



PROJECT DESCRIPTION

for a

PROPOSED GEO-HAZARD SURVEY

over a part of the

OLD HARRY PROSPECT

in the

GULF OF ST. LAWRENCE

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1.0 INTRODUCTION

Corridor Resources Inc. is proposing to conduct a geo-hazard survey over a small portion the Old Harry prospect in the Gulf of St. Lawrence (Fig. 1.0-1). The purpose of the geo-hazard survey is to acquire information to assess seabed conditions and to identify any potential hazards to drilling in the vicinity of a future exploration well site.

The geo-hazard survey will consist of 2-D high resolution airgun seismic, side scan sonar, sub-bottom profiling and multi-beam bathymetric data. The geo-hazard program will be executed by mobilizing seismic and associated survey equipment to a vessel of suitable characteristics. The geo-hazard survey will require about four days of onsite geophysical survey time. An additional one to two days of onsite time will be required for seabed sampling, coring, and sea bottom photographs. The proposed geo-hazard survey will cover a small area of about 22.5 km².

The Old Harry prospect is located in the north-eastern part of the Gulf of St. Lawrence. Part of the prospect lies within lands under the jurisdiction of the Canada-Newfoundland-Labrador Offshore Petroleum Board (C-NLOPB), and part of the prospect lies within lands where a joint agreement between Quebec and Canada has yet to be established.

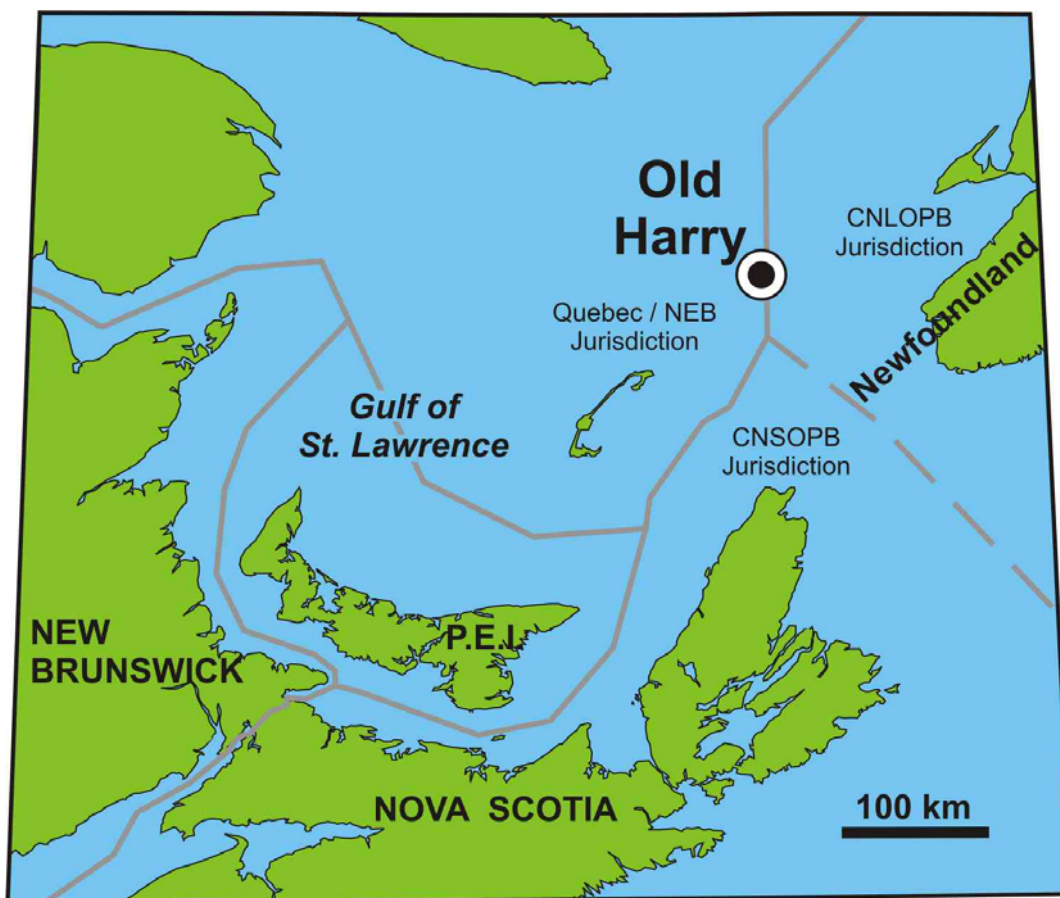


Figure 1.0-1: Location map showing general location of the Old Harry prospect in the Gulf of St. Lawrence.

