GULF 101

OIL IN THE GULF OF ST. LAWRENCE: FACTS, MYTHS AND FUTURE OUTLOOK

June 2014

ST-LAWRENCE COALITION SAINT-LAURENT

GULF 101

OIL IN THE GULF OF ST. LAWRENCE: FACTS, MYTHS AND FUTURE OUTLOOK

June 2014

St. Lawrence Coalition

AUTHORS: Sylvain Archambault, Biologist, M. Sc., Canadian Parks and Wilderness Society (CPAWS) Quebec; Danielle Giroux, LL.B., M.Sc., Attention FragÎles; and Jean-Patrick Toussaint, Biologist, Ph.D., David Suzuki Foundation

ADVISORY COMMITTEE: David Suzuki Foundation, Canadian Parks and Wilderness Society (CPAWS) Quebec, Nature Québec, Attention FragÎles

Cover photos : Nelson Boisvert, Luc Fontaine and Sylvain Archambault

ISBN 978-1-897375-66-2 / digital version 978-1-897375-67-9

Citation: St. Lawrence Coalition. 2014. *Gulf 101 – Oil in the Gulf of St. Lawrence: Facts, Myths and Future Outlook*. St. Lawrence Coalition. 78 pp.

This report is available, in English and French, at:

www.coalitionsaintlaurent.ca

ST-LAWRENCE COALITION SAINT-LAURENT

OIL AND GAS FOR A MORATORIUM IN THE GULF

Contents

PHOTO: DOMINIC COURNOYER / WIKIMEDIA COMMONS

PHOTO: GUILLAUME CATTIAUX / FLICKR

TABLES

FIGURES

PHOTO: NELSON BOISVERT

ACKNOWLEDGEMENTS

REVIEWERS: Karel Mayrand, Director general, David Suzuki Foundation Quebec; Patrick Nadeau, Director general, CPAWS Quebec; Charles-Antoine Drolet, Biologist, M.Sc., Advisory committee Nature Québec

EXTERNAL REVIEWERS: William Amos, Director, Ecojustice Environmental Law Clinic, University of Ottawa, M.A., LL.B.; Daniel Bourgault, Professor coastal physical oceanography, Université du Québec à Rimouski (UQAR), Ph.D.; Aurélie Charpentier, B. Sc. A.; Véronik de la Chenelière, M.Sc.; Fabienne Lord, Ph.D.; Lyne Morissette, Marine Biologist, Ph.D.; Ginette Vigneault, M. Éd.

French version editing: Christine Gilliet (Mots et Marées)

Translation: Birgit C. Schultz

Graphic design: Nadene Rehnby, handsonpublications.com

The St. Lawrence Coalition wishes to thank the Echo Foundation, the Salamander Foundation, and other generous partners for making this report possible.

ACRONYMS

ACPIM	Association des chasseurs de phoques des Îles de la Madeleine
AIFMI	Association of Inshore Fishermen of the Magdalen Islands
BAPE	Bureau d'audiences publiques sur l'environnement
CEAA	Canadian Environmental Assessment Act
C-NLOPB	Canada-Newfoundland and Labrador Offshore Petroleum Board
C-NSOPB	Canada-Nova Scotia Offshore Petroleum Board
CPAWS	Canadian Parks and Wilderness Society
DFO	Department of Fisheries and Oceans
DSF	David Suzuki Foundation
EA	Environmental assessment
EC	Environment Canada
FFAW	Fish, Food and Allied Workers
NEB	National Energy Board
NGO	Non governmental organization
PCBs	Polychlorinated Biphenyls
RPPIM	Regroupement des Pêcheurs Professionnels des Îles
RPPIM	Regroupement des pêcheurs Palangrier Unique des Îles-de-la-Madeleine
SEA	Strategic environmental assessment
SEA1	Strategic Environmental Assessment of Oil and Natural Gas Exploration and Development in the Lower St. Lawrence Estuary and Northwestern Gulf of St. Lawrence
SEA2	Strategic Environmental Assessment of Oil and Natural Gas Exploration and Development in the Anticosti, Madeleine and Baie des Chaleurs Basins
SLC	St. Lawrence Coalition
SOSS	Save our Seas and Shores (Coalition)
UQAR	Université du Québec à Rimouski

FOREWORD

Issues related to oil and gas exploration and exploitation are ubiquitous around the Gulf of St. Lawrence. In spite of the importance and diversity of these issues, the present document will focus solely on offshore oil and gas activities. The offshore oil and gas issues are actually very different from the land issues, whether at the technical, jurisdictional, legal or environmental levels. Due to the limited scope of this report, many important terrestrial issues, such as the Anticosti shale oil, the drilling in Gaspé, the gas projects in the Magdalen Islands or any other strictly terrestrial projects around the Gulf cannot be addressed.

PHOTO: NELSON BOISVERT

Summary

WHILE THE QUESTION OF ENERGY ISSUES is ever-present on the environmental and political scene in Canada, several issues and projects have risen to the forefront of the discussions and concerns of citizens over the past few years. This is the case with the Corridor Resources drilling project at the Old Harry structure, located only 80 km from the Magdalen Islands and Newfoundland. This project is a possible harbinger of the advent of the oil and gas industry in the Gulf of St. Lawrence and raises numerous concerns within the coastal communities of the five provinces bordering the Gulf.

What kind of information is available that gives us a reliable portrait of the situation? What myths are colouring the debate? What are the gaps that still need to be filled? It is with these questions in mind that we created this document, hoping to clarify the question of oil exploration in the Gulf of St. Lawrence in order to better contribute to the decisions that will be made with regard to its future.

To begin with, it is important to note that the Gulf of St. Lawrence is a small, semi-enclosed inland sea, almost seven times smaller than the Gulf of Mexico. It is home to more than 4,000 species, some of which are of economic importance, and some of which are at risk. From a socio-economic point of view, fishing and tourism are the economic driving forces of the Gulf of St. Lawrence and are the very basis of the lifestyle of the coastal communities, with fisheries generating more than $1.5 billion annually, and Gulf-oriented tourism, $0.8 billion. Due to all of these characteristics the Gulf of St. Lawrence, together with the southwest coast of British Columbia, is considered one of the two areas in Canada most vulnerable to oil spills, both at the environmental and socioeconomic levels. More specifically, the physical and oceanographic features of the Gulf (currents, ice cover in winter, cold water, etc.) would greatly complicate the situation in case of an oil spill. Contrary to the situation in other provinces or countries that exploit oil and gas, such as in the Newfoundland Grand Banks (in the Atlantic) or in the Norwegian Sea, a spill in the Gulf would have a strong chance of remaining trapped.

More than 60,000 kilometres of seismic surveys have been conducted and ten exploration wells have been drilled in the Gulf of St. Lawrence so far, with few conclusive results. Several promising

It is with these questions in mind that we created this document, hoping to clarify the question of oil exploration in the Gulf of St. Lawrence in order to better contribute to the decisions that will be made with regard to its future.
PHOTO: SYLVAIN ARCHAMBAULT

No oil exploitation is taking place in the Gulf of St. Lawrence and we still do not know whether the Old Harry structure, shared by Newfoundland and Labrador and Quebec, harbours any oil or gas.

PHOTO: NELSON BOISVERT

geologic structures have been identified and a single minor natural gas discovery has been made. No oil exploitation is taking place in the Gulf of St. Lawrence and we still do not know whether the Old Harry structure, shared by Newfoundland and Labrador and Quebec, harbours any oil or gas. The Geological Survey of Canada estimates the oil potential in the southern part of the Gulf to be 1.5 billion barrels, while Corridor Resources is talking about 1 to 5 billion barrels solely at the Old Harry structure.

Although exploration permits for the Gulf have been suspended on the Quebec side following the establishment of a moratorium in 1997, there are six exploration permits on the Newfoundland side, including the one held by Corridor Resources for the Old Harry structure, which is holding the attention of the public. The company has until January 15, 2016 to start drilling, and is currently in the process of finalizing an environmental assessment.

However, in addition to the interest of several coastal provinces in the development of the oil industry in the Gulf of St. Lawrence, offshore oil exploration undoubtedly presents risks during each phase, whether it is seismic surveys, exploratory drilling or exploitation. The impact of seismic surveys comes from the very loud sounds that can affect marine life, especially marine mammals. These surveys are also sources of conflicts of usage, mainly with fishermen. Accidental spills, whether major or minor, as well as authorized discharges (produced water, etc.) are impacts com-

monly associated with drilling and production. However, according to a report by the Commissioner of the Environment and Sustainable Development, Canada is not ready to deal with a major oil spill.

In order for a province to start exploring for oil and gas, it must go through many steps, the first being the signature of an agreement with the federal government. Federal and provincial implementation Acts (mirror laws) must then be adopted in order to frame the management of offshore oil, which includes the establishment of a co-managed Offshore Petroleum Board. Thus far, only Newfoundland and Labrador and Nova Scotia have completed these steps. As for Quebec, although an agreement with the federal government has been signed, it has yet to be ratified with the adoption of federal and provincial mirror acts.

Moreover, a number of additional steps must be completed before an exploration and exploitation project can be authorized. It is imperative to assess the environmental and socioeconomic impacts of the industry or the projects. In order to do so, various environmental assessment processes have taken place or are currently underway in the Gulf of St. Lawrence (Table 3): Bureau d'audiences publiques sur l'environnement (BAPE) on seismic surveys (2004), strategic environmental assessments (SEA) in Quebec (2010 and 2013) and in Newfoundland and Labrador (2014), environmental assessment of the Old Harry drilling project by Corridor Resources (in progress). In addition, various groups in Quebec have asked for a BAPE and groups from the five Gulf provinces are still requesting an independent public review for the whole Gulf. Despite these numerous mechanisms, environmental assessment processes have been severely scaled down by the federal government over the last 10 years.

In light of this, it is not surprising that the socioeconomic impacts of oil development in the Gulf are at the heart of the debate. For example, in Quebec, some people argue that the economic benefits of oil exploitation in the Gulf would, among other things, allow for the repayment of Quebec's debt, while in reality, the economic benefits remain hypothetical at this time because there are no proven oil reserves at Old Harry yet. The negative socioeconomic impacts of an oil spill must also be considered because they could be devastating for fisheries, tourism, human health and various ecosystems.

Overall, the decision to open the Gulf of St. Lawrence to the oil industry would have serious consequences and, considering the numerous gaps at the scientific, technical, legal and social levels, the precautionary principle should be applied. These gaps, which have been mentioned in various expert reports, are summarized in Table 1. They are proof of generally inadequate supervision of the industry, as well as of a significant lack of knowledge of the Gulf of St. Lawrence, which could endanger the renewable resources of this already fragile ecosystem.

Altogether, all of these findings emphasize the need to act in a responsible manner and to call for a moratorium in the entire Gulf of St. Lawrence. Only a complete picture of the social, environmental and economic impacts would allow for an enlightened decision regarding the future of the Gulf, which must be studied from every angle, instead of the piecemeal approach based on the administrative boundaries set by men, as is presently the case. Now more than ever, the provinces must work together. They can no longer make unilateral decisions that could have negative environmental and socioeconomic impacts on the other provinces. In this collaborative effort, all of the coastal communities of the five provinces surrounding the Gulf must be consulted about the decision of whether or not to open the Gulf to the oil industry.

It goes without saying that the list of challenges facing the Gulf of St. Lawrence is overwhelming: dead zones (hypoxia), climate change, decline in species, lack of scientific knowledge. In this context,

It goes without saying that the list of challenges facing the Gulf of St. Lawrence is overwhelming: dead zones (hypoxia), climate change, decline in species, lack of scientific knowledge. In this context, the restoration of the Gulf should be a priority.

PHOTO: NELSON BOISVERT

the restoration of the Gulf should be a priority. An important component of this restoration would consist in the creation of a network of marine protected areas, an effective management tool for marine ecosystems recognized worldwide. This is all the more urgent since Quebec has protected only 1,3% of its marine areas, located primarily in the Estuary of the St. Lawrence, while protection by Canada in the Gulf amounts to 0% marine protected areas. We should recall that the objective of the Canadian government is 10% by 2020, following the international targets set in Nagoya. Quebec has even committed to meet this 10% objective in 2015, five years earlier.

In a global context, where climate change can no longer be ignored, we must, now more than ever, rely on an approach based on sustainable development and the protection of this marine jewel that is the Gulf of St. Lawrence. We must therefore consider the future of the Gulf and collectively decide whether we want to establish an oil industry in this ecosystem, which comes with its multiple impacts, or put our efforts on its conservation and restoration.

We therefore make the following recommendations:

1. Establish a moratorium for the entire Gulf of St. Lawrence;
2. Strengthen our scientific knowledge of this major ecosystem;
3. Coordinate an integrated management (federal and multiprovincial) for the whole of the Gulf;
4. Consult all of the coastal communities and First Nations regarding the future of the Gulf, especially with regard to the development of the oil industry.

TABLE 1: GAPS SURROUNDING OIL AND GAS EXPLORATION AND EXPLOITATION IN THE GULF OF ST. LAWRENCE	
	Read:
Importance, complexity and vulnerability of the Gulf: · Small, semi-enclosed sea, ice cover in winter, currents which would trap oil slicks in the Gulf; · Impacts that could affect all five coastal provinces; · Numerous stresses already present (transport, fisheries, hypoxia, pollution, climate change, etc.); · Numerous species at risk (threatened, endangered, etc.): blue whale, leatherback turtle, spotted wolffish, etc.; · No marine protected areas in the Gulf, except for Basin Head in eastern Prince Edward Island (0.6 km^2).	Sections 2 and 8
Significant gaps in the state of knowledge: · Numerous gaps in scientific knowledge concerning the Gulf (currents, movement of marine mammals, breeding and rearing grounds of commercially important fish species, etc.), impact of technologies (effects of chemical dispersants, effects of seismic surveys on organisms); · Need to obtain a picture of the social, economic and environmental impacts due to oil and gas exploration and exploitation in the Gulf; · Lack of strategic environmental assessment (SEA) focusing on the entire Gulf; · Cuts in scientific staff in ecotoxicology to study the Gulf.	Sections 2, 4, 8 and 9
Inadequate legal and regulatory framework: · Absolute financial liability for oil companies limited to $30 million (soon to be raised to $1 billion, House Government Bill C–22); · Environmental assessments severely scaled down by the federal government over the course of the last few years (Canadian Environmental Assessment Act (CEAA)); · Veto of the oil companies limiting the right to access information on environmental data or concerning safety; · Absence of independent observers on oil rigs. Oil companies themselves report accidents; · Offshore petroleum boards still have not had an in-depth overhaul, in spite of recommendations in the Wells report (2010); · Multiplicity of regulatory institutions: two existing offshore Boards (Newfoundland and Labrador and Nova Scotia), two other potential ones (Quebec and New Brunswick), the National Energy Board; · No integrated marine planning in the Gulf and no intergovernmental or federal structure to facilitate this.	Sections 4, 5 and 6
Inadequate capacity to respond to an oil spill: · Response capacity in eastern Canada presently limited to 15,000 tons of oil; · Recovery of oil usually limited to 10 to 15% of spilled volume, under ideal weather conditions; · Recovery of oil very difficult in the presence of ice cover; · Inability or difficulty of intervention during storms.	Section 4
Lack of social acceptance: · Strong opposition from island and coastal Gulf communities; · No formal public consultation (eg. public review) involving the five Gulf provinces; · Opposition from numerous native populations (Mi'gmaqs, Innu, Malecites, etc.).	Sections 4, 6 and 9

SECTION 1

Introduction

This document is therefore intended to anyone interested in the future of the Gulf of St. Lawrence and who realizes how vitally important the Gulf is. It is particularly aimed at those who would like to do the spadework on the question of oil and gas development in the Gulf.

PHOTO: ANDREA SCHAFFER / FLICKR

THE POSSIBILITY THAT THE GULF OF ST. LAWRENCE may be opened to oil and gas exploration has become one of the hottest issues over the last few years, not only in Quebec, but also in the other provinces bordering the Gulf. Is there oil or natural gas in the seabed of the Gulf, such as at Old Harry, and if so, should it be exploited? The debate rages on and is polarised according to the values and aims of each interested party. However, many agree that an enlightened decision must be based on evidence, and that a thorough analysis is required.

Various myths are currently colouring the debate and distorting perceptions. And there are good reasons for that: the whole issue is quite complex, involving federal and provincial jurisdictions, five provinces and including wide-reaching socioeconomic, environmental, legal and technical issues, often fraught with strong emotions, all hitting the news at an alarming rate. As the available information is sometimes inaccurate or incomplete, this report aims at sharing our knowledge and expertise in order to contribute to the debate, with an emphasis on accuracy.

This document is therefore intended to anyone interested in the future of the Gulf of St. Lawrence and who realizes how vitally important the Gulf is. It is particularly aimed at those who would like to do the spadework on the question of oil and gas development in the Gulf in order to be able to better contribute to the decisions that will be made regarding its future.

SECTION 2

The Gulf of St. Lawrence, an exceptional living environment

THE ESTUARY AND GULF OF ST. LAWRENCE are exceptional for more than one reason. They make up one of the largest and most productive estuary/gulf systems in the world.[1] When it comes to the food chain, the productivity of the Gulf sustains large bird colonies and attracts large marine mammals such as the blue whale and the fin whale, which can be found as far as 1,200 km inland. It also supports sustainable industries such as fisheries and tourism, on which several coastal communities depend.

GULF OF ST. LAWRENCE

AREA:

226,000 km^2

AVERAGE DEPTH:

150 m (max: 530 m)

DEPTH AT OLD HARRY:

475 m

Oceanographic aspects

The Gulf of St. Lawrence, a small inland sea almost seven times smaller than the Gulf of Mexico, is bordered by five Canadian provinces: Quebec, New Brunswick, Prince Edward Island, Nova Scotia and Newfoundland and Labrador. The upstream part of the Gulf receives copious amounts of fresh water, mainly from the St. Lawrence River, the Saguenay and the great rivers of the North Shore. Downstream, it connects to the Atlantic Ocean via two bottlenecks, the Cabot Strait, with a width of 104 km, and the Strait of Belle Isle, at a width of 16 km. The Gulf of St. Lawrence is therefore a semi-enclosed sea, open to the Atlantic on only 6% of its perimeter.

The Gulf of St. Lawrence is quite shallow, with an average depth of 150 metres. However, it is crossed by the Laurentian Channel, a significant submarine valley with depths of more than 400 metres in places, and is 1,500 km long, extending to the mouth of the Saguenay. The Laurentian Channel plays a central role in the oceanographic dynamics of the Gulf by allowing large amounts of very cold salt water to penetrate far into the interior of the continent. Upwellings of cold water

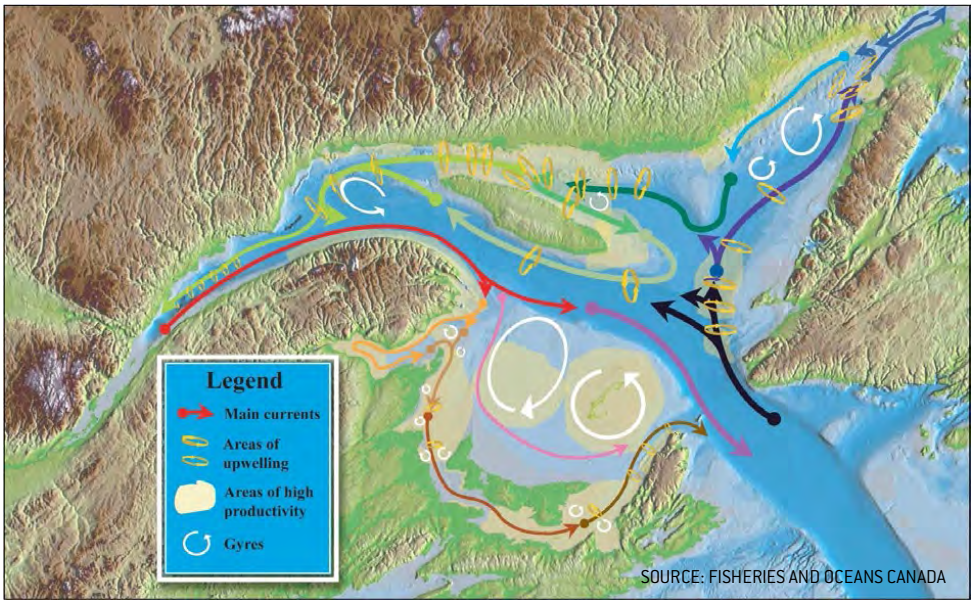
1 Dufour, R. and P. Ouellet (editors) (2007) Estuary and Gulf of St. Lawrence marine ecosystem overview and assessment report. Can. Tech. Rep. Fish. Aquat. Sci. 2744E. www.dfo-mpo.gc.ca/Library/329836.pdf

OIL SPILLS

Several factors would complicate operations in the case of an oil spill in the Gulf of St. Lawrence:

- an inland sea seven times smaller than the Gulf of Mexico;
- extremely variable instantaneous currents;
- large amounts of confined water;
- winter ice cover;
- cold water slowing down bacterial degradation of oil;
- frequent storms and winds.

FIGURE 1: BATHYMETRY AND AVERAGE CURRENTS OF THE GULF OF ST. LAWRENCE



SOURCE: FISHERIES AND OCEANS CANADA

sweep large quantities of nutrients towards the surface in certain areas, giving rise to high biological productivity.

Surface currents, together with these deeper ocean waters, give rise to a complex system of counterclockwise currents, *gyres,*[2] or cold-water upwellings. (Fig. 1). These mean surface currents are in fact the sum of instantaneous currents, which are sometimes strong and very variable. Although the mean currents are the ones most commonly referred to, instantaneous currents are essential to the understanding of the sometimes-erratic behaviour of oil slicks.

Because of the semi-enclosed nature of the Gulf, water masses may remain trapped there for several months (intermediate water layer, from 20 to 150 m deep) and even several years (deep water layer at more than 150 m)[3] If an oil spill were to occur, the behaviour of an oil slick would be very difficult to predict and it could even remain confined in the Gulf rather than being rapidly evacuated into the Atlantic.

Although variable, the winter ice cover of the Gulf of St. Lawrence is of significance. In March 2014, ice covered more than 90% of the whole Gulf.[4] Corridor Resources, the company that wishes to conduct exploratory drilling at Old Harry, plans to do so when there is no ice in the Gulf.[5] However, any subsequent exploitation would probably take place year-round. The Gulf of St. Lawrence would therefore be one of the only places in the world, outside of the Arctic, where oil production would take place in the presence of ice. This possibility is an issue because it is extremely difficult, if not impossible, to clean up a major oil spill in the presence of ice.[6]

2 Giant water vortex formed by a set of currents.
3 Fisheries and Oceans Canada (2005) The Gulf of St. Lawrence - A Unique Ecosystem
4 Environment Canada. Daily ice cover maps www.iceweb1.cis.ec.gc.ca/Archive20/page1.xhtml
5 Stantec Consulting Ltd. (2013) Environmental Assessment of the Old Harry Prospect Exploration Drilling Program. www.cnlopb.nl.ca/pdfs/corridorresinc/eaen1.pdf
6 Goodyear, J. and C. Clusen (2012) Environmental risks with proposed offshore oil and gas development off Alaska's North Slope. NRDC Issue Paper. www.nrdc.org/land/alaska/files/drilling-off-north-slope-IP.pdf

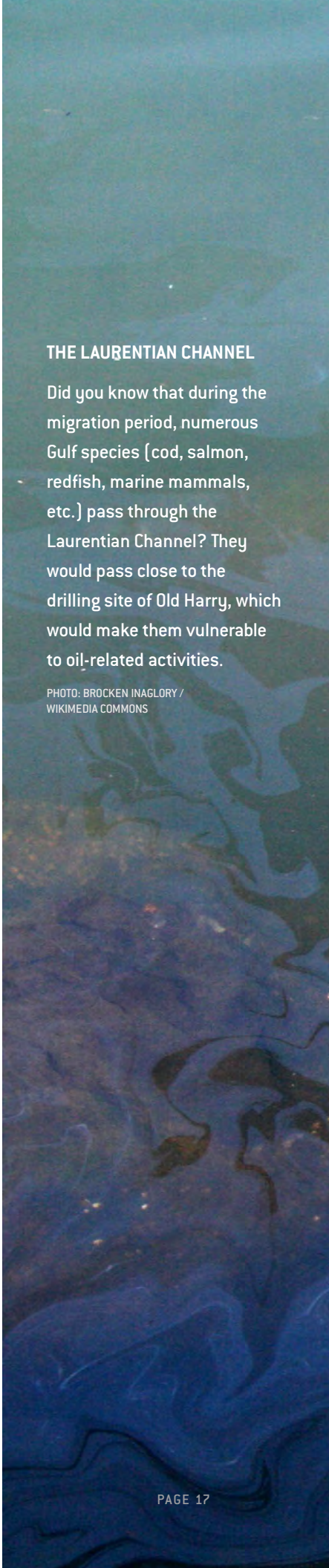
The Norwegian Sea, the Newfoundland Grand Banks and the Gulf of St. Lawrence: very different realities

It is hazardous to compare the Gulf of St. Lawrence to the Norwegian Sea or to the Newfoundland Grand Banks (where the Hibernia Platform is located), where oil production has been underway for several years, because the oceanographic and climatic conditions are very different. While the Norwegian Sea and the Grand Banks open directly into the North Atlantic without any constraints and the currents would allow for rapid seaward dispersal of any oil spill, the characteristics of the Gulf of St. Lawrence could cause an oil spill to remain trapped. Furthermore, the Norwegian Sea is ice-free during winter, while the significant ice cover in the Gulf of St. Lawrence would seriously complicate operations in the case of a winter spill. Although icebergs can be a problem in the Grand Banks, the presence of winter ice is rare (every six years or more) and patchy.[7]

Biological aspects

The productivity and the biological richness of the Estuary and the Gulf of St. Lawrence can be explained in part by the presence of deep ocean currents, which flow along the Laurentian Channel and greatly influence the water circulation as well as the distribution of nutrients and dissolved oxygen in the waters of the Gulf and the Estuary. This results in areas of very high productivity, such as the head of the Laurentian Channel, near Tadoussac (Quebec), where the highest concentrations of krill in the North Atlantic have been observed.[8]

The Gulf therefore provides several unique habitats for a large number of marine organisms. More than 4,000 species can be found here,[9,10] several of which, such as lobster, snow crab, salmon and cod, are of economic, commercial, sport and subsistence interest. Other species are considered at risk. Such is the case of the blue whale (the largest animal on earth), the beluga and the leatherback turtle.



