)
- Saint Lawrence Vision 2000. *Plan d'action – Phase II*, [Online]. http://www.slv2000.qc.ca/plan_action/phase2/accueil_f.htm#concertation (Retrieved on March 3, 2009)
- Saint Lawrence Vision 2000. *Plan d'action – phase III*, [Online]. http://www.slv2000.qc.ca/plan_action/phase3/accueil_f.htm (Retrieved on March 3, 2009)
- Saint Lawrence Vision 2000. *Plan d'action Saint-Laurent – Accueil*, [Online]. http://www.slv2000.qc.ca/index_f.htm (Retrieved on March 3, 2009)
- Saint Lawrence Vision 2000. *Résultats – Phase I*, [Online]. http://www.slv2000.qc.ca/plan_action/phase1/resultats_f.htm (Retrieved on March 3, 2009)
- Saint Lawrence Vision 2000. *Phase III – Stratégie de navigation durable pour le Saint-Laurent*, [Online]. http://www.slv2000.qc.ca/plan_action/phase3/navigation/SND/plan_action/pa_rejets_eaux_f.htm (Retrieved on March 3, 2009)
- Saint Lawrence Vision 2000. Stratégie de navigation durable pour le Saint-Laurent. 2004. Québec. [Online] http://www.slv2000.qc.ca/plan_action/phase3/navigation/SND/images/SND_longue_f.pdf
- Statistics Canada. 1996 à 2005. *Le transport maritime au Canada*. Transportation Division. Ottawa
- Statistics Canada. 2005. *Enquête sur les voyages des canadiens (EVC).* http://www.statcan.gc.ca/survey-enquete/household-menages/tsrc-evrc/tsrc-evrc-fra.htm (Retrieved on April 7, 2009)
- Statistics Canada. 2006. Recensement de l'agriculture de 2006. *Données sur les exploitations et les exploitants agricoles*, n° 95-629-XWF au catalogue
- Statistics Canada. 2006a. Enquête sur les voyages des résidents du Canada (EVRC), [Online]. http://www.statcan.gc.ca/survey-enquete/household-menages/tsrc-evrc/tsrc-evrc-fra.htm (Retrieved on April 7, 2009)
- Statistics Canada. 2006b. Catalogue n° 52-215, 53-222 et 54-205; Data compiled by DFO-P&E, Québec Region
- Statistics Canada. 2008. Recensement 2006, Special compilation : DFO-P&E, Québec Region
- Statistics Canada. *Profils de la région administrative*, [Online]. http://www.stat.gouv.qc.ca/regions/profils/profil01/01ra_index.htm#sante (Retrieved on March 3, 2009)
- Statistics Canada. *Recensement de 2006*, [Online]. http://www12.statcan.ca/census-recensement/2006/dp-pd/index-fra.cfm (Retrieved on March 3, 2009)

- Technopole maritime du Québec. 2007. *Bulletin – Printemps 2007*, [Online]. http://www.tmq.ca/bulletin/pdf/bulletin_printemps2007.pdf (Retrieved on March 3, 2009)
- Technopole maritime du Québec. 2008. *Développement et diversification économique de l'Est du Québec : situation du secteur maritime*, [Online]. http://www.tmq.ca/publication/memoire_fev08.pdf (Retrieved on March 3, 2009)
- Tecsult Environnement Inc. 2000. *Étude socio-économique d'un secteur retenu pour l'identification d'une zone de protection marine pilote : Golfe du Saint-Laurent, secteur est de la péninsule gaspésienne.* Québec
- Thériault, C. 2008. « Exploration pétrolière en Gaspésie : Pétrolia garde le cap ». In Cyberpresse.ca. Le Soleil. *Site du quotidien le Soleil*, [Online]. http://www.cyberpresse.ca/le-soleil/affaires/les-regions/200811/02/01-35463-exploration-petroliere-en-gaspesie-petrolia-garde-le-cap.php (Retrieved on March 2, 2009)
- Topping, P. 2000. *Marine debris: A Focus for Community Engagement.* Presented at Coastal Zone Canada Conference, Saint John, New Brunswick, Environment Canada
- Tourisme Bas-Saint-Laurent. *Fêtes et festivals.* [Online] http://www.tourismebas-st-laurent.com/vitrine/atrbsl/activeservice?value=events1 (Retrieved on March 2, 2009)
- Tourisme Duplessis. *Événements*. [Online] http://www.tourismeduplessis.com/fr/evenements.asp?list=alpha (Retrieved on March 5, 2009)
- Tourisme Gaspésie. *Événements.* [Online] http://www.tourisme-gaspesie.com/evenements.html (Retrieved on March 2, 2009)
- Tourisme Îles-de-la-Madeleine. *Événements*. [Online] http://www.tourismeilesdelamadeleine.com/magdalen-islands/evenements.cfm (Retrieved on March 5, 2009)
- Tourisme Manicouagan. *Événements*. [Online] http://www.tourismemanicouagan.com/fr/evenements.asp?list=alpha (Retrieved on March 5, 2009)
- Tourisme Québec. *Événements*. [Online] http://www.bonjourquebec.com/qc-fr/recherche/recherche_evenements.php?langue (Retrieved on March 5, 2009)
- Transportation Safety Board. *Bienvenue au BST*, [Online]. http://www.tsb.gc.ca/fra/ (Retrieved on March 11, 2009)
- Transports Canada. Transport maritime. *Ports*, [Online]. http://www.tc.gc.ca/programmes/ports/index.htm (Retrieved on March 5, 2009)
- Unisféra. 2006. *Portrait des droits de propriété et compétences législatives du Fédéral et de la Province de Québec, ainsi que des pouvoirs des municipalités, dans l'estuaire et le golfe du Saint-Laurent.*120p.
- UPA, Gaspésie–Îles-de-la-Madeleine Regional Branch, Personal communication

- Villeneuve, S. et L. Quilliam. 2000. *Les risques et les conséquences environnementales de la navigation sur le Saint-Laurent.* Environment Canada –Québec Region, Environment Conservation, Saint Lawrence Centre. Rapport scientifique et technique ST-188, 174 pages
- Wikipédia. *Canal de Panamá*, [Online]. http://fr.wikipedia.org/wiki/Canal_de_Panam%C3%A1 (Retrieved on March 2, 2009)
- Zins Beauchesne et associés. 2003. « Diagnostic de la main-d'œuvre dans l'industrie de la transformation de produits marins au Québec ». In Comité sectoriel de main d'œuvre des pêches maritimes (CSMOPM). *Bibliothèque virtuelle*, [Online]. http://www.pechesmaritimes.org/industrie/biblio.aspx (Retrieved on March 3, 2009)
- Zins Beauchesne et associés. 2008. « Étude sectorielle sur les effectifs de la main-d'œuvre maritime au Québec ». In Comité sectoriel de main d'œuvre de l'industrie maritime (CSMOIM). *Publications*, [Online]. http://www.csmoim.qc.ca/MyScriptorBD/documents/33215/Rapport%20final%20d%C3%A9finitif%2012-05-2008.pdf (Retrieved on March 3, 2009)

Appendices

A. Governance

Appendix A-1: Paragovernmental and non-governmental institutions in the domain of fisheries

Institution	Mandate / Mission	Contact
Réseau pêches et aquaculture Québec	The Réseau associates the principals stakeholders among three groups : the Table filière de l'aquaculture en eau douce, the Table maricole and the Table des pêches maritimes	**Réseau pêches et aquaculture Québec** 200, ch. Sainte-Foy, 1er étage Québec (Québec) G1R 4X6 Tel.: 418-380-2100, poste 3859 http://www.rpaq.org/
Comité sectoriel de main-d'œuvre des pêches maritimes	Its main objective is to devise people from the industry, aiming at the development of human ressources within the industry of fisheries and aquaculture.	**CSMOPM** 185-2, rue de la Reine Gaspé (Québec) G4X 1T7 Tel. : 418-368-3774 http://pechesmaritimes.org/
Fisheries Resource Conservation Council	Up until 2005, the Council's primary focus was to provide annual advice on total allowable catches and other conservation measures. In 2002, following a review of the FRCC's mandate, the Council took a new direction, focusing on long-term conservation strategies.	**Fisheries Resource Conservation Council** C.P. 2001, Succursale D Ottawa (Ontario) K1P 5W3 Tel. : 613-998-0433 http://www.frcc.ca
Alliance des pêcheurs professionnels du Québec		**APPQ** C.P. 8188 Cap-aux-Meules (Québec) G4T 1R3 Tel. : 418-986-5623 Courriel : APPIM@tlb.sympatico.ca (Pour les courriels, veuillez préciser dans l'objet que c'est pour l'APPQ)

Appendix A-2: Organizations related to the fisheries sector

Institution	Mandate / Mission	Contact
Fish and Seafood Online	Agriculture and Agri-Food Canada's site for Canadian fish and seafood market information	**Agriculture and Agri-food Canada** 930, avenue Carling Ottawa (Ontario) K1A 0C7 Tel.: 613-759-1000 http://sea.agr.gc.ca/seafood/home-f.htm
National Seafood Sector Council	The NSSC works on behalf of the entire seafood processing industry to provide human resource strategies and programs	**National Seafood Sector Council** 130, rue Albert, bureau 910 Ottawa (Ontario) K1P 5G4 Tel.: 613-782-2391 http://www.nssc.ca/frn_home.cfm
Canadian Food Inspection Agency – Fish and Seafood	The CFIA develops and verifies compliance with appropriate product and process standards	**CFIA** Tel. : 1-800-442-2342

	that contribute to the acceptable quality, safety and identity of fish and seafood products	http://www.inspection.gc.ca/francais/tocf.shtml
Association québécoise de l'industrie de la pêche	Its purpose is to defend the professional interests of Quebec's industrial processing of marine products.	**Association québécoise de l'industrie de la pêche** 2600, boulevard Laurier, bureau 843 Ste-Foy (Québec) Tel.: 418-654-1831 aqip@quebectel.com
Société de développement de l'industrie maricole	SODIM is a corporation whose mission is to contribute to the creation and development of mariculture.	**SODIM** 137-3, rue de la Reine Gaspé (Québec) G4X 1T5 Tel. : 418-368-4044 sodim@sodim.org
L'Association québécoise de commercialisation de poissons et fruits de mer	The AQCMER reunification is the only independent specialist in the marketing of seafood products in Quebec.	**AQCMER** 4001, Saint-Martin Ouest Bureau 201, Laval (Québec) H7V 1B7 Tel. : 450-973-3388 http://www.aqcmer.org/
Comité sectoriel de main-d'œuvre des pêches maritimes	Its purpose is to consult people in the industry for the development of human resources for the fishing industry and aquaculture.	**CSMOPM** 185-2, rue de la Reine Gaspé (Québec) G4X 1T7 Tel. : 418-368-3774 http://pechesmaritimes.org/

Appendix A-3: Non-governmental institutions in the aquaculture field

Institution	Mandat/Mission	Contact
Réseau pêches et aquaculture Québec	The Network combines the key stakeholders in three tables: the Table filière de l'aquaculture in fresh waters, mariculture Table and Table of Marine Fisheries.	**Réseau pêches et aquaculture Québec** 200, ch. Sainte-Foy, 1er étage Québec (Québec) G1R 4X6 Tel.: 418-380-2100, ext. 3859 http://www.rpaq.org/
Association des aquaculteurs du Québec	The Association of farmers of Quebec has 49 members. Founded in 2000 and successor to the Association des aquiculteurs du Québec who was born in 1993.	**Normand Roy, president** 555, boulevard Roland-Therrien Longueuil (Québec) J4H 3Y9 Tel. : 450-679-0540, ext. 8432 aquaculture@upa.qc.ca
Société de développement de l'industrie maricole inc.	SODIM is a corporation whose mission is to contribute to the creation and development of mariculture.	**SODIM** 137-3, rue de la Reine Gaspé (Québec) G4X 1T5 Tel. : 418-368-4044 sodim@sodim.org
Regroupement des mariculteurs du Québec		**RMQ** 137-3, rue de la Reine Gaspé (Québec) G4X 1T5 Tel. : 418-368-4044 rmqc@globetrotter.net
Comité sectoriel de main-d'œuvre des pêches maritimes	Its purpose is to consult people in the industry, aiming at the development of human resources for the fishing and aquaculture industry.	**CSMOPM** 185-2, rue de la Reine Gaspé (Québec) G4X 1T7 Tel. : 418-368-3774 http://pechesmaritimes.org/