1.1 Location and Water Depth

The proposed geo-hazard survey is located approximately 70 km northeast of the Magdalen Islands and 80 km west-northwest of Cape Anguille, Newfoundland (Figure 1.1-1). The survey area is located within a physiographic feature called the Laurentian Channel. Water depths in the area of the proposed survey are approximately 470 m.

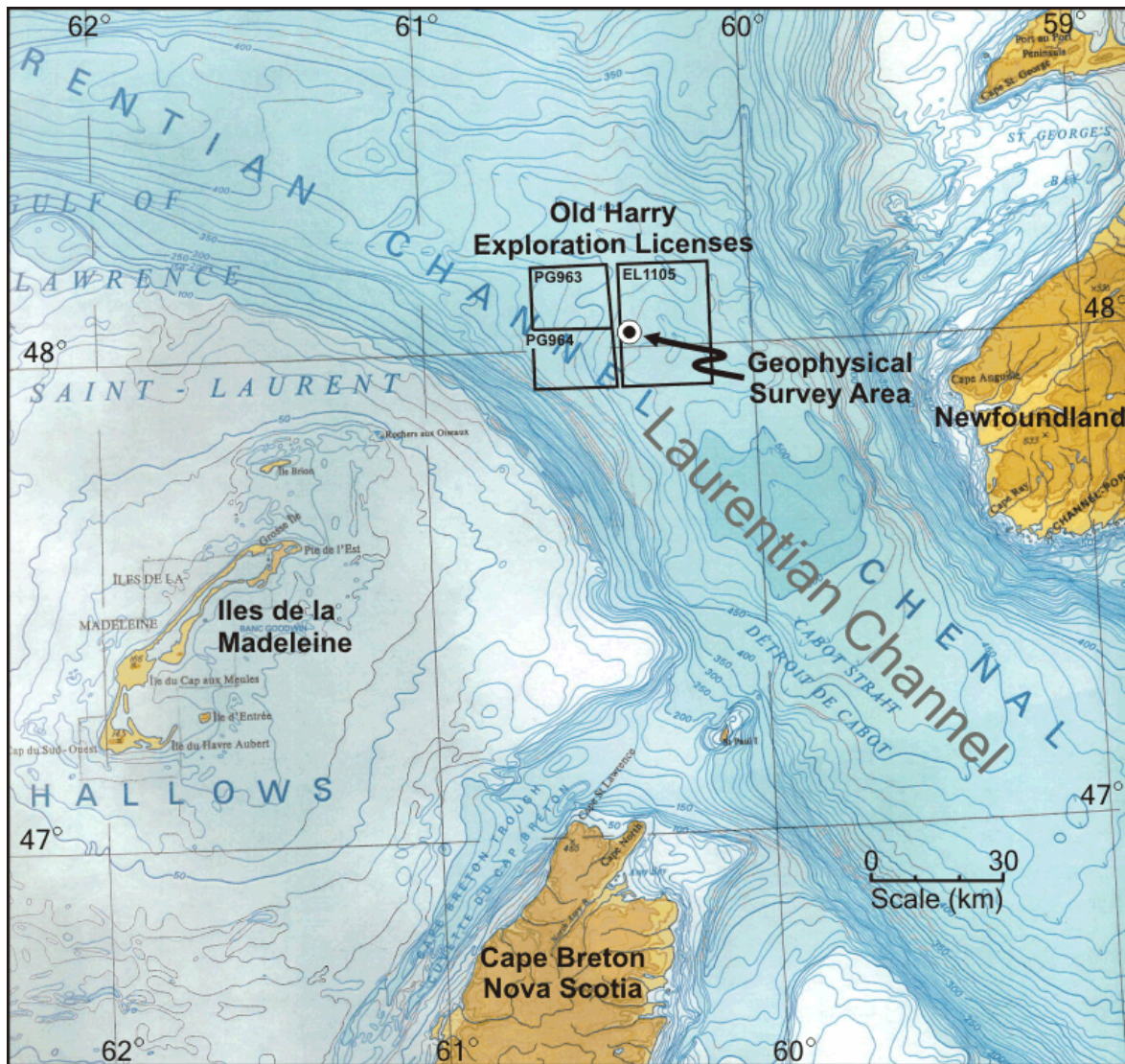


Figure 1.1-1: Location of the proposed geo-hazard survey in relation to adjacent coastlines.

