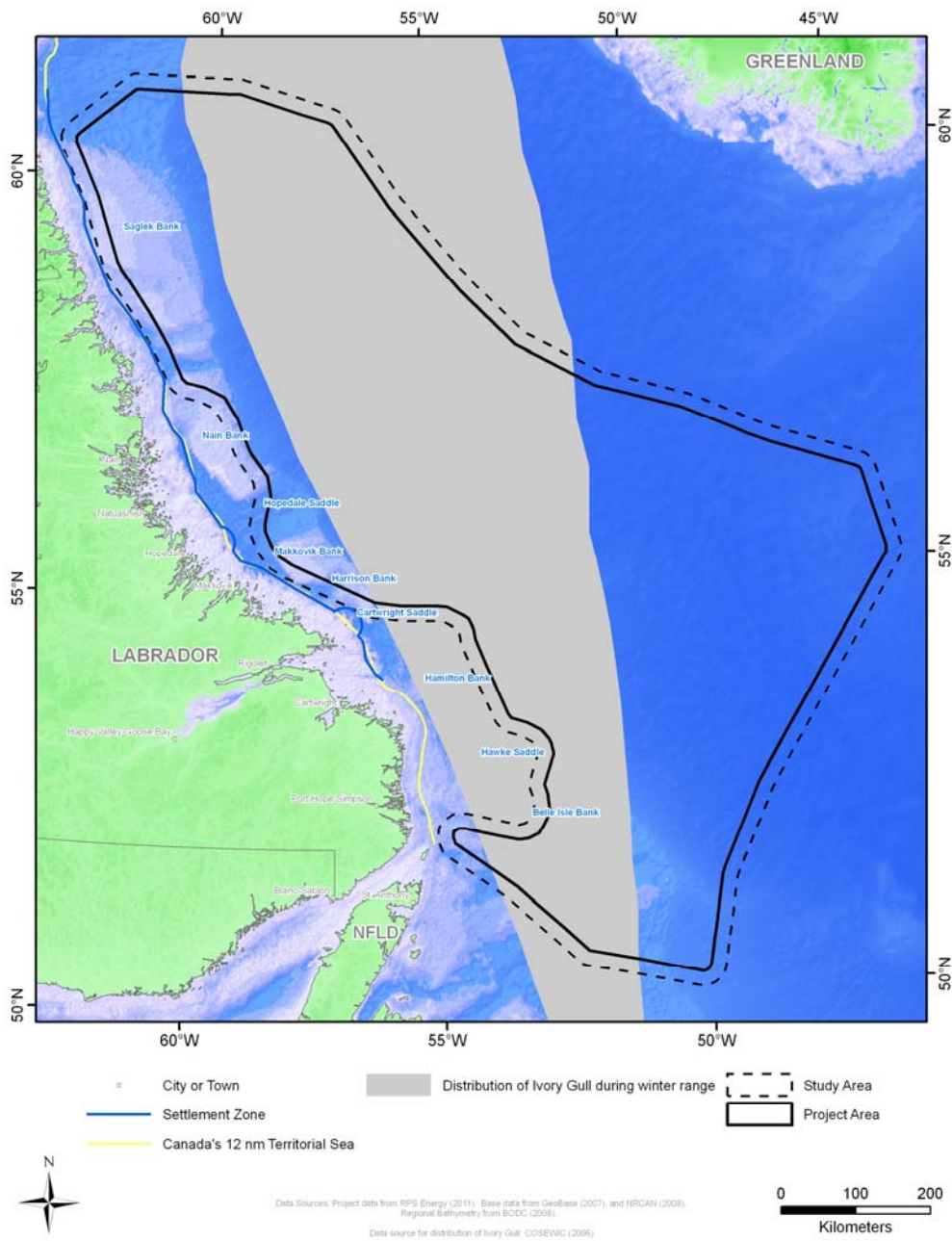


**Figure 5.17: Harlequin Duck (sightings and moulting grounds)**

### Ivory Gull

The Ivory Gull (*Pagophila eburnean*) is designated as “endangered” by both SARA and COSEWIC, and has a status of “vulnerable” by the *Newfoundland and Labrador Endangered Species Act*. It is also protected under the MBCA. Currently, the Canadian breeding population is estimated at 500 to 600 individuals (COSEWIC 2006) with recent estimates describing a population decrease of approximately 80% since the 1980s.