Appendix A-4: Governance in the industry of maritime transport

Institutions	Mandat / Mission	Contact
La Société des traversiers du Québec (STQ)	Today, La Société des traversiers du Québec operates eight ferry services on the St. Lawrence River, including three in partnership. Right arm of the Ministère des Transports du Québec as regards the maritime transport of passengers and maintenance of port infrastructure, the ferry company is often called upon to share its expertise in cases that meet several regional partners.	**Société des traversiers du Québec** 250, rue Saint-Paul Québec (Québec) G1K 9K9 Tel. : 418-643-2019 http://www.traversiers.gouv.qc.ca/
La Société de développement économique du Saint-Laurent (SODES)	SODES acts as a unifying unit by providing a forum for exchange, dialogue and action to all stakeholders whose activities have an impact on the economy of St. Lawrence.	**SODES** 271, rue de l'Estuaire Québec (Québec) G1K 8S8 Tel. : 418-648-4572 http://www.st-laurent.org
Shipping Federation of Canada	The Federation's mandate is to promote and protect the interests of its members by forging consensus on emerging issues, and working with governments to develop policies, laws and regulations that enable the industry to flourish as a key contributor to the Canadian economy	**Shipping Federation of Canada** 300, rue du Saint-Sacrement, bureau 326 Montréal (Québec) H2Y 1X4 Tel. : 514-849-2325 http://www.shipfed.ca
Armateurs du Saint-Laurent	The mission of the ship owners of Saint-Laurent (ASL) is to ensure the protection and promotion of the interests of home ship owners.	**SODES** 271, rue de l'Estuaire Québec (Québec) G1K 8S8 Tel. : 418-648-4378 http://www.armateurs-du-st-laurent.org/
Alliance Verte	For the first time in North America, the components of the maritime industry come together in order to implement a voluntary environmental policy on an entire major shipping corridor.	**Alliance Verte** 271, rue de l'Estuaire Québec (Québec) G1K 8S8 Tel. : 418-649-6004 http://www.allianceverte.org/
Forum de concertation	The Forum's role is to ensure the effective implementation and concerted measures proposed in the Policy for Maritime and River Transport of the Government of Quebec, adopted in June 2001.	**Monsieur Daniel Marcotte** Ministère des Transports du Québec Tel. : 418-644-2908, poste 2252 Daniel.marcotte@mtq.gouv.qc.ca
Comité sectoriel de main d'œuvre de l'industrie maritime	Act as a body for consultation, coordination and guidance by identifying needs and solutions in training and development of the workforce.	**CSMO industrie maritime** 271, rue de l'Estuaire Québec (Québec) G1K 8S8 Tel. : 418-694-9059 http://www.csmoim.qc.ca/

Appendix A-5: Groups and associations related to the field of maritime tourism

Institutions	Mandat / Mission	Contact
Association Maritime du Québec	This body has the mandate to represent and advance the interests of boaters and water sports companies to the stakeholders. It organizes and promotes the holding of exhibitions and trade fairs in the field of water sports and sailing.	**AMQ** 621 av. Stravinski, bureau 500, Brossard (Québec) J4X 1Y7 Tel. : 450-466-1777 http://www.nautismequebec.com/
Cruise Saint Lawrence	Created to promote the Saint Lawrence River to international cruise lines, the main mandate of the Association is to enable private and public agencies to benefit from a permanent structure that will allow them to work together on the development and promotion of international cruises on the Saint Lawrence River.	**Cruise Saint Lawrence** C. P. 21 005, Grande Place Rimouski (Québec) G5L 9A2 Tel. : 418-725-0135 http://www.cruisesaintlawrence.com
Association des professionnels d'aventure et d'écotourisme du Québec	Defend, represent and promote the interests of professional adventure tourism and ecotourism in Quebec, to develop a quality tourism offer in the areas of adventure tourism and ecotourism.	**Aventure Écotourisme Québec** 4981, boulevard Lévesque Est Laval (Québec) H7C 1N3 Tel. : 450-661-2225 http://www.aventure-ecotourisme.qc.ca/
Québec Maritime	Our main role is to educate tourists from outside Quebec maritime destination, its attractions and activities and services through its marketing activities.	**Le Québec maritime** 84, rue Saint-Germain Est, bureau 205 Rimouski (Québec) G5L 1A6 Tel. : 418-724-7889 http://www.quebecmaritime.ca/

Appendix A-6: Groups and associations related to environment and pollution

Institutions	Mandat / Mission	Contact
St. Lawrence Centre	Reporting to the Environmental Conservation Branch of Environment Canada, the SLC is a place where science supports action on the environment. The mission of the St. Lawrence Centre is to enhance understanding of St. Lawrence River ecosystems based on sound science and an integrated-knowledge approach.	**St-. Lawrence Centre** 105 rue McGill, 7e étage Montréal (Québec) H2Y 2E7 Tel. : 1-800-463-4311 http://www.qc.ec.gc.ca/csl/acc/csl001_f.html

Regroupement national des conseils régionaux de l'Environnement	The CRE inform, educate and advise stakeholders in environmental issues and sustainable development so that the administrative regions of Quebec can grow while protecting their natural resources. The sectors covered are: waste, water management, energy, forestry, agriculture, sustainable development, etc.. The RNCREQ acts as interlocutor with the government's consultation for all regions.	**Conseil Régional de l'Environnement de la Gaspésie et des Îles-de-la-Madeleine** 106A Port-Royal, suite 103 Bonaventure (Québec**)** G0C 1E0 Tel. : 418-534-4498 http://www.cregim.org **Conseil régional de l'environnement du Bas-Saint-Laurent** 88, Saint-Germain Ouest, Bureau 104 Rimouski (Québec) G5L 4B5 Tel. : 418-721-5711 http://www.crebsl.com **Conseil régional de l'environnement de la Côte-Nord** 498, avenue Brochu Sept-Îles (Québec) G4R 2W8 Tel. : 418-962-6362 http://www.crecn.org/
Enviroclub : Lower St. Lawrence North-Shore Saguenay–Lac-St-Jean Portneuf	Helps company managers to better understand the advantages of environmental management and provides hands-on experience by taking on a pollution prevention project within each of their plants.	**Environnement Canada** 105, rue McGill, Montréal (Québec) H2Y 2E7 Tél : 1-800-463-4311 http://www.enviroclub.ca

Appendix A-7: Groups and associations related to the integrated management field

Institution	Mandat / Mission	Contact
Comités de gestion intégrée de la zone côtière au Québec (GIZC)	The integrated management committees of the coastal zone has several objectives. A first objective is to share knowledge on land use, resources, and habitats. A second objective is to identify the problems associated with the coastal zone. Other objectives are to disseminate this information to harmonize the use of coastal and prevent potential conflicts.	**Côte-Nord** Comité Côtier les Escoumins à la rivière Betsiamites **Charlevoix** Comité côtier de l'Île-aux-Coudres **Gaspésie** : Table de concertation du littoral de Bonaventure, Comité de concertation de la Baie de Gaspé, Comité côtier Carleton - St-Omer, Comité des usagers de la Baie de Cascapédia, **Îles-de-la-Madeleine** : C.g.i de la lagune de Grande-Entrée, C.g.i. du Bassin aux Huîtres C.g.i. de la Baie du Havre-aux-Basques C.g.i. de la Baie du Bassin C.g.i. de la lagune du Havre-aux-Maisons et de la Baie du Cap-Vert http://www.zonescotieresquebec.org/index.php

Comités zones d'intervention prioritaire (ZIP)	The ZIP program aims primarily to promote a better knowledge of the St. Lawrence to the attainment of local initiatives for the protection, restoration, conservation and development of uses and resources of the Saint-Lawrence, in a perspective of sustainable development.	**Côte-Nord du Golfe** Virginie Provost Tel. : 418-968-8798 http://www.zipcng.org **Baie-des-Chaleurs** Tel. : 418-759-5880 zonebdc@globetrotter.net **Îles-de-la-Madeleine** Yves Martinet Tel. : 418-986-6633 http://www.zipdesiles.org **Sud-de-l'Estuaire** Françoise Bruaux Tel. : 418-722-8833 http://www.zipsud.org/ **Rive nord de l'estuaire** Dominic Francoeur Tel. : 1-877-520-0404 http://www.strategiessl.qc.ca **Saguenay** Ghislain Sylvain Tel. : 418-544-5813 http://www.zipsaguenay.ca
Stratégies Saint-Laurent	The primary mission of Stratégies Saint-Laurent is to bring together committees of priority areas (ZIP committees) of Quebec to promote the protection, rehabilitation and development of St. Lawrence in a sustainable development perspective.	**Stratégies Saint-Laurent** 870 avenue de Salaberry, bureau 204 Québec (Québec) G1R 2T9 Tel. : 418-648-8079 http://www.strategiessl.qc.ca/index.html
Le regroupement des organisations de bassins versants du Québec	Promote governance and integrated management of watershed for the whole of Quebec territory, to gather and represent watershed organizations.	**ROBVQ** 675, boul. René-Lévesque Est 8e étage, boîte 42 Québec (Québec) G1R 5V7 Tel. : 418-521-3878 http://www.robvq.qc.ca/

Appendix A-8: Native governance on the North Shore

Innus (Montagnais)	Contact
Essipit	**Denis Ross** 32, rue de la Réserve,C.P. 820 Les Escoumins (Québec) G0T 1K0 Tel. : 418-233-2509 www.mamuitun.com/membres-essipit.asp
Betsiamites	**Raphaël Picard** 2, rue Ashini, C.P. 40 Betsiamites (Québec) G0H 1B0 Tel. : 418-567-2265, poste 8488 www.pessamit.ca

Unamen Shipu	**Chef Guy Bellefleur** La Romaine (Québec) G0G 1M0, Tel. : 418-229-2917 www.mamit-innuat.com/Unamenshipu.htm
Pakua Shipi	**Chef Christiane Lalo** C.P. 178 Pakuashipi (Québec) G0G 2R0 Tel. : 418-947-2253 www.mamit-innuat.com/Pakuashipu.htm
Uashat Mak Mani-Utenam	**Chef Georges-Ernest Grégoire** 1089, De Quen ,C.P. 8000 Sept-Îles (Québec) G4R 4L9 Tel. : 418-962-0327
Ekuanitshit	**Chef Jean-Charles Piétacho** 35, rue Manitou Mingan (Québec) G0G 1V0, Tel. : 418-949-2234 www.mamit-innuat.com/Ekuanitshit.htm
Natashquan	**Chef François Bellefleur** 78, rue Mashkush Natashquan (Québec) G0G 2E0 Tel. : 418-726-3529 www.mamuitun.com/membres-Natashquan.asp

Appendix A-9: Native governance in Gaspésie and Lower Saint Lawrence

Micmac / Malécite	Contact
Malécites de Viger	**Réserve de Withworth et Cacouna** Première Nation Malécite de Viger 112, avenue de la Grève Cacouna (Québec) G0L 1G0 Tel. : 418-867-4618 pnmv@videotron.ca
Gespeg	**La Nation Micmac de Gespeg** 783, boul. Pointe-Navarre, C.P. 69 Fontenelle (Québec) G4X 6V2 Tel. : 418-368-6005 http://www.gaspesie.com/gespeg/index.html
Gesgapegiag	**Réserve Indienne de Gesgapegiag** Case Postale 1280 Maria (Québec) G0C 1Y0 Tel. : 418-759-3441 http://www.gesgapegiag.com
Listuguj	**Gouvernement Listuguj Mi'gmaq** 17, Riverside West Street, C.P. 298 Listuguj (Québec) G0C 2R0 Tel. : 418-788-2136 www.listuguj.ca

B. Legislation

Appendix B-1: Legislative jurisdiction of the parliaments of Canada and Quebec under sections 91, 92 and 92A of the Constitution Act of 1867