The proposed geo-hazard survey will comprise a single 4.5 km x 5 km (22.5 km²) survey, centered on the following NAD27 coordinates: Latitude: 48° 03' 05.3" W; Longitude: 60° 23' 41.7" N (Figure 1.1-2). The geo-hazard survey is located within EL1105, administered by the C-NLOPB (Figure 1.1-2).

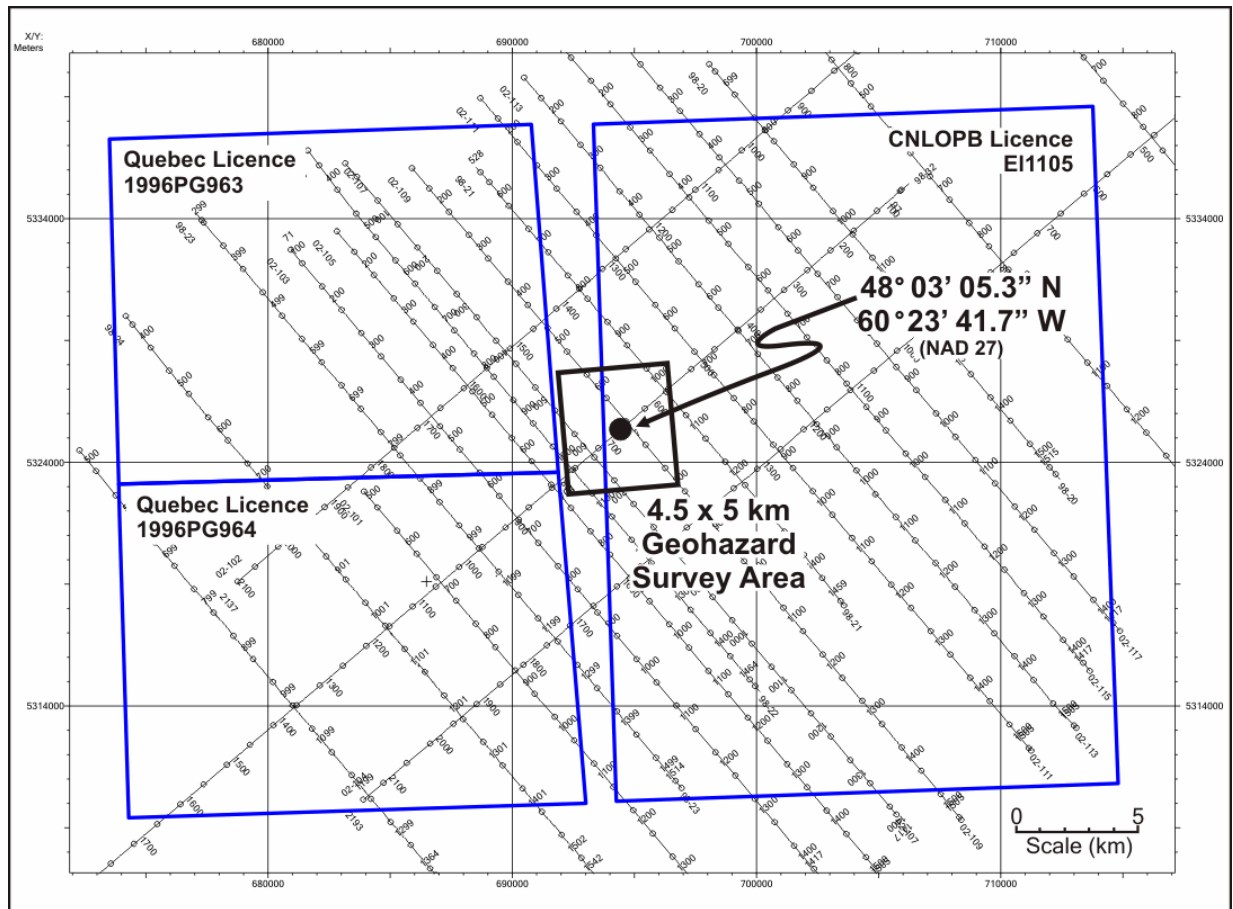


Figure 1.1-2: Detailed location map of the proposed geo-hazard survey. Existing 2-D seismic reflection data from the area are shown.