The wintering grounds of the Ivory Gull are poorly known, but are thought to be along the southern edge of the pack ice in the North Atlantic and North Pacific oceans (Figure 5.18). In Canada, the Ivory Gull spends the winter on the pack ice of Davis Strait, the Labrador Sea, the Strait of Belle Isle and the northern Gulf of St. Lawrence. It is occasionally seen along the eastern coasts of Newfoundland and Labrador, particularly the Great Northern Peninsula of Newfoundland, and on the Lower North Shore of Quebec (COSEWIC 2006). The Ivory Gull has been sighted within the bounds of the Study Area.



**Figure 5.18: Distribution of Ivory Gull During Winter Range**

### Barrow's Goldeneye

The Barrow's Goldeneye (*Bucephala islandica*) is a medium-sized diving duck that primarily breeds and winters in Canada, west of the Rocky Mountains. The Eastern Canada population is a small wintering population that is estimated at approximately 4,500 individuals. Small numbers of this population winter in marine bays, inlets, harbours and rocky shores of the Maritime Provinces and along the northern Atlantic coastline in the United States (Schmelzer 2006; Species at Risk 2010b).

Though the range of the population in Eastern Canada is still unknown, data indicate that breeding is exclusive to Canada, with the only confirmed breeding records being from Quebec. Specific population trends are unknown, but it is believed that the population declined during the twentieth century and may still be declining. In Eastern Canada, there has been a significant reduction in the amount of suitable breeding habitat due to logging and fish introduction. There has also been a reduction in the quality of wintering habitat along the St. Lawrence corridor, stemming from contamination of the river's sediments (Species at Risk 2010b).

Observations of the Barrow's Goldeneye have been documented at several coastal locations along the length of the Study Area while reports of molting birds and recent satellite-telemetry studies confirm Nain Bay on the coast of Labrador as a molting site (Todd 1963 and Robert *et al.* 1999 as cited in C-NLOPB 2008). Sightings appear to be limited to nearshore locations and have not been documented within the Project footprint. The potential for these birds to be affected by the project is therefore relatively low.

Barrow's Goldeneye, is also protected by the MBCA and as a "vulnerable" species under the *Newfoundland and Labrador Endangered Species Act*.