Distribution of legislative powers (art. 91 CA 1867)	**Distribution of legislative powers** (art. 92 et 92A CA 1867)
91: Powers of the Parliament	**92: Exclusive powers of provincial legislatures**
1. Repealed.	1. Repealed.
1A. The Public Debt and Property.	2. Direct Taxation within the Province in order to the raising of a Revenue for Provincial Purposes.
2. The Regulation of Trade and Commerce.	3. The borrowing of Money on the sole Credit of the Province
2A. Unemployment insurance.	4. The Establishment and Tenure of Provincial Offices and the Appointment and Payment of Provincial Officers.
3. The raising of Money by any Mode or System of Taxation.	5. The Management and Sale of the Public Lands belonging to the Province and of the Timber and Wood thereon.
4. The borrowing of Money on the Public Credit.	6. The Establishment, Maintenance, and Management of Public and Reformatory Prisons in and for the Province.
5. Postal Service.	7. The Establishment, Maintenance, and Management of Hospitals, Asylums, Charities, and Eleemosynary Institutions in and for the Province, other than Marine Hospitals.
6. The Census and Statistics.	8. Municipal Institutions in the Province.
7. Militia, Military and Naval Service, and Defence.	9. Shop, Saloon, Tavern, Auctioneer, and other Licences in order to the raising of a Revenue for Provincial, Local, or Municipal Purposes.
8. The fixing of and providing for the Salaries and Allowances of Civil and other Officers of the Government of Canada.	10. Local Works and Undertakings other than such as are of the following Classes:
9. Beacons, Buoys, Lighthouses, and Sable Island.	*(a)* Lines of Steam or other Ships, Railways, Canals, Telegraphs, and other Works and Undertakings connecting the Province with any other or others of the Provinces, or extending beyond the Limits of the Province:
10. Navigation and Shipping.	*(b)* Lines of Steam Ships between the Province and any British or Foreign Country:
11. Quarantine and the Establishment and Maintenance of Marine Hospitals.	*(c)* Such Works as, although wholly situate within the Province, are before or after their Execution declared by the Parliament of Canada to be for the general Advantage of Canada or for the Advantage of Two or more of the Provinces.
12. Sea Coast and Inland Fisheries.	11. The Incorporation of Companies with Provincial Objects.
13. Ferries between a Province and any British or Foreign Country or between Two Provinces.	12. The Solemnization of Marriage in the Province.
14. Currency and Coinage.	13. Property and Civil Rights in the Province.
15. Banking, Incorporation of Banks, and the Issue of Paper Money.	14. The Administration of Justice in the Province,
16. Savings Banks.	
17. Weights and Measures.	
18. Bills of Exchange and Promissory Notes.	
19. Interest.	
20. Legal Tender.	
21. Bankruptcy and Insolvency.	
22. Patents of Invention and Discovery.	
23. Copyrights.	
24. Indians, and Lands reserved for the Indians.	
25. Naturalization and Aliens.	
26. Marriage and Divorce.	
27. The Criminal Law, except the Constitution of Courts of Criminal Jurisdiction, but including	

the Procedure in Criminal Matters.

28. The Establishment, Maintenance, and Management of Penitentiaries.
29. Such Classes of Subjects as are expressly excepted in the Enumeration of the Classes of Subjects by this Act assigned exclusively to the Legislatures of the Provinces.

including the Constitution, Maintenance, and Organization of Provincial Courts, both of Civil and of Criminal Jurisdiction, and including Procedure in Civil Matters in those Courts.

15. The Imposition of Punishment by Fine, Penalty, or Imprisonment for enforcing any Law of the Province made in relation to any Matter coming within any of the Classes of Subjects enumerated in this Section.
16. Generally all Matters of a merely local or private Nature in the Province.

92A. Non-renewable natural resources, forestry resources and electrical energy

(1) In each province, the legislature may exclusively make laws in relation to

(a) exploration for non-renewable natural resources in the province;

(b) development, conservation and management of non-renewable natural resources and forestry resources in the province, including laws in relation to the rate of primary production therefrom; and

(c) development, conservation and management of sites and facilities in the province for the generation and production of electrical energy.

(2) In each province, the legislature may make laws in relation to the export from the province to another part of Canada of the primary production from non-renewable natural resources and forestry resources in the province and the production from facilities in the province for the generation of electrical energy, but such laws may not authorize or provide for discrimination in prices or in supplies exported to another part of Canada.

(3) Nothing in subsection (2) derogates from the authority of Parliament to enact laws in relation to the matters referred to in that subsection and, where such a law of Parliament and a law of a province conflict, the law of Parliament prevail to the extent of the conflict.

(4) In each province, the legislature may make laws in relation to the raising of money by any mode or system of taxation in respect of

(a) non-renewable natural resources and forestry resources in the province and the primary production therefrom, and

(b) sites and facilities in the province for the generation of electrical energy and the production therefrom,

	whether or not such production is exported in whole or in part from the province, but such laws may not authorize or provide for taxation that differentiates between production exported to another part of Canada and production not exported from the province.

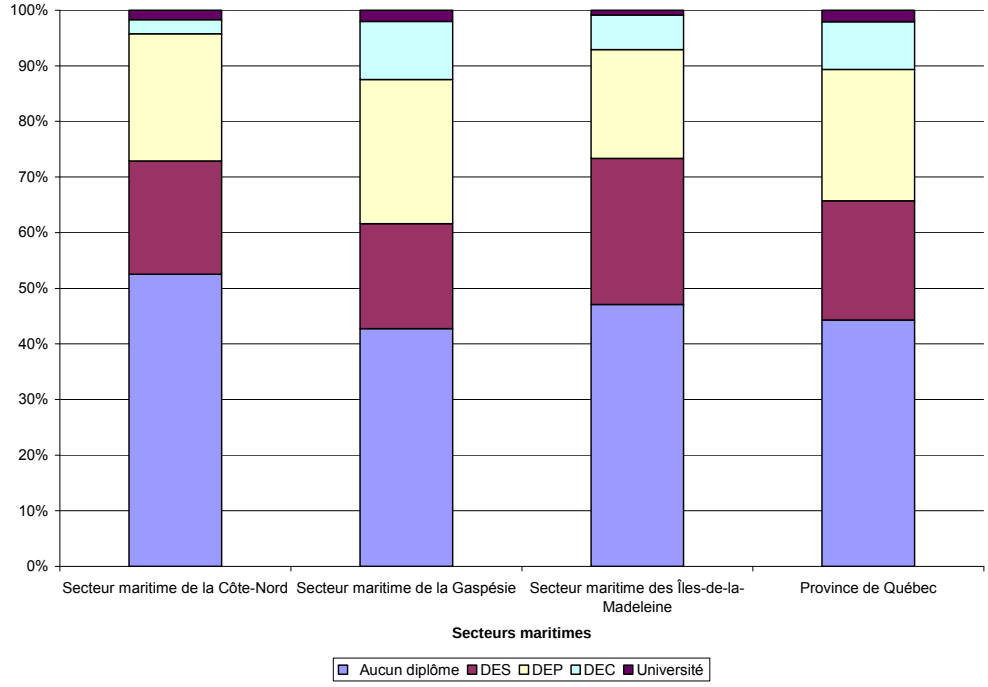
C. Education

Appendix C-1: Groups and associations related to the field of teaching

Institution	Grade	Program
Centre de formation professionnelle 30, chemin la Martinique L'Etang-du-Nord (Quebec), G0B 1E0 Tel. : (418) 986-5511	Professional	- Professional fishing
C.F.P. de Wakeham 584, montee Wakeham Gaspe (Quebec), G4X 2A1 Tel. : (418) 368-3376	Professional	- Professional fishing
C.F.P. de Grosse-Île 448, Ch. Principal Grosse-Île (Quebec), G0B 1M0 Tel. : (418) 985-2885	Professional	- Professional fishing
Centre l'Envol 15, rue Comeau Carleton-sur-Mer (Quebec), G0C 1J0 Tel. : (418) 364-7510	Professional	- Aquaculture
Cegep de la Gaspesie et des Îles **Ecole des pêches et de l'aquaculture du Quebec** 167, La Grande Allee Est Grande-Rivière (Quebec) G0C 1V0 Tel. : (418) 385-2241, poste 4113	Professional	- Marine mechanic - Fish market - Aquaculture - Professional fishing
Cegep de Baie-Comeau 537, boul. Blanche Baie-Comeau (Quebec) G5C 2B2 (418) 589-5707 poste 231	Technical	- Amenagement hunting and fishing
Cegep de Rimouski **Institut maritime du Quebec** 53, rue Saint-Germain Ouest Rimouski (Quebec) G5L 4B4 (418) 724-2822	Technical	- Navigation - Naval architecture - Marine mechanic - Transport logistic - Professional scuba diving
Cegep de la Gaspesie et des Îles **Centre d'etudes collegiales des Magdalen Islands** C.P. 238 Etang-du-Nord (Quebec) G0B 1E0 (418) 986-5187 p.6232	Technical	- Aquaculture

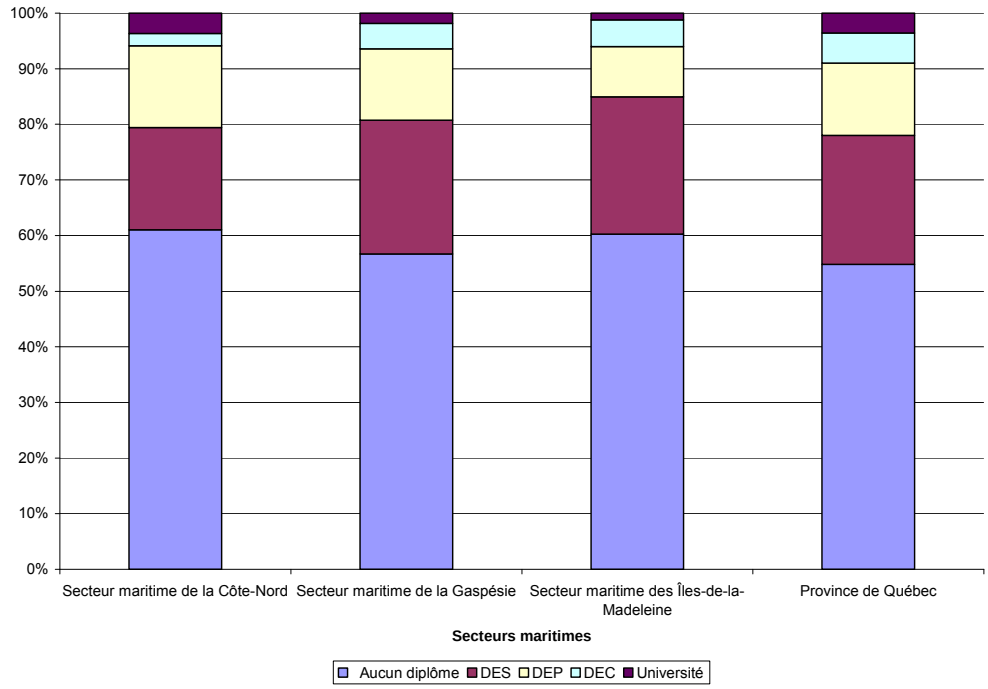
Cegep de la Gaspesie et des Îles **Ecole des pêches et de l'aquaculture du Quebec** 167, La Grande Allee Est Grande-Rivière (Quebec) G0C 1V0 (418) 385-2241, poste 4113	Technical	- Aquaculture - Fish and seafood transformation technologies
Cegep de la Gaspesie et des Îles **Ecole des pêches et de l'aquaculture du Quebec** 167, La Grande Allee Est Grande-Rivière (Quebec) G0C 1V0 (418) 385-2241, poste 4113	Formation continue	- Fishing captain Class IV - Fishing captain Class III - Restricted captain - Advanced sea security - Radio telecommunication - Fum A1 et A2 - Marine mechanic
UQAR, Campus de Rimouski	Bachelor	- Biology, Marine sciences - Geography, marine environment
UQAR, Campus de Rimouski 300, allee des Ursulines, C. P. 3300, succ. A Rimouski (Quebec) G5L 3A1 Tel. : (418) 723-1986	Master – Ph.D.	- Marine ressources management - Oceanography - Wild life management and its habitats - Environmental sciences
Cegep de La Pocatière 140, 4e avenue, La Pocatière (Quebec) G0R 1Z0 Tel. : (418)856-1525	Technical	- Bioecology