THE LAURENTIAN CHANNEL

Did you know that during the migration period, numerous Gulf species (cod, salmon, redfish, marine mammals, etc.) pass through the Laurentian Channel? They would pass close to the drilling site of Old Harry, which would make them vulnerable to oil-related activities.

PHOTO: BROCKEN INAGLORY / WIKIMEDIA COMMONS

7 AMEC (2014) Eastern Newfoundland Strategic Environmental Assessment Draft Report. www.cnlopb.nl.ca/pdfs/enlsea.pdf

8 Simard, Y. (2009) Le parc marin Saguenay-Saint-Laurent: processus océanographiques à la base de ce site unique d'alimentation des baleines du Nord-Ouest de l'Atlantique. Revue des sciences de l'eau 22: 177-197. www.erudit.org/revue/rseau/2009/v22/n2/037481ar.html

9 Archambault P et al. (2010) From Sea to Sea: Canada's Three Oceans of Biodiversity. *PLoS ONE* 5(8): e12182. http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0012182

10 Brunel, B., L. Bossé et G. Lamarche (1998) *Catalogue des invertébrés marins de l'estuaire et du golfe du Saint-Laurent*.

Whether it is a juvenile (smolt) on its first migration towards the ocean, or an adult coming back to its native river to spawn, the salmon crosses the Gulf of St. Lawrence using the "highways" of the Laurentian and Esquiman Channels.

PHOTO: STEENSTRA E PETER / WIKIMEDIA COMMONS

THE LAURENTIAN CHANNEL: MIGRATION ROUTE OF THE ATLANTIC SALMON

The Gulf of St. Lawrence is an essential habitat for the Atlantic salmon migrating between its native rivers and the high seas of the north Atlantic. Whether it is a juvenile (smolt) on its first migration towards the ocean, or an adult coming back to its native river to spawn, the salmon crosses the Gulf of St. Lawrence using the "highways" of the Laurentian and Esquiman Channels (Fig. 1). The health of the Gulf of St. Lawrence is therefore crucial for the salmon during several of its life stages.

This species is also essential for the native communities of the Gulf of St. Lawrence, such as the Mi'gmaqs and the Innu, as much for subsistence fishing as for their traditional culture.

Social, economic and cultural significance

The Mi'gmaq call the Gulf of St. Lawrence *Maqtugweg*, while the first Europeans to venture here called it "The River of Cod" or "*la Grande rivière*." The St. Lawrence, considered the birthplace of Canada, was the route taken by the first explorers and, in the XVIIth century, the doorway to the continent, as well as the engine driving the development of the first major cities. Fishing, the fur trade, shipbuilding and shipping developed thanks to the St. Lawrence, which played a fundamental part in the history of the country.

Today, the five provinces surrounding the Gulf represent half of the Canadian provinces, which has the potential to make the future of the Gulf a national issue. Several indigenous nations (Innu, Mi'gmaq and Maliseet) or Métis communities, as well as more than 400 municipalities,[11] ensure the vitality of the Gulf through their culture and the diversity of activities that are carried out in the Gulf: fishing, aquaculture, tourism, shipping, etc. The public image associated with the Gulf of St. Lawrence, as well as its rich culture and heritage, are the pride of the surrounding communities.[12,13,14]

Fishing and tourism not only constitute the main economic activities of the Gulf, but are also part of the heritage and lifestyle, which have defined the socioeconomic and cultural development of its inhabitants for several centuries. The fishing industry alone (fishing, fish processing), as well as aquaculture, accounted for close to $1.5 billion in revenues per year in 2006 and 2007.[15] As for the tourism industry (cruises, recreational fishing, coastal tourism) it has generated nearly 0.8 billion[16] for the whole of the Gulf of St. Lawrence. Together, these activities account for tens of thousands of jobs on which the coastal communities of the Gulf depend for their livelihood. Properly managed, these renewable resources could become an abundant source of revenue.

It must also be noted that fishing activities have diversified greatly over the last few years in response to the decline of some groundfish stocks. What is more, efforts to better manage and respect the resources (e.g. snow crab,[17] lobster, etc.), agreed upon by fishermen, scientists and the government, should not be minimized as the oil and gas industry could have an impact on these efforts.

Oil and gas projects in the Gulf of St. Lawrence often call to mind economic benefits and jobs, although no oil or gas reserves have yet been discovered. These statements should therefore be treated with caution. In addition, even if the establishment of the oil and gas industry could generate worthwhile revenues as well as direct employment for the coastal communities over the medium term, it must not harm the present economic activities on which the region has depended for centuries. In the final report by Genivar (now known as GSP Global) on the SEA2 (Strategic Environmental Assessment for the Quebec part of the Gulf)[18] it is stated that for the coastal communities on the

Fishing and tourism not only constitute the main economic activities of the Gulf, but are also part of the heritage and lifestyle, which have defined the socioeconomic and cultural development of its inhabitants for several centuries.

PHOTO: NELSON BOISVERT

11 Alexander, D.W et al. (2010) *Gulf of St. Lawrence: Human Systems Overview Report*. Oceans, Habitat and Species at Risk Publication Series, Newfoundland and Labrador Region. 0002: xiv + 154 p.

12 www.tourisme.gouv.qc.ca/publications/media/document/experiences/PlanStLaurent.pdf

13 www.quebecmaritime.ca/documents/file/rapport-annuel-et-plan-marketing/4tr_plan-marketing_2011-12-19.pdf

14 www.undercurrentnews.com/2014/03/13/eastern-canada-lobster-fishery-enters-msc-assessment/

15 Alexander, D.W. et al. (2010), supra note 11.

16 Ibid.

17 www.dfo-mpo.gc.ca/csas-sccs/publications/sar-as/2014/2014_007-fra.pdf

18 hydrocarburesmarins.gouv.qc.ca/documents/091-51078-00_EES2_VF_130910_authentifie.pdf

North Shore of Quebec, the marine environment is an ecosystem that must be protected because its decline could jeopardize the very viability of communities in the region.

The fate of the Gulf of St. Lawrence is therefore an issue that concerns all of the coastal provinces and communities. It is important that the decisions relative to its future take into consideration the voice of the coastal communities that depend on it for their socioeconomic prosperity.

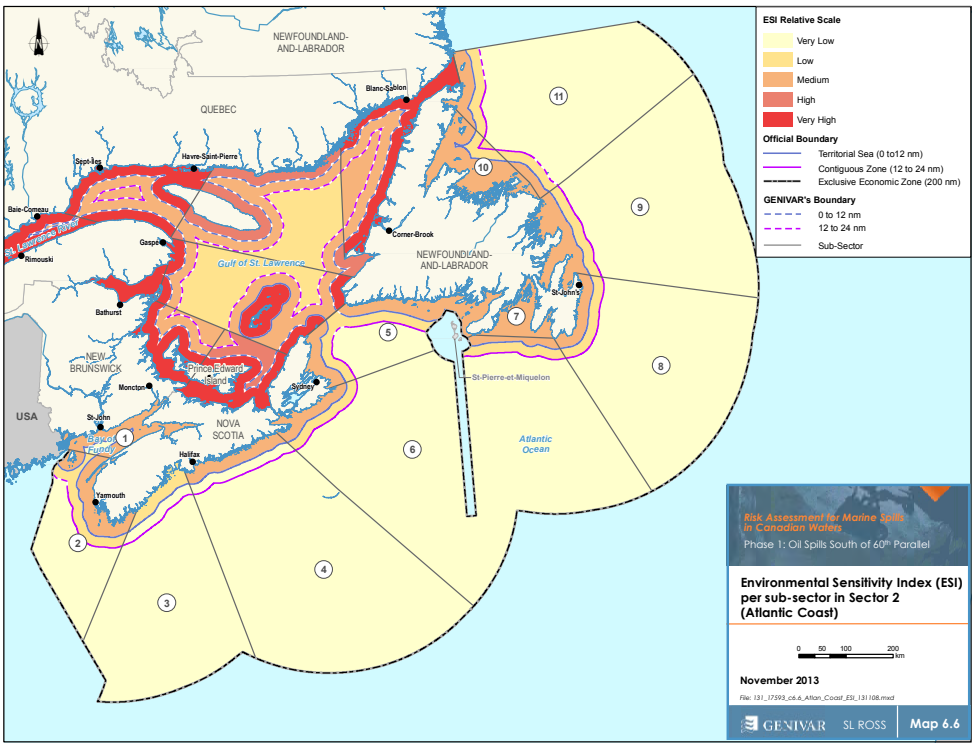
Environmental vulnerability

The small size of the Gulf of St. Lawrence, its semi-enclosed nature, its currents, its high productivity, as well as the intensity of human activities practised there, are all reasons to fear an oil spill. This fear is corroborated by a recent Transport Canada report,[19] which considers that the Gulf of St. Lawrence and the southern coast of British Columbia are the two areas most vulnerable to an oil spill in Canada at the environmental as well as the socioeconomic levels. This vulnerability was assessed taking into account the coastal characteristics (tides, sand bars, etc.), the fauna (mollusks, fish, birds, etc.) and human activities that depend on them (fishing, tourism, etc.).

The small size of the Gulf of St. Lawrence, its semi-enclosed nature, its currents, its high productivity, as well as the intensity of human activities practised there, are all reasons to fear an oil spill.

PHOTO: NELSON BOISVERT

FIGURE 2: ENVIRONMENTAL VULNERABILITY OF THE GULF OF ST. LAWRENCE



19 Transports Canada (2013) *A Review of Canada's Ship-Source Oil Spill Preparedness and Response Regime.* www.publications.gc.ca/collections/collection_2013/tc/T29-114-2013-eng.pdf

SECTION 3

Oil and gas in the Gulf of St. Lawrence?

TO DATE, THERE HAS BEEN NO OIL AND GAS EXPLOITATION in the Gulf of St. Lawrence and there has only been one discovery of natural gas off the coast of Cape Breton, which has never been developed after 40 years. As for the geological structure of Old Harry, no drilling has taken place yet despite its discovery more than 40 years ago, and it is still not known whether it contains any oil or gas. Even though the Gulf of St. Lawrence has not been explored in much depth and the drilling results have not been very convincing up until now, the Geological Survey of Canada still considers the potential, especially in natural gas, to be "significant."[20]

This section will provide an overview of the geological setting of the seabed of the Gulf, and will focus more specifically on the geological structure of Old Harry. It will also contain a brief overview of the history of oil and gas exploration in the Gulf of St. Lawrence, as well as current exploration projects.

Some elementary geology

The formation of oil or gas and the accumulation thereof in the form of deposits depends on three key factors:

1. FORMATION OF OIL OR GAS IN BEDROCK: Organic deposits often accumulate at the bottom of the ocean and are then covered by sedimentary strata. With increasing pressure and temperature and after tens, or even hundreds of millions of years, the trapped organic matter is transformed into hydrocarbons (oil or gas).

20 Lavoie, D. et al. (2009) *Petroleum Resource Assessment, Paleozoic Successions of the St. Lawrence Platform and Appalachians of Eastern Canada*. Geological Survey of Canada, Open File 6174, 273 p.

DID YOU KNOW...

Old Harry:

- This geological structure was named in honour of the closest settlement: the little fishing village of "Old Harry" in the Magdalen Islands.
- Old Harry is also a nickname given to the devil (also called "Old Nick"!)

SOURCE: MERRIAM-WEBSTER.COM/DICTIONARY/OLD%20HARRY

PHOTO: ISTOCK

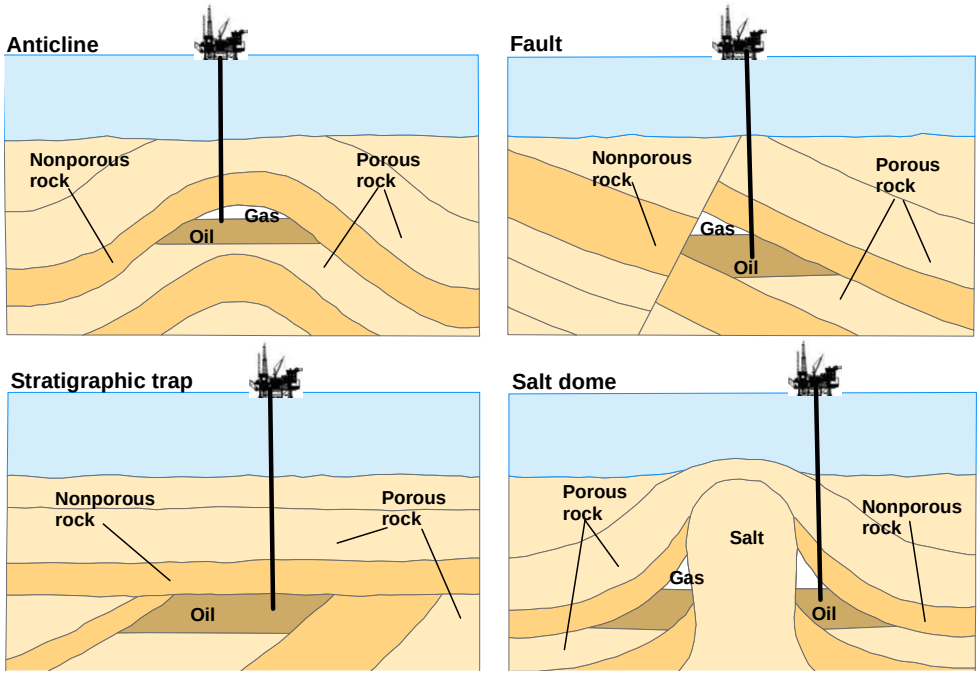
Contrary to what we might believe, hydrocarbons do not accumulate in vast cavities to form pools of oil; rather they are incorporated into porous layers, similar to liquids in a sponge.

PHOTO: SYLVAIN ARCHAMBAULT

2. ACCUMULATION IN POROUS SEDIMENTS: Because hydrocarbons formed in this manner are light, they slowly migrate upwards. Sometimes they go through porous sedimentary layers such as, for example, sandstone, limestone or dolomite. If the sedimentary layers are covered with an impermeable layer (e.g. clay), the upward migration is halted, and they accumulate in the underlying porous rocks. Contrary to what we might believe, hydrocarbons do not accumulate in vast cavities to form pools of oil; rather they are incorporated into porous layers, similar to liquids in a sponge.

3. CONCENTRATION OF OIL OR GAS IN "TRAPS": When the porous sedimentary strata extend horizontally, the hydrocarbons are quite diffuse and difficult to extract. Sometimes, geological events (folds, faults, salt domes, etc.) modify the shape of the porous rock strata, creating actual "traps," where hydrocarbons may accumulate (Fig. 3). The salt domes are particularly interesting because this is the type of hydrocarbon trap found in the Gulf of Mexico and in the southern part of the Gulf of St. Lawrence. Lighter sedimentary salt layers rose towards the surface, thereby creating salt domes (diapirs), which distorted the overlying geological strata.

FIGURE 3: HYDROCARBON TRAPS

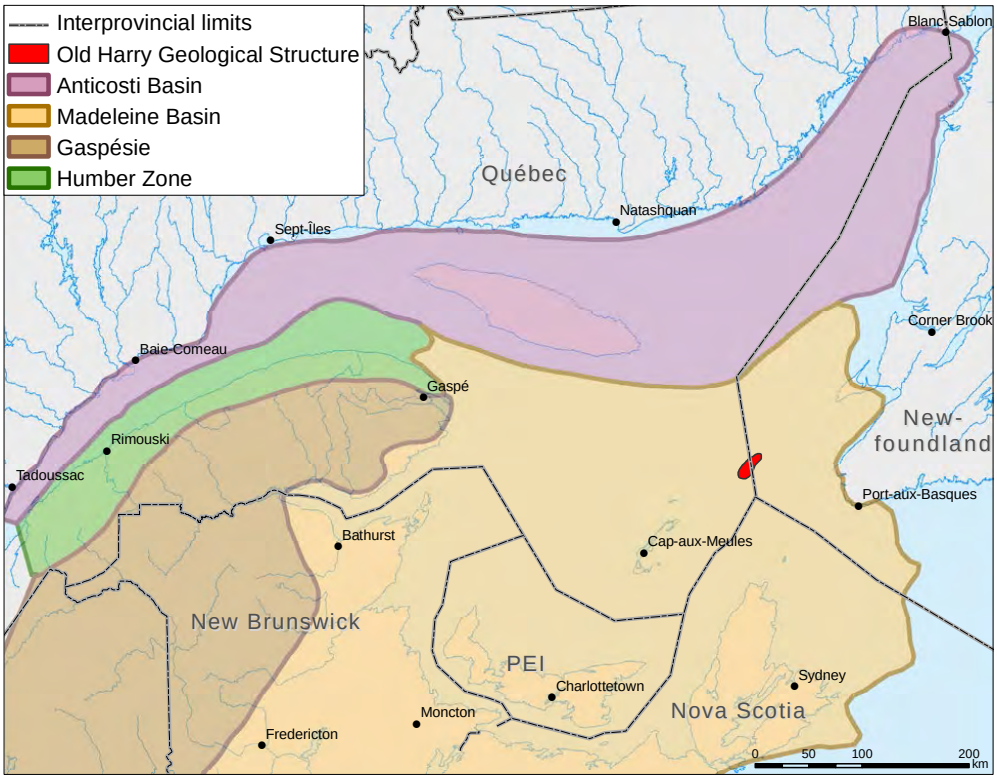


The Gulf of St. Lawrence

The Gulf of St. Lawrence, with its two large sedimentary basins (Fig. 4), is suitable for the presence of oil or gas. In the northern part, the Anticosti Basin consists of a shelf of carbonate rocks (limestone, etc.), several kilometres thick, from the Ordovician Period. The Bassin de Madeleine takes up all of the central and southern part of the Gulf. It is formed from a Carboniferous Period shelf where the horizontal layers in the southern part were distorted by numerous diapirs (salt domes), creating many potential hydrocarbons traps. According to geologists, because of its Carboniferous origin the Bassin de Madeleine is more favourable to the presence of gas.[21]

According to geologists, because of its Carboniferous origin the Bassin de Madeleine is more favourable to the presence of gas.

FIGURE 4: GEOLOGY OF THE GULF OF ST. LAWRENCE



Source: Hydro-Québec 2002

21 Ibid.

History of oil exploration in the Gulf

Since the fall of 1942, when Island Development Co. started drilling the Hillsborough No. 1 well just 13 km south of the shores of Prince Edward Island, a total of 10 exploratory offshore wells have been drilled in the Gulf of St. Lawrence (Fig. 5). Nine were drilled from 1942–1983, and a final one was drilled in 1996. All of these wells were drilled in the Bassin de Madeleine, where the diapirs (salt domes) often associated with the presence of oil and gas are concentrated

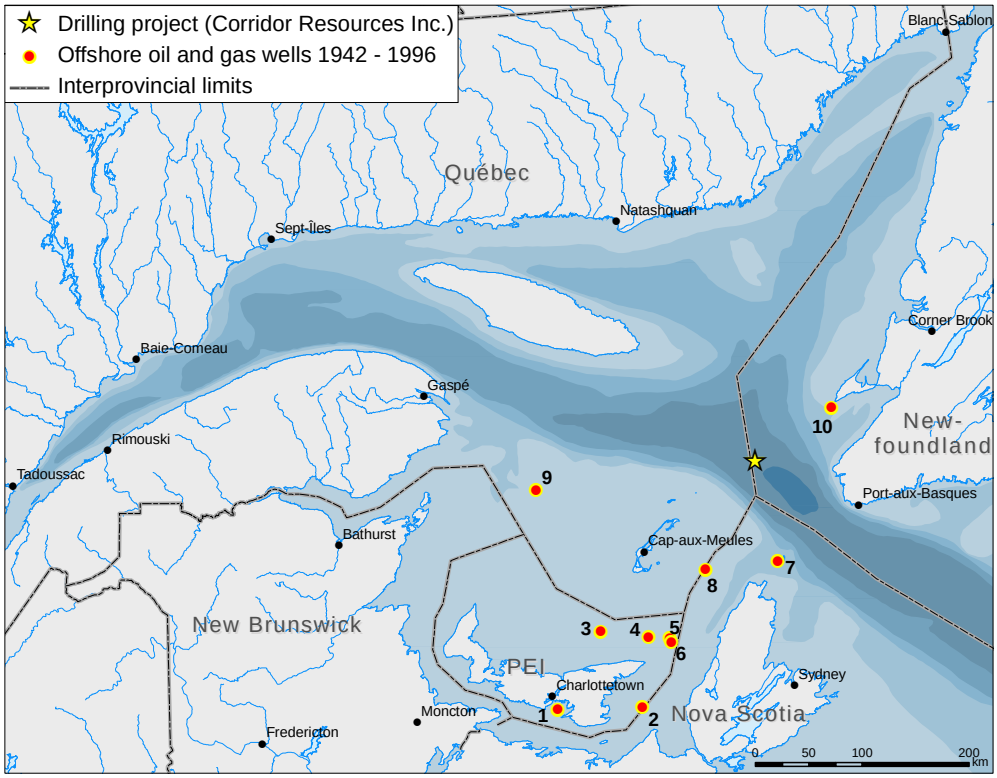
It was only in 2002 that environmental assessments became mandatory for offshore drilling in eastern Canada.[22] The ten wells drilled to date in the Gulf were therefore not required to undergo any environmental assessments and have not been subject to any ecological monitoring.

To date, all of the wells drilled in the Gulf have been in waters that are quite shallow: 174 m for the Saint Paul P-91 well (Fig. 5, well No. 7), in the Cabot Strait, and less than 84 m for the other nine wells. The 475 m depth at Old Harry is much more significant, which could markedly complicate drilling operations. The ten wells drilled have penetrated the rock from between 1,734 to 5,059 metres below the bed of the Gulf.

Several companies, including Shell, Amoco, Petro-Canada, Irving and Chevron as well as SOQUIP (*Société québécoise d'initiatives pétrolières*) have tried their luck, but nine out of the ten drillings were negative or revealed only traces of gas. Only the East Point E-49 well (Fig. 5, well No. 5), drilled

It was only in 2002 that environmental assessments became mandatory for offshore drilling in eastern Canada. The ten wells drilled to date in the Gulf were therefore not required to undergo any environmental assessments and have not been subject to any ecological monitoring.