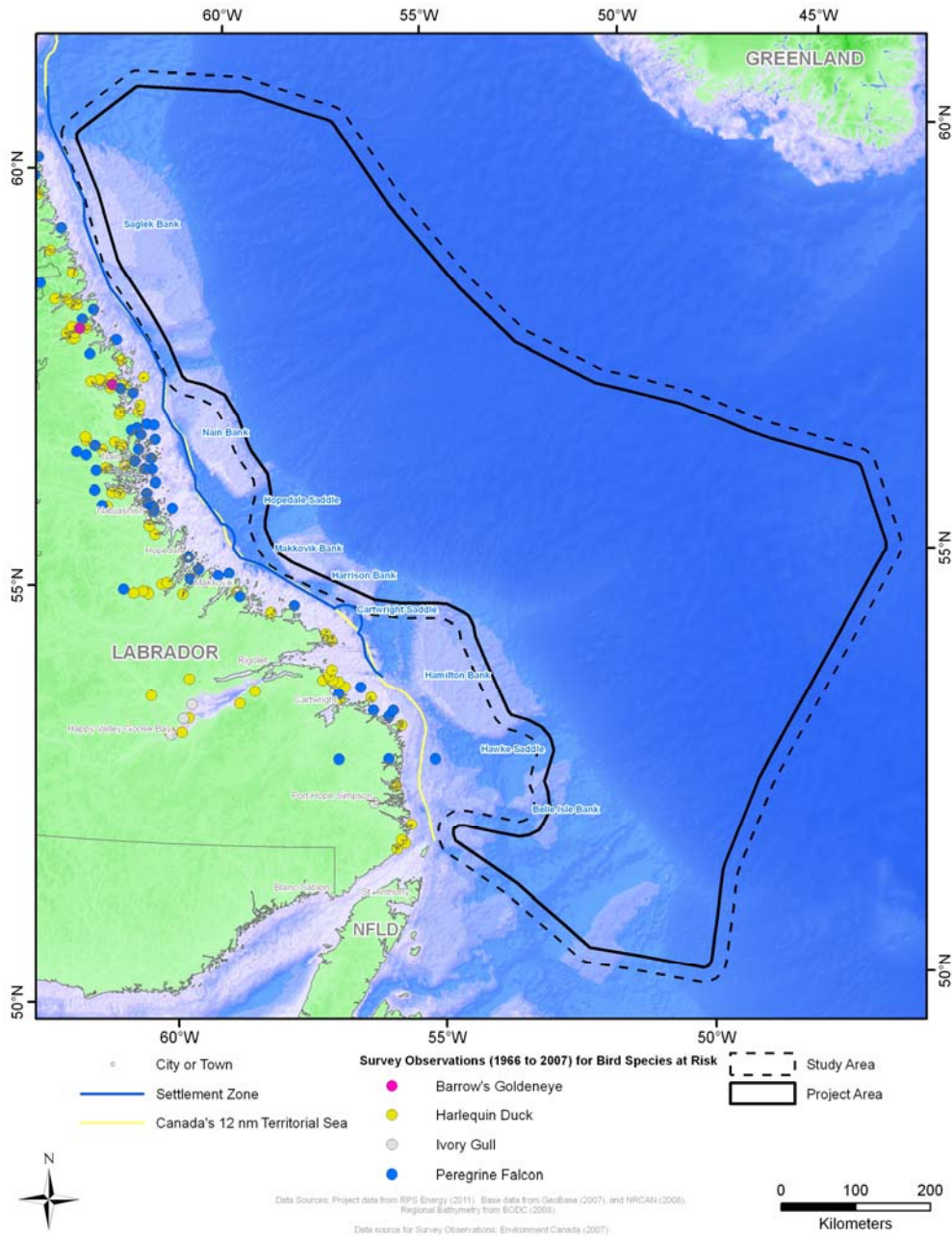
### Eskimo Curlew

The Eskimo Curlew (*Numenius boreali*) is a migratory bird that typically migrated through the Labrador Shelf area in the fall. The species was once found from Newfoundland and Labrador to Alberta to the Northwest Territories and it is possible that this species has become extinct as efforts to locate individuals have been unsuccessful (COSEWIC 2009). Currently the species is under management jurisdiction from the federal government and is covered under the MBCA.

The species is also covered under Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Bonn Convention (Convention for the Conservation of Migratory Species of Wild Animals)

The Recovery Strategy specifies measures that can be implemented under Canadian jurisdiction to promote the recovery goal of achieving the long-term viability. The supporting objectives of the Recovery Strategy currently note that they are not aware of the existence or location of any Eskimo Curlews and as such recovery is not technically or biologically feasible for this species at this time (COSEWIC 2009).

Figure 5.19 provides an overview of survey observations for bird SAR from 1966 to 2007.