Appendix C-2: Highest level of education attained for the fishery industry, per DFO maritime sector, 2006



Source : Statistics Canada 2008, 2006 census, special compilation DFO P&E Quebec

Appendix C-3: Highest level of education attained for the Seafood product preparation and packaging industry, per DFO maritime sector, 2006



Source : Statistics Canada 2008, 2006 census, special compilation DFO P&E Quebec

D. Health and marine security

Appendix D-1: Preliminary statistics of maritime events happening in Canada, 2006

	2001-2005 Average	2005	2006	2007	2008
Total Marine Accidents	506	489	467	455	398
Shipping Accidents	455	444	419	395	341
Collision	17	20	19	13	15
Capsizing	12	10	18	12	11
Foundering/Sinking	26	21	24	20	32
Fire/Explosion	64	69	55	49	58
Grounding	111	87	111	94	68
Striking	80	81	60	61	53
Ice Damage	12	11	2	25	15
Propeller/Rudder/Structural Damage	36	43	56	41	15
Flooding	59	59	46	49	45
Other	37	43	28	31	29
Accidents Aboard Ship	51	45	48	60	57
Vessels Involved in Shipping Accidents[1]	496	491	458	433	388
Cargo	23	21	31	24	20
Bulk Carrier/OBO	57	68	57	54	46
Tanker	12	15	13	9	5
Tug	32	30	27	44	46
Barge	30	27	33	29	29
Ferry	23	26	25	24	25
Passenger	27	20	19	17	13
Fishing	242	237	208	190	167
Service Vessel	23	19	22	25	20
Non-Commercial	15	11	14	10	10
Other	13	17	9	7	7
By Vessel Flag	496	491	458	433	388
Canadian (Non-Fishing)	197	185	188	190	181
Canadian (Fishing)	234	230	197	184	166
Foreign	66	76	73	59	41
Vessels Lost (by Gross Tonnage)	34	26	31	29	31
1600 grt and over	1	0	3	0	0
150 to 1599 grt	1	0	2	0	3
60 to 149 grt	6	6	6	8	4
15 to 59 grt	10	7	4	9	14
Less than 15 grt	11	9	11	9	8
Unknown Tonnage[2]	5	4	5	3	2
Fatalities	25	20	18	14	22
Shipping Accidents	16	13	12	3	12
Accidents Aboard Ship	9	7	6	11	10
Injuries	78	66	83	80	71
Shipping Accidents	31	25	26	29	21
Accidents Aboard Ship	47	41	57	51	50
Reported Incidents (Mandatory)	222	227	212	224	235
Close-quarters Situation	54	56	30	21	18
Engine/Rudder/Propeller	86	85	110	87	124

Cargo Trouble	3	4	4	1	6
Personal Incidents	9	4	12	21	11
Other	70	78	56	94	76
[1] Occurrence data do not include pleasure craft except when the latter are involved in an occurrence with a commercial vessel.					
[2] The majority of vessels listed under unknown tonnage are suspected of being less than 15 grt.					
Figures are preliminary as of March 6, 2007.					
All five-year averages have been rounded.					

Source : Transportation Safety Board of Canada.Welcome, [En ligne]. http://www.tsb.gc.ca/fra/stats/marine/2006/index.asp

E. RMC Well-Being Index

Appendix E-1: Disposable Income per capita

	2007	X	(LOG(X)-LOG(2000))/(LOG(40000-LOG(2000))
Kamouraska	19 872	50%	77%
La Matapédia	18 556	46%	74%
La Mitis	19 106	48%	75%
Les Basques	18 921	47%	75%
Matane	20 277	51%	77%
Rimouski-Neigette	23 374	58%	82%
Rivière-du-Loup	22 593	56%	81%
Témiscouata	18 110	45%	74%
Avignon	20 990	52%	78%
Bonaventure	19 619	49%	76%
La Côte-de-Gaspé	21 939	55%	80%
La Haute-Gaspésie	17 922	45%	73%
Le Rocher-Percé	18 439	46%	74%
Les Magdalen Islands	22 181	55%	80%
Lower-North-Shore	17 322	43%	72%
Caniapiscau	37 323	93%	98%
Upper-North-Shore	20 069	50%	77%
Manicouagan	26 003	65%	86%
Minganie	23 305	58%	82%
Sept-Rivières	26 989	67%	87%
All of Quebec	24 455	61%	84%
Disposable Income per capita	2 003	X	(LOG(X)-LOG(2000))/(LOG(30000-LOG(2000))
Kamouraska	17 418	58%	80%
La Matapédia	15 637	52%	76%
La Mitis	16 219	54%	77%
Les Basques	16 121	54%	77%
Matane	17 367	58%	80%
Rimouski-Neigette	19 838	66%	85%
Rivière-du-Loup	19 736	66%	85%
Témiscouata	15 446	51%	75%
Avignon	18 767	63%	83%
Bonaventure	17 530	58%	80%
La Côte-de-Gaspé	18 655	62%	82%
La Haute-Gaspésie	15 765	53%	76%
Le Rocher-Percé	16 965	57%	79%
Les Magdalen Islands	19 972	67%	85%
Lower-North-Shore	15 504	52%	76%
Caniapiscau	28 767	96%	98%
Upper-North-Shore	18 002	60%	81%
Manicouagan	21 771	73%	88%
Minganie	20 581	69%	86%
Sept-Rivières	21 648	72%	88%
All of Quebec	21 191	71%	87%

Appendix E-2: Employment

	Participation Rate 2006 (1)	Employment Rate 2006 (2)	(1)/2 + (2)/2
La Matapédia	55,00%	45,40%	50%
Matane	55,80%	49,40%	53%
La Mitis	57,20%	50,60%	54%
Rimouski-Neigette	63,20%	58,20%	61%
Les Basques	56,10%	49,10%	53%
Rivière-du-Loup	64,10%	59,80%	62%
Témiscouata	55,60%	48,90%	52%
Kamouraska	59,50%	55,10%	57%
Les Magdalen Islands	63,40%	53,90%	59%
Le Rocher-Percé	48,20%	39,40%	44%
La Côte-de-Gaspé	56,30%	46,90%	52%
La Haute-Gaspésie	47,40%	38,30%	43%
Bonaventure	53,00%	42,60%	48%
Avignon	54,00%	44,60%	49%
Lower-North-Shore	62,90%	46,40%	55%
Caniapiscau	65,30%	59,90%	63%
Upper-North-Shore	57,40%	47,20%	52%
Manicouagan	64,90%	58,90%	62%
Minganie	62,90%	46,40%	55%
Sept-Rivières	65,30%	59,90%	63%
All of Quebec	64,90%	60,40%	63%
	Participation Rate 2001 (1)	Employment Rate 2001 (2)	(1)/2 + (2)/2
La Matapédia	54,50%	43,50%	49%
Matane	56,60%	46,40%	52%
La Mitis	54,30%	45,80%	50%
Rimouski-Neigette	64,00%	56,90%	60%
Les Basques	50,90%	43,10%	47%
Rivière-du-Loup	62,50%	56,60%	60%
Témiscouata	55,50%	46,80%	51%
Kamouraska	58,60%	53,10%	56%
Les Magdalen Islands	63,40%	52,30%	58%
Le Rocher-Percé	49,40%	34,80%	42%
La Côte-de-Gaspé	54,70%	45,50%	50%
La Haute-Gaspésie	49,10%	35,60%	42%
Bonaventure	51,80%	40,80%	46%
Avignon	56,00%	42,90%	49%
Lower-North-Shore	62,40%	55,90%	59%
Caniapiscau	64,40%	54,20%	59%
Upper-North-Shore	55,80%	53,10%	54%
Manicouagan	61,70%	42,40%	52%
Minganie	62,40%	55,90%	59%
Sept-Rivières	64,40%	54,20%	59%
All of Quebec	64,20%	58,90%	62%

Appendix E-3: Education

Diplomation (2006)	None (1)	HSD (2)	2/3*(1) + 1/3*(2) =
La Matapédia	27%	21%	75%
Matane	26%	18%	77%
La Mitis	25%	22%	76%
Rimouski-Neigette	14%	20%	84%
Les Basques	29%	23%	73%
Rivière-du-Loup	19%	20%	81%
Témiscouata	32%	19%	72%
Kamouraska	22%	18%	79%
Les Magdalen Islands	30%	20%	73%
Le Rocher-Percé	37%	22%	68%
La Côte-de-Gaspé	26%	18%	77%
La Haute-Gaspésie	36%	19%	70%
Bonaventure	23%	21%	78%
Avignon	26%	17%	77%
Lower-North-Shore	43%	18%	65%
Caniapiscau	24%	20%	77%
Upper-North-Shore	30%	21%	73%
Manicouagan	20%	23%	79%
Minganie	43%	18%	65%
Sept-Rivières	24%	20%	77%
All of Quebec	17%	21%	82%
Diplomation (2001)	None (1)	HSD (2)	2/3*(1) + 1/3*(2) =
La Matapédia	34%	29%	68%
Matane	37%	23%	68%
La Mitis	33%	28%	69%
Rimouski-Neigette	19%	26%	79%
Les Basques	38%	28%	65%
Rivière-du-Loup	25%	25%	75%
Témiscouata	42%	22%	65%
Kamouraska	32%	23%	71%
Les Magdalen Islands	43%	19%	65%
Le Rocher-Percé	48%	19%	62%
La Côte-de-Gaspé	37%	23%	68%
La Haute-Gaspésie	46%	23%	62%
Bonaventure	36%	23%	68%
Avignon	35%	21%	70%
Lower-North-Shore	51%	18%	60%
Caniapiscau	33%	24%	70%
Upper-North-Shore	42%	23%	64%
Manicouagan	28%	27%	72%
Minganie	51%	18%	60%
Sept-Rivières	33%	24%	70%
All of Quebec	24%	25%	76%

Appendix E-4: Health

Self-assessed health status (2003)	
La Matapédia	57%
Matane	57%
La Mitis	57%
Rimouski-Neigette	57%
Les Basques	57%
Rivière-du-Loup	57%
Témiscouata	57%
Kamouraska	57%
Les Magdalen Islands	50%
Le Rocher-Percé	50%
La Côte-de-Gaspé	50%
La Haute-Gaspésie	50%
Bonaventure	50%
Avignon	50%
Lower-North-Shore	53%
Caniapiscau	53%
Upper-North-Shore	53%
Manicouagan	53%
Minganie	53%
Sept-Rivières	53%
All of Quebec	57%
Self-assessed health status (1998)	
La Matapédia	51%
Matane	51%
La Mitis	51%
Rimouski-Neigette	51%
Les Basques	51%
Rivière-du-Loup	51%
Témiscouata	51%
Kamouraska	51%
Les Magdalen Islands	50%
Le Rocher-Percé	50%
La Côte-de-Gaspé	50%
La Haute-Gaspésie	50%
Bonaventure	50%
Avignon	50%
Lower-North-Shore	50%
Caniapiscau	50%
Upper-North-Shore	50%
Manicouagan	50%
Minganie	50%
Sept-Rivières	50%
All of Quebec	54%