FIGURE 5: OFFSHORE DRILLING MAP IN THE GULF OF ST. LAWRENCE (1942–1996)



22 Regulations amending the comprehensive study list regulations SOR 2005/335. Regulatory impact analysis statement. www.publications.gc.ca/gazette/archives/p2/2005/2005-11-30/pdf/g2-13924.pdf

in 1974 between Prince Edward Island and Cape Breton, revealed 77 billion cubic feet of natural gas. At the current price of $4.50 per thousand cubic feet, this deposit would have a gross value of $350 million. A second well drilled a few kilometres away was found to be dry and BP Canada Energy, the company holding the main discovery licence, has not exploited it for the past 40 years.

The Old Harry geological structure

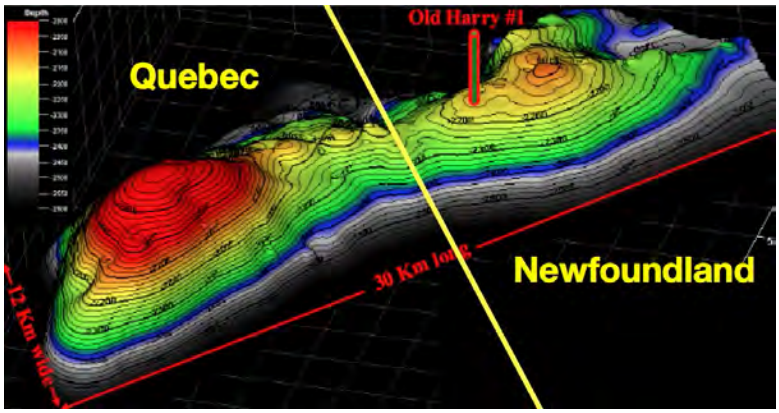
The Old Harry geological structure is located in the middle of the Laurentian Channel, approximately 80 km from the Magdalen Islands and the west coast of Newfoundland. It consists of a vast salt dome (Figs. 3 and 6), approximately 30 km long and 12 km wide, buried under more than 3,000 metres of sedimentary layers. This salt dome has two "bumps" which, by slowly making their way upwards, have distorted the overlying geological strata in order to form hydrocarbon traps.

Two thirds of the structure is located on the Quebec side of the interprovincial boundary (see Section 5), while the rest is on the Newfoundland side. Corridor Resources is the sole company to hold the exploration rights, on both sides of the border. The Quebec part of Old Harry is the most promising, but because the Canada-Quebec Accord on offshore oil and gas has not yet been implemented (see Section 5), Corridor Resources Inc. is attempting to drill its first well on the Newfoundland side.

The estimated potential for Old Harry varies considerably: while the Geological Survey of Canada estimates the potential for the whole southern part of the Gulf at 1.5 billion barrels,[23] Corridor Resources is talking about 1 to 5 billion barrels[24,25] just for Old Harry. These estimates are mainly based on data from seismic surveys dating back over 20 years or on other geophysical techniques. However, it must be mentioned that without drilling, we do not know whether Old Harry actually contains any hydrocarbons, what type they may be (oil or gas), and whether they are recoverable. Moreover, even Mr. Philip Knoll, president of Corridor Resources, recognizes that "*We cannot yet be sure of the volume or nature of the petroleum: light, heavy or sulphurous*."[26]

The Old Harry geological structure consists of a vast salt dome (Figs. 3 and 6), with two "bumps" which, by slowly making their way upwards, have distorted the overlying geological strata in order to form hydrocarbon traps.

FIGURE 6: OLD HARRY GEOLOGICAL STRUCTURE



SOURCE: MODIFIED FROM CORRIDOR RESOURCES

23 Lavoie, D. et al. (2009) *Petroleum Resource Assessment, Paleozoic Successions of the St. Lawrence Platform and Appalachians of Eastern Canada*. Geological Survey of Canada, Open File 6174, 273 p.

24 www.ocean-resources.com/articles.asp?articleid=672

25 Macquarie Tristone (2012) Corridor Resources inc. 2012 Joint Venture Opportunity – Old Harry Prospect.

26 Mesly, N. (2012) Le noir désir du Québec. *Québec Science*, avril-mai 2012.

OLD HARRY: LET'S AVOID TALKING ABOUT DEPOSITS

Who has not heard of the Old Harry "oil deposit"? However, it is rather premature to say that Old Harry is a deposit.

Generally speaking, a geological structure is a set of rock layers that have undergone various distortions. Certain geological structures, such as the double salt dome of Old Harry, could potentially form a hydrocarbon trap.

The term "deposit" refers to geological structures where the presence of hydrocarbons has been confirmed with certainty through exploratory drilling, which is not the case for Old Harry.

For now, let us therefore avoid the term "deposit" and rather talk about the Old Harry geological structure.

PHOTO: ERIC CHRISTENSEN / FLICKR

CAN ONE PROVINCE APPROPRIATE OIL AND GAS FROM ITS NEIGHBOUR?

Should it be proven that Old Harry actually does harbour hydrocarbons, many people wrongly believe that it would be possible for one province, Quebec or Newfoundland and Labrador, to "siphon" the oil or gas reserves from the other. This assumption is very unlikely for at least three reasons:

GEOLOGICAL: If present, oil or gas would have a tendency to be trapped at the periphery and at the summit of each of the two salt domes that form Old Harry. Since they are approximately ten kilometres apart, it is very likely that the two salt domes are independent of each other, making the horizontal migration of oil or gas between them difficult, if not impossible.

LEGAL: It has been suggested that one province, namely Newfoundland and Labrador, could drill horizontally and, crossing the provincial boundaries, appropriate oil from Quebec. However, it is completely illegal to exceed the limits of one's own exploration license. If an operator were to dare to do so without the knowledge of the regulating body (C-NLOPB, etc.), he would be severely punished and would even run the risk of triggering a serious diplomatic incident.

TECHNICAL: Although the current record is 12 kilometres,[27] most horizontal wells have not exceeded 2 to 5 kilometres. Aside from the illegal aspect of "cross-border" drilling, such an operation over such a long distance would be very costly[28] and difficult to execute.

27 "World's longest extended-reach well drilled ofshore Qatar." *Drilling Contractor*, July/August 2008. www.slb.com/ff/media/Files/drilling/industry_articles/200807_dc_extendedreach.pdf

28 www.joshitech.com/images/spe83621.pdf

Exploration in the Gulf of St. Lawrence... who holds the licenses?

Any company wishing to conduct exploratory work must first obtain an "exploration license." These licenses give the companies exclusive access to a territory but in no way do they give authorization for work to be carried out. This authorization can only be obtained after a long regulatory process including an environmental assessment (see Section 6). At the moment, no exploratory work is underway in the Gulf, but several projects are under consideration, including the drilling project by Corridor Resources at Old Harry.

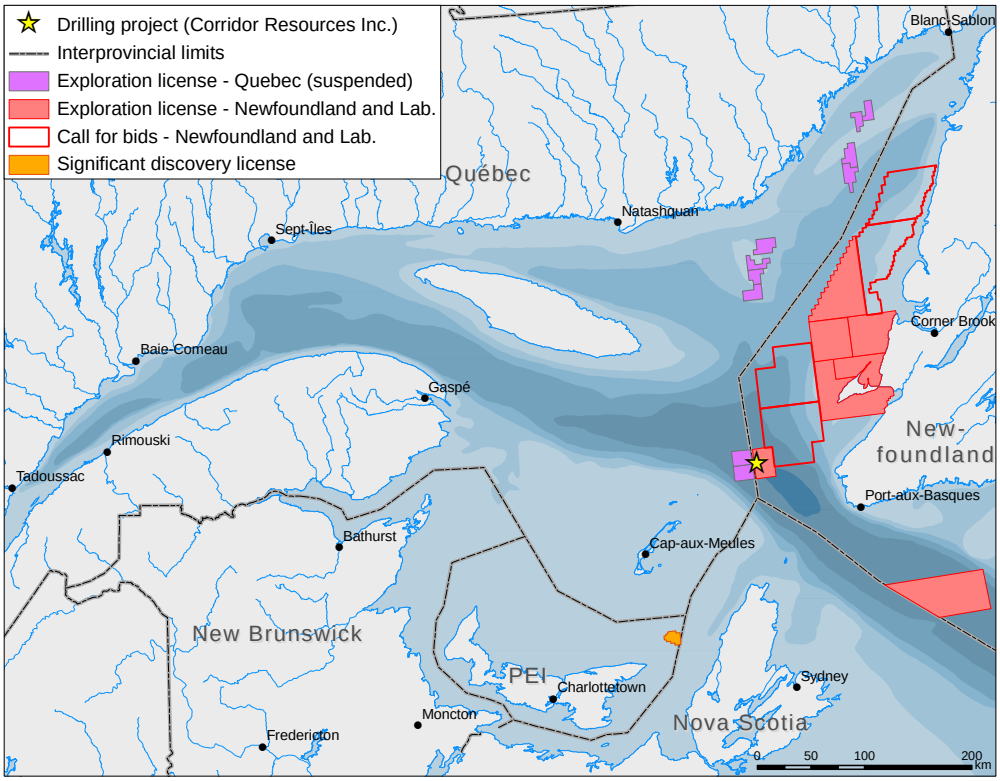
At the moment, no exploratory work is underway in the Gulf, but several projects are under consideration, including the drilling project by Corridor Resources at Old Harry.

EXPLORATION LICENSES

Between 1996 and 1997, Quebec issued ten oil exploration licenses: two to Corridor Resources for the Quebec portion of Old Harry, and eight to Sky Hunter Exploration along the Lower North Shore (Fig. 7, purple polygons). However, the federal government has never recognized these licenses because Quebec did not have an Accord on the joint management of oil and gas in the Gulf with the federal government (see Section 5). These licenses are therefore currently suspended and can only be reactivated one year after the entry into force of the Canada-Quebec Accord.

On the Newfoundland side of the Gulf, six exploration licenses are in effect: licenses that were issued by the authority responsible, the Canada-Newfoundland and Labrador Offshore Petroleum

FIGURE 7: OIL EXPLORATION LICENSES IN THE GULF OF ST. LAWRENCE



Sources : C-NLOPB, MRN

Board (under "Board" in the rest of the document). Other than Corridor Resources, which holds one exploration license on the Newfoundland side of Old Harry, the other five licenses along the western coast of Newfoundland are shared between Shoal Point Energy, Black Spruce Exploration and Enegi Oil, which are all small junior companies. Four new exploration licenses totaling over 10,000 km^2 are currently offered for bids (fig. 7) in the Newfoundland part of the Gulf. Companies have until November 15, 2014 to submit their bids.

CORRIDOR RESOURCES INC.

The exploration licences for the Old Harry geological structure, both for Quebec and Newfoundland and Labrador, are held by Corridor Resources, a Halifax junior exploration company. Founded in 1995, Corridor Resources has no experience in the marine environment, except for a few seismic surveys. Its activity is more oriented towards oil and gas exploration on Anticosti Island and in New Brunswick. Corridor Resources also produces natural gas from the McCully gas field in southern New Brunswick.

Although it has no debts, Corridor Resources has only very limited financial means. Due in part to the drop in natural gas prices, which account for the principal source of revenue for the company, the accumulated losses of Corridor Resources since January 2010 total more than $109 million.[29,30] On December 31, 2013, its total assets were only $181 million, a rather small amount when compared to the total assets of BP ($311 billion) and Exxon ($347 billion).[31]

Corridor Resources has no experience in the marine environment, except for a few seismic surveys. Its activity is more oriented towards oil and gas exploration on Anticosti Island and in New Brunswick. Corridor Resources also produces natural gas from the McCully gas field in southern New Brunswick.

DRILLING AT OLD HARRY... WHEN WILL IT HAPPEN?

Corridor Resources has been interested in the Old Harry geological structure since its founding in 1995, but has still not succeeded in drilling a first well.

With the Quebec side of the structure being inaccessible due to the exploration licenses of Corridor Resources being suspended, the company crossed the border and acquired an exploration license for the Newfoundland portion of Old Harry in January 2000. Corridor Resources was thus required to start drilling before January 2005, or lose its exploration license. The company was not able to respect the deadline for all kinds of reasons, and its license was revoked.

Corridor Resources obtained a new license for the Newfoundland portion of Old Harry in January 2008, with an obligation to start drilling before January 2013. This well would be drilled less than 6 kilometres from the Quebec border. Claiming slow environmental assessments, the company obtained amendments to its contract on two occasions through federal and provincial ministerial authorizations. Corridor Resources thus benefitted from an extraordinary reprieve of three years, and must now start drilling before January 15, 2016, still under the threat of losing its license.

29 Corridor Resources (2013) *2012 Management's Discussion and Analysis*. www.corridor.ca/investors/documents/2012FinancialStatements.pdf

30 www.corridor.ca/investors/documents/2013FinancialStatements.pdf

31 www.ycharts.com/companies/XOM/assets

Offshore drilling is very expensive. For example, each exploratory drilling costs at least $50 to $60 million. In addition to this, a sum of 30 million must be placed in trust in case of an accident and the Board of Newfoundland requires assets of at least $250 million[32] before issuing a drilling authorization. If adopted, federal Bill C–22,[33] introduced in October 2013, would increase the amount to be placed in trust to $100 million, and the total assets required to $1 billion. Corridor Resources does not possess such resources and, to drill in the Gulf, it must find a major financial partner, which it has not managed to do despite repeated efforts over the years.

In case of failure, Corridor Resources could benefit from a final reprieve by depositing a guarantee of $1 million. The deadline would thereby be extended to January 14, 2017. If Corridor Resources still does not succeed, the company loses both the deposit and the exploration license.

BLACK SPRUCE EXPLORATION

Black Spruce Exploration is a private company, formed in December 2012, which is not listed on the stock exchange. The newly formed company has not yet done any work in the field. Instead it has been busy since 2013 in concluding agreements with four junior companies on the western coast of Newfoundland, even buying two of them, Ptarmigan Energy and Deer Lake Oil and Gas.

Black Spruce thus acquired a seismic survey project for which Ptarmigan had obtained the environmental green light. This project consists of 3,367 km of 3D seismic lines in the Gulf, about 15–35 km off Newfoundland. These surveys would be carried out at about 40–50 km from the interprovincial boundary with Quebec and could pave the way for future offshore drilling.[34] It does not seem likely that these surveys will be conducted in 2014.

SHOAL POINT ENERGY

This junior company caused great uproar in Newfoundland in 2013 when it announced that it would conduct hydraulic fracturing under the Gulf waters from the west coast of Newfoundland, within metres of Gros Morne National Park.[35] Since then, the government of Newfoundland has announced an unlimited moratorium on fracking and Shoal Point's extension of its main exploration license was refused by the C-NLOPB. Shoal Point is presently reviewing its plans and still hopes to be able to drill in the Gulf from the coast.

SKY HUNTER EXPLORATION

Eight exploration licenses along the Lower North Shore were granted in 1997 to Sky Hunter Exploration, a small Calgary company manufacturing equipment to detect the presence of oil from an aircraft. Their goal was mainly to test the method, in particular over Banc de Beaugé.[36] The licenses have been suspended since 1997, for the same reason as those of Corridor Resources, and the company seems to have no intention of exploring further or even of drilling.

MORATORIUM IN NEWFOUNDLAND

In November 2013, the Newfoundland Department of Natural Resources announced that the government would no longer be accepting any fracking project, including under the seabed of the Gulf. Newfoundland, which has no regulations on fracking, wants to take time to study the issue.

32 C-NLOPB (2000) *Financial responsibility requirements for work or activity offshore*. www.cnlopb.nl.ca/pdfs/guidelines/respecting_financial_responsibility_requirements.pdf

33 www.parl.gc.ca/LegisInfo/BillDetails.aspx?billId=6392558&Mode=1&View=8&Language=E

34 www.cnlopb.nl.ca/pdfs/abownl/eareport.pdf

35 Galloway, G. (2013) "Oil projects near Newfoundland heritage site raise alarms." *The Globe and Mail*, July 14.

36 www.skyhunter.ca/media/webcast-2007-05-15/softvnetplayer.htm

SECTION 4

The hunt for offshore oil and gas: real risks

The only way to confirm the presence of oil and gas is to drill. However, since offshore drilling is very expensive, it is necessary to target the most promising geological structures before proceeding; this is the purpose of seismic surveys, an essential preliminary step. However, the extensive scientific literature on the subject has not yet shown this method to be innocuous.

PHOTO: SATELITE IMAGE OF THE DEEPWATER HORIZON OIL SPILL, NASA / WIKIMEDIA COMMONS

THE PROCESS OF DEVELOPING THE OFFSHORE OIL AND GAS INDUSTRY consists of several stages, ranging from seismic surveys to oil and gas transport as well as the dismantling of rigs. In this section, we will mainly focus on the exploration phase currently planned in the Gulf (seismic surveys and exploratory drilling) and to a lesser degree, on the exploitation stage (production). We will briefly describe the various steps of the process, each one of them coming with its own risks that should not be overlooked.

Seismic surveys

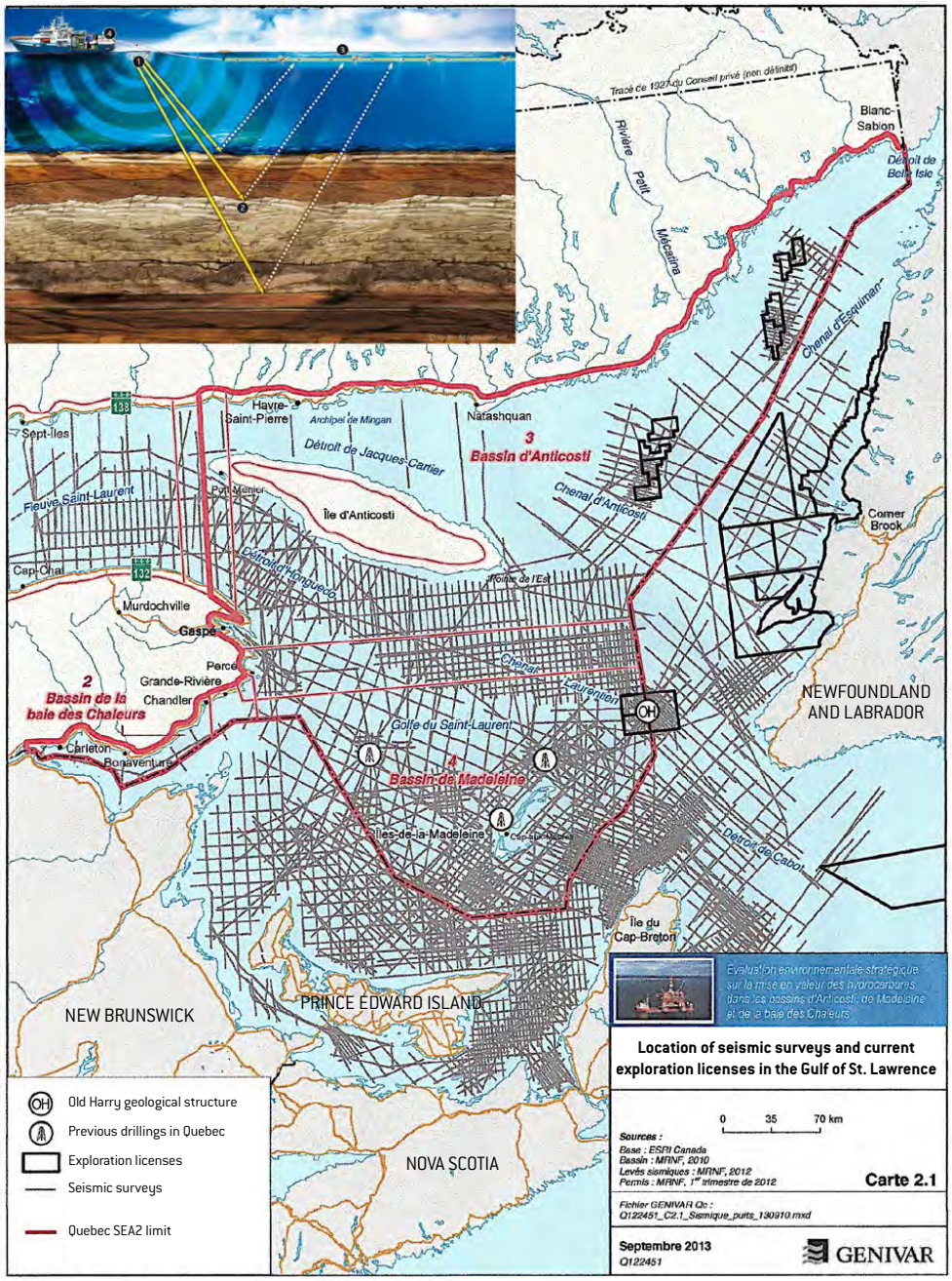
The only way to confirm the presence of oil and gas is to drill. However, since offshore drilling is very expensive, it is necessary to target the most promising geological structures before proceeding; this is the purpose of seismic surveys, an essential preliminary step. However, the extensive scientific literature on the subject has not yet shown this method to be innocuous.

The following paragraphs will describe the technique of seismic surveys, the associated environmental impacts, mitigating measures to reduce the impacts, as well as conflicts with other users of the marine environment.

THE PURPOSE AND THE TECHNIQUE

Seismic surveys consist of explosive blasts of compressed air or sound waves focused towards seabed in order to establish the depth, position and shape of underground geologic formations (Fig. 8). These blasts are sent out repeatedly from ships, at intervals of a few seconds, and the process is often repeated for days, weeks or even months, 24 hours a day. The sound waves generated

FIGURE 8: SEISMIC SURVEYS IN THE GULF OF ST. LAWRENCE



SOURCE: GENIVAR AND WWW.MARITIMEPORTAL.NET

by seismic surveys can reach 250 decibels (dB)[37,38] and penetrate the earth's crust to a depth of several kilometres.

37 Oceana (2012) Seismic Airgun Testing in the Atlantic Ocean. www.oceana.org/sites/default/files/Oceana_Seismic_Airgun_Testing_Infographic_PDF.pdf

38 The pressure is characterized by intensity and power. The intensity of a sound wave corresponding to the amount of energy emitted per unit of time to a given surface. The unit of measure commonly used is the decibel (dB) or 1/10 Bel, corresponds to the detection threshold of the human ear. Thus I (dB) = 10 log (Ison/Iref). The intensity is proportional to the square of the pressure (Pa). Source : www.bape.gouv.qc.ca/sections/rapports/publications/bape193.pdf p.11

Several of these surveys were conducted across the Gulf of St. Lawrence between 1968 and 1998 (Fig. 8). Corridor Resources Inc. conducted the most recent ones in October 2010 in order to obtain a high definition image of the seabed at the proposed Old Harry drilling site (geohazard seismic surveys).

IMPACTS

Since sound travels much more readily in water than in air, the noise from one single seismic survey can cover tens of thousands of km^2 (close to 300,000 km^2).[39] Seismic surveys thus contribute to raising the levels of ambient noise by two orders of magnitude (20 dB) above normal.[40] Usually, the biological impacts of seismic surveys on marine life are listed according to the following types of effects.[41]

- physical impacts: changes in organisms' physical state;
- physiological impacts: changes in biological functions;
- behavioural impacts: changes in how organisms act.

However, more and more scientific evidence indicates that these surveys disrupt communication, orientation, as well as the feeding habits in marine fauna, which depend entirely on sound for these aspects of their life. These sound waves can especially injure fish that possess a swim bladder, destroy the eggs and larvae of aquatic wildlife, as well as causing fish and other marine species to leave the affected area. A recent review of the scientific literature on the subject suggests that seismic surveys are the second largest cause of sub-marine noise pollution. In the case of seismic surveys carried out in the past in the Gulf of St. Lawrence, the impacts were never studied scientifically. Hence, this preliminary step of offshore oil and gas exploration inevitably causes damage to the marine environment. These damages, which still need to be better documented,[42] were recently corroborated by a study published by the International Whaling Commission.[43]

More and more scientific evidence indicates that these surveys disrupt communication, orientation, as well as the feeding habits in marine fauna, which depend entirely on sound for these aspects of their life.

PHOTO: GREG5030 / WIKIMEDIA COMMONS

MITIGATION MEASURES

In Canada, mitigation measures have been developed to lessen the impact of seismic surveys.[44] These measures mainly consist of planning the seismic surveys, establishing and monitoring a safety zone, and establishing measures to detect marine mammals.