1.2 The Old Harry Prospect

The Old Harry prospect is a large, doubly plunging anticline in the north-eastern part of the Gulf of St. Lawrence. The structure is about 30 km long and 12 km wide.

Corridor has acquired three 2-D seismic data sets over the prospect: SOQUIP 1974 (re-processed), Corridor 1998 (new acquisition), and Corridor 2002 (new acquisition). At the time of writing this document, Corridor has not collected any 3-D seismic reflection data over the Old Harry prospect. Corridor believes that there is ample 2-D seismic data to locate an initial exploration well to test the prospect.

A seismic-stratigraphic framework for the near seabed sediments in the vicinity of Old Harry has been established by previous work in the area (i.e. Josenhans and Lehman, 1999). The results of previous work will be reviewed prior to beginning the geo-hazard survey (i.e. review of piston core and grab sample data in the area), and the results will be considered in the interpretation of the new data acquisition.

2.0 REGULATORY FRAMEWORK

Offshore oil and gas exploration and development activities in the Newfoundland and Labrador offshore area are regulated under the Atlantic Accord and the Atlantic Accord Implementation Acts. To conduct a geo-hazard seabed survey, an authorization is required from the C-NLOPB. Pursuant to the Canadian Environmental Assessment Act (CEAA), the C-NLOPB is required to conduct an environmental assessment (EA) of the proposed project before it can issue the authorization. This Project triggers CEAA and, therefore, a screening level EA is required.

The C-NLOPB, as the Responsible Authority under the CEAA, will coordinate the EA review process. The geo-hazard survey has the potential to interact with marine mammals, seabirds, commercial fisheries, species at risk and other valued ecosystem components. Environment Canada and the Department of Fisheries and Ocean will likely be Federal Authorities for the EA process. Several pieces of legislation may be relevant to the EA, including, the *Oceans Act*, *Fisheries Act*, *Migratory Birds Convention Act*, *Species at Risk Act*, *Canada Shipping Act* and the *Navigable Waters Protection Act*.

3.0 OBJECTIVES OF THE GEO-HAZARD SURVEY

The objectives of the geo-hazard survey will be:

- Identification of shallow geological hazards (i.e. Slump scars, channels, faulting, shallow gas accumulations, gas hydrates and shallow trap closure);
- Acquisition of detailed bathymetry;
- Identification of surficial geology, boulder till, channel fill, slumping, faulting, gas-charged shallow sediments;
- Determining the nature and characteristics of the seafloor sediments;
- Identification of iceberg scours, morphology of seabed depositional units, seafloor obstructions, and bedforms indicative of seafloor sediment dynamics; and
- Location and identification of seafloor installations, wrecks and cables.

4.0 GEO-HAZARD SURVEY METHODOLOGY

4.1 Technical Program

The geo-hazard survey will be conducted using a standard suite of equipment typically utilized for wellsite/geohazard surveys. Approximately 160 line kilometres of shallow penetration, 2-D seismic data will be acquired during the survey. This work will require about 4 days on site survey time. The following geo-hazard survey equipment may be employed to investigate the proposed survey area: high resolution airgun seismic system, a side-scan sonar system, a sub-bottom profiler, echo-sounder, magnetometer, seabed camera system and sediment grab samples.