Appendix E-5: Economic Dependency Index

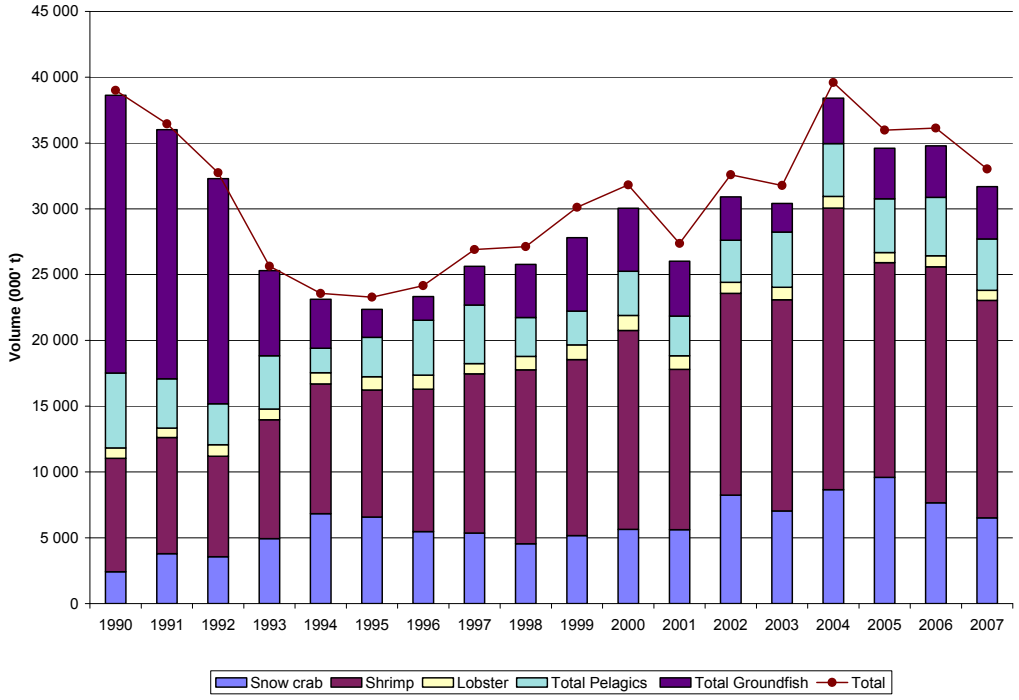
EDI (2006)	X	(100-X)/100
La Matapédia	34,91	65%
Matane	46,97	53%
La Mitis	39,7	60%
Rimouski-Neigette	50,19	50%
Les Basques	38,46	62%
Rivière-du-Loup	24,93	75%
Témiscouata	27,23	73%
Kamouraska	41,73	58%
Les Magdalen Islands	45,25	55%
Le Rocher-Percé	54,22	46%
La Côte-de-Gaspé	40,13	60%
La Haute-Gaspésie	65,54	34%
Bonaventure	72,59	27%
Avignon	47,31	53%
Lower-North-Shore	52,38	48%
Caniapiscau	6,53	93%
Upper-North-Shore	40,78	59%
Manicouagan	18,73	81%
Minganie	31,71	68%
Sept-Rivières	19,31	81%
All of Quebec	20,88	79%
EDI (2002)		
La Matapédia	29,16	71%
Matane	42,23	58%
La Mitis	38,39	62%
Rimouski-Neigette	46,88	53%
Les Basques	38,11	62%
Rivière-du-Loup	22,88	77%
Témiscouata	25,74	74%
Kamouraska	39,1	61%
Les Magdalen Islands	42,92	57%
Le Rocher-Percé	47,65	52%
La Côte-de-Gaspé	37,44	63%
La Haute-Gaspésie	60,77	39%
Bonaventure	68,83	31%
Avignon	41,73	58%
Lower-North-Shore	53,51	46%
Caniapiscau	9,26	91%
Upper-North-Shore	39,38	61%
Manicouagan	16,56	83%
Minganie	32,33	68%
Sept-Rivières	19,66	80%
All of Quebec	19,44	81%

Appendix E-6: Final Index

	Total group 1	Average group 1	Total group 2	Average group 2	Growth
Kamouraska	315%	63%	324%	65%	2%
La Matapédia	302%	60%	313%	63%	2%
La Mitis	307%	61%	322%	64%	3%
Les Basques	318%	64%	326%	65%	2%
Matane	303%	61%	321%	64%	4%
Rimouski-Neigette	345%	69%	357%	71%	2%
Rivière-du-Loup	322%	64%	335%	67%	3%
Témiscouata	312%	62%	325%	65%	3%
Avignon	308%	62%	316%	63%	1%
Bonaventure	282%	56%	284%	57%	0%
La Côte-de-Gaspé	310%	62%	318%	64%	2%
La Haute-Gaspésie	266%	53%	270%	54%	1%
Le Rocher-Percé	270%	54%	277%	55%	2%
Les Magdalen Islands	308%	62%	310%	62%	0%
Lower-North-Shore	288%	58%	292%	58%	1%
Caniapiscau	368%	74%	384%	77%	3%
Upper-North-Shore	307%	61%	314%	63%	2%
Manicouagan	344%	69%	360%	72%	3%
Minganie	319%	64%	323%	65%	1%
Sept-Rivières	347%	69%	360%	72%	3%
All of Quebec	356%	71%	364%	73%	2%

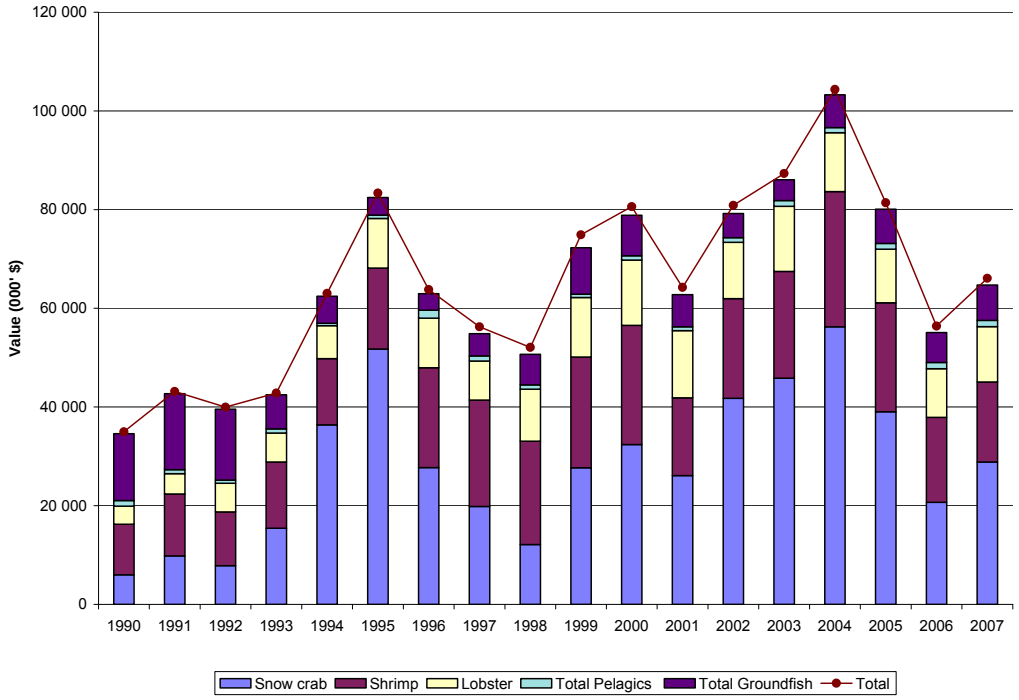
F. Commercial Fishing

Appendix F-1: Evolution of fish landings in Gaspésie, volume, 1990-2007



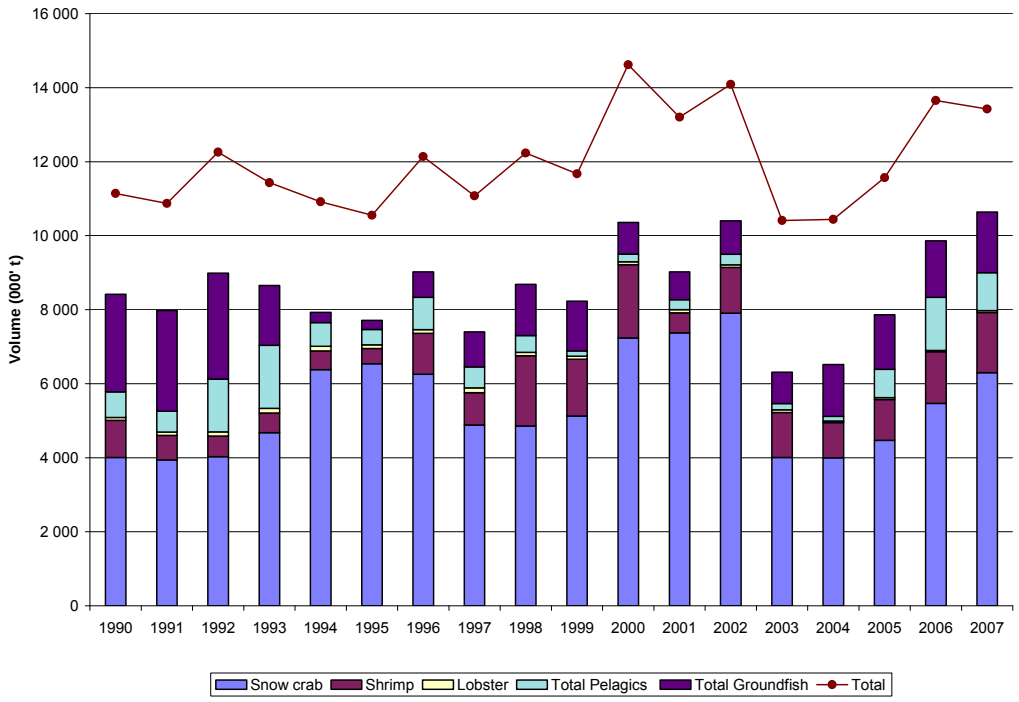
Source : Statistics, DFO-Quebec, special compilation, P&E, 2008

Appendix F-2: Evolution of fish landings in Gaspésie, value, 1990-2007



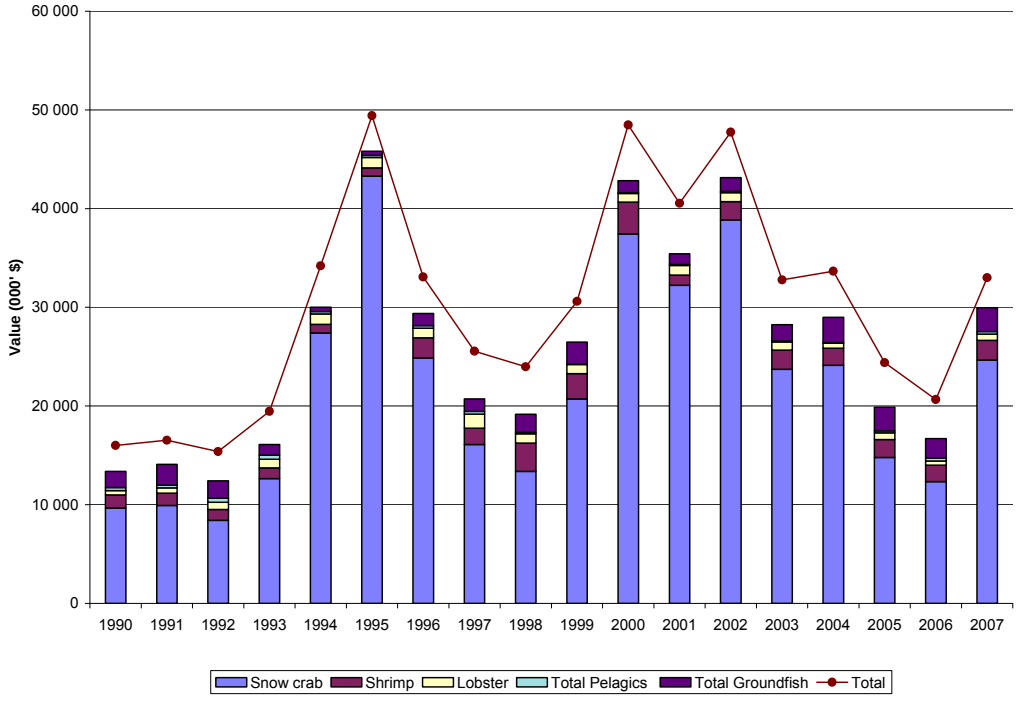
Source : Statistics, DFO-Quebec, special compilation, P&E, 2008