---

39 Weilgart, L.S. (2007) The impact of anthropogenic ocean noise on cetaceans and implication for management. *Can. J. Zool*. 85(11): 1091-1116.

40 Sounds in the ocean come from many natural sources such as vocalizations of marine organisms, wind, wave action, ice movement, etc.

41 Fisheries and Oceans Canada (2007) Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Marine Environment. www.dfo-mpo.gc.ca/oceans/management-gestion/integratedmanagement-gestionintegree/seismic-sismique/index-eng.asp

42 Science Communication Unit, University of the West of England (2012) Science for Environment Policy Future Brief : Underwater Noise. Report for the European Commission DG Environment.

43 Southall, B.L., Rowles, T., Gulland, F., Baird, R.W., and Jepson, P.D. (2013) Final report of the Independent Scientific Review Panel investigating potential contributing factors to a 2008 mass stranding of melon-headed whales (Peponocephala electra) in Antsohihy, Madagascar.

44 Fisheries and Oceans Canada (2007) Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Marine Environment. www.dfo-mpo.gc.ca/oceans/management-gestion/integratedmanagement-gestionintegree/seismic-sismique/index-eng.asp

THE 2004 BAPE ON ISSUES RELATED TO SEISMIC SURVEYS IN THE ESTUARY AND THE GULF OF ST. LAWRENCE

In November 2002, Geophysical Services Inc. filed a request with the National Energy Board for a license to conduct seismic surveys south and east of Anticosti Island. This project raised serious concerns, especially for marine mammals in the St. Lawrence. A coalition headed by the Groupe de recherche et d'éducation sur les mammifères marins (GREMM) and bringing together scientists, NGOs, artists, etc., called for a moratorium on oil and gas exploration in the St. Lawrence. The Quebec Environment Minister, Thomas J. Mulcair, then gave a mandate to the Bureau d'audiences publiques sur l'environnement (BAPE) to study the effects of seismic surveys[45]. The main conclusions of the report, which are still relevant today, are as follows:

"In light of its analysis, the commission considers that prior to conducting any seismic surveys in the estuary and the Gulf of St. Lawrence using high-power devices, we must take stock of the state of knowledge concerning their effects on marine organisms, protect certain areas which could restrict such a practice and have an adequate legal framework."

— Michel Germain, President of the Commission

"In light of the public consultations conducted and of their analysis, the commission finds that the high-power devices used for seismic surveys cause behavioural changes in certain species and can cause physiological harm. This could have long term consequences on the ecological integrity of the St. Lawrence, on fisheries or marine mammal watching tours."

— André Harvey, President of BAPE

"...the high-power devices used for seismic surveys cause behavioural changes in certain species and can cause physiological harm. This could have long term consequences on the ecological integrity of the St. Lawrence, on fisheries or marine mammal watching tours."

— André Harvey, President of BAPE

Although not legally binding in Canada, managers of offshore oil and gas activities use these measures. Accordingly, the Board of Newfoundland has integrated these measures into its guidelines for seismic surveys and requires that any company wanting a seismic survey license comply.[46]

However, numerous marine mammal specialists have severely criticized these mitigation measures as being inadequate to ensure the protection of marine mammals[47] — particularly because these measures do not protect endangered species in their critical habitats. In addition, in the final

45 BAPE (2004) Les enjeux liés aux levés sismiques dans l'estuaire et le golfe du Saint-Laurent. Rapport 193. www.bape.gouv.qc.ca/sections/rapports/publications/bape193.pdf

46 C-NLOPB (2012) *Geophysical, Geological, Environmental and Geotechnical Program Guidelines*. www.cnlopb.nl.ca/pdfs/guidelines/ggegpg.pdf

47 Ramp, C. (2012) Mémoire de la Station de recherche des Îles Mingan (MICS) concernant le rapport d'étude préliminaire de l'EES2. www.bit.ly/1darkyF

SEA2 report, Genivar insists on the need to update the "Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Marine Environment"[48,49] based on the best practices.

USER CONFLICTS

Seismic surveys often cause major user conflicts between firms conducting the surveys and users of the marine environment, fishermen and the First Nations. Surveys are carried out over vast territories, often intersecting fishing areas, and have a definite impact on marine fauna, including commercial species and marine mammals.

For example, the Fish, Food and Allied Workers (FFAW), the largest fishermen association in Newfoundland, filed a formal complaint against MKI, a seismic survey company.[50] Similarly, seismic surveys carried out in October 2010 at Old Harry caused a great deal of concern among Magdalen Island fishermen who were strongly opposed to the project.[51] Finally, in Nunavut, the Inuit obtained an injunction to stop seismic surveys in Lancaster Sound, fearing for the preservation of their way of life.[52] Another seismic company was strongly criticized recently by the National Energy Board for its refusal to cooperate and to respond to the questions of the Inuit.[53]

The two largest oil spills in history of offshore oil drilling rigs (Deepwater Horizon in 2010 and Ixtoc I in 1979) occurred during the exploratory drilling phase.

PHOTO: DEEPWATER HORIZON, US COAST GUARD / WIKIMEDIA COMMONS

Exploratory drilling

The only way to confirm the presence of oil or gas is by drilling an exploratory well. However, this step is one of the most risky in the whole cycle of oil and gas development according to S.L. Ross:

> *"... drilling the first exploratory well on a geological structure is the most hazardous activity during the hydrocarbon development process. A major well blowout is more likely at this time than any other"*[54]

Indeed, exploratory drilling targets geological layers for which we have very little information, where we have only a small idea of the internal pressures, and where an unsuspected pocket of gas could cause an explosion (*blowout*). Moreover, the two largest oil spills in history of offshore oil drilling rigs (Deepwater Horizon in 2010 and Ixtoc I in 1979) occurred during the exploratory drilling phase.

---

48 hydrocarburesmarins.gouv.qc.ca/documents/091-51078-00_EES2_VF_130910_authentifie.pdf

49 Ramp, C. (2012) Mémoire de la Station de recherche des Îles Mingan (MICS) concernant le rapport d'étude préliminaire de l'EES2. www.bit.ly/1darkyF

50 "FFAW objects to seismic work in shrimp grounds" *The Telegram*, June 8,2012. www.thetelegram.com/News/Local/2012-06-08/article-3003415/UPDATED%3A-FFAW-objects-to-seismic-work-in-shrimp-grounds/1

51 "Méfiance aux îles de la Madeleine," Radio-Canada, August 31, 2010.

52 "Lancaster Sound, a seismic victory for the Inuit." *The Globe and Mail*, August 13, 2010. www.theglobeandmail.com/news/politics/lancaster-sound-a-seismic-victory-for-the-inuit/article1377067/

53 "NEB puts Nunavut seismic testing review in limbo." *Nunatsiaq News,* July 17, 2013. www.nunatsiaqonline.ca/stories/article/65674neb_puts_nunavut_seismic_testing_review_into_limbo/

54 Ross, S.L. et al. (1977) Oil spill countermeasures. The Beaufort Sea and the Search for Oil. Department of Fisheries and the Environment.

OIL SPILL SIMULATIONS AT OLD HARRY

What would happen if a major oil spill occurred as the result of drilling at Old Harry? How far would the resulting oil slick extend?

These questions are crucial in order to plan emergency measures and to evaluate the environmental impact of an oil spill. Corridor Resources was therefore required to respond to such questions by carrying out a mathematical simulation of an oil spill as part of the environmental assessment of its drilling project. The results were very surprising. As it happens, the two simulations carried out by ASA and S.L. Ross[55] for Corridor Resources showed that the resulting oil slick would be less than 20 km in diameter and would evaporate in a few hours. Corridor Resources obtained these results by assuming that very light oil would be discovered and that it would evaporate very quickly.

This assumption, as well as the entire simulations of Corridor Resources, were severely criticized by Environment Canada (EC)[56] and Fisheries and Oceans Canada[57]: "unrealistic" conclusions, outdated simulation models, etc.

On the other hand, a simulation was conducted by Environment Canada and another one in 2010 by an independent consultant on behalf of the David Suzuki Foundation (DSF).[58] In both cases, experts used "medium crude" oil and simulated a "surface" spill of relatively long duration. In both cases there was a risk that southwestern Newfoundland, Cape Breton Island and the Magdalen Islands would be affected by an oil slick. Moreover, DSF's winter simulation showed that there was a risk that all of the provinces would be affected if a spill occurred in the presence of ice.

Finally, researchers in physical oceanography from the Université du Québec à Rimouski (UQAR)[59] also severely criticized Corridor Resources' simulations. Using an inert dye instead of oil, and using more realistic meteorological and currents data, they also obtained results that were comparable to those of EC and DSF: the western coast of Newfoundland, Cape Breton Island, as well as the Magdalen Islands would all have a chance of being affected.

---

55 www.cnlopb.nl.ca/pdfs/corridorresinc/oilspillfr.pdf

56 EC (2012) Environment Canada comments on oil spill trajectory modeling. www.cnlopb.nl.ca/pdfs/corridorresinc/ecommentsosm.pdf

57 DFO (2013) Science Review of the Old Harry Prospect Exploration Drilling Program. DFO Can. Sci. Advis. Sec. Sci. Resp. 2013/2014. www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2013/2013_014-eng.pdf

58 www.davidsuzuki.org/issues/oceans/science/marine-planning-and-conservation/an-oil-spill-in-the-gulf-of-st-lawrence-could-threaten-five-provinces/

59 Bourgault, D. et al. 2014. Numerical simulations of the spread of passive tracer released at the Old Harry prospect. Environmental Research Letters. http://iopscience.iop.org/1748-9326/9/5/054001/pdf/1748-9326_9_5_054001.pdf

Minor and routine spills

Over the course of daily operations on an oil rig, numerous minor accidental spills may occur, whether they consist of drilling fluids, crude oil or diesel fuel used on the rig.[60] In addition to these accidental spills, there are the chronic spills that are allowed under the current regulations. This is the case for produced water; water that rises to the surface at the same time as the pumped oil and that is returned to the ocean after a certain degree of decontamination. On the Hibernia rig, 14,300,000 litres of contaminated water are discharged every day, for a total of 1,200 litres of oil (1.2 tonnes).[61] Even if they do not make the headlines, these small, chronic spills can have a significant cumulative effect and a major impact on marine birds,[62] among others things. Although their harmful effects are known, regulations in Newfoundland and Labrador and in Nova Scotia allow for the presence of 44 ml of hydrocarbons in each litre of produced water discharged into the ocean.[63]

What if a major spill were to occur

Although the 2010 disaster in the Gulf of Mexico was exceptionally large, the possibility of another disaster of this magnitude remains a real possibility.

As just seen, routine oil leaks occur regularly during offshore oil and gas exploitation. Although the 2010 disaster in the Gulf of Mexico was exceptionally large, the possibility of another disaster of this magnitude remains a real possibility (see Text Box "The devastating impact of the oil spill in the Gulf of Mexico," Section 7).

Overall, the spill in the Gulf of Mexico exceeded 4.9 million barrels. However, the capacity to respond to an oil spill in eastern Canada, *i.e.* in the St. Lawrence, is limited to 15,000 tonnes (nearly 105,000 barrels of oil).[64] Moreover, the ability to recover oil from an offshore spill is limited to approximately 10–15% of the spilled amount under ideal conditions.[65] When it comes to spills in the presence of ice, they are extremely difficult to control, especially if they are of large magnitude.[66] Determining the extent of an oil slick under a cover of ice is also technically very difficult.[67]

---

60 Vella, H. (2013) "North Sea data reveals extent of oil and gas pollution." Offshore Technology.com www.offshore-technology.com/features/feature-north-sea-data-extent-oil-gas-pollution/

61 Fraser, G. S., J. Russell and W.M. von Zharen (2006) Produced water from offshore oil and gas installations on the Grand Banks, Newfoundland and Labrador: are the potential effects to seabirds sufficiently known? Marine Ornithology 34 : 147-156.

62 Environnement Canada. The Impact of Oil at Sea on Seabirds in Atlantic Canada. www.ec.gc.ca/mbc-com/default.asp?lang=En&xml=C0368C3A-FA1B-4D48-A24C-C67B45E8C3F6

63 www.cnlopb.nl.ca/pdfs/guidelines/owtg1012e.pdf

64 Évaluation environnementale stratégique sur la mise en valeur des hydrocarbures dans les bassins d'Anticosti, de Madeleine et de la baie des Chaleurs (EES2) - Rapport d'étude - Version préliminaire, la version complète - 671 pages (Format PDF, 24,8 Mo), on page 102.

65 The International Tanker Owners Pollution Federation Limited. www.itopf.com/spill-response/clean-up-and-response/containment-and-recovery/

66 Goodyear, J and C. Clusen (2012) Environmental risks with proposed offshore oil and gas development off Alaska's North Slope. NRDC Issue Paper. www.nrdc.org/land/alaska/files/drilling-off-north-slope-IP.pdf

67 www.api.org/ff/media/Files/EHS/Clean_Water/Oil_Spill_Prevention/Spill-Response-in-the-Arctic-Offshore.ashx

NOT EVERYTHING IS ROSY IN NORWAY

Although Norway is regularly held up as a role model when it comes to the exploitation of oil and gas, this country is not immune to oil spills.

Major spills occurred at certain rigs in the Norwegian Sea and the North Sea: Statsfjord A (3,696 tonnes, 2007), Draugen (630 tonnes, 2003) and Norne (286 tonnes, 2005).[68] The first two were classified as "major" spills.[69] Let us remember that 200 tonnes of oil from the *Irving Whale* were sufficient to pollute 80 km of beach on the Magdalen Islands in 1970, and the spill of only 5 tonnes of fuel into the Baie de Sept-Îles in September 2013 led to serious consequences for the environment and has cost $20 million to date.[70]

Other than these accidental spills, routine discharges from Norwegian offshore oil rigs total approximately 2,500 tonnes of oil per year and more than 150,000 tonnes of various chemicals,[71] all of which are being authorized by the Norwegian authorities.

Even though Norway has the highest standards in the industry as well as strict regulations, it is no exception: offshore wells are constantly prone to leaks and problems of structural integrity. A large project led by the Petroleum Safety Authority Norway[72] attempted to quantify this problem. Out of a sample of 406 drilled wells in Norwegian waters, structural integrity problems were detected in 18% of them. In 7% of the wells, the problems were severe enough to lead to a closure of the well.

Even though Norway has the highest standards in the industry as well as strict regulations, it is no exception: offshore wells are constantly prone to leaks and problems of structural integrity.
PHOTO: HARALD PETTERSEN/STATOIL

68 Petroleum Safety Authority Norway (2011) Risk level in the petroleum activity – acute discharges – Norwegian Continental Shelf.

69 Gulf Strike Team (2008) An FOSC's Guide to Environmental Response. www.uscg.mil/hq/nsfweb/docs/FOSCGuidev07.pdf

70 "Déversement de mazout à Sept-Îles : l'enquête se poursuit toujours." Radio-Canada, January 3, 2014. www.ici.radio-canada.ca/regions/est-quebec/2014/01/03/003-deversement-mazout-sept-iles.shtml

71 Nerland, Jan. (2001) Norwegian Oil Spill Contingency and Risk based Governmental Contingency Planning. Norwegian Pollution Control Authority (SFT).

72 Vignes, B. and Aadnoy, B. S. (2008) Well integrity Offshore Norway. Petroleum Safety Authority, Norway.

With these findings and since the conditions in the Gulf are often difficult (see Section 2) and would limit the capacity to act efficiently in case of a spill (ice, storms, fog, cold water, etc.), it is clear that the total capacity to intervene in the Gulf in the case of a major oil spill would be inadequate.

If a spill were ever to occur in the Gulf of St. Lawrence, the sequence of interventions would be as follows:[73]

1. The oil company notifies the regulatory body (C-NLOPB, etc.) and puts its emergency plan into action.
2. If the oil company cannot control the spill, it calls on the regulatory body, which must then intervene.
3. If deemed necessary, the regulatory body calls on government agencies (Coast Guard, Environment Canada, etc.)

However, the Commissioner of the Environment and Sustainable Development has identified a large number of flaws in this scenario.[74] For example, the Boards do not adequately verify the ability of the companies to intervene (step 1); the Boards do not have the technical ability to intervene (step 2); coordination between the Boards and the government agencies is not adequate (step 3). Also, an internal audit revealed that the Coast Guard equipment is generally more than 25 years old and is outdated.[75]

WHO WOULD PAY THE BILL?

South of the 60th parallel, absolute financial responsibility in the case of an oil spill is limited to $30 million.[76] However, federal Bill C–22, introduced on January 30, 2014, would increase the absolute limit of liability to $1 billion.

Once this Bill has been adopted, a company will have to pay the costs of any spill up to a total of $1 billion, whether or not it is responsible (responsible: negligence; not responsible: storm, ice, etc.). If the costs exceed $1 billion, negligence of the company will have to be proven in a court of law, which can be very difficult. Note that the latest estimates of damages in the Gulf of Mexico have reached $43 billion. Some countries such as Norway, Denmark, Iceland and Greenland fully implement the "polluter pays" principle and there is no absolute liability limit.[77]

73 Canada-Newfoundland Atlantic Accord Implementation Act, art. 161

74 Office of the Auditor General of Canada. (2012) Report of the Commissioner of the Environment and Sustainable Development. Ch. 1 – Atlantic Offshore Oil and Gas Activities.

75 "Canada's offshore spill response outdated, audits found" CBC, June 3, 2013. www.cbc.ca/news/canada/calgary/canada-s-offshore-oil-spill-response-outdated-audits-found-1.1369587

76 Art. 3. Oil and Gas Spills and Debris Liability Regulations (SOR/87-331). This regulation was adopted in1987.

77 Lloyds (2012). Arctic Opening: Opportunity and risk in the High North. www.lloyds.com/News-and-Insight/Risk-Insight/Reports/Arctic-Report-2012

CANADA IS NOT PREPARED TO DEAL WITH A MAJOR OIL SPILL

In February 2013, the Commissioner of the Environment and Sustainable Development (Office of the Auditor General of Canada) released a report that was especially critical of risk management associated with offshore oil and gas in the Atlantic and in the Gulf of St. Lawrence.[78] This report raises serious concerns, including:

1. The ability to intervene in the case of an oil spill in the Gulf of St. Lawrence is clearly inadequate;
2. The absolute liability limit of $30 million required from oil companies to counter damages caused by a spill is completely insufficient and does not reflect the real costs of a major incident.[79]

The Commissioner's report is also critical of the functioning of the two Offshore Petroleum Boards (Canada–Newfoundland and Labrador and Canada–Nova Scotia). According to the report, they showed significant gaps when it comes to the monitoring of the environment, prevention, intervention in case of accidents and the ability to conduct adequate environmental assessments.

> *"If there were to be a major spill from an offshore drilling rig on the Atlantic coast, I don't think that Canada would be capable of dealing with it, or better still, of controlling it."*[80]

78 "Canada's offshore spill response outdated, audits found" CBC, June 3, 2013. www.cbc.ca/news/canada/calgary/canada-s-offshore-oil-spill-response-outdated-audits-found-1.1369587

79 Office of the Auditor General of Canada. (2012) Report of the Commissioner of the Environment and Sustainable Development. Ch. 2 – Financial Assurances for Environmental Risks.

80 "Le Canada serait démuni devant une grande marée noire." Le Devoir, February 6, 2013. www.ledevoir.com/politique/canada/370197/le-canada-serait-demuni-devant-une-grande-maree-noire

"If there were to be a major spill from an offshore drilling rig on the Atlantic coast, I don't think that Canada would be capable of dealing with it, or better still, of controlling it."

— Commissioner of the Environment and Sustainable Development (Office of the Auditor General of Canada)

PHOTO: US FISH AND WILDLIFE SERVICE

SECTION 5

Management of oil and gas resources in the Gulf of St. Lawrence

In this section, we will discuss the ownership of oil and gas resources in the Gulf of St. Lawrence.
PHOTO: NELSON BOISVERT

ON LAND, WITHIN PROVINCIAL BOUNDARIES, THINGS ARE SIMPLE: underground natural resources, whether mineral, oil or gas, are the property of the province and their management is the responsibility of the various Ministries of Natural Resources.

In the Gulf of St. Lawrence, the issue is far from having been settled. While the United States claim the Gulf of St. Lawrence is international waters, Canada sees it as canadian inland waters.[81] As for the seabed and its resources, the Gulf provinces have long opposed the federal government on the question of ownership and management of oil and gas resources.[82]

In this section, we will discuss the ownership of oil and gas resources in the Gulf of St. Lawrence. We will also examine the way these resources are managed: federal provincial Accords, Offshore Petroleum Boards, issuing of exploration licenses, drilling permits, etc.

Who owns the oil resources in the Gulf?

Quebec and New Brunswick both own, in their own right, some marine areas (Fig. 9) and are therefore, by extension, owners of all the oil and gas resources potentially found there. By virtue of the Royal Proclamation of 1763, the whole estuary and the northwest of the Gulf, west of the western tip of Anticosti, are part of Quebec's territory.[83] On the other hand, a British law of 1851, the New Brunswick Boundary Act, gives the entire Baie des Chaleurs to Quebec and New Brunswick, who share it according to an equidistant line.

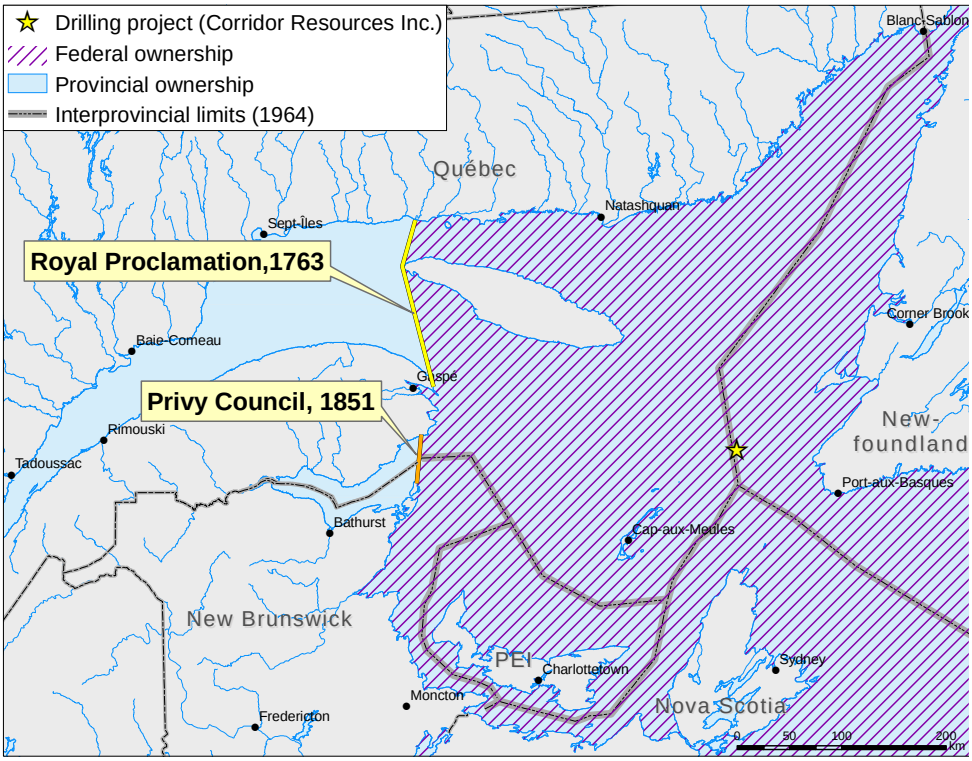
81 Dorion, H. and J.-P. Lacasse (2011) Le Québec : territoire incertain. Éditions du Septentrion, Québec. 328 p.
82 Arbitration between Newfoundland and Labrador and Nova Scotia concerning portions of the limits of their offshore areas. Award of the Tribunal in the first phase (2001). http://www.nr.gov.nl.ca/mines&en/publications/offshore/dispute/decision.pdf
83 Dorion, H. and J.-P. Lacasse (2011) Le Québec : territoire incertain. Éditions du Septentrion, Québec. 328 p.

As for the Gulf of St. Lawrence, New Brunswick, Prince Edward Island, Nova Scotia, Quebec and Newfoundland and Labrador decided in 1964 to make a joint request to Ottawa concerning ownership of the resources that could be found under the seabed of the Gulf. To support their claim, these provinces agreed to subdivide the Gulf among themselves by means of equidistant lines (Fig. 9, interprovincial line of 1964). The federal government refused the request of the five provinces and has never officially recognized these interprovincial lines. However, even though it does not recognize them as boundaries, the federal government respects the lines that the provinces adopted among themselves.