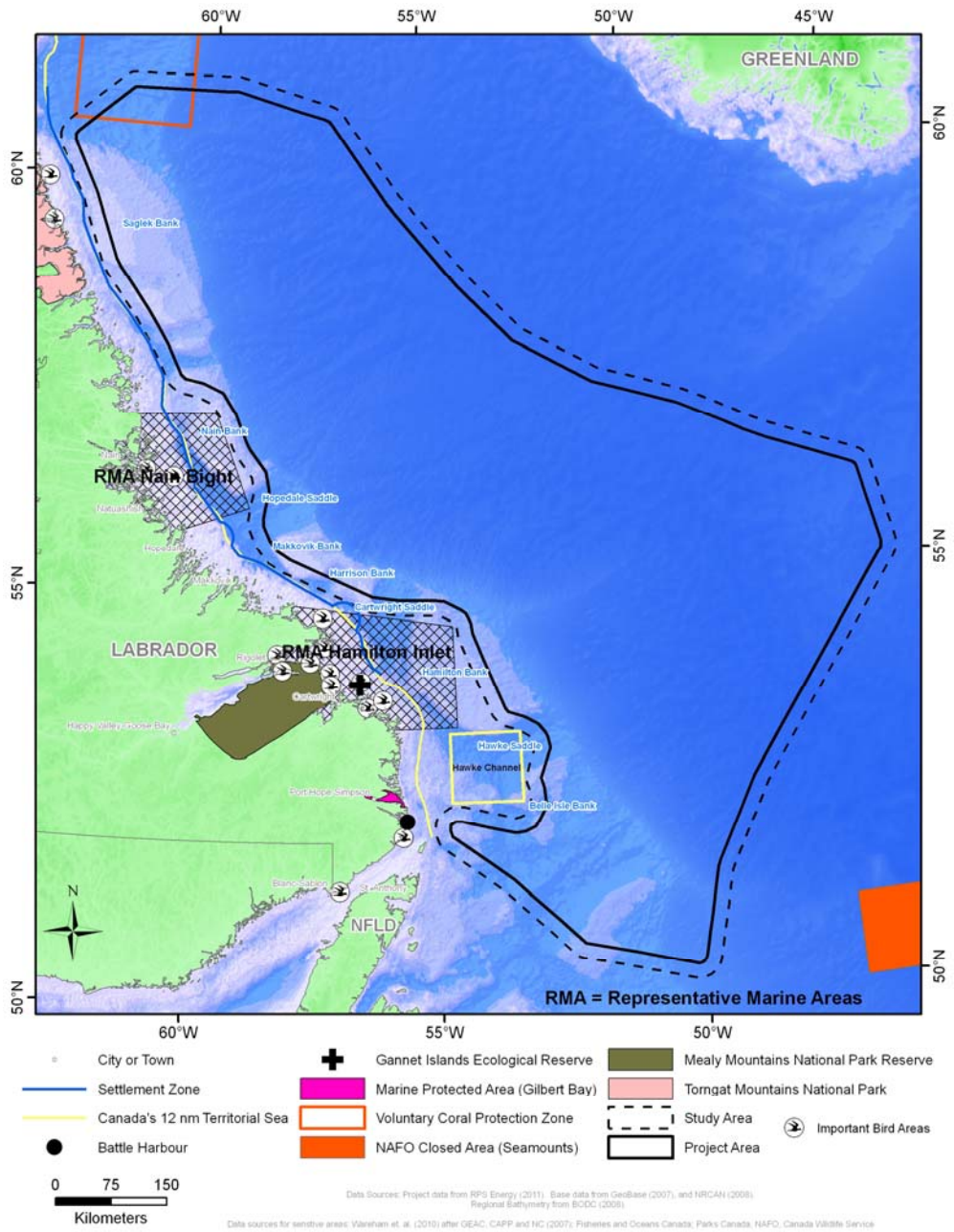


**Figure 5.19: Survey Observations (1966 To 2007) For Bird Species At Risk**

## 5.5 SENSITIVE AREAS

A number of areas and places located within and near the Study Area have been identified as sensitive areas (Figure 5.20). For the purposes of this assessment, the term sensitive area is defined as:

- an area that is awarded some level of protection under federal or provincial legislation (i.e. National Parks, Ecological Reserves, Marine Protected Areas (MPAs), National Marine Conservation Areas (NMCAs), National Historic Sites, Fishery Management Areas);
- an area that may be under consideration for such legislative protection; and/or
- an area that is known to have particular ecological or cultural importance but is not necessarily protected under federal or provincial regulatory framework (i.e. important coral areas; spawning, nursery, rearing, or migratory areas;
- areas of high productivity, Important Bird Areas (IBAs), areas of traditional harvesting activities).



**Figure 5.20: Sensitive Areas**

The inclusion of an area as a Sensitive Area for the purpose of this assessment does not, in itself, automatically imply that this area will require the application of specific mitigations or restrictions on project activities. The timing, spatial extent and nature of proposed oil and gas activities, in addition to mitigations prescribed by legislation, will determine the level and types mitigation that will be required and applied.

While there are no sensitive areas for marine mammals identified, this is as a result of lack of information. Evidence also suggests that there are several areas within the Study Area that are ecologically important for seabirds, and likely for marine mammals as well.