- **High Resolution Seismic System** - High-resolution, multi-channel seismic data will be acquired to two seconds depth, sampled at one millisecond. The data to be acquired will comprise 2-D seismic reflection data, with a line spacing of 250 m and tie lines at 500 m. There are no existing 3-D seismic data over the Old Harry prospect. The acoustic source for the seismic data will comprise one or more airguns with a total operational volume of approximately 150 cubic inches. The exact airgun specifications will be provided when a contractor is selected. The receiver will be a single, multi-channel hydrophone streamer.
- **Side-scan Sonar System** - Seabed images will be acquired by means of side scan sonar or a multi-beam echo sounder. A mosaic will be created based on geo-referenced data.
- **Seabed Camera, Magnetometer, and Sediment Grab Samples** - If side scan sonar or multi-beam bathymetric systems identify potential debris, a proton magnetometer will be used. A camera system, sediment sampler and/or gravity/piston cores of the seafloor and near surface sediments will be used to corroborate the other data.
- **Seabed Imaging Systems** - High-resolution sub-bottom profiles will be acquired by means of a boomer or sparker acoustic source towed within the water column at approximately 20 to 40 m off the seabed. The depth of penetration for this system is expected to be between 40 to 100 m.

4.2 Survey Vessel

The geo-hazard survey will be executed by mobilizing appropriate geophysical survey equipment and seabed sampling equipment to a vessel of suitable characteristics. This vessel would meet all Canadian regulations and standards to work in Canadian waters. A guard vessel may accompany the survey vessel to provide advance warning of fishing activities in the area, and this vessel would meet similar criteria. The procurement process to contract the vessels is anticipated to begin in the spring of 2010.

4.3 Shore-based Facilities

The shore-based facility to be used depends on the location from which the vessel is contracted. It could be in Newfoundland or Nova Scotia. This will be determined when the vessel is contracted.

4.4 Schedule

The geo-hazard survey will require one trip out from port and return to port and is anticipated to take four days to complete the geo-hazard survey, dependent on weather. An additional 1 to 2 days will be required to complete seabed sampling, coring, and seabed photography. The geo-hazard survey is planned to be conducted in fall of 2010.

5.0 ENVIRONMENTAL OVERVIEW

5.1 Physical Environment

The climate in the area of the geo-hazard survey (the “Project area”) is dominated by the effects of the Gulf of St. Lawrence water which surrounds it and by the eastward movement of continental air masses and their associated pressure systems. The climate is categorized as maritime temperate. The air temperatures in the vicinity of the Project area follow a normal annual cycle with minimum mean temperatures recorded in February (-6.5 °C) and maximums in August (16 °C).

Precipitation tends to be in the form of rain or drizzle with infrequent periods of continuous snow. Visibility can be reduced during times of frontal and advection fogs, in snow, and during snow shower activity. Sea ice is typical in the Project area, however, there has only been isolated reporting of icebergs (LGL, 2005).

The Gulf of St. Lawrence is a highly stratified semi-enclosed sea, exchanging salt with the North Atlantic Ocean and receiving fresh water from the St. Lawrence River. It therefore acts like a large estuary where potential effects related to the Coriolis effect, geostrophic currents, baroclinic processes, formation of eddies and wind stress are important.

The occurrence of high wind speeds in the Project area is most common during November, December and January. Storm force winds (24.5 m/s to 32.6 m/s) have occurred in January and February and gale force winds (17.2 m/s to 24.4 m/s) have occurred in all months except July and August (LGL, 2005).

Water depth in the area is in the range of 400 m to 500 m and the highest waves typically occur between October and January (LGL, 2005).

Further details on the Physical Environment in and surrounding the Project area will be discussed in the Environmental Assessment Report.

5.2 Biological Environment

The majority of the information presented below regarding the Biological Environment was obtained from the 2007 Western Newfoundland and Labrador Offshore Area Strategic Environmental Assessment Amendment Report (LGL, 2007) as the Study Area for this report lies less than 15 km from the proposed geo-hazard survey site over the Old Harry prospect in the Gulf of St. Lawrence.

Further details on the Biological Environment within the Project area will be presented in the Environmental Assessment Report.