On two occasions, the Supreme Court of Canada upheld the federal claim regarding offshore mineral resources: in British Columbia (1967)[84] as well as in Newfoundland and Labrador (1984).[85] In spite of what the provinces pretend, it seems as though the oil and gas resources in the Gulf of St. Lawrence are federal government property.

Finally, some First Nations, such as the Mi'gmaqs and the Innu of the Quebec North Shore have territorial claims covering large sections of the Gulf, including the Old Harry site.[86]

FIGURE 9: OWNERSHIP OF THE GULF SEABED AND PROVINCIAL BOUNDARIES



Sources : C-NLOPB, MRN

84 Offshore Mineral Rights of British Columbia (1967) R.C.S. 792 (Supreme Court of Canada)

85 Reference re Newfoundland Continental Shelf, (1984) 1 S.C.R. 86 (Supreme Court of Canada)

86 Mi'gmawei Mawiomi Secretariat (2005) Map of Gespegewagi. www.migmawei.ca/documents/Gespegewagi_Claim_Map.pdf

WHERE IS THE PROVINCIAL BOUNDARY FOR OLD HARRY REALLY LOCATED?

When the five Gulf provinces agreed to set provincial boundaries in 1964, they used the technique of strict equidistance. This technique, used widely in marine law, establishes boundaries between states halfway between various identifiable points (islands, islets, capes, etc.). This is how the small island of St. Paul (NS) was used to draw the boundary between Nova Scotia and Newfoundland and Labrador, and the tiny islet of Corps-Mort (Quebec) was used to draw the line between Quebec and New Brunswick.

However, the boundary between Quebec and Newfoundland and Labrador was drawn using East Point in the Magdalen Islands, rather than the Rocher aux Oiseaux (Bird Rock), 32 km farther to the east towards Newfoundland, an islet big enough for a lighthouse, some buildings, etc. Using the Rocher aux Oiseaux would have resulted in moving the interprovincial boundary several kilometres to the east, beyond the current site of the Corridor Resources drilling project. As long as there is no formal agreement on the location of the interprovincial line between Quebec and Newfoundland and Labrador, there will always be doubts about its actual situation.

PHOTO: PLAGE ILES-DE-LA-MADELEINE
CLAUDE BROCHU / WIKIMEDIA COMMONS

DISPUTED PROVINCIAL BOUNDARIES

The provincial boundaries of 1964 were never ratified by the various provincial legislatures, nor were they the subject of an agreement, or even signed. Their existence entirely depends on the good will of the provinces concerned. For instance, Newfoundland and Labrador began in 1972 to contest the validity of the line separating it from Nova Scotia.[87] This conflict was only resolved in 2002, following an Arbitration Tribunal ruling.

The Arbitration Tribunal rendered two important decisions:

1. It showed that the interprovincial line of 1964 cannot be considered as arising from an agreement between the provinces and that it has no legal value.
2. The court drew a new line between Newfoundland and Labrador and Nova Scotia, according to the standards of international law, a line that was subsequently recognized by a federal regulation.

In the same way, Newfoundland and Labrador no longer recognizes the border agreed upon with Quebec in 1964. Even if this contested interprovincial line passes exactly over Old Harry, Newfoundland and Labrador respects the current line and only issues exploration licenses on its side.

This dispute between Quebec and Newfoundland and Labrador poses a major hurdle to any exploratory drilling project on the Quebec side of Old Harry. Indeed, the Canada – Quebec Accord (see further down, Section 6) states that the Quebec exploration licenses held by Corridor Resources at Old Harry, suspended since 1997, cannot be reactivated as long as there is a dispute between the two provinces, a dispute which can only be settled through negotiation, mediation or arbitration.

87 Arbitration between Newfoundland and Labrador and Nova Scotia concerning portions of the limits of their offshore areas. Award of the Tribunal in the second phase (2002). http://www.cnsopb.ns.ca/sites/default/files/pdfs/phaseii_award_english.pdf

No drilling without a Federal–Provincial Accord

This federal claim to ownership of the seabed resources of the Gulf of St. Lawrence, such as oil and gas, makes it impossible for one province to act unilaterally. Any province wanting to explore or exploit oil and gas in "its" part of the Gulf must do so in conjunction with the federal government and proceed according to a three-phase process:

1. Sign a shared management Accord with the federal government;
2. Vote in its own legislature, together with the federal government in Ottawa, mirror legislation to implement the Accord;
3. Set up a joint Board of oil and gas management (see Table 2).

FEDERAL-PROVINCIAL ACCORD

Provinces wanting to explore and exploit oil and gas resources in the Gulf must first sign an Accord with Canada on shared management of offshore oil and gas resources. After several years of negotiations, Nova Scotia signed a federal-provincial Accord on March 2, 1982. Newfoundland and Labrador for its part has long refused such an Accord, claiming full ownership of offshore resources. Following the unfavourable decision by the Supreme Court of Canada, Newfoundland and Labrador signed an Accord with the federal government on February 11, 1985.

Provinces wanting to explore and exploit oil and gas resources in the Gulf must first sign an Accord with Canada on shared management of offshore oil and gas resources.

As for Quebec, it also signed a federal-provincial Accord on March 24, 2011, but as will be seen later, this Accord was never ratified and is therefore not yet applicable. Prince Edward Island is not currently seeking to negotiate an Accord, while this is a stated objective for New Brunswick (Table 2).

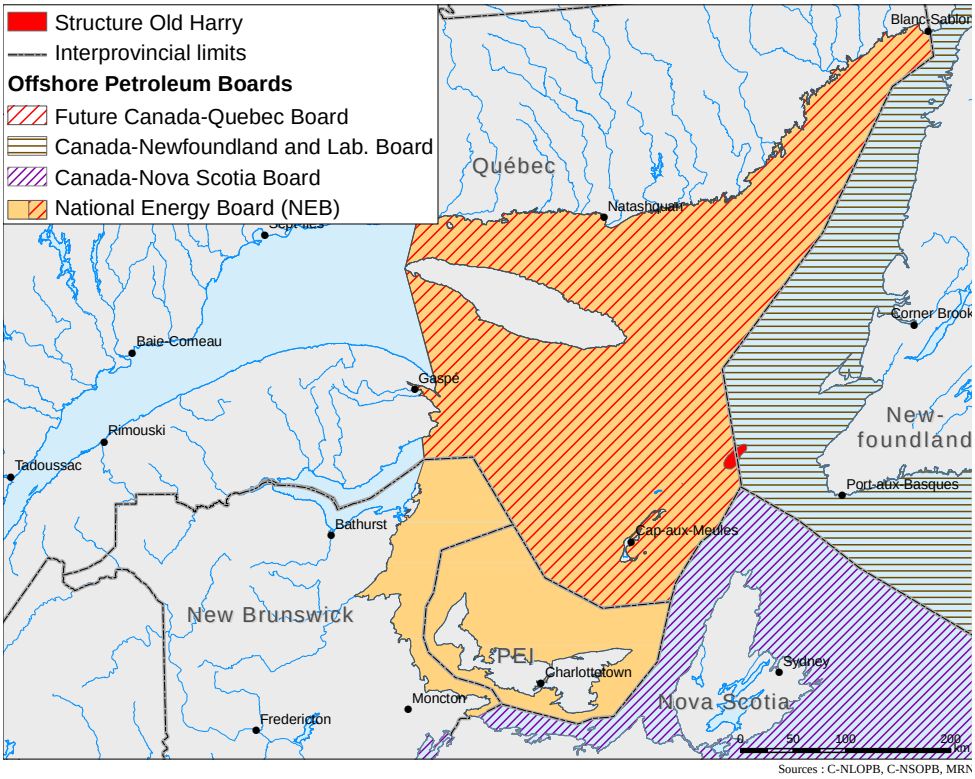
Among the main objectives of these Accords are the following points:

1. Recognition of the equality of the two levels of government in the management of the resource;
2. The eventual establishment of a joint Board to manage the offshore oil and gas resources;
3. The possibility for the province to keep 100% of royalties.

IMPLEMENTATION ACT OR MIRROR LAWS

Signing these Accords does not give the provinces the immediate right to go ahead with oil and gas exploration in their part of the Gulf. First and foremost, a federal implementation act, as well as a provincial implementation act, must be adopted in each of the two legislatures. Almost identical, these two federal and provincial laws are often called "mirror laws." After lengthy negotiations, Newfoundland and Labrador adopted its implementation act on March 25, 1987, and Nova Scotia did the same on July 21, 1988 (Table 2).

FIGURE 10: OFFSHORE PETROLEUM BOARDS



Sources : C-NLOPB, C-NSOPB, MRN

The role of the Boards is rather to issue the various licenses and authorizations, manage the conservation of the oil and gas resources and to ensure that operations are carried out safely, both for the workers and for the environment.

PHOTO: BRISTOW HELICOPTERS / WIKIMEDIA COMMONS

These mirror laws are very important because they primarily serve to regulate various aspects of joint management of offshore oil and gas, such as:

1. The geographical limits of application and the conflict resolution mechanisms;
2. The creation and operation of joint Boards (federal-provincial);
3. Management of various titles, licenses and authorizations;
4. Royalties and other revenues;
5. Impacts on equalization payments;
6. The establishment of absolute limits of responsibility of companies in case of accidents.

OFFSHORE PETROLEUM BOARDS

In the offshore zones of Newfoundland and Labrador and Nova Scotia, all management of oil and gas goes through these joint Boards: the Canada-Newfoundland Offshore Petroleum Board (C-NLOPB) and the Canada-Nova Scotia Offshore Petroleum Board (C-NSOPB). In both cases, and it will eventually be the same for Quebec, the Boards are jointly managed and financed, equally, by the federal and provincial governments and come under the responsibility of the Ministry of Natural Resources at both levels of government. Although they enjoy a great deal of independence when it comes to decision making, for example for the acceptance or refusal of an exploration project, the Boards must obtain ministerial approval for major decisions, such as an invitation to tender, or issuing a license for oil production.

Contrary to what one might believe, the role of the Boards is not to promote offshore oil and gas exploration or exploitation, which is a role for the various ministries of economic development. The role of the Boards is rather to issue the various licenses and authorizations, manage the conservation of the oil and gas resources and to ensure that operations are carried out safely, both for the workers and for the environment.

However, this model of operation has been criticized by Judge Robert Wells in his extensive report on offshore helicopter safety. This report was conducted following the crash of a helicopter en route to the Hibernia platform, causing the death of 17 people in 2009. According to Judge Wells, the proximity between Boards and the oil industry could suggest an apparent conflict of interest. To overcome this, he recommended the creation of a second independent Board, which would be responsible solely for safety, whether of the workers or the environment, far from any appearance of a conflict of interest.[88]

After the oil spill in the Gulf of Mexico, Norway, the United Kingdom, Australia and even the United States put in place such a modern regulatory structure. The Canada-Newfoundland Board still does not have a reformed structure. Although the province has declared itself open to enacting these changes, Ottawa has still not approved the request.

TABLE 2: OFFSHORE OIL AND GAS MANAGEMENT IN THE GULF OF ST. LAWRENCE

Provinces	% of Gulf (area)	Federal–Provincial Accord	Federal–Provincial Mirror laws	Petroleum Boards
Nova Scotia	7.2 %	Signed on March 2, 1982	Approved July 21, 1988	C-NSOPB Canada-Nova Scotia Offshore Petroleum Board
Newfoundland and Labrador	18.7 %	Signed on February 11, 1985	Approved March 25, 1987	C-NLOPB Canada-Newfoundland and Labrador Offshore Petroleum Board
Quebec	55.9 %	Signed on March 24, 2011	Under federal–provincial negotiation	Currently: NEB (fed.) After approval of mirror laws : Joint regulatory Board (NEB and Régie de l'Énergie du Québec)
New Brunswick	7.4 %	Interested in starting fed.-prov. negotiations	–	Currently: NEB (fed.)
Prince Edward Island	10.7 %	No desire to obtain a fed.-prov. Accord	–	Currently: NEB (fed.)

88 Wells, R. (2010) Canada-Newfoundland and Labrador Offshore Helicopter Safety Inquiry. Vol 1. www.cnlopb.nl.ca/pdfs/ohsi/ohsir_vol1.pdf

Intense negotiations precede the tabling of these mirror laws because there must be an almost perfect alignment between the federal and provincial versions.

PHOTO: STEVEN W. DENGLER / WIKIMEDIA COMMONS

CANADA-QUEBEC ACCORD STILL NOT RATIFIED

Quebec signed an Accord on joint management of offshore oil and gas with the federal government on March 24, 2011.[89] This Accord is the first step towards oil and gas exploration in the Quebec part of the Gulf. However, although signed, this Accord was still not in effect three years later. In order to do so, it is necessary to adopt a mirror law in each of the two legislatures, which would implement the Accord.

Intense negotiations precede the tabling of these mirror laws because there must be an almost perfect alignment between the federal and provincial versions. Among the points to be negotiated is the arbitration process in case of a border dispute, the absolute level of responsibility of the companies, the environmental assessment process, management of exploration titles, payment of royalties, etc.

The Canada-Quebec Accord contains details that are worth mentioning:

1. The oil exploration permits suspended in 1997 (purple permits, Fig. 7), including the two permits granted to Corridor Resources for Old Harry, will not be reactivated until one year following the adoption of the federal-provincial mirror laws.

2. The first mirror laws to be adopted will be called "provisional" and will put in place a joint secretary, as well as a joint regulatory board (NEB and Régie de l'énergie du Québec). The joint Canada-Quebec Board will not be set up, through the setting up of "permanent" mirror laws, until a discovery of exploitable oil and gas has been made in the Gulf.

89 www.mrn.gouv.qc.ca/presse/pdf/Accord-Canada-Quebec-FR.pdf

How much longer will the moratorium on oil and gas activities in the Quebec part of the Gulf last for?

At the moment, all oil and gas activities are prohibited in the entire marine environment of Quebec. There is a permanent ban on these activities from the Ontario border to the western tip of Anticosti Island while in the rest of the Quebec portion of the Gulf there is a temporary moratorium in place (Fig. 11).

PERMANENT BAN

On June 13, 2011, Bill 18, An Act to Limit Oil and Gas Activities, was ratified.[90] This law has the effect of permanently banning all oil or gas exploration and exploitation activity in the seabed of the St. Lawrence and on its islands, west of Anticosti Island and extending to the Ontario border. This territory corresponds exactly to the part of the St. Lawrence that is under Quebec jurisdiction, west of the limit of the Royal Proclamation of 1763 (Fig. 9).

TEMPORARY MORATORIUM

The moratorium in the Quebec portion of the Gulf, east of the western tip of Anticosti Island (Fig. 11), has been in place for more than sixteen years. When the federal government refused to recognize the exploration licenses granted to Corridor Resources in 1996 due to the absence of an Accord on joint management of offshore oil and gas, Quebec decided to stop issuing any licenses until these jurisdictional problems have been settled.[91] Section 153 of Quebec Bill 182 established a moratorium for the entire Quebec marine environment as of December 2, 1997. Thereafter, ministerial decree AM 2009-048 took over as of January 17, 2010, by implementing a moratorium for the entire Quebec marine environment, without a time limit.

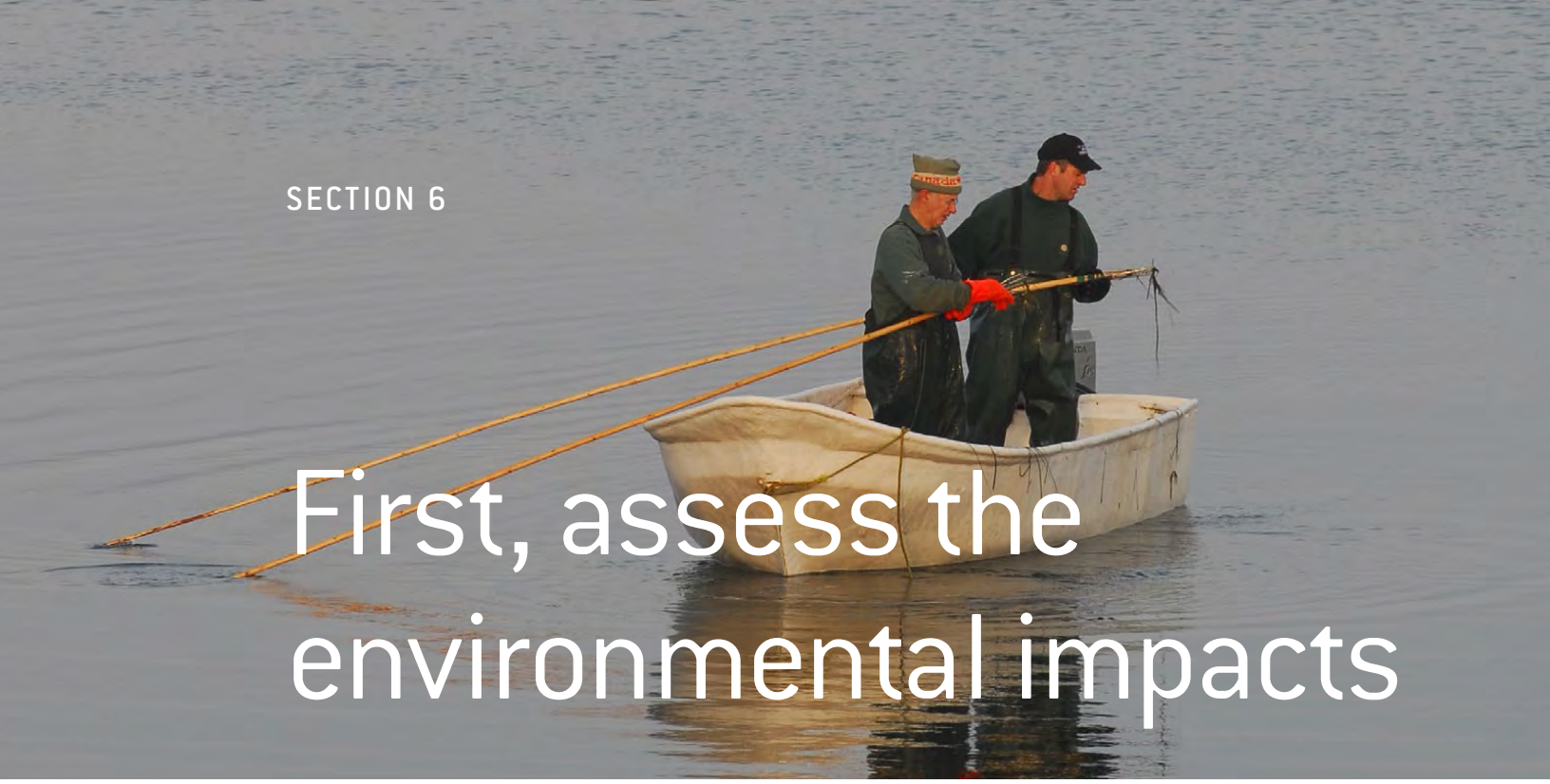
Starting in 2009, when the Quebec strategic environmental assessments (SEA) in marine environments programme began, the Quebec Natural Resources minister added an environmental component to this moratorium. Since that moment on, in addition to waiting for the Canada-Quebec Accord to be implemented before lifting the moratorium, it has also been necessary to wait for the results of any SEA environmental study to be known.

Many interested parties, including the St. Lawrence Coalition, are requesting that any decision to lift the moratorium in the Quebec part of the Gulf, in whole or in part, first be submitted to an enquiry by the Bureau d'audiences publiques sur l'environnement (BAPE).

When the federal government refused to recognize the exploration licenses granted to Corridor Resources in 1996 due to the absence of an Accord on joint management of offshore oil and gas, Quebec decided to stop issuing any licenses until these jurisdictional problems have been settled.

90 www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=5&file=2011C13F.PDF

91 Hydro-Québec (2002) Plan d'exploration pétrole et gaz naturel au Québec 2002-2010, www.bape.gouv.qc.ca/sections/mandats/sismiques/documents/DD1-C.pdf



SECTION 6

First, assess the environmental impacts

It is important to assess all potential impacts by submitting them to a process of environmental assessment before authorizing these projects.

PHOTO: NELSON BOISVERT

ALL HUMAN ACTIVITIES HAVE AN IMPACT ON THE ENVIRONMENT. For a good number of activities, the impact is minor, but for some projects, there may be significant repercussions: effects on habitats, on species at risk, on air and water quality, etc. It is therefore important to assess all potential impacts by submitting the projects to a process of environmental assessment before authorizing them.

In this section, the emphasis will be on the two major types of existing environmental assessments, the strategic environmental assessments (SEA) and the project environmental assessments (EA). Table 3, at the end of the chapter, will present a summary of this information.

Strategic environmental assessments

The strategic environmental assessment (SEA) is a relatively new and little known process, which is first and foremost a planning tool.[92] SEAs are conducted very early in the process, often even before the establishment of a type of industry, an energy sector or land-use planning. SEAs aim primarily at answering two important questions:

a) Should a certain type of industry or development be authorized?

b) If it is authorized, what conditions and what mitigation measures should be imposed on potential projects.

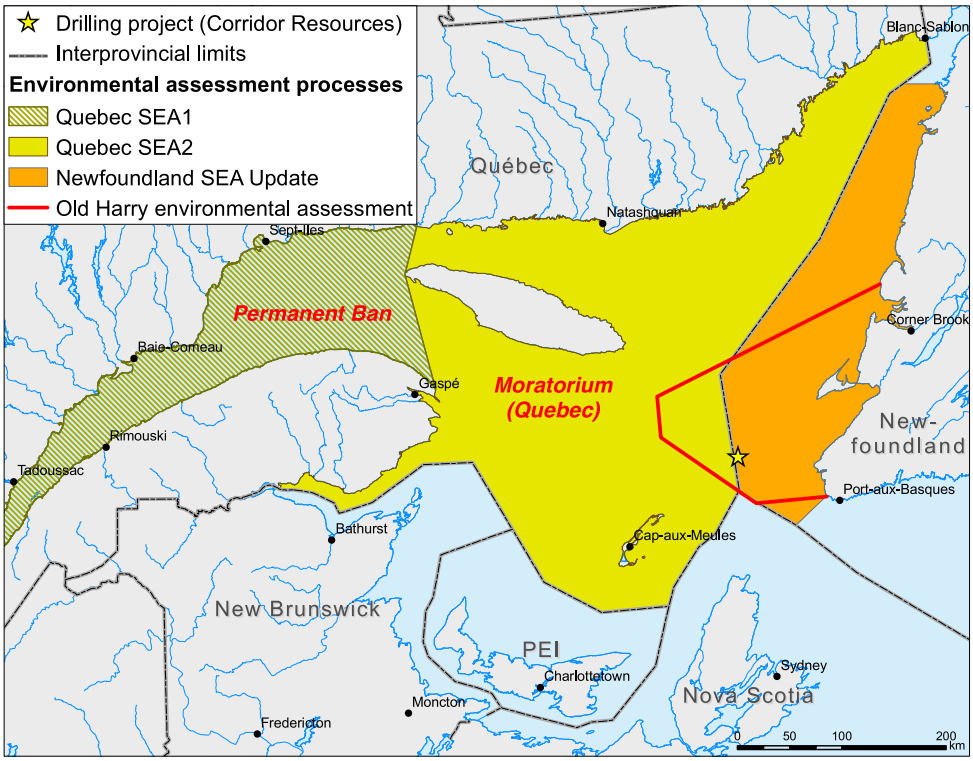
In the Canadian and Quebec context, SEAs do not stem from a legal obligation, but are rather the result of government policies, directives or even *ad hoc* political decisions. For example, given the magnitude of the controversy over shale gas, the Quebec government decided in March 2011 to proceed with a SEA on shale gas.[93]

92 Benevides et al. (2009). Law and Policy Options for Strategic Environmental Assessment in Canada. Report to the Canadian Environmental Assessment Agency. 88 p.