### **5.5.1 National Marine Conservation Areas**

The National Marine Conservation Areas (NMCA) program was initiated in 1986 and is administered by Parks Canada under the National Marine Conservation Areas Act. NMCAs are marine areas managed for sustainable use, and are designed to protect and conserve marine areas representative of the 29 identified Canadian marine regions, for the benefit, education and enjoyment of Canadians. NCMAs are usually large marine areas, which contain smaller zones of varying degrees of protection. Ocean dumping and exploration and development of non-renewable resources are prohibited within NMCAs. Other activities however, such as fishing, are permitted. NMCAs encompass the seabed, the water above and any species that occur there. Wetlands, estuaries, islands and other coastal lands may also be included (Parks Canada 2008).

The data constraints for NMCAs include all data constraints identified for the biological environment of the Study Area, with respect to knowledge gaps associated with species such as species distributions, life histories, migrations, habitat preference, and critical habitats. The effects of climate change on species within these areas is an emerging area of study and would be considered a data gap.

Operators should be aware that there are currently two potential national Marine Conservation Areas within the Study Area under consideration. In the future, should Nain Bight and/or Hamilton Inlet become designated as NMCAs, oil and gas exploration would be prohibited within these areas.

#### **5.5.1.1 Nain Bight and Hamilton Inlet**

The Study Area is not yet represented in the national marine conservation areas system, although two representative marine areas (RMA) have been identified: Nain Bight and Hamilton Inlet.

Hamilton Inlet, east of Lake Melville, extends offshore to include the Hamilton Bank and part of Nain Bank, which fall within the Study Area. Both of these areas are shown in Figure 5.18. Selection of the preferred site for consideration as a possible national marine conservation area is the next step in the process of designating one of these sites as a NMCA, but further studies are needed to select the preferred site and to refine the



boundaries. Should one of these areas become an NMCA in the future, no third-party activity will be permitted within the defined boundaries, including oil and gas exploration and/or development (Parks Canada 2008).

### **5.5.2 National Parks and Historic Sites**

Also managed and maintained by Parks Canada, National Parks are established to protect and present outstanding representative examples of natural landscapes and ecosystems that occur in Canada's 39 natural regions, as identified in the National Parks System Plan (Parks Canada 2010). Parks are located in every province and territory, and range from mountains, to boreal forests, to lakes and glaciers, and are established to protect the unique habitats, wildlife and ecosystem diversity representative of each natural region (Parks Canada 2010).

#### **5.5.2.1 The Torngat Mountains National Park**

The Torngat Mountains National Park is the sole National Park found adjacent to the Study Area. The Torngat Mountains are of special significance to the Inuit and their predecessors for thousands of years (Parks Canada 2010). The park encompasses 9,700 km<sup>2</sup> of the Northern Labrador Mountains natural region, extending from Saglek Fjord in the south, including all islands and islets, to the very northern tip of Labrador (Figure 5.18). Today, Inuit continue to use this area for hunting, fishing, and travelling throughout the year (Parks Canada 2010).

There exists some planning implications related to the Torngat Mountains National Park. The park is the region's first national protected area and as such is free from commercial, industrial and mineral development (although traditional activities such as fishing and hunting are still allowed). No exploration or production activities are allowed within the park boundaries (which includes Saglek Bay to Killinek Island near Cape Chidley in the marine environment) (Figure 5.20).

#### **5.5.2.2 Battle Harbour National Historic District**

Battle Harbour is also managed by Parks Canada under the National Site Historic Program and is designated as a National Historic District because of its historic importance in the Labrador fishery. In the past, Battle Harbour was a rich seasonal fishing area and was for two centuries the economic and social centre of the southeastern Labrador coast. As Battle Harbour is a historic district and is provided for completeness, there are no applicable data gaps. Since part of Parks Canada's mandate is to maintain ecological and commemorative integrity of national historic sites, it is unlikely that exploration activities would be permitted near Battle Harbour.

#### **5.5.2.3 Mealy Mountains National Park (proposed)**

The proposed Mealy Mountains National Park, while outside the Study Area, is located in central Labrador, south of Lake Melville. The park encompasses 21,000 km<sup>2</sup>, extending to the coast, while the adjacent waters are part of the proposed Hamilton Inlet NMCA (Parks

Canada 2010). The next step in the National Parks designation process is the completion of a Park Feasibility Assessment that includes public consultations.