Appendix F-3: Evolution of fish landings on the North-Shore, volume, 1990-2007



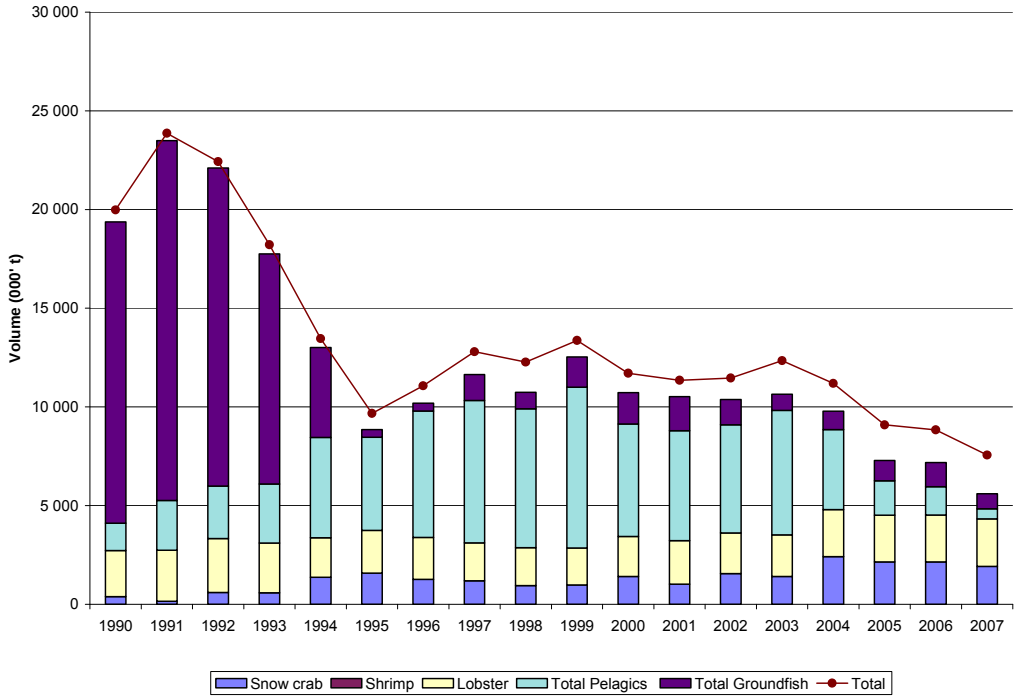
Source : Statistics, DFO-Quebec, special compilation, P&E, 2008

Appendix F-4: Evolution of fish landings on the North-Shore, value, 1990-2007



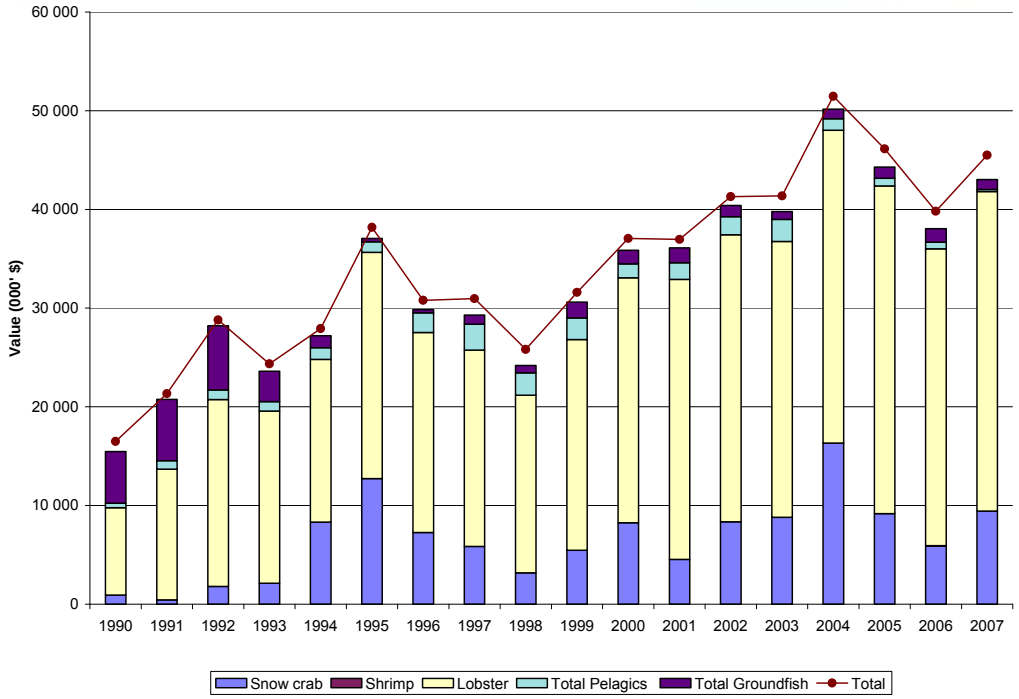
Source : Statistics, DFO-Quebec, special compilation, P&E, 2008

Appendix F-5: Evolution of fish landings in the Magdelen Islands, volume, 1990-2007



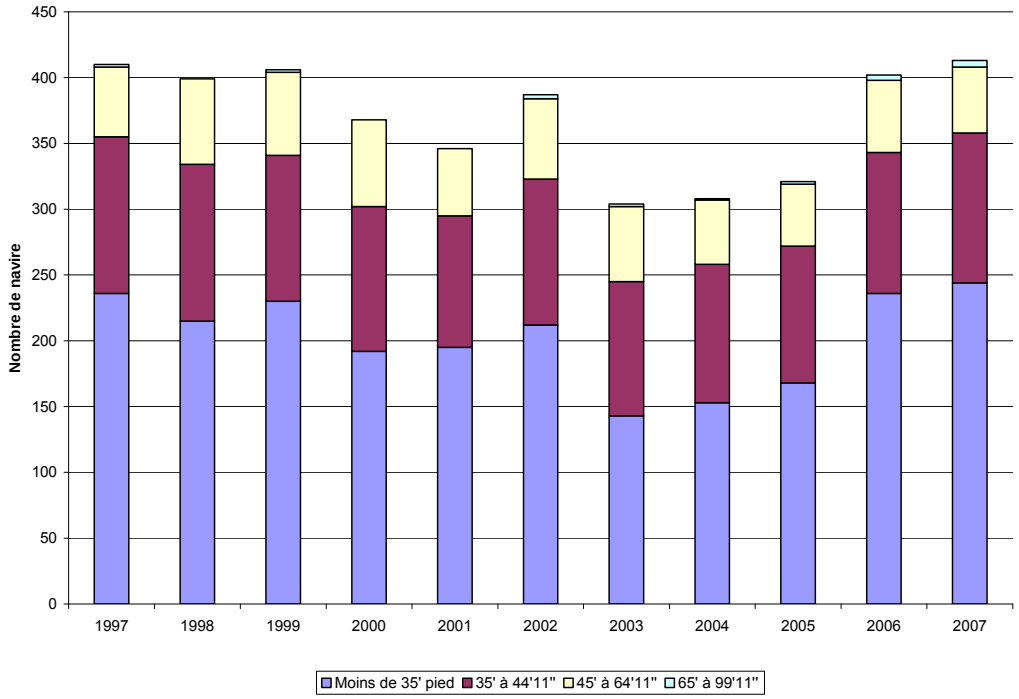
Source : Statistics, DFO-Quebec, special compilation, P&E, 2008

Appendix F-6: Evolution of fish landings in the Magdalen Islands, value, 1990-2007



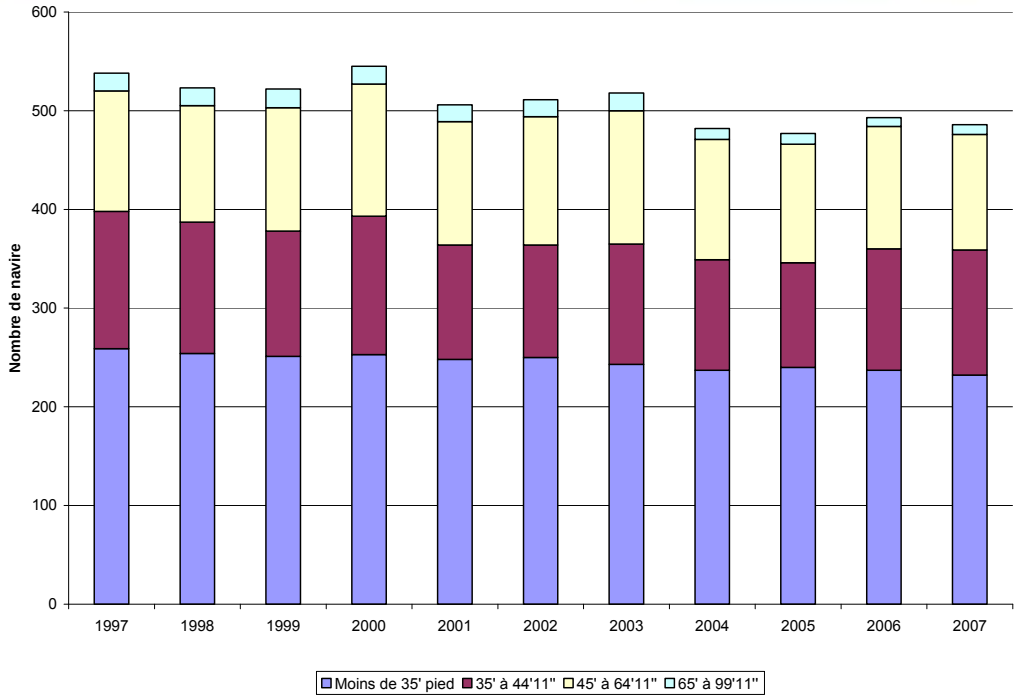
Source : Statistics, DFO-Quebec, special compilation, P&E, 2008

Appendix F-7: Active shipping vessel on the North-Shore, by length, 1997-2007



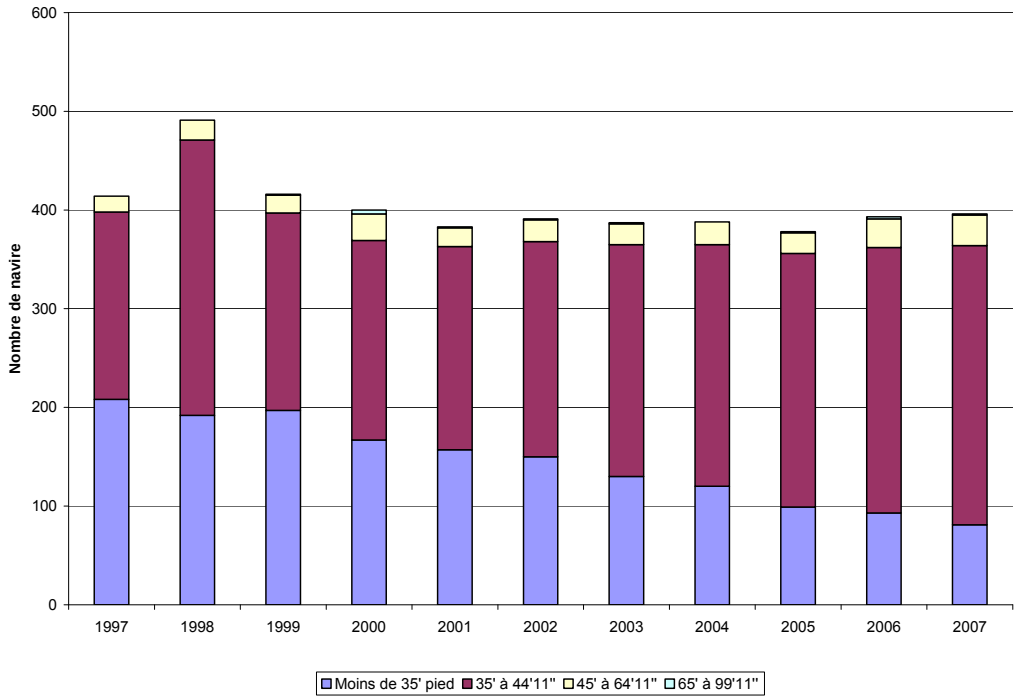
Source : Statistics, DFO-Quebec, special compilation, P&E, 2008