93 Press release of the MDDEFP, March 8, 2011. www.mddefp.gouv.qc.ca/infuseur/communique.asp?no=1831

Three SEAs have been conducted in the St. Lawrence to date: one in the Lower Estuary and the Northwestern part of the Gulf (SEA1), one in the Quebec portion of the Gulf and the Baie des Chaleurs (SEA2), and one in the Newfoundland part of the Gulf (Fig. 11). However, these three SEAs examined restricted areas of the Gulf and none of them provided a comprehensive picture of the entire ecosystem making up the Gulf of St. Lawrence. Thus, SEA1 covered only 10% of the area of the Gulf, SEA2 covered 48% and the Newfoundland and Labrador SEA, 16%. The Gulf is one big ecosystem, with complex interconnections and cannot really be analyzed in separate pieces, according to administrative subdivisions. Genivar identified this as a problem in their final report for SEA2 on oil and gas for the Quebec part of the Gulf of St. Lawrence.[94]

FIGURE 11: ENVIRONMENTAL ASSESSMENT PROCESSES



SEA1: LOWER ESTUARY AND NORTHWESTERN GULF OF ST. LAWRENCE (QUEBEC)

The BAPE report on seismic surveys in 2004,[95] clearly recommended that strategic environmental assessments be carried out before authorizing any exploration work in the Estuary or Gulf of St. Lawrence. A first SEA was thus carried out by AECOM-Tecsult in the Lower Estuary and the northwestern part of the Gulf, and the preliminary report made public in 2010 was unequivocal:

> *"This basin is not conducive to the holding of oil and gas exploration and exploitation activities."*

94 www.hydrocarburesmarins.gouv.qc.ca/documents/091-51078-00_EES2_VF_130910_authentifie.pdf
95 www.bape.gouv.qc.ca/sections/rapports/publications/bape193.pdf

In June 2011, the Quebec government rapidly responded to this finding by adopting an Act to limit oil and gas activities[96] by which all exploration and exploitation activities are now permanently banned in the bed of the St. Lawrence and on its islands, from the Ontario border to the western tip of Anticosti Island (Fig. 11).

SEA2: ANTICOSTI, MADELEINE AND BAIE DES CHALEURS BASINS (QUEBEC)

A second SEA was carried out in Quebec's part of the Gulf by Genivar (Fig. 11), and the final report was released in September 2013.[97] After more than two years of work involving numerous scientists, 20 information-sharing sessions with regional and national organizations, First Nation communities, as well as with the public, the findings of the report are clear:

- absence of social acceptability;
- major deficiencies in the ability to intervene in case of an accident;
- gaps in scientific knowledge on the Gulf;
- insufficient legal and regulatory frameworks.

The government of Quebec has often reiterated that the SEA2 report would help in its decision on whether or not to lift the moratorium in Quebec's part of the Gulf.[98] However, in light of the SEA2 report, it seems difficult to imagine the possibility of the moratorium being lifted any time soon considering the many questions and gaps that must still be filled.

WESTERN NEWFOUNDLAND AND LABRADOR OFFSHORE AREA SEA UPDATE

Following a recommendation by the federal Minister of the Environment, Peter Kent, The C-NLOPB began, in 2012, to update a SEA carried out in the Newfoundland part of the Gulf in 2005 (Fig. 11). The final report of this update was released in May 2014,[99] which comes up with similar findings to those of SEA2: low social acceptability in the five provinces of the Gulf, gaps in knowledge, weak response capacity, many sensitive sites, etc. However, despite these findings, the report concludes that "oil and gas exploration activities can usually be undertaken (...) with the implementation of mitigation measures."

WHAT ABOUT PUBLIC CONSULTATION?

In September 2011, the federal Minister of the Environment, Peter Kent, requested an "extensive public consultation" on the Old Harry project.

Mr. Bernard Richard, former Ombudsman of New Brunswick, was quickly appointed to chair this commission. However, in February 2012 his contract was terminated and this consultation still has not taken place as of May 2014. It is essential that this consultation on Old Harry does not sink into oblivion.

96 www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=5&file=2011C13F.PDF
97 www.hydrocarburesmarins.gouv.qc.ca/documents/091-51078-00_EES2_VF_130910_authentifie.pdf
98 "Exploitation pétrolière : un préjugé favorable qui inquiète les environnementalistes." Le Devoir, September 17, 2013. www.ledevoir.com/environnement/actualites-sur-l-environnement/387654/un-prejuge-favorable-qui-inquiete-les-environnementalistes
99 www.cnlopb.nl.ca/pdfs/wnlsea/wnlseaen.pdf

Environmental Assessments of projects

Environmental Assessments (EA) of projects are better known and much more common. They are required for certain specific types of projects proposed by a developer. For example, the construction of an oil refinery or a wind farm would automatically be subjected to a project EA. These assessments are a legal requirement under the Canadian Environmental Assessment Act 2012 (CEAA 2012) or comparable provincial laws, and they seek to answer two major questions:

a) What are the environmental impacts of the project under study and are they sufficiently important to justify the rejection of this project?

b) If the project is authorized, what mitigation measures should be required? These mitigation measures often result from the SEAs that were carried out in advance.

The Corridor Resources drilling project at Old Harry in the Gulf of St. Lawrence falls under this type of evaluation and is currently being subjected to a federal EA.

CORRIDOR RESOURCES DRILLING PROJECT AT OLD HARRY

Corridor Resources filed its Old Harry drilling project proposal in February 2011. The environmental assessment process has been going on since then, and the C-NLOPB has not tabled its final decision yet. The environmental assessment report presented by Corridor Resources was severely criticized by Environment Canada, Fisheries and Oceans and even by the C-NLOPB. A number of corrections have since been made by Corridor Resources, but the company has still not responded to the major criticism about the oil spill simulation it must provide (see Text Box on oil spill simulations, Section 4). The C-NLOPB must release its screening evaluation report over the course of 2014, in which it will determine whether or not the Corridor Resources drilling project, given certain mitigation measures, can cause significant adverse environmental effects.

The C-NLOPB must release its screening evaluation report over the course of 2014, in which it will determine whether or not the Corridor Resources drilling project, given certain mitigation measures, can cause significant adverse environmental effects.

ENVIRONMENTAL ASSESSMENTS – WHO DOES WHAT?

Contrary to what one might believe, it is the developer himself who carries out the environmental assessment of his own project, generally with the assistance of a consulting firm. The developer assumes all of the costs and the environmental study must meet very specific guidelines issued by the responsible authorities.

In order to verify the quality of the developer's environmental assessment report, it is then submitted to external scrutiny by different ministries, such as Fisheries and Oceans or Environment Canada, who may ask for corrections or additional information. Norway provides a good example of the importance of such an external verification. During the 1990s, audits showed that developers had been underestimating the environmental impacts by a factor of 10 for close to 30 years.[100] Finally, the public sometimes has the chance to comment on the environmental assessment.

100 Gray, J.S. et al (1999) Managing the environmental effects of the Norwegian oil and gas industry: from conflict to consensus. cat.inist.fr/?aModele=afficheN&cpsidt=1886943

The new rules (Canadian Environmental Assessment Act 2012)

It is clear that oil and gas exploration work may have considerable environmental impacts. Unfortunately, for almost 10 years, there has been a slow erosion of federal environmental assessments for offshore oil and gas exploration.

Starting in 2002,[101] all seismic survey or exploratory drilling projects on Canada's east coast had to be subjected to federal environmental assessments (comprehensive study), with automatic public participation. However, in 2005, the federal government decided to accelerate the authorisation procedures for projects and to subject seismic surveys and exploratory drilling only to a simple "screening" evaluation, in which public participation is discretionary.

Unfortunately, for almost 10 years, there has been a slow erosion of federal environmental assessments for offshore oil and gas exploration.

Additional major cuts occurred in July 2012 with the adoption of the omnibus Bill C-38 and the reform of the Canadian Environmental Assessment Act.[102] Seismic surveys are no longer subjected to federal environmental assessments. When it comes to exploratory drilling, only the first drilling programme on an issued license will now be subjected to federal assessments. Subsequent drillings will be exempt of such assessments.

For an independent public review of the entire Gulf

From the time of the tabling of Corridor Resources drilling project in February, 2011, it was clear that this project could have negative impacts on the five provinces surrounding the Gulf. Many of the parties concerned, including the municipality of the Magdalen Islands and even the C-NLOPB asked the federal Minister of the Environment, Peter Kent, to send the project to a federal review panel pursuant to the Canadian Environmental Assessment Act. (Table 3). Minister Kent refused this request in September 2011.

Changes to the CEAA by Bill C-38 now make it impossible to conduct a review panel on the Old Harry project. However, given the significant impacts that could affect the five provinces and given the concerns of the people of the Gulf, an independent public review process on the entire Gulf becomes a necessity. Coordinated by the federal government and five provinces, this *ad hoc* independent review would analyze the Gulf of St. Lawrence in its entirety and insure that opening of the Gulf to oil exploration would not be done without the consent of people directly concerned.

---

101 Regulations amending the comprehensive study list regulations SOR 2005/335. Regulatory impact analysis statement. www.publications.gc.ca/gazette/archives/p2/2005/2005-11-30/pdf/g2-13924.pdf.

102 "The tale of 2012's omnibus budget bill," *The Globe and Mail*, June 12, 2012.

TABLE 3: THE ENVIRONMENTAL ASSESSMENTS IN A NUTSHELL...

	Strategic Environmental Assessments (SEA)		Project Environmental Assessments
Description	· The result of a government policy or political decision, and not of a law. · Decision-making tools that address social, economic and environmental aspects. · Generally before any project, before the establishment of an industry. · The process can vary significantly because it is not regulated by law. · The process does not lead to a project authorization, but rather to recommendations on the establishment of the sector or industry. · Can lead to a ban or the establishment of a moratorium.	Description	· Pursuant to a law that makes the process mandatory for certain types of projects. · Gulf: EA determined by the Canadian Environmental Assessment Act 2012 (CEAA 2012) or provincial laws. · May or may not include public consultations. · The process leads to the production of a report by the authorities on the anticipated impact of the project and the suggested mitigation measures. If the impact is too high, the project may be refused. · If environmental green light is given, proponent must then obtain specific authorization to perform the activity.
Application	SEA in the St. Lawrence: · SEA1 (Lower Estuary and northwestern part of the Gulf): completed in 2010. · SEA2 (Quebec portion of the Gulf): completed in 2013. · SEA Update of Western Newfoundland Offshore (Newfoundland part of the Gulf): completed in 2014.	Application	EA in the Gulf of St. Lawrence: · Corridor Resources drilling project at Old Harry (on the Newfoundland side, under the supervision of the C-NLOPB) currently underway

	Bureau d'audiences publiques sur l'environnement (BAPE) du Québec		Federal Review Panel Independent Public Review
Description	· Quebec neutral public body dedicated to public information and consultation on projects that could potentially have a significant impact on the environment or on any other issue related to the quality of the environment. · Only certain types of projects listed in regulations are subjected to such environmental assessments and scrutiny by the BAPE. · Environment Minister has discretionary power to give the BAPE any public inquiry mandate related to any question concerning the quality of the environment.	Description	· Federal Review Panel: pursuant to the Canadian Environmental Assessment Act. A demand for Old Harry was rejected by former-Minister Kent in 2011. Following Bill C-38 it is now impossible for Old Harry or for the Gulf. · Independent Public Review: ad hoc process following a political federal-provincial decision. Would be steered by the five provinces and the federal and would be on the totality of the Gulf.
Application	BAPE concerning the Gulf: · "The issues related to seismic surveys in the Estuary and the Gulf of St. Lawrence" (BAPE theme completed in 2004 for the Quebec part of the Gulf). · BAPE still called for by numerous groups after SEA2 in the Quebec portion of the Gulf.	Application	Independent Public Review: · Process still called for by numerous groups, organizations and individuals in the 5 provinces. · Would allow for a Gulf-wide study and public consultations.

SECTION 7

Socioeconomic impacts of oil and gas activities

It is important to debunk the myths that influence the debate, because the decisions on the future of the Gulf must be made rationally, taking all of the data into consideration, and not hastily, under the impression of a hypothetical oil mirage.

PHOTO: NELSON BOISVERT

EVEN THOUGH THERE IS STILL NO PROVEN OIL OR GAS RESERVE AT OLD HARRY, many people do not hesitate to hint at the significant economic benefits for Quebec, benefits that might even be the last hope for Quebec's economy. Although we often talk about the "Newfoundland miracle" or the "Norwegian model," we forget to put things into perspective. The socioeconomic and environmental context of Quebec in 2014 cannot be compared to that of Norway in the early 1970, when the country was just beginning to develop its oil and gas industry, just as we cannot compare the size of the Newfoundland economy to that of Quebec.

It is important to debunk the myths that influence the debate, because the decisions on the future of the Gulf must be made rationally, taking all of the data into consideration, and not hastily, under the impression of a hypothetical oil mirage.

Cost of the projects

Exploration work is very expensive, with costs averaging $50 to $60 million for each offshore drilling. Knowing that it took about forty drillings before Hibernia (Newfoundland and Labrador) was discovered, and a dozen others to clearly delineate the resource, it goes without saying that deep pockets are necessary in order to go on this adventure, and that there must be a strong conviction of the real potential of the targeted geological structure.

Developing the infrastructure for production is even more expensive and government involvement is sometimes very important. Solely for Hibernia, the federal and Newfoundland governments contributed nearly $5 million (tax credits, loan guarantees, subsidies, etc.) to the project.[103] As for

103 Marshall, D. (2002) Should BC lift the oil moratorium? Policy brief on the economic lessons from Hibernia. CCPA Res. Paper. www.ww.policyalternatives.ca/sites/default/files/uploads/publications/BC_Office_Pubs/offshore_oil.pdf

the Hebron project currently under construction in Newfoundland and Labrador, the investments in infrastructures, before even a single dollar enters the economy of the province, exceed $14 billion.[104]

Job creation

During the exploratory phase, offshore drilling jobs, which require highly technical and specialized work, are generally tendered to foreign firms. This is the case in Newfoundland and Labrador, where, even though offshore drilling in the Atlantic has been going on for decades, it is always foreign firms that are conducting exploratory drilling:[105] GSF Grand Banks and Henry Goodrich rigs are both owned and operated by Transoceans (Texas), West Aquarius is owned and operated by Seadrill Ltd. (Norway), and the units M-71 and M-72 are both operated by the British firm Noble Corp.

In Newfoundland and Labrador, a total of 5,751 direct jobs are derived from the three existing production units (Hibernia, Terra Nova and White Rose) and to the Hebron rig, currently under construction.[106] For Hibernia, the total number of jobs, including support jobs on land, amounts to 1,618. In comparison, jobs in the fishing industry amounted to 7,100 in 2013.[107]

According to a recent study, the oil industry in Newfoundland and Labrador is the one that generates the fewest jobs per dollar invested.[108] Thus, for each $1 million invested, 20.5 jobs are created in the education sector, 13.7 in transportation, 15.5 in health services and 0.38 in the oil industry.

Distribution of wealth

Under an appearance of prosperity, Newfoundland and Labrador and Alberta show a very uneven distribution of wealth and a growing gap between the less affluent and the more well off in society. According to the Minister of Finance of Newfoundland and Labrador, 70% of the population earns less than $40,000 and only 7% have an income of more than $100,000.[109]

It is the same for Alberta, where the economic growth related to the oil boom has had negative effects on a large part of the population:[110] rise in living costs, drops in the money invested in social services, rise in the number of homeless people, etc. Overall, the middle class has been able to maintain its lifestyle, but only at the cost of a substantial increase in the number of hours worked.

---

104 "Hebron oil project gets OK as costs balloon by billions." CBC News, January 4, 2013. www.cbc.ca/news/canada/newfoundland-labrador/hebron-oil-project-gets-ok-as-costs-balloon-by-billions-1.1303274

105 Rigzone. Worlwide Offshore Rigfleet Information. www.rigzone.com/data/

106 Government of Newfoundland and Labrador (2013) The Economy 2013. www.economics.gov.nl.ca/E2013/TheEconomy2013.pdf

107 www.stats.gov.nl.ca/statistics/Labour/PDF/Employment_Fishing_Industry.pdf

108 Gibson, D. and G. Flanagan (2013) Prosperity for all; An alternative economic path for Newfoundland and Labrador. Canadian Center for Policy Alternatives.

109 "Newfoundland and Labrador to take some austerity medecine in budget," *The Globe and Mail*, March 24, 2013. www.theglobeandmail.com/news/national/nfld-labrador-to-take-some-austerity-medicine-in-budget/article10275106/

110 The Parkland Institute (2007) The Spoils of the Boom: Incomes, Profits and Poverty in Alberta.

According to the Parkland Institute, the largest part of the profits from Alberta's boom is found to be in the hands of the richest Albertans or foreign corporations.

PHOTO: NELSON BOISVERT

According to the Parkland Institute, the largest part of the profits is found to be in the hands of the richest Albertans or foreign corporations.[111]

Oil dependency

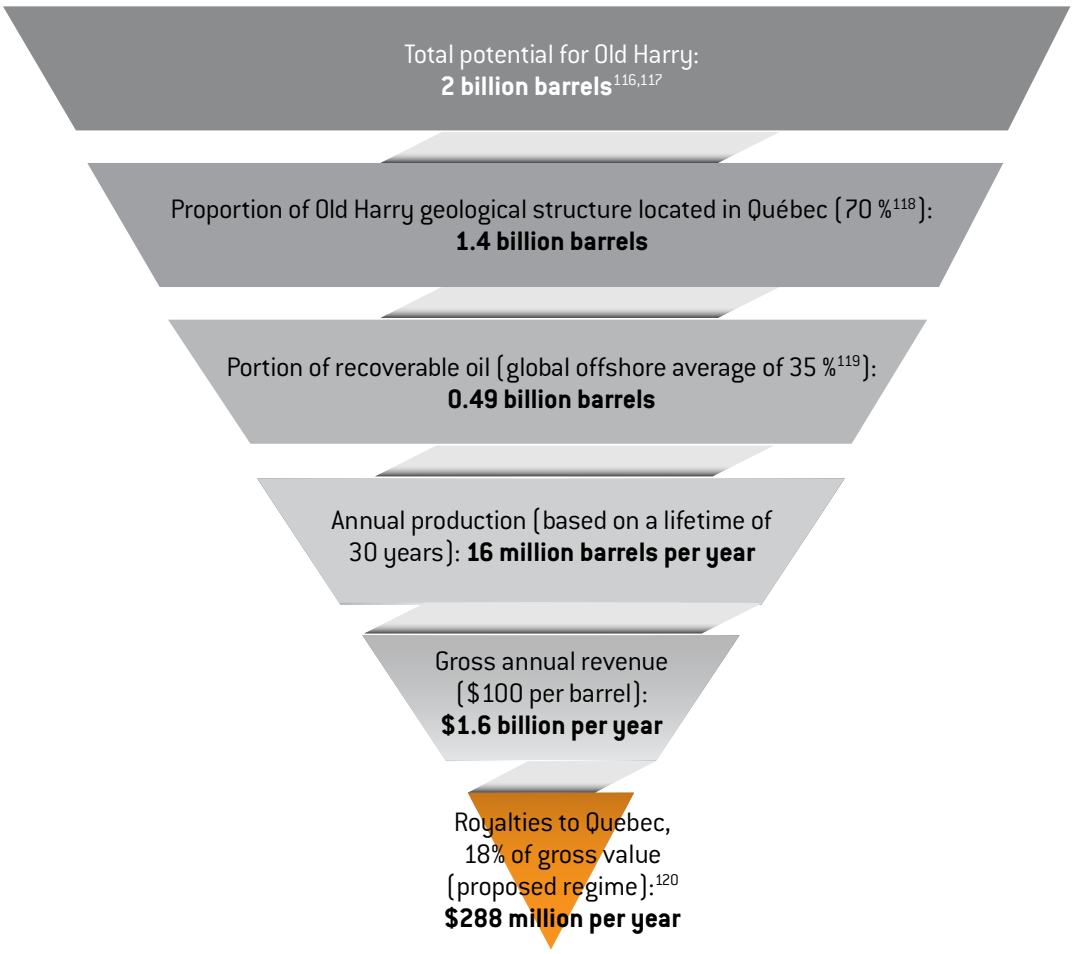
The province of Newfoundland and Labrador is often cited as a jurisdiction that took advantage of the oil boom. The province went from being the poorest province in Canada in 1997 to the third richest one in 2012, with a per capita GDP of $64,188. To get to this point, Newfoundland had to invest all of its oil profits into its current fiscal operations. The boosted provincial budget is, however, very dependent on the volatility of gas prices and on the decline in production of its oil fields.[112] The 2013-2014 deficit will be over $500 million[113] because of the drop in oil prices, forcing Newfoundland and Labrador to make serious budget cuts, including in its social programs.

Citizens are starting to show their discontent since Newfoundland and Labrador has no plan in place to deal with the inevitable decline in the oil reserves. The Newfoundland government clearly indicated in its speech from the Throne in 2013 that oil revenues, as well as production, are volatile, which affect the balancing of their budget. In the interest of sustainability, Newfoundland and Labrador must now turn to hydro power.[114] "...hydro provides a stable, predictable, reliable revenue stream year after year for generations to come. It is a solid footing on which to build a sustainable economy."

111 Ibid.
112 CAPP (2013) Crude Oil, Forecasts, Markets and Transportion. Canadian Association of Petroleum Producers.
113 www.rbc.com/economics/economic-reports/pdf/canadian-fiscal/nlbud2013.pdf
114 www.budget.gov.nl.ca/budget2013/speech/

Old Harry, what are the numbers saying

There has been much speculation regarding the economic potential of Old Harry and its repercussions for Quebec.[115] Although there is still no proven oil or gas reserve at Old Harry, it may be worthwhile to establish a budget in order to get a better idea of the potential revenue for the Québec government.



115 Belzile, G. (2012) Les avantages du développement de la production pétrolière au Québec. Institut économique de Montréal.

116 Thériault, R. and Laliberté, J.-Y. (2006) Perspectives et concepts d'exploration en hydrocarbures au Québec, MRNF. www.mrn.gouv.qc.ca/publications/energie/petrole-gaz/perspective_concept_exploration.pdf.

117 Jennings Capital Inc. (2012) Corridor Resources. www.dropbox.com/s/m5sjceogb5tr48o/Jennings%20Capital%20analysis%20%282012-01-23%29.pdf

118 Gouvernement du Québec. Journal des débats de la Commission des institutions, vol 42, no 10, 12 avril 2011. www.assnat.qc.ca/fr/travaux-parlementaires/commissions/ci-39-2/journal-debats/CI-110412.html

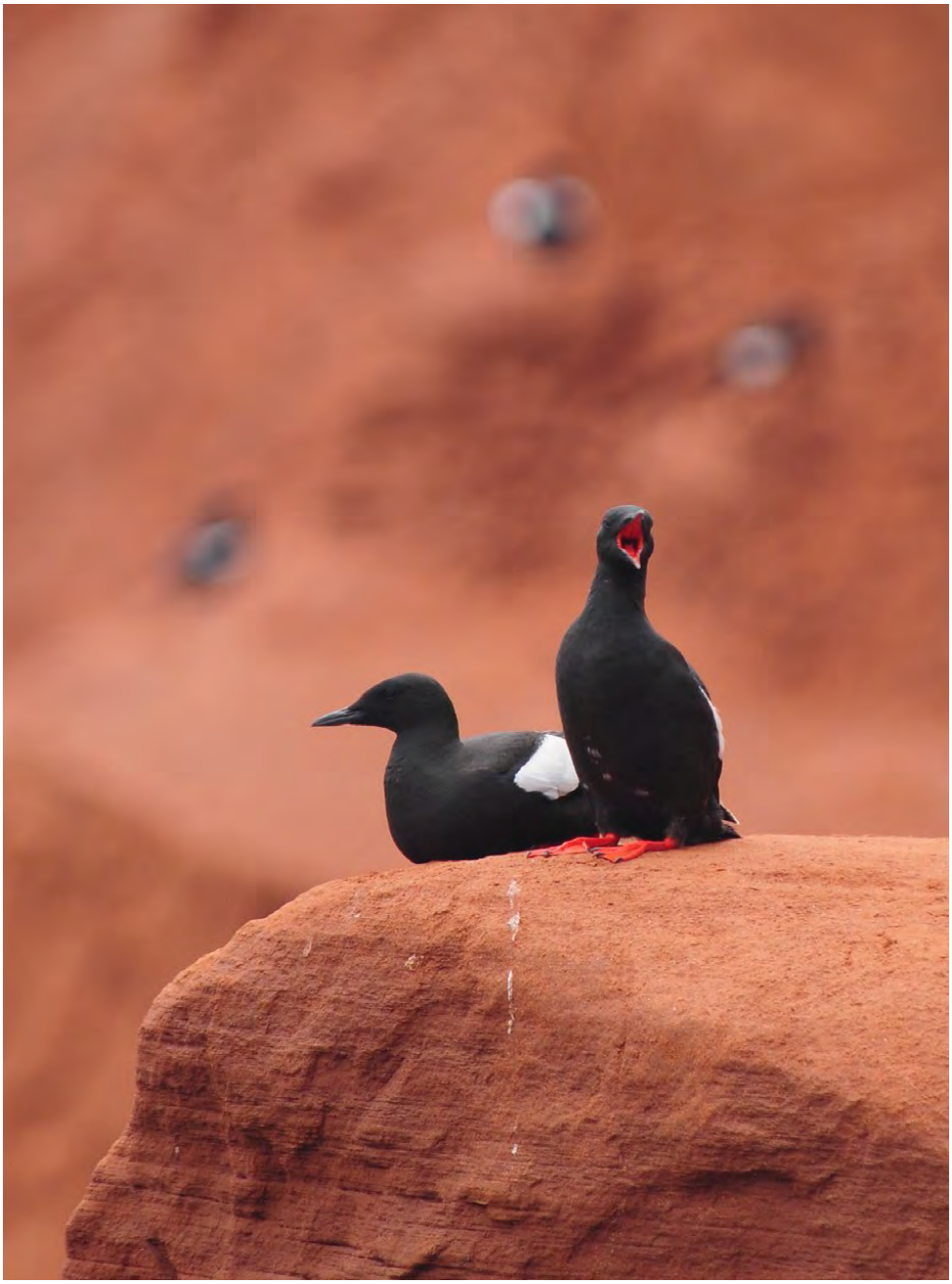
119 Mainwaring, J. Statoil targets 60% oil recovery rate. Rigzone, August 29, 2012 www.rigzone.com/news/oil_gas/a/120325/Statoil_Targets_60_Average_Oil_Recovery_Rate

120 Finances Québec. Budget 2012-2013. Le Québec et ses ressources naturelles. Pour en tirer le plein potentiel.

While interesting, this amount of $288 million per year must be put into perspective because it represents only 0.4% of the 2014 annual Quebec budget. In comparison, 28.9% of the Newfoundland and Labrador budget[121] is based on revenues from its oil fields (close to $2 billion per year). However, given the difference in size of the Quebec and Newfoundland economies, such oil revenues, as large as they are, would only represent 2.9% of Quebec's budget. This means that Quebec would have to exploit much more than what is potentially recoverable at Old Harry in order to achieve budgetary benefits similar to Newfoundland.