5.2.1 Fish

Numerous fish species occur within and near the Project area and include the following: redfish (*Sebastes* spp.), Atlantic cod (*Gadus morhua*), Greenland halibut (*Reinhardtius hippoglossides*), Atlantic halibut (*Hippoglossus hippoglossus*), white hake (*Urophycis tenuis*), Atlantic hagfish (*Myxine glutinosa*), Black dogfish (*Centroscyllium fabricii*),

skates (*Raja* spp.), Atlantic argentine (*Argentina silus*), White barracudina (*Notolepsis rissoi*), Marlin-spike (*Nezumia bairdi*), Roughnose grenadier (*Trachyrhynchys murrayi*), Fourbeard rockling (*Enchelyopus cimbrius*), Haddock (*Melanogrammus aegleinus*), Silver hake (*Merluccius bilinearis*), Pollock (*Pollachius virens*), Longfin hake (*Urophycis chesteri*), Goosefish (*Lophius americanus*), Sea raven (*Hemitripterus americanus*), Lumpfish (*Cyclopterus lumpus*), Greater eelpout (*Lycodes esmarki*), Atlantic softpout (*Melanostigma atlanticum*) and Windowpane (*Scophthalmus aquosus*).

Both the Atlantic cod and redfish are known to spawn in the vicinity of the Project area. Spawning of Atlantic cod typically occurs between April and June. Redfish tend to mate in the fall (September to December) and larval extrusion occurs between April and July. A few other species are believed to spawn during the winter in the Laurentian Channel and include the Greenland halibut and various species of wolfish.

5.2.2 Birds

Generally the marine coast and waters of western Newfoundland have lower abundances of seabirds. As these areas are less influenced by major oceanic currents, the adjacent waters have lower productivity and there is limited breeding habitat along the west coast of Newfoundland. However, there still tends to be numerous seabirds present in the Project area including shearwaters, fulmars, petrels, jaegers, skuas, phalaropes, gannets, cormorants, alcids, kittiwakes, and gulls. Several of these species are visitors from the southern hemisphere spending their winter (June to October) in these waters.

Birds nesting along the western portion of Newfoundland and the Magdalen Islands can be found in the area. Nesting species include waterfowl (eiders and scoters), seabirds (gannets, gulls, kittiwakes, terns and alcids) and shorebirds. Eggs are typically laid in late May to June and most species have left the area by July to August, with Northern Gannets leaving later in October to November.

5.2.3 Marine Mammals

Approximately eighteen species of marine mammals are expected to occur within and/or near the proposed Project area, including the Blue Whale (*Balaenoptera musculus*), Fin Whale (*Balaenoptera physalus*), Sei Whale (*Balaenoptera borealis*), Humpback Whale (*Megaptera novaeangliae*), Minke Whale (*Balaenoptera acutorostrata*), North Atlantic Right Whale (*Eubalaena glacialis*), Sperm Whale (*Physeter macrocephalus*), Northern Bottlenose Whale (*Hyperoodon ampullatus*), Beluga Whale (*Delphinapterus leucas*), Killer Whale (*Orcinus orca*), Long-finned Pilot Whale (*Globicephala melas*), Short-beaked Common Dolphin (*Delphinus delphis*), Atlantic White-sided Dolphin (*Lagenorhynchus acutus*), White Beaked Dolphin (*Lagenorhynchus albirostris*), Harbour Porpoise (*Phocoena phocoena*), Harbour Seal (*Phoca vitulina*), Grey Seal (*Halichoerus grypus*), Harp Seal (*Phoca groenlandica*) and the Hooded Seal (*Cystophora cristata*). The majority of these mammals are seasonal inhabitants as the waters of the Gulf of St. Lawrence serve as feeding grounds. The majority of the sightings of these species have occurred during the spring, summer and early fall months.

5.2.4 Sea Turtles

There are three species of sea turtles that could potentially inhabit the proposed Project area which include the loggerhead turtle (*Caretta caretta*), the leatherback turtle

(*Dermochelys coriacea*) and the Kemp's ridley turtle (*Lepidochelys kempi*).

5.2.5 Species at Risk

Table 5.1 lists the species at risk according to their status under the *Species at Risk Act* (SARA) or the Committee on the Status of Wildlife in Canada (COSEWIC) that could potentially occur in the Project area, based on the information presented in the above sections. A more detailed analysis will be carried out during preparation of the Environmental Assessment.