Appendix F-8: Active shipping vessel in Gaspésie , by length, 1997-2007



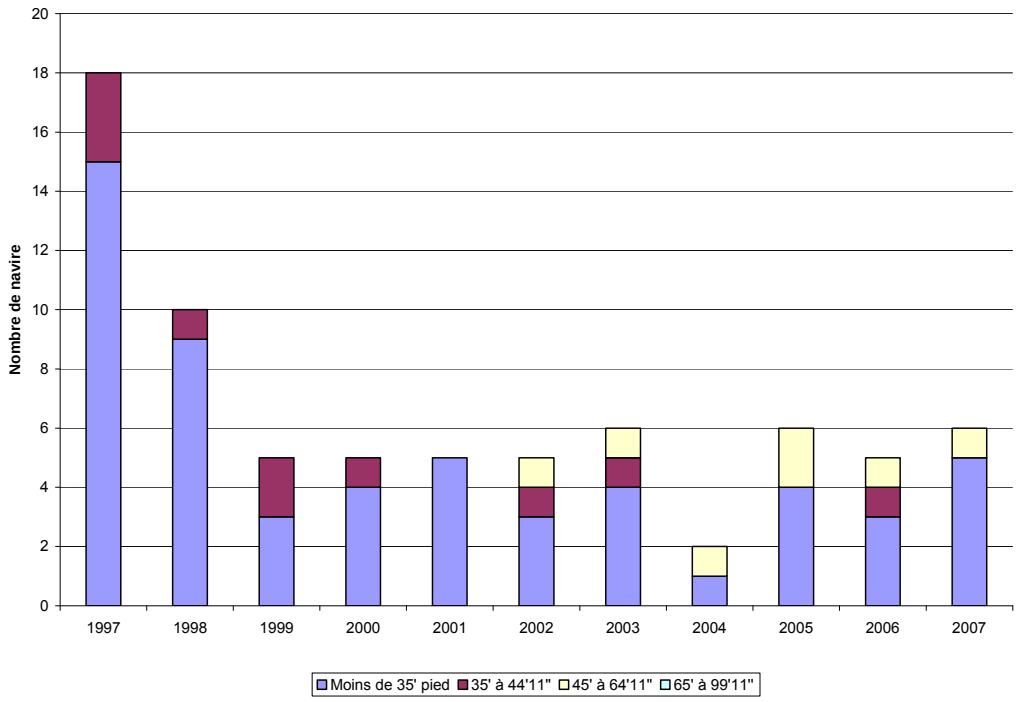
Source : Statistics, DFO-Quebec, special compilation, P&E, 2008

Appendix F-9: Active shipping vessel in the Magdalen Islands, by length, 1997-2007



Source : Statistics, DFO-Quebec, special compilation, P&E, 2008

Appendix F-10: Active shipping vessel, Saint-Lawrence, by length, 1997-2007



Source : Statistics, DFO-Quebec, special compilation, P&E, 2008

Appendix F-11: Number of fishermen by Community and Main Species Landed, 2006

Fisherman Community	Main species	Number of fishermen
Aguanish	Snow Crab	4
Baie-Comeau	Snow Crab	6
Baie-des-Sables	Snow Crab	1
Betsiamites	Snow Crab	1
Bic	Snow Crab	5
Brador	Snow Crab	5
Cap-d'Espoir	Snow Crab	26
Chandler	Snow Crab	7
Chevery	Snow Crab	8
Forillon	Snow Crab	1
Franquelin	Snow Crab	2
Gascons	Snow Crab	14
Gascons-Ouest	Snow Crab	4
Gaspé	Snow Crab	11
Gesgapegiag	Snow Crab	1
Grande-Rivieère-Ouest	Snow Crab	11
Grande-Rivière	Snow Crab	15
Grosses-Roches	Snow Crab	3
Harrington Harbour	Snow Crab	18
Havre-Saint-Pierre	Snow Crab	17

Kegaska	Snow Crab	6
La Perade	Snow Crab	1
La Romaine	Snow Crab	3
La Tabatière	Snow Crab	9
Lachenaie	Snow Crab	1
Les Escoumins	Snow Crab	6
Longue-Pointe-de-Mingan	Snow Crab	4
Lourdes-de-Blanc-Sablon	Snow Crab	19
Middle Bay	Snow Crab	8
Mingan	Snow Crab	4
Moisie	Snow Crab	2
Mont-Louis	Snow Crab	2
Mutton Bay	Snow Crab	8
Natashquan	Snow Crab	5
Newport	Snow Crab	1
Newport-Centre	Snow Crab	2
Old Fort Bay	Snow Crab	12
Pabos Mills	Snow Crab	7
Paspeeiac	Snow Crab	8
Petit-Cap	Snow Crab	6
Port-Cartier	Snow Crab	5
Port-Daniel-Centre	Snow Crab	12
Quebec	Snow Crab	2
Restigouche	Snow Crab	3
Rimouski	Snow Crab	2
Riviere-au-Tonnerre	Snow Crab	5
Riviere-Pentecôte	Snow Crab	2
Rivière-Saint-Paul	Snow Crab	27
Saint-Augustin	Snow Crab	7
Sainte-Anne-des-Monts	Snow Crab	32
Sainte-Flavie	Snow Crab	3
Sainte-Therèse-de-Gaspé	Snow Crab	30
Saint-François-de-Pabos	Snow Crab	7
Sept-Îles	Snow Crab	23
Sheldrake	Snow Crab	5
Ste-Anne-de-Portneuf	Snow Crab	4
Tête-à-la-Baleine	Snow Crab	16
Trois-Pistoles	Snow Crab	4
Blanc-Sablon	Shrimp	8
Cacouna	Shrimp	1
Carleton	Shrimp	7
Clarke City	Shrimp	1
Cloridorme	Shrimp	9
L'Anse-à-Valleau	Shrimp	5
Matane	Shrimp	8
Petite-Matane	Shrimp	1
Pointe-à-laFregate	Shrimp	1
Riviere-au-Renard	Shrimp	30
Saint-Ulric	Shrimp	2

Barachois	Lobster	12
Bassin	Lobster	38
Cap-aux-Meules	Lobster	21
Cap-des-Rosiers	Lobster	2
Caplan	Lobster	3
Douglastown	Lobster	5
Fatima	Lobster	44
Fontenelle	Lobster	8
Grande-Entree	Lobster	57
Grosse-Île	Lobster	72
Havre-Aubert	Lobster	22
Havre-aux-Maisons	Lobster	66
Hope Town	Lobster	2
Île d'Anticosti	Lobster	1
L'Etang-du-Nord	Lobster	69
L'Île d'Entree	Lobster	17
Leslie	Lobster	1
New Carlisle	Lobster	5
New Richmond	Lobster	1
Newport	Lobster	14
Newport	Lobster	2
Newport-Ouest	Lobster	1
Pabos	Lobster	4
Percé	Lobster	16
Pointe-aux-Loups	Lobster	12
Saint-Georges-de-Malbaie	Lobster	11
Saint-Godefroi	Lobster	17
Shigawake	Lobster	15
York	Lobster	1
L'Isle-aux-Coudres	Herring	1
Saint-Omer	Herring	2
Anse des Mechins	Greenland Halibut	4
Aylmer Sound	Greenland Halibut	1
Cap-Chat (Village)	Greenland Halibut	7
L'Anse-au-Griffon	Greenland Halibut	5
Longue-Rive	Greenland Halibut	8
Rivière-Trois-Pistoles	Greenland Halibut	1
Saint-Joachim-de-Tourelle	Greenland Halibut	2
Kamouraska	Sturgeon	1
Bonaventure	Rock Crab	2
Grande-Vallee	Rock Crab	1
Nouvelle	Rock Crab	2
Rivière-la-Madeleine	Rock Crab	1
Saint-Simeon	Rock Crab	2
Saint-Yvon	Atlantic cod	1
Saint-Irenee	Capelin	1
Saint-Fabien	Urchins	2
Magpie	Whelk	1

Source : Statistics, DFO-Quebec, special compilation, P&E, 2008

G. Marine transportation

Appendix G-1: Ports under Transport Canada, Quebec region (gulf)

Port under Transport Canada authority	Other port, municipal
Baie-Comeau	Trois-Pistoles
Cap-à-l'Aigle	Les Escoumains
Carleton	Havre-Saint-Pierre
Chandler	Ports
Gaspé (Sandy Beach)	Fabreville
Gros-Cacouna	Saint Simeon
Les Mechins	Trois-Pistoles
Matane	Les Escoumains
Miguasha-Ouest	Havre-Saint-Pierre
Mont-Louis	Remote port
Notre-Dame-du-Lac	Blanc-Sablon
Paspebiac	St-Augustin
Pointe-au-Père	La Tabatière
Pointe-au-Pic	Tête-à-la-Baleine
Rimouski	Harrington Harbour
Sept-Îles	La Romaine
	Kegaska
	Natashquan
	Port-Meunier (Anticosti Island)
	Baie-Johan-Beetz

Source : Transport Canada. Marine transport. *Ports*, [Online].
http://www.tc.gc.ca/programmes/ports/index.htm

Appendix G-2: Port activities, Quebec region (gulf), 2008

Port	Cargo handled (Mt)	Variation 2007-2008	Nomber of vessels
Sept-Îles	22,6	+ 6 %	578
Port-Cartier	16	-20 %	421
Baie-Comeau	5,6	- 7 %	266
Port Alfred	5	+ 7 %	139
Havre Saint-Pierre	3,5	+ 72 %	210
Port Saguenay	0,334	+ 16 %	51
Matane	0,253	+ 14 %	44
Rimouski	0,249	+ 7 %	78
Gaspé	0,193	+ 165 %	28
Gros-Cacouna	0,179	- 25 %	43
Pointe-au-Pic	0,094	- 22 %	18
Chandler	0,009	+ 10 %	7
Total	54,011		1 883

Source : DFO, 2009. Maritime Perspective.

H. Energy

Appendix H-1: Wind-powered energy production, Quebec, maritime region

Community, region	Administrative region	Power (MW)	Number of windmill	Producer	Status/date
Saint-Ulric	Lower-Saint-Lawrence	2,25	3	Hydro-Quebec Production	Exploited since 1998
Cap-Chat et RMC de Matane (Le Nordais)	Gaspé Peninsua–Magdalen Islands	99,8	133	Kilowatt Gaspésie	Exploited since 1999
Rivière-au-Renard	Gaspé Peninsua–Magdalen Islands	2,25	3	Groupement eolien Quebecois de Rivière-au-Renard	Exploited since 2003
Murdochville (Mont miller)	Gaspé Peninsua–Magdalen Islands	54	30	Northland Power et 3Ci Energie Eolienne	Exploited since 2005
Murdochville (Mont Cooper)	Gaspé Peninsua–Magdalen Islands	54	30	FPL Energy	Exploited since 2005
Baie-des-Sables	Lower-Saint-Lawrence	110	73	Cartier Energie Eolienne	Exploited since 2006
Anse-à-Valleau	Gaspé Peninsua–Magdalen Islands	101	67	Cartier Energie Eolienne	Exploited since 2007
Carleton	Gaspé Peninsua–Magdalen Islands	110	73	Cartier Energie Eolienne	En phase de construction. Started in 2008
Saint-Ulric, Saint-Leandre	Lower-Saint-Lawrence	150	100	Northland Power	Waiting for autorisation. Starting in 2009
Murdochville	Gaspé Peninsua–Magdalen Islands	54	36	3Ci Energie eolienne	Starting in 2009
RMC de Rivière-du-Loup	Lower-Saint-Lawrence	182	121	SkyPower	Starting in 2009
Les Mechins	Gaspé Peninsua–Magdalen Islands	150	100	Cartier Energie Eolienne	Starting in 2009

Mont-Louis	Gaspé Peninsua–Magdalen Islands	101	64	Cartier Energie Eolienne	Starting in 2010
Montagne-Sèche	Gaspé Peninsua–Magdalen Islands	58,5	39	Cartier Energie Eolienne	Starting in 2011
Gros Morne (phase 1)	Gaspé Peninsua–Magdalen Islands	101	67	Cartier Energie Eolienne	Starting in 2011
Aquanish	North-Shore	80	40	St-Lawrence Energies (Consortium Hydromega Services Inc., EDF Energies Nouvelles, RES Canada inc.)	Starting in 2011
Matapedia, L'Ascension-de-Patapedia	Lower-Saint-Lawrence	139	60	Invenergy Wind Canada ULC	Starting in 2011
Bonaventure	Gaspé Peninsua–Magdalen Islands	66	33	Venterre (Air Energy TCI)	Starting in 2011
Gros Morne (phase 2)	Gaspé Peninsua–Magdalen Islands	111	74	Cartier Energie Eolienne	Starting in 2012
Sainte-Luce et Sainte-Flavie	Lower-Saint-Lawrence	68	34	Kruger Energie inc.	Starting in 2012
Sainte-Irène, La Redemption, Saint-Zenon-Lac-Humqui, Saint-Celophas, TNO of lac Alfred, TNO of Lac-à-la-Croix	Lower-Saint-Lawrence	300	150	St-Lawrence Energies (Consortium Hydromega Services inc., EDF Energies Nouvelles, RES Canada inc.)	Starting in 2012/2013
Causapscal, Sainte-Marguerite-Marie, Sainte-Florence	Lower-Saint-Lawrence	100	50	B&B VDK Holdings Inc.	Starting in 2014
TNO of Mont Elie	National-Capital	74	37	St-Lawrence Energies (Consortium Hydromega Services inc., EDF Energies Nouvelles, RES	Starting in 2015

		Canada inc.)	