While interesting, this amount of $288 million per year must be put into perspective because it represents only 0.4% of the 2014 annual Quebec budget.

PHOTO: NELSON BOISVERT



121 www.budget.gov.nl.ca/budget2013/speech/2013_BudgetSpeech_statementsexhibits.pdf

It would probably take about 20 years for any oil or gas production at Old Harry to start.

PHOTO: CHRISTOPHE FINOT / WIKIMEDIA COMMONS

REPAYING QUEBEC'S DEBT? NOT THAT SIMPLE!

It has been said on a few occasions that the royalties from Old Harry (if oil or gas is ever found there) could allow for the repayment of Quebec's debt. But is that really possible?

The budget established above shows that expected annual revenues from Old Harry could potentially be in the magnitude of $288 million. If Quebec's debt remains at its current level of 261 billion, it would take more than 900 years to pay it back!

Moreover, it would probably take about 20 years for any oil or gas production at Old Harry to start. To begin with, it would take a few years to establish a legal framework on offshore oil and gas, and several more to carry out the drilling necessary to determine the presence of a deposit at Old Harry. Finally, it would take about a decade after a discovery to start production of the oil field. In Denmark, for 22 oil fields, an average of 12.2 years went by between the discovery and start of production,[122] while in Norway, for 75 oil fields, the average delay was 12.4 years.[123] In Newfoundland and Labrador, this delay between discovery and the start of production goes beyond 20 years.[124,125]

122 Energi Styrelsen (2011) Denmark's Producing Fields 2011.
123 Norwegian Petroleum Directorate (2013) The Norwegian Petroleum Sector – Facts 2013.
124 Hibernia. Development Milestones. www.hibernia.ca/milestones.html
125 "Exxon's new $14 billion field was discovered 30 years ago. What took so long?" *Forbes*, January 7, 2013.

Cohabitation with the fishing industry and First Nations

In general, cohabitation between the oil and fishing industries is not necessarily simple.

In general, cohabitation between the oil and fishing industries is not necessarily simple. For example, in Norway, it has been shown that there are frequent conflicts, despite what government and oil industry authorities are saying.[126,127] Norwegian fishermen are especially concerned about the impact of seismic surveys on their fishing grounds and the conflicts are sometimes violent.[128] On the other hand, Norwegian oil reserves are beginning to dry up and the industry is starting to eye areas it did not dare looking at before, northern areas of high biodiversity that are highly productive for fishing. This is the case of the Lofoten and Vesteralen Islands, where fishermen, people from the tourism industry and environmentalists had to engage in a struggle of several years to finally secure the protection of this unique region in 2013.[129]

As another example, it should be noted that the Inuit have opposed the carrying out of seismic surveys off Baffin Island for a long time. In 2010 they obtained an injunction from a Nunavut court, halting all seismic surveys in Lancaster Sound, an area recognized for its high biodiversity.[130] More recently, the Clyde River Inuit on the east coast of Baffin Island declared themselves to be firmly against another seismic survey project, fearing for their traditional hunting and fishing territories and for their commercial fishing businesses, an important source of employment for the Inuit of that region.[131]

In the case of the Gulf of St. Lawrence, some fishermen associations are concerned with the arrival of the oil and gas industry and the impact that these activities (exploration and exploitation) could have on their own industry. In the Magdalen Islands, various fishermen associations and seal hunters are calling for a moratorium in the Gulf: ACPIM, AIFMI, RPPIM and RPPUM. As for FFAW of Newfoundland and Labrador, which represents more than 12,000 workers in the fishing industry, it is concerned with the impact of seismic surveys on the Atlantic shrimp fishery.[132,133]

---

126 Kristoffersen, A. Oil and fish in Norwegian waters – conflict or coexistence? Norwegian Coastal Fishermen Union.

127 Johansen, K.V. (2008) The Oil Game. M.Sc. Thesis, University of Tromso. 103 p.

128 Scandinavian Oil-Gas Magazine (2008) Minister to calm fishermen over seismic.

129 McDonald-Gibson, C. (2013) Should Norway trade fjords for oil? Global Post.

130 "Inuit win injunction on seismic testing" *CBC News,* August 8, 2010. http://www.cbc.ca/news/canada/inuit-win-injunction-on-seismic-testing-1.888294

131 www.mediacoop.ca/blog/warrenbernauer/22038

132 www.shrimpnews.tk/2012/06/09/ffaw-concerned-about-damage-to-shrimp-fishery-vocm/

133 www.thetelegram.com/News/Local/2012-06-08/article-3003415/UPDATED%3A-FFAW-objects-to-seismic-work-in-shrimp-grounds/1

Impacts of the oil and gas industry on a human dimension

Although the environmental impacts of an oil spill are usually at the forefront, especially after large spills, the impacts on the human dimension are not negligible. These impacts can come in a variety of forms, but we will discuss three of them: quality of life, health and the cultural aspect.

First of all, the environment (natural or managed) in which the communities live inevitably has an effect on their quality of life, and the people develop a bond and a sense of belonging with this environment. The establishment of an oil and gas industry in one or several communities is generally accompanied by a change in the attractiveness of the place and of the environment in which the communities live (*e.g.* ocean, harbour, road and maritime shipping infrastructures).[134]

The impacts of oil spills on human health are also increasingly documented and observed, both at the level of people intervening in the field, up to residents who are directly affected.[135] The impacts on physical and mental health of the coastal communities affected by the spill in the Gulf of Mexico are still the focus of numerous studies. One study[136] involving 11,210 participants, noticed, among other things, an increase in depression and anxiety for workers having participated in the clean up as well as in the affected communities. The participants were faced with a number of physical and psychosocial sources of stress. Among these, we saw exposure to oil and to the dispersants, incertitude related to income, as well as disruptions to the family and the community.

Finally, cultural impacts should not be overlooked. Culture can be defined as the identity to which a community or a group of individuals associates itself, as well as the lifestyle that characterizes these individuals. Whether it is a matter of the establishment of the oil and gas industry or a spill related to an oil activity, these activities can have direct repercussions on values and cultural heritage of a community[137] (*e.g.* rituals, traditional activities, natural resources used traditionally). The example of the *Exxon Valdez* tragedy is quite convincing. Considered as one of the worst ecological disasters in the history of the United States, this spill affected the lifestyle of the inhabitants of the region considerably, especially the indigenous communities of Alaska.[138]

In short, each oil venture not only has its share of environmental and economic repercussions, but also social and human ones – important aspects that may be neglected.

---

134 Lord, F., Tuler, S., Webler, T., and Dow, K (2010) Case study report of the human dimensions of the Bouchard-120 spill in Buzzards Bay, Massachusetts. SERI Report 10-001. Greenfield, MA: Social and Environmental Research Institute, Inc. www.seri-us.org/projects/HDOil.html

135 www.seri-us.org/sites/default/files/Physical%20health.pdf

136 R. Kwok et al. (2014) Mental health symptoms among Gulf study participants involved in the Deepwater Horizon oil spill clean-up. www.bit.ly/1jXC8X9

137 www.seri-us.org/sites/default/files/Culture.pdf

138 D. Gill et S. Picou, "The day the water died: Cultural impacts of the Exxon Valdez oil spill" in The Exxon; Valdez Disaster: Readings on a Modern Social Problem, J. S. Picou, D. Gill, M. Cohen, Eds. (Kendall/Hunt, Dubuque, Iowa, 1999), pp. 167-191.

PHOTO: BP OIL

THE SOCIOECONOMIC IMPACTS OF THE GULF OF MEXICO OIL SPILL

The Gulf of Mexico oil spill showed us that its impacts are not well known, tragic and devastating on all levels: social, environmental and economic. The situation is still far from normal, and it may be decades before a "back to normal" scenario can be seen. Even though the lessons learned through this tragic oil spill will undoubtedly help Americans to be better prepared if faced with a future catastrophe, it will not help to avoid one.

Here are some observations four years after the incident:

- The total cost of the oil spill is estimated at $43 billion;[139]
- Economic losses for the fishing industry (from 2010 to 2017) are estimated at $8.7 billion;[140]
- As of March 27, 2014, a total of 222,183 claims for monetary compensation had still not been settled;[141]
- In 2013, three years after the spill, 30% of consumers still have no confidence in seafood coming from the Gulf of Mexico;[142]
- The mixture of the dispersant Corexit and the oil is 52 times more toxic than the oil alone.[143]

---

139 "BP's bill for Gulf of Mexico spill set to hit $43bn" *The Telegraph*, October 26, 2013. www.telegraph.co.uk/finance/newsbysector/energy/oilandgas/10406954/BPs-bill-for-Gulf-of-Mexico-spill-set-to-hit-43bn.html

140 U.R. Sumaila (2012). Impact of the Deepwater Horizon well blowout on the economics of the US Gulf fisheries. Can. J. Fish. Aquat.Sci. 69 :1-12.

141 www.deepwaterhorizoneconomicsettlement.com/docs/statistics.pdf

142 www.manufacturing.net/articles/2013/03/gulf-seafood-update-an-industry-regains-its-sea-legs

143 www.sciencedirect.com/science/article/pii/S0269749112004344

SECTION 8

The importance of a Gulf-wide moratorium

AT THE PRESENT TIME, it seems very clear to us that the conditions are far from being met to proceed with oil and gas exploration and exploitation activities in the Gulf of St. Lawrence. The precautionary principle should therefore be self-evident. In this section we will give the reasons why the implementation of a moratorium for the entire Gulf of St. Lawrence is essential before proceeding with any new exploration.

Gaps surrounding the oil and gas industry in the Gulf

Several important gaps on a scientific, technical, legal and social level are proof of the inadequate framing of the oil industry. These gaps, which have been highlighted in this document as well as in various expert reports, are summarized in Table 1.

The gaps in technology alone would make the decision to continue exploration activities in the Gulf of St. Lawrence dangerous. In addition to this, the legal gaps also raise serious concerns because the federal government has toned down some regulatory standards over the last few years. It is clear that we are far from having a safe environment respecting the highest standards in the world.

Gaps identified in Table 1 raise an alarming signal concerning the necessity to establish a moratorium in the entire Gulf before even starting any oil and gas exploratory activity. Putting in place such a moratorium at the scale of the Gulf of St. Lawrence would allow coastal communities, First Nations, as well as the responsible authorities (Boards, Federal and Provincial governments) to take the time to evaluate all of the impacts associated with the establishment of the oil and gas industry in this sensitive and already fragile ecosystem. This was also a recommendation made to the government of Prince Edward Island in November 2013 by the Standing Committee on Fisheries, Transportation and Rural Development.[144]

144 www.assembly.pe.ca/sittings/2013fall/reports/14_2013-19-11-report.pdf

Putting in place such a moratorium at the scale of the Gulf of St. Lawrence would allow coastal communities, First Nations, as well as the responsible authorities (Boards, Federal and Provincial governments) to take the time to evaluate all of the impacts associated with the establishment of the oil and gas industry in this sensitive and already fragile ecosystem.

PHOTO: NELSON BOISVERT

Taking the time to assess all of the impacts

In spite of what some people may think,[145] there is no rush to drill in the Gulf of St. Lawrence. In order to make an informed decision, it is crucial to weigh in all of the social, economic and environmental impacts of oil and gas exploration and exploitation in the entire Gulf of St. Lawrence. Cumulative impacts of the various phases must be studied, especially in the context of the overall development of an industry and not, for instance, of one single seismic survey or drilling project. The analysis of the impacts must also cover the entire Gulf, and should not be parceled out by province.

At the international Gulf of Mexico oil spill and environment conference held in New Orleans in 2013,[146] it was repeatedly emphasized that the lack of knowledge of the state of the Gulf of Mexico before the spill is now a big problem for scientists today as they have little comparative data to help them to carry out their work (before and after the oil spill). Similarly, the final SEA2 report on the Gulf of St. Lawrence mentions a significant lack of scientific knowledge regarding all aspects of the Gulf (oceanography, biology, etc.). These findings not only reinforce the need to fill the gaps in our scientific knowledge on the Gulf, but also to take the time to assess all the impacts of oil and gas exploration and exploitation.

A few years are still needed in order to fill these significant gaps, and only a moratorium would prevent a hasty leap into the oil and gas adventure without having a handle on all of the elements needed to make an informed decision.

MORATORIA ELSEWHERE IN CANADA

A complete moratorium on offshore drilling has been in place in British Columbia since 1971.

In the Atlantic off Nova Scotia, a moratorium on Georges Bank, a very productive fishing area, has been in place since 1988.

Studying the Gulf as a whole

The artificial boundaries partitioning the Gulf among the provinces were manmade. They do not respect the biological or biophysical reality of this body of water. Decisions made by one province on its own territory could undoubtedly affect the other provinces. Because of this, it is crucial to study the Gulf as a whole. The need to "think Gulf" is one of the main conclusions by the participants in the Interprovincial Forum on oil and gas, held in the Magdalen Islands.[147] This need to think of the Gulf as a whole and for the Gulf provinces to stop working separately was also highlighted in Genivar's SEA2[148] report, as well as being emphasized in the recent report by the Commission on energy issues in Quebec (*Commission sur les enjeux énergétiques du Québec*).[149] Same story for the Parliamentary Committee on Agriculture, Environment, Energy and Forestry, which made recommendations to the government of Prince Edward Island to collaborate with the other provinces to establish integrated management for the Gulf, with a mandate to ensure its protection.[150]

---

145 Manifesto in favour of developing our oil for everyone's benefit www.petrolequebec.ca/manifesto-in-favour-of-developing-our-oil-for-everyone-s-benefit.php

146 www.2013.gulfofmexicoconference.org/

147 www.muniles.ca/images/Upload/5_forum_sur_les_hydrocarbures/version_allegee_rapport_du_forum_hydrocarbures.pdf

148 hydrocarburesmarins.gouv.qc.ca/documents/091-51078-00_EES2_VF_130910_authentifie.pdf

149 www.consultationenergie.gouv.qc.ca/pdf/Rapport-consultation-energie.pdf

150 www.assembly.pe.ca/sittings/2013fall/reports/11_2013-26-11-report.pdf

Collective decision

As early as 1999, seismic surveys and drilling projects in the Gulf of St. Lawrence, off Cape Breton Island in Nova Scotia, have met with strong citizen opposition where the fishermen's associations and the First Nations communities have taken a leading role. Following a public review panel, all of the projects were abandoned and the Nova Scotian part of the Gulf has seen no further oil and gas exploration projects since then.

In Quebec, since the threat of new seismic surveys in the St. Lawrence in 2003, dozens of groups and thousands of individuals have called for genuine public consultations before proceeding with oil and gas exploration and exploitation in the Gulf. The need for island and coastal communities to be part in the decision-making process of an energy policy that could change their lifestyle, before any major discovery of offshore oil and gas is made, has been recognized by the seismic surveys BAPE commissioners.[151]

In 2011, over a hundred participants coming from all five provinces surrounding the Gulf attended the Magdalen Islands Interprovincial Forum on oil and gas. The participants agreed[152] that the Gulf of St. Lawrence is one unique ecosystem shared by five provinces, and any decision to open it to the oil and gas industry should be made collectively.

Consultations within the context of the SEA2 in Quebec[153] and the SEA update in Newfoundland[154] showed strong opposition from the coastal communities consulted. To that effect, the final SEA2 Quebec report highlights the obvious lack of social acceptability for opening the Gulf to the oil and gas industry.

It is also worth noting the outcry and strong opposition that emerged in 2013 in western Newfoundland following the announcement of onshore-to-offshore hydraulic fracturing projects, some of them only metres away from the Gros Morne National Park (Shoal Point Energy, section 3).[155] Since then, the government of Newfoundland and Labrador has stopped accepting hydraulic fracturing projects, thus putting in place a *de facto* moratorium on fracking.[156]

In this context, it seems essential to proceed with a vast public consultation as part of an *ad hoc* public review (Section 6), which would involve the coastal communities of the five Gulf provinces when it comes to decide whether or not the Gulf should be opened to the oil and gas industry. Such a public review based on a consultation process would differ from a process like the BAPE because it would involve not only Quebec, but also all of the Gulf provinces. It would require, *a priori*, that the provinces be the instigators of this process, which would be coordinated by the federal government.

It seems essential to proceed with a vast public consultation as part of an *ad hoc* public review (Section 6), which would involve the coastal communities of the five Gulf provinces when it comes to decide whether or not the Gulf should be opened to the oil and gas industry.

151 www.bape.gouv.qc.ca/sections/rapports/publications/bape193.pdf

152 ww.muniles.ca/images/Upload/5_forum_sur_les_hydrocarbures/version_allegee_rapport_du_forum_hydrocarbures.pdf

153 www.ici.radio-canada.ca/regions/est-quebec/2012/01/20/006-hydrocarbures-saint-laurent-etude.shtml

154 www.cbc.ca/news/canada/newfoundland-labrador/c-nlopb-responds-to-complaints-over-oil-consultations-1.1152029

155 www.cbc.ca/news/canada/newfoundland-labrador/gros-morne-fracking-issue-causing-significant-reaction-1.1380630

156 www.thetelegram.com/News/Local/2013-11-04/article-3465585/Moratorium-on-fracking-announced-by-Newfoundland-government/1

THE RISE OF COALITIONS TO PROTECT THE GULF OF ST. LAWRENCE

Three coalitions that work together were formed with the objective of obtaining a moratorium on oil and gas exploration and exploitation in the Gulf of St. Lawrence. Resting on multidisciplinary strength, bringing together members that include individuals and groups from all sectors (fisheries, tourism, municipalities, NGOs, scientists, First Nations, etc.), their actions have contributed to ensure vigilance, to raise awareness, to inform and to influence policies and decisions. Here is a snapshot of those coalitions:

SAVE OUR SEAS AND SHORES (SOSS) COALITION[157]

SOSS was formed in 1999 in Nova Scotia and was very active in stopping a seismic survey project off Cape Breton Island. Its various approaches contributed to obtain a public review on the exploration project. Corridor Resources and Hunt Oil subsequently abandoned the seismic survey projects. SOSS resumed its activities shortly after the oil spill in the Gulf of Mexico, when its members learned about the Corridor Resources seismic survey and drilling projects at Old Harry. Save Our Seas and Shores works in close collaboration with a number of NGOs and with groups that support the idea of a moratorium for the entire Gulf of St. Lawrence.

Resting on multidisciplinary strength, bringing together members that include individuals and groups from all sectors (fisheries, tourism, municipalities, NGOs, scientists, First Nations, etc.), their actions have contributed to ensure vigilance, to raise awareness, to inform and to influence policies and decisions.

PHOTO: MARIE-ÈVE GIROUX

ST. LAWRENCE COALITION[158]

The St. Lawrence Coalition was formed in the Magdalen Islands in 2010, in response to the strong concerns expressed by the residents regarding the exploration projects at Old Harry. This interprovincial coalition now boasts close to 5,000 individual members, as well as 85 groups, and its primary goal is to obtain a moratorium for the entire Gulf of St. Lawrence. One of the objectives of the St. Lawrence Coalition is to inform the public and to demystify the complex issues related to offshore oil and gas exploration. The Coalition is often in the media spotlight and has given dozens of talks in Quebec as well as in the Atlantic Provinces.

INNU – MALECITE – MI'GMAQ ALLIANCE FOR THE PROTECTION OF THE GULF OF ST. LAWRENCE[159]

Formed in October 2013 at the urging of the Mi'gmaq, Innu and Malecite chiefs in Quebec, this new coalition brings together First Nations from Quebec that live around the St. Lawrence and have close ties to the marine environment. Wanting to speak with a single voice, these three Nations also have land claims around the Gulf of St. Lawrence and they view any oil and gas exploration project with a great deal of apprehension.

We should also emphasize the tremendous amount of work undertaken by numerous organizations, citizens movements and individuals advocating for a precautionary approach on this issue. They have repeatedly demonstrated the importance of vigilance and citizen involvement and actions.

---

157 www.saveourseasandshores.ca/

158 www.coalitionsaintlaurent.ca/

159 www.newswire.ca/en/story/1250875/exploration-petroliere-et-gaziere-formation-d-une-coalition-politique-de-trois-premieres-nations-pour-la-protection-du-golfe-du-saint-laurent

SECTION 9

The future of the Gulf

SO FAR, THE PICTURE SEEMS CLEAR: the implementation of the oil and gas industry could have multiple, complex and potentially serious consequences for the Gulf of St. Lawrence and the coastal communities depending on it. Important decisions need to be made by all of the communities that will have to live with the consequences of their choice, namely the implementation, or not, of this type of energy industry. This final section provides thoughts on the future of the Gulf of St. Lawrence.

Important decisions need to be made by all of the communities that will have to live with the consequences of their choice, namely the implementation, or not, of this type of energy industry.

PHOTO: RAYMOND BROW / FLICKR

Integrated management

The future of the Gulf should not be left solely in the hands of those provinces with a vested interest in its oil and gas potential, whether it is Quebec, Newfoundland or any other province. It is important for the communities of the five provinces to consult with each other, rather than just a few whose interests may differ, in order to ensure true integrated management of the Gulf.

A form of integrated management already exists in Quebec's part of the St. Lawrence. Under the jurisdiction of the provincial and federal governments, the St. Lawrence Action Plan was implemented by the Canada–Quebec Agreement on the St. Lawrence in 2005, in order to guarantee that the St. Lawrence is managed adequately and in a way that is representative of all its users. Thus, according to the St. Lawrence Action Plan, integrated management of the St. Lawrence is an ongoing process based on the consensus of all decision makers, users and civil society.[160] This concerted effort aims at planning and harmonizing sustainable protection measures and use of the resources of this major ecosystem.