Table 5.1 Species at Risk in the Vicinity of the Project

Species	SARA Status	COSEWIC Status
Blue Whale (<i>Balaenoptera musculus</i>)	Schedule 1 - Endangered	Endangered
North Atlantic Right Whale (<i>Eubakaena glacialis</i>)	Schedule 1 - Endangered	Endangered
Leatherback Sea Turtle (<i>Dermochelys coriacea</i>)	Schedule 1 - Endangered	Endangered
Northern Bottlenose Whale (<i>Hyperoodon ampullatus</i>)	Schedule 1 - Endangered	Endangered
Sei Whale (<i>Balaenoptera borealis</i>)	Schedule 1 - Endangered	Endangered
Ivory Gull (<i>Pagophila eburnean</i>)	Schedule 1 - Endangered	Endangered
Beluga Whale (<i>Delphinapterus leucas</i>)	Schedule 1 - Threatened	Threatened
Northern Wolffish (<i>Anarhichas denticulatus</i>)	Schedule 1 - Threatened	Threatened
Spotted Wolffish (<i>Anarhichas minor</i>)	Schedule 1 - Threatened	Threatened
Atlantic Wolffish (<i>Anarhichas lupus</i>)	Schedule 1 - Special Concern	Special Concern
Fin Whale (<i>Balaenoptera physalus</i>)	Schedule 1 - Special Concern	Special Concern
Killer Whale (<i>Orcinus orca</i>)	Schedule 1 - Special Concern	Threatened
Harbour Porpoise (<i>Phocoena phocoena</i>)	Schedule 2 - Threatened	Special Concern
Humpback Whale (<i>Megaptera novaeangliae</i>)	Schedule 3 - Special Concern	
Atlantic Cod (<i>Gadus morhua</i>)	Schedule 3 - Special Concern	
Winter Skate (<i>Leucoraja ocellata</i>)		Endangered
Atlantic Cod (<i>Gadus morhua</i>)		Threatened
Shortfin Mak (<i>Isurus oxyrinchus</i>)		Threatened
Striped Bass (<i>Marone saxatilis</i>)		Threatened
American eel (<i>Anguilla rostrata</i>)		Special Concern

5.3 Commercial Fisheries

Fish species typically caught in the vicinity of the Project area include redfish (*Sebastes* spp.), Atlantic cod (*Gadus morhua*), snow crab (*Chionoecetes opilio*), Greenland halibut (*Reinhardtius hippoglossides*), Atlantic halibut (*Hippoglossus hippoglossus*) and white

hake (*Urophycis tenuis*). The timing of the harvesting of these species is dependent upon weather, ice conditions, species availability, and fish management plans. Harvesting of the above species can occur from June to November with the busiest months being those of July and August.

Plans will be developed to avoid or lessen any potential impacts on the commercial fishery as a result of the proposed Project if necessary. These plans will be identified in the Environmental Assessment Report.

5.4 Marine Traffic

Vessel traffic and vessel size in the Gulf of St. Lawrence tends to fluctuate due to freezing during the winter months. Traffic between the Magdalen Islands and St. Lawrence, Newfoundland, is highest during July and August, but remains steady from April to November. Traffic between St. Anthony and the Magdalen Islands tends to be steady from June to November. Further discussions regarding shipping routes will be presented in the Environmental Assessment Report.

6.0 PUBLIC CONSULTATION

Public consultation will consist of a limited and focused consultation of key stakeholders to advise them of the proposed project and to solicit issues or concerns they may have. Stakeholders may include regulators, fishers, fisheries associations, seafood producers and identified Environmental Non-Governmental Organizations and possibly First Nations representatives. It is anticipated that this consultation will be accomplished by face to face meetings or by telephone.

7.0 CLOSURE

During the coming months, Corridor will be preparing all of the documents required to support the application for authorization to conduct the geo-hazard survey. This documentation may include any or all of the following:

- Maps showing detailed location of the proposed survey;
- A full and detailed description of the operation;
- Vessel information;
- Submissions of evidence of permits and clearances by other federal and provincial legislation outside the scope of C-NLOPB regulatory authority;
- Occupational health and safety information;
- Local benefits plan; and
- Any other documentation as may be required by the C-NLOPB.

Corridor is beginning the process of preparing an Environmental Impact Assessment for the proposed geo-hazard survey.

8.0 CONTACT PERSONS

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9.0 REFERENCES

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