Source : MRNF – Energie eolienne, http://www.mrnf.gouv.qc.ca/energie/eolien/

Appendix H-2: Hydro electricity within Quebec's maritime region

Lower-Saint-Lawrence		Start	Power
Rivière-du-Loup			
Rivière-du-Loup			
Hydro-Fraser inc.	Fraser plant	M.E.S. 1992	2,3 MW
Winston Hydro inc.	Winston plant	M.E.S. 2007	1,65 MW
Rimouski river			
Rimouski river			
Fiducie Boralex Energie / Boralex inc.	Rimouski plant	M.E.S. 1997	3,74 MW
North Shore		**Start**	**Power**
Magpie river			
Magpie river			
Magpie, SOCOM	Magpie plant	M.E.S. 2007	40,60 MW
Manicouagan river			
Manicouagan river			
Compagnie Hydroelectrique Manicouagan / Compagnie Abitibi Consolidated inc.	Centrale McCormick	M.E.S. 1952	350,38 MW
Portneuf river			
Rivière Portneuf			
Innergex, SOCOM / Innergex inc.	Portneuf-1 plant	M.E.S. 1996	7,47 MW
	Portneuf-2 Plant	M.E.S. 1996	11,73 MW
	Portneuf-3 plant	M.E.S. 1996	7,47 MW
Sault aux Cochons river			
Sault aux Cochons river			
Fiducie Boralex Energie / Boralex inc.	RSP-2 plant	M.E.S. 1995	6,50 MW
	RSP-3 plant	M.E.S. 1995	5,30 MW
Sainte-Marguerite river			
Sainte-Marguerite river			
Compagnie Gulf Power / Compagnie minière IOC	Sainte-Marguerite-2 plant	M.E.S. 1954	17,90 MW
Sainte-Marguerite Fiducy	Sainte-Marguerite 1A plant	M.E.S. 2002	19,28 MW
Savard falls			
Savard falls			
Restaurant Relais-Gabriel enr.	Cascades-Savard plant	M.E.S. 1988	0,025 MW
Riverin river			
Riverin river			
Pouvoir Riverin inc.	Pentecôte plant	M.E.S. 1999	2,01 MW

Source : Ministère des Ressources naturelles et de la Faune du Quebec (MRNF). *Amenagements hydroelectriques selon les regions administratives et les bassins versants,* [Online]. http://www.mrnf.gouv.qc.ca/energie/hydroelectricite/repertoire-amenagements.jsp

I. Mines and foundries

Appendix I-1: Mining exploitation waste, North-Shore, 2000 - 2005

Compagny (Site)	Product	Process	Number of non-standard evaluation	Waste treatment	Receiving water body
Lac Tio, QIT-Fer et Titane Havre-Saint-Pierre,	Iron and ilmenite	Open sky mines Extraction	Iron (1) (2003) MES (2) (2003) Copper (2) (2000) Iron (1) (2000) Lead (2) (2000) Zinc (1) (2000) MES (4) (2000)	Activated sludge No treatment	Ground water
Port-Cartier, Compagnie minière Quebec Cartier Port-Cartier	Ironet ilmenite	Pelletizing plant	pH < 6,5 (1)[1] (2005) Iron (2) (2000) MES (1) (2000)	Water from mining waste Ponds	Saint-Lawrence River

[1] Total 60 mesures

Source : Ministère du Developpement durable, de l'Environnement et des Parcs. 2005. *Bilan Annuel de conformite environnementale, secteur minier*.

J. Agriculture

Appendix J-1: Farms reporting land inputs, census 2001 and 2006

	Herbicides				Insecticides				Fongicides				Engrais chimiques			
	2000		2005		2000		2005		2000		2005		2000		2005	
Geographie	Farms	Hectares	Farms	Hectares	Farms	Hectares	Farms	Hectares	Farms	Hectares	Farms	Hectares	Farms	Hectares	Farms	Hectares
Quebec	14 456	848 220	14 746	1 043 634	2 448	73 323	2 646	97 792	12 682	876 970	16 593	1 M	2 198	76 876	3 037	90 415
Bas-Saint-Lawrence	**1 039**	**38 910**	**1 088**	**61 685**	**68**	**1 720**	**72**	**1 922**	**958**	**43 826**	**1 266**	**61 662**	**70**	**1 919**	**92**	**2 343**
La Matapédia	120	5 511	149	9 555	1	x	4	109	111	6 288	149	9 123	5	80	5	54
Matane	65	2 376	66	3 684	4	x	4	32	45	2 501	89	4 379	5	40	7	102
La Mitis	119	4 360	163	10 180	8	144	11	247	110	4 903	180	9 123	7	166	8	121
Rimouski-Neigette	130	4 957	110	7 170	6	225	3	232	120	5 437	141	8 069	4	265	8	202
Les Basques	98	4 698	84	5 416	9	296	10	257	88	4 840	121	6 597	11	354	18	568
Rivière-du-Loup	160	5 575	170	9 027	19	482	16	386	161	7 462	182	8 033	16	344	22	500
Témiscouata	84	3 356	100	4 887	4	281	7	196	88	3 808	121	5 614	7	291	7	400
Kamouraska	263	8 077	246	11 766	17	225	17	463	235	8 587	283	10 724	15	378	17	396
Gaspésie--Magdalen Islands	**97**	**3 439**	**120**	**5 924**	**17**	**240**	**15**	**195**	**77**	**3 512**	**146**	**5 693**	**9**	**224**	**23**	**446**
Les Magdalen Islands	2	x	4	x	0	0	0	0	1	x	3	52	0	0	0	0
Le Rocher-Percé	10	145	12	316	1	x	2	x	4	36	12	271	0	0	3	4
La Côte-de-Gaspé	4	x	1	x	3	7	2	x	1	x	9	195	1	x	3	12
La Haute-Gaspésie	6	60	8	285	1	x	2	x	2	x	11	335	0	0	3	11
Bonaventure	44	1 910	53	3 073	8	207	4	111	41	2 389	62	2 541	5	191	9	240
Avignon	31	1 290	42	2 182	4	x	5	54	28	1 058	49	2 299	3	x	5	179
North-Shore	**8**	**x**	**43**	**1268**	**4**	**17**	**7**	**x**	**17**	**486**	**35**	**901**	**8**	**146**	**2**	**x**
Upper-North-Shore	7	x	23	722	0	0	1	x	7	210	22	778	0	0	0	0
Manicouagan*	1	x	20	546	4	17	6	129	10	276	13	123	8	146	2	x

Source : Statistique Canada. 2006. Recensement de l'agriculture de 2006. *Donnees sur les exploitations et les exploitants agricoles*, n° 95-629-XWF au catalogue

K. Pulp and paper mills

Appendix K-1: Pulp and paper mills along the river, 2004 to 2006

Compagny (Site)	Product	Process	Number of non-standard evaluation	Waste water treatment	Receiving Water Body
Abitibi-Consolidated (Baie-Comeau)	Newsprint	Chemi-thermomechanical	Toxicity peak (1)	Primary treatment Activated sludge	Saint-Lawrence River
Abitibi-Consolidated (Clermont)	Newsprint	Thermomechanical Mechanical	MES average limit(2) Toxicity peak (1)	Primary treatment Activated sludge	Malbaie river
Norampac inc., division Cabano, (Cabano)	PaP&Eoard	mi-chimique sans soufre, trituration de fibres recyclees		Aereted lagoons Stabilizing pools	Cabano river
F.F. Soucy inc. (Rivière-du-Loup)	Newsprint	thermomecanique, trituration de pâte desencree		Primary treatment Activated sludge	Rivière du Loup
Emballage Smurfit-Stone (Matane)	Speciality paper	mi-chimique au sulfite neutre, trituration de fibres recyclees		Primary treatment	Saint-Lawrence River
Spruce Falls inc. (Matane)	Pulp	chimico-thermomecanique blanchie	MES average limit (2) Toxicity peak (1)	Primary treatment Activated sludge	Saint-Lawrence River

[1] Out of 365 samples [2] Out of 27 samples

Source : Ministère du Developpement durable, de l'Environnement et des Parcs. 2006. *Bilan annuel de conformite environnementale, secteur des pâtes et papiers*.

L. Recap table

Appendix L-1: Recap table

Industry	Sub-sector	Year	Employment	Production (M$)	GDP/Employment
Fishery		2006	3000	145	5%
	Seal hunting	2005	500	17	3%
Seafood transformation		2006	4500	290	6%
Aquaculture		2007	150	1	1%
Marine transport (port activities)		2005	2300	*292*	13%
Tourism		2007-2006	7700	480	6%
	Marine tourisme	2006	*****	190	*****
	International cruise		Mostly out of the area		
	Cruise-pleasure trip	2001	765	24,7	3%
Recreational activities					
	Hunting-fishing**	2002-2005	1070	*59*	6%
	Sport fishing	2005	*****	24	*****
	Salmon fishing	2005	520	16,6	3%
	Marinas	2008	430	123	29%
Biotechnology et marine technology		2008	250	*20*	8%
Energy			2200	*****	*****
	Hydro	2005	1100	*****	*****
	Wind	2008	1100	*****	*****
Mines et foundries		2003	5000	3400	68%
Agriculture and support activities		2006	5000	260	5%
Forestry		2007/2004	3600*	630	18%
Wood transformation and pulp and paper		2007/2004	18000*	3100	17%
Research		2006	1000	*****	*****
Provincial					
Federal					
DFO		2008	700	50	7%
CCG		2008	100	108	11%

* Direct and indirect employment

** Part of this section can be double counted with salmon fisheries

Appendix L-2: Main stressors resulting from human activities in the gulf and estuary of the Saint Lawrence River

Activities	Sub-sector	Stressors														
		Habitat destruction	Biomass Extraction	Spilling	Waste water	Parasite/Disease	Invasive species	SM	Dredging	Marine Debris	Watershed	Marine accident	Noise disturbance	Contaminant	Climate change	Sea level
Fisheries	Fishing	X	X	X	X											
	Transformation				X	X	X									
Aquaculture						X	X	X								
Marine Transport	Sea way								X	X	X					
	Cargo handling			X	X		X					X	X	X		
	Infrastructure	X														
Hydro-electricity development								X			X			X		
Human development	Coastal Infrastructure	X														
	Communities Infrastructure							X						X		
Industrial activities					X			X						X		
Agriculture					X			X			X			X		
Offshore Oil	Seismic Exploration												X			
	Exploratory drill	X			X								X			
	Exploitation	X		X	X			X					X	X		
Pollutant emission											X				X	X
Recreative activity	Boating			X								X	X			
	Eco-tourism												X			
	Coastal activity	X											X			