160 www.strategiessl.qc.ca/pdf/la-gestion-integree-du-st-laurent.pdf

PHOTO: LUC FONTAINE

DECLARATION OF THE DEFENDERS OF THE GULF

On April 30, 2011, during a visit to the little fishing hamlet of Old Harry in the Magdalen Islands, Dr. David Suzuki was anxious to write and read "The Declaration of the Defenders of the Gulf," a heartfelt cry of love for the Gulf of St. Lawrence:

> *"We are the people of the Gulf of St. Lawrence, one of the planet's most precious and unique ecosystems. This is where water embraces the land, and caresses the sky to create a biological profusion of plants and animals.*
>
> *For millennia, the Gulf's abundance and generosity have supported people and our communities. It is our history, our culture, our way of life. We give thanks to our ancestors who passed on the Gulf and accept the responsibility to protect and maintain its integrity for all future generations.*
>
> *Now, exploding human numbers, technological power, consumptive demand, and global economy are putting the Gulf under multiple stresses. We understand that our economic and social wellbeing depend on a healthy Gulf ecosystem.*
>
> *Nature cannot be forced to conform to human borders and economy. Instead, we must maintain its health and subordinate our interests to the gulf. We people of the Gulf, pledge to be its protectors and defenders of this sacred place."*

Dr. David T. Suzuki, Magdalen Islands (April 2011)[161]

"For millennia, the Gulf's abundance and generosity have supported people and our communities. It is our history, our culture, our way of life."

PHOTO: DAVID SUZUKI READING THE DECLARATION, LUC FONTAINE

161 www.davidsuzuki.org/issues/oceans/projects/saint-lawrence/help-us-protect-the-gulf-of-saint-lawrence/

On a Gulf-wide scale, a pilot project of integrated management (Gulf of St. Lawrence Integrated Management (GOSLIM)) was established under the authority of Fisheries and Oceans Canada (DFO).[162] This integrated management initiative focuses primarily on themes related to the fauna and flora and on the threats they are faced with and action plans in this regard will eventually be filed. It is not designed to act directly at the level of oil and gas activities.

Of course, this type of management is not simple given the large number of St. Lawrence stakeholders and taking into consideration that the challenges facing the St. Lawrence vary according to their importance and status. Therefore, when it comes to the Gulf of St. Lawrence, the challenge is to not be limited by single federal-provincial agreements, such as the St. Lawrence Action Plan, or by sectorial initiatives, like the GOSLIM, but rather to create an overall management system between the five neighbouring provinces and with the federal government.

This is more or less what comes out in the final SEA2 Quebec report. The report confirms the need to analyze the Gulf of St. Lawrence as a single ecosystem and to ensure that all five provinces participate in an interprovincial committee to share knowledge on the Gulf and to harmonize decision-making processes and future actions.[163] The same recommendation was made in the recent report of the Commission on Energy Issues in Quebec, in which the commissioners called on the government of Quebec to "promptly initiate discussions with all Gulf provinces and the federal government to implement a framework for coordinated environmental assessments, consultations, and development of any oil and gas resources."[164]

When it comes to the Gulf of St. Lawrence, the challenge is to not be limited by single federal-provincial agreements, such as the St. Lawrence Action Plan, or by sectorial initiatives, like the GOSLIM, but rather to create an overall management system between the five neighbouring provinces and with the federal government.

Restoring the Gulf

The list of issues facing the Gulf is impressive: contaminants, hypoxic zones (without oxygen), climate change, declining and threatened species, etc., as well as a major lack of scientific knowledge of the various ecosystems. With such major challenges, we feel it is essential to prioritise restoring the health of the Gulf of St. Lawrence and its ecosystems, rather than adding another threat.

Moreover, the decline of the only beluga population in the Estuary and Gulf of St. Lawrence[165] should trigger the alarm. In this context, the recent scientific cuts to Fisheries and Oceans Canada ecotoxicology teams[166] at the federal level are troubling. In this case, it is our ability to understand and predict the impact of various human activities, such as oil and gas activities, on such a complex system as the Gulf which could be compromised.

The Gulf of St. Lawrence provides us with significant revenue through fishing and tourism. Moreover, other than these well-known services, the Gulf of St. Lawrence and its coastal areas also contribute to various indispensable ecological services: CO_2 uptake, water filtration in the marshes, nutrient cycles, etc.[167] Elsewhere in the world, various researchers have evaluated these services

162 qc.dfo-mpo.gc.ca/gestion-management/index-eng.html#Gulf_of_St_Lawrence_Integrated_Management
163 hydrocarburesmarins.gouv.qc.ca/documents/091-51078-00_EES2_VF_130910_authentifie.pdf
164 consultationenergie.gouv.qc.ca/pdf/Rapport-consultation-energie.pdf
165 baleinesendirect.org/blogue/actualites-dici-et-dailleurs/enjeux/les-belugas-du-saint-laurent-sont-en-declin/
166 ledevoir.com/environnement/actualites-sur-l-environnement/351053/de-lourds-impacts-pour-le-saint-laurent
167 iwlearn.net/abt_iwlearn/events/workshops/2nd-targeted-workshop-for-gef-iw-projects-in-africa/marine-and-coastal-ecosystem-services-valuation-methods-and-their-practical-application

and the conclusion is clear: ecosystems provide us with ecological services valued at several hundred billions of dollars annually.[168] It would be important to carry out a similar evaluation for the St. Lawrence ecosystem, partly to take into consideration the full extent of the importance of its preservation, and to ensure its sustainability.[169]

Being biologically diverse and acting as a living web connecting five coastal provinces, it seems very important to us, even essential, to protect and restore the Gulf of St. Lawrence, as well as ensuring that all of its ecosystems remain viable and functional for the benefit of the coastal populations and future generations which will inherit it.

Focusing on creating a network of marine protected areas

Being biologically diverse and acting as a living web connecting five coastal provinces, it seems very important to us, even essential, to protect and restore the Gulf of St. Lawrence, as well as ensuring that all of its ecosystems remain viable and functional for the benefit of the coastal populations and future generations which will inherit it.

In order to protect and restore the Gulf of St. Lawrence, we cannot ignore the importance of creating marine protected areas, an effective and internationally recognized tool for good management of marine ecosystems.[170] Several governments have introduced extensive networks of marine protected areas. This is the case in California, with 16% of its marine territory being protected,[171] or Australia with 36%.[172] Canada, bordered by three oceans, ranks poorly in this respect, with barely 1% of its marine areas protected.[173] Quebec is not doing much better, with 1.3% of its marine environment protected mostly due to the Saguenay-St. Lawrence Marine Park. Yet, both Canada and Quebec subscribed to the international Aichi (Nagoya) targets[174] and committed to protect 10% of their marine environments by 2020. Quebec went one step further and promised to reach the 10% objective five years earlier, in 2015.[175]

To date, there is only one marine protected area in the entire Gulf of St. Lawrence: the small site of Basin Head (PEI) with an area of barely 0.6 km^2. However, three areas of interest have been studied for several years now: the American Bank off the Gaspé Peninsula, the Magdalen Islands and the Shediac Valley, off New Brunswick.

In 2004, BAPE[176] commissioners recommended the creation of a network of marine protected areas in the Gulf of St. Lawrence before even proceeding with new seismic surveys. The same was true in the final report of SEA2 Quebec, where the authors recommended that the marine areas to be protected be laid out before authorizing any oil and gas exploration work.

---

168 www.esd.ornl.gov/benefits_conference/nature_paper.pdf
169 www.ledevoir.com/environnement/actualites-sur-l-environnement/374612/combien-vaut-la-planete
170 SNAP (2012) Les aires marines protégées; des outils efficaces pour la gestion de notre patrimoine marin. www.snapqc.org/uploads/SNAP_depliant_AMP.pdf
171 cdfgnews.wordpress.com/2013/04/15/california-creates-a-globally-significant-network-of-marine-protected-areas/
172 www.pewenvironment.org/news-room/other-resources/australia-clears-another-hurdle-in-creating-worlds-largest-marine-park-system-85899482538
173 http://www.oag-bvg.gc.ca/internet/English/parl_cesd_201212_03_e_37712.html
174 www.cbd.int/sp/targets/
175 www.plq.org/fr/article/redonner-au-quebec-son-role-de-leader-dans-la-lutte-contre-les-ges
176 www.bape.gouv.qc.ca/sections/rapports/publications/bape193.pdf

Focusing on sustainable development

With the publication of the Fifth Assessment Report of the IPCC[177] on the evolution of climate, there is no doubt that humans play a key role when it comes to the issues of climate change. The Gulf of St. Lawrence cannot escape such change: its surface waters are getting warmer,[178] ice is forming later in the season[179] and shores are eroding at an increasing rate.[180]

It is undeniable that our greenhouse gas emissions must be reduced in order to avoid an irreversible disruption of the global climate. It is therefore up to the different governments around the world to make appropriate choices in this respect, which should be largely based on reducing our consumption and extraction of fossil fuels. According to the International Energy Agency, 80% of remaining fossil fuel reserves should remain untouched in order to avoid the worst climate scenarios predicted by the IPCC.[181] In light of this observation and of the facts highlighted in this document, it seems essential to focus instead on the renewable resources of the St. Lawrence. Opening the Gulf to the oil and gas industry seems ill-advised considering that it will more than likely compromise the fishing and tourism industries, which are not only the driving force of the Gulf's economy, but also the culture and soul of its inhabitants. We therefore believe that priority should be given to the sustainable development of these activities, which would enhance their contribution to the Gulf economy while helping to restore the health of the Gulf ecosystems. Finally, we should focus on the development of scientific knowledge of the Gulf in order to better understand its ecosystems, thereby helping to ensure its sustainability and its resilience.

What kind of future for the Gulf of St. Lawrence?

The Gulf of St. Lawrence is at a crossroads. Its ecosystems are rich, productive and diverse, and its unique physical characteristics make it especially vulnerable to oil spills.[182] It is our responsibility to preserve and restore this richness as there is no longer any doubt that our very existence depends on healthy and diverse ecosystems.[183]

Since we do know that the Gulf of St. Lawrence is facing enormous challenges, we must give ourselves the means to enhance our knowledge and the skills to meet such challenges.

The possible implementation of the oil and gas industry in the heart of the Gulf of St. Lawrence means that we are faced with a choice of the utmost importance. We must set the priorities for this

177 Intergovernmental Panel on Climate Change – www.ipcc.ch
178 www.radio-canada.ca/regions/est-quebec/2012/10/03/010-temperature-eau-stlaurent.shtml
179 www.ec.gc.ca/glaces-ice/default.asp?lang=Fr&n=2E4D9D6C-1&offset=1&toc=show
180 www.ouranos.ca/media/publication/242_RapportBhiry2013.pdf
181 www.dw.de/opinion-expectations-low-and-still-disappointed/a-17248190
182 www.tc.gc.ca/media/documents/mosprr/transport_canada_tanker_fra.pdf
183 World Health Organization, www.who.int/globalchange/ecosystems/biodiversity/en/

unique ecosystem: rehabilitation and preservation, or exploitation of its non-renewable resources with all of the inherent risks?

Based on the established facts, we must collectively decide which path to take for the future of the Gulf. The following recommendations may help us to succeed:

1. Implement a moratorium on oil and gas exploration and exploitation for the entire Gulf of St. Lawrence;
2. Strengthen our scientific knowledge of this large ecosystem;
3. Coordinate an integrated management plan (federal and multiprovincial) for the entire Gulf;
4. Consult all of the coastal communities and the First Nations on the future of the Gulf, particularly in relation to the development of the oil and gas industry.

Future generations will be the judges of our successes or failures based on the choices and actions that we will take today.

APPENDIX 1

A few dates to remember

1964	· Laying out of interprovincial boundaries in the Gulf. They were never ratified and have no legal value.
September 1970	· Sinking of the *Irving Whale* and spill of 200 – 600 tonnes of heavy fuel oil contaminated with PCBs. Oil spill polluted 80 km of beaches in the Magdalen Islands.
March 2, 1982	· Signature of an Accord between Canada and Nova Scotia on joint management of offshore oil and gas.
1984	· The Supreme Court of Canada confirms that offshore oil and gas resources around Newfoundland (Gulf and Atlantic) are federally owned.
February 11, 1985	· Signature of an Accord between Canada and Newfoundland and Labrador on joint management of offshore oil and gas.
March, 25 1987	· Adoption of mirror laws by the federal government and Newfoundland implementing the Canada - Newfoundland and Labrador Accord.
July 21, 1988	· Adoption by Nova Scotia and the federal government of mirror laws implementing the Canada – Nova Scotia Accord.
December 1997	· Moratorium implemented in the whole Quebec marine environment.
2002	· Public review on the effects of potential oil and gas exploration and drilling activities in Sydney Bight and Southern Gulf of St. Lawrence.
August 2004	· Publication of the BAPE report on the issues regarding seismic surveys in the Estuary and Gulf of St. Lawrence (Quebec).
April 20, 2010	· Explosion of the Deepwater Horizon oil rig, which caused a large oil spill in the Gulf of Mexico.
Oct. 2010	· Geohazard seismic surveys conducted by Corridor Resources to determine seabed conditions at the Old Harry drilling project location.
February 2011	· Filing of Corridor Resources drilling project at Old Harry with the C-NLOPB. Beginning of the environmental assessment of the project.
March 24, 2011	· Signature of an Accord between Canada and Quebec on shared management of oil and gas resources in the Gulf of St. Lawrence. This Accord is still not in effect because mirror laws have not been adopted by the federal and Quebec legislatures.
April 2011	· Interprovincial forum on oil and gas held in the Magdalen Islands, organized by the municipality of the Magdalen Islands, bringing together over a hundred participants from the five Gulf provinces.

continued	
Spring 2011	· Following the filing of the Old Harry drilling project, various groups including the C-NLOPB call on Environment Minister Peter Kent, for a federal review panel.
June 13, 2011	· Adoption by the Quebec National Assembly of the Act to Limit Oil and Gas Activities, which permanently prohibits any oil or gas exploration or exploitation activities in the seabed of the St. Lawrence and on its islands west of Anticosti Island and extending to the Ontario border.
August 2011	· Letter from the Minister of the Environment, Peter Kent, refusing to set up a federal review panel, but promising "extensive public consultations" during the SEA in Newfoundland and during the environmental assessment of the Corridor Resources Old Harry drilling project.
July 2012	· Adoption of Omnibus Bill C-38 and the reform of the Canadian Environmental Assessment Act. Seismic surveys are no longer being subjected to federal environmental assessments. For exploratory drilling, only the first drilling programme on a license issued will be subjected to federal assessments. Subsequent drilling programmes are exempt of such assessments.
September 2013	· Publication of SEA2 final report by Genivar for the Quebec part of the Gulf. · Spill of 5 tonnes of fuel oil in the Baie de Sept-Îles (Quebec).
November 2013	· Moratorium on hydraulic fracturing in Newfoundland and Labrador including, offshore, under the seabed of the Gulf.
December 2013	· Spill of 6 tonnes of crude oil at Hibernia.
May 5, 2014	· Publication of SEA update final report for the Newfoundland part of the Gulf.
2015	· Quebec promised to reach its objective of protecting 10% of its marine environment.
January 15, 2016	· Deadline for Corridor Resources to start drilling (possible extension to January 14, 2017 by depositing a guarantee of $1 million).

APPENDIX 2

Supporters of a moratorium in the Gulf

This list, which is far from complete, gives an overview of the diversity and the number of groups, in favour of a moratorium in the Gulf of St. Lawrence, bringing together thousands of individuals.

IN THE MAGDALEN ISLANDS

- Association des chasseurs de phoques des Îles de la Madeleine (ACPIM)
- Association étudiante du Centre d'études collégiales des Îles
- Association of Inshore Fishermen of the Magdalen Islands (AIFMI)
- Attention FragÎles
- Cercles des fermières des îles de la madeleine, Fédération 21
- Conseil d'agglomération des Îles-de-la-Madeleine
- Corporation de Développement communautaire Unîle
- Goélette Grosse-Île
- Madelinots en alerte
- Municipalité de Grosse-Île
- Regroupement des Pêcheurs Professionnels des Îles (RPPIM)
- Regroupement des pêcheurs Palangrier Unique des Îles-de-la-Madeleine (RPPUM)
- Société d'aide au développement de la collectivité (SADC) des Îles-de-la-Madeleine
- Société de conservation des Îles-de-la-Madeleine (SCÎM)
- Tourisme Îles-de-la-Madeleine
- Vert et Mer

ELSEWHERE IN QUEBEC

- Ambioterra
- AmiEs de la Terre de Québec
- Assemblée des Premières Nations du Québec-Labrador
- Association Canadienne des Médecins pour l'Environnement
- Association des retraitées et retraités de l'éducation et des autres services publics du Québec (AREQ)
- Association générale étudiante du centre matapédien d'études collégiales
- Association québécoise de lutte contre la pollution atmosphérique (AQLPA)
- Bepop et cie
- Bleu voile océanique
- Cabane Bambou
- Coalition Innus, Malécites et Mi'gmaqs pour la protection du golfe
- Comité Action Civique (C'est Assez!)
- Comité d'Action Environnementale Louperivois
- Communauté de Gesgapegiag
- Comunik Impact
- Conservation Council of New Brunswick (CCNB)
- Conseil des Canadiens (Le)
- Comité ZIP du Sud de l'Estuaire
- Comité sauvons nos rivières Neguac inc.

- Commission scolaire des Chênes
- Conseil des Innus d'Ekuanitshit
- Conférence régionale des élus de la Gaspésie-Îles-de-la-Madeleine (CRÉGÎM)
- Conseil central de la Gaspésie-Îles-de-la-Madeleine-CSN
- Conseil régional de l'Environnement de la Gaspésie et des Îles-de-la-Madeleine (CREGÎM)
- Corporation de l'Île aux Perroquets
- Corporation des propriétaires de l'île pour la protection de l'île Verte (CPICIV)
- Crevettes du Golfe inc.
- Croisières Baie de Gaspé
- Écomaris
- Environnement Vert-Plus
- EURÊKO!
- Fédération québécoise des municipalités (FQM)
- Fédération québécoise du canot et du kayak (FQCK)
- Femmes en Mouvement
- Ferme Au goût d'autrefois
- Fondation Québécoise des Énergies Renouvelables (FQER)
- Fondation David Suzuki
- Fondation Rivières
- Greenpeace Québec
- Groupe Nautique Chaleur
- Institut de développement durable des Premières Nations du Québec et du Labrador (IDDPNQL)
- Journal *Le Mouton Noir*, Éditions du Berger Blanc
- Les Amis de la Vallée du Saint-Laurent (AVSL)
- Les Ami(e)s du Richelieu
- Listuguj Mi'gmaq Government
- MandaTerre.org
- Moratoire d'une génération
- Mouvement Sortons le Québec du nucléaire (MSQN)
- Mouvement Écologique Mathalois
- Municipalité régionale de comté (MRC) de Bonaventure
- Municipalité régionale de comté (MRC) du Haut-Saint-Laurent
  Municipalité du village d'Abbercorn
- Nature Québec
- Non à une marée noire dans le Saint-Laurent
- Onkwehshon A Conseil Métis
- Parti vert du Québec (PVQ)
- Professionnel-le-s de la Santé pour la Survie Mondiale (PSSM)
- Quebec-Labrador Foundation
- Québec solidaire
- Regroupement interrégional sur les gaz de schiste de la Vallée du Saint-Laurent (RIGSVSL)
- Réseau d'observation des mammifères marins (ROMM)
- Secrétariat international de l'eau (SIE)
- Secrétariat Mi'gmawei Mawiomi (MMS)
- Sierra Club (Section Québec)
- Société pour la nature et les parcs (SNAP) Section Québec
- Station de recherche des îles Mingan (MICS)
- Stratégies Saint-Laurent et la Commission des comités de zones d'intervention prioritaire (Comités ZIP) en zone marine (Saguenay, de la rive nord de l'estuaire, du Sud-de-l'Estuaire, Côte-Nord du Golfe, Baie des Chaleurs et Îles-de-la-Madeleine)
- Syndicat des enseignantes et enseignants du Cégep de Rimouski (SEECR)
- Table des Groupes Populaires
- Table jeunesse de la Matanie
- Tables jeunesse du Témiscouata, de la Matapédia, Rimouski-Neigette, Matane, Les Basques et Kamouraska
- Uniterre Conférences
- Univert Laval
- Urgence Nouveau Monde
- Webothèque.net

ATLANTIC PROVINCES

- Academy Canada, NL
- Atlantic Policy Congress
- Association francophone des municipalités du Nouveau-Brunswick (AFMNB), NB
- Atlantic Salmon Federation, NB
- Canadian Parks and Wilderness Society, Nova Scotia Chapter (CPAWS-NS), NS
- Canadian Parks and Wilderness Society, Newfoundland Chapter (CPAWS-NL), NL
- Conservation Council of New Brunswick (CCNB), NB
- Dr. Irene Novaczek, Earth Action, PEI

- Dr. Peter G. Wells, Chair, Bay of Fundy Ecosystem Partnership (BoFEP), NB
- Ecology Action Centre, Halifax, NS
- Environmental Health Association of Nova Scotia (EHANS), NS
- Executive of the Natural History Society of Newfoundland and Labrador, NL
- Friends of Covehead and Brackley Bays Watershed Group of PEI Friends of the Pugwash Estuary, NS
- Green Party Leader and Save our Seas and Shores (SOSS) Coalition
- Gulf Nova Scotia Bonafide Fishermen's Organization, NS
- Gulf Nova Scotia Fishermen's Coalition, NS
- Gulf NS Herring Federation, NS
- Harvey Area Water and Air Quality Committee, NB
- Hillsborough River Association, PEI
- Ingrid Cottenden, Program Secretary, College of Sustainability, Dalhousie Univ., Halifax, NS
- Maliseet Nations Conservation Council, NB
- Margaree Environmental Association, Cape Breton, NS
- Maritime Fishermen's Union (MFU), NB
- Mike McGeoghegan, President, PEI Fishermen's Association (PEIFA), PEI
- Minister of the Environment for Prince Edward Island, Mr. Richard Brown
- Municipality of Breadalbane, PEI
- Municipality of Cavendish, PEI
- Municipality of Miltonvale Park, PEI
- Municipality of Murray River, PEI
- Municipality of North Rustico, PEI
- Municipality of Victoria-by-the-Sea, PEI
- Nature Newfoundland and Labrador, NL
- Northumberland Fishermen's Association, NS
- Patty Donovan, Campaign Pesticide Reduction, NB
- Petitcodiac Watershed Alliance, NB
- Pictou County Watershed Coalition, NS
- Pisquid River Enhancement Project, PEI
- Prince Edward Island Federation of Labour, PEI
- Save our Seas and Shores (SOSS) Coalition
- Sierra Club, Atlantic Chapters, NS, NB, PEI and NL
- Sunrise Trail Community Development Coop, NS
- Victoria Reed, College of Sustainability, Dalhousie University, NS
- Western Environment Centre
- Wheatley River (watershed) Improvement Coalition (WRIG), PEI
- Laura Lambie, Young Naturalists Club of Nova Scotia, NS

IN CANADA

- Assembly of First Nations
- Council of Canadians
- Greenpeace (opposition to the exploration and exploitation of hydrocarbons)
- International Union for Conservation of Nature (IUCN)
- Sierra Club
- World Wildlife Fund Canada (WWF-Canada)

PHOTO: NASA

ST. LAWRENCE COALITION

The St. Lawrence Coalition (SLC) was created in the Magdalen Islands in the summer of 2010 under the initiative of Danielle Giroux, president of Attention FragÎles, following the concerns of several Madelinots (residents of the islands) regarding the development of oil and gas resources in the Gulf of St. Lawrence. It was created as a way of influencing government authorities to immediately adopt a moratorium on oil and gas exploration and exploitation in the entire Gulf of St. Lawrence.

Initially founded by four environmental groups, Attention FragÎles, CPAWS Quebec, the David Suzuki Foundation and Nature Québec, the SLC now has 85 member groups (First Nations, non-governmental organizations, scientists, fishermen and tourism associations, etc.) and close to 5,000 individual supporters across Quebec and the other four provinces bordering the Gulf of St. Lawrence: Prince Edward Island, New Brunswick, Nova Scotia and Newfoundland and Labrador. This is an interprovincial coalition since the five provinces bordering the Gulf are concerned with the issue of oil and gas. The SLC aims to unite the group of communities that live around the Gulf of St. Lawrence and closely depend on its renewable resources around the common position of a moratorium on oil and gas exploration and exploitation.

Since its creation, the St. Lawrence Coalition has become one of the most credible reference on the issue of exploration and exploitation of oil and gas in the Gulf of St. Lawrence.

www.coalitionsaintlaurent.ca

Processed on 100% post-consumer, chlorine-free paper