Seabirds and waterfowl in the area include Atlantic Puffins, Murres, Petrels, Gannets, Canada Geese, Eider Ducks, Black Ducks, Osprey and Bald Eagles. Seals, whales and the occasional Polar Bear also frequent the coast (Parks Canada 2005 as cited in Sikumiut 2008).

## **5.6 ECOLOGICAL RESERVES**

### **5.6.1 Gannet Islands Ecological Reserve**

In 1983 the Gannet Islands were designated as the Gannet Islands Ecological Reserve, under the *Wilderness and Ecological Reserves Act* of Newfoundland and Labrador. The Reserve is an archipelago of seven islands and surrounding marine component at the mouth of Sandwich Bay (Gov. NL 2010). The reserve is 22 km<sup>2</sup> in size, with 20 km<sup>2</sup> of that area being the marine waters surrounding the islands. It is the largest seabird colony in Labrador and has the largest Razorbill colony in North America. It also hosts important breeding populations of Atlantic Puffins and Common Murres, and is the largest known moulting site for Harlequin Ducks (listed under SARA as “special concern”) in eastern North America (Gov. NL 2010). The reserve is located approximately west (inshore) of the Study Area and is represented in (Figure 5.20).

### **5.6.2 Important Bird Areas (IBAs)**

The IBA program is an international conservation initiative coordinated by Birdlife International and co-partners: Bird Studies Canada and Nature Canada. An IBA is a site that provides essential habitat for one or more species of breeding or non-breeding birds. These sites may contain threatened species, endemic species, species representative of a biome, or highly exceptional concentrations of birds (IBA Canada 2010). Sites are identified using a set of standardized and internationally agreed upon criteria and can be identified under four main categories:

- sites regularly supporting large numbers of threatened species;
- sites regularly holding endemic species or species with restricted ranges;
- sites regularly holding an assemblage of species largely restricted to a biome or a unique or threatened community type; and/or
- sites where birds congregate in large numbers when breeding, in winter, or during migration.

IBAs are identified according to importance (based on specific bird population thresholds) as either globally, continentally, or nationally important (IBA Canada 2010).

There are some data constraints and planning implications for IBAs. Other seabird colonies in and near the Study Area may warrant Ecological Reserve status or other protective

legislation in the future (e.g., Herring Islands may be a future candidate site). Data for various IBAs are dated, and bird populations can change drastically over time as a result of perturbations, natural cycles and in response to ecosystem changes. While data does exist, there are gaps on the distribution and abundance for certain IBAs as well as limited data of the effects of climate change on IBAs.

Although designation as an official IBA of Canada does not bring legal protection, it does signify that an area may be of continental or global importance to the conservation of bird species and therefore will have to be considered when planning the Project. The Gannet Islands IBA is protected because it is inside the boundaries of the provincial designation as an Ecological Reserve. Damage to an Ecological Reserve warrants fines for individuals or corporations. Project activities in or adjacent to the Gannet Island Ecological Reserve, will therefore follow the protection measures defined within the legislative framework, including prohibitions against using motorized vehicles or aircraft, hunting, fishing, logging, and development. Additional mitigative measures, if required will be determined in consultation with regulatory agencies and other stakeholders.

There are a number of IBAs within and close to the Study Area that are home to a variety of bird species including SARA-Listed and COSEWIC species. As such, it is understood that special mitigative measures may be required to protect birds during vulnerable life history activities periods such as breeding and nesting. Future planning for the project will also need to consider the possibility of the establishment of new seabird reserves.

There are a total of 16 IBAs bordering the Study Area along the Labrador coast, including the Gannett Islands. These areas, along with five IBAs located on the Newfoundland Coast, are listed in Table 5.8. Locations in Labrador are shown in Figure 5.20.

**Table 5.8: Important Bird Areas (IBAs) near the Study Area**

IBAs on Labrador Coast	IBAs on Newfoundland Coast
<ul style="list-style-type: none"> <li>• Bird Island</li> <li>• Cape Porcupine</li> <li>• Galvano Island</li> <li>• Gannet Islands</li> <li>• Goose Brook</li> <li>• Nain Coastline</li> <li>• Northeast Groswater Bay</li> <li>• Offshore Islands, Southeast of Nain</li> <li>• Quaker Hat Island</li> <li>• Seven Islands Bay</li> <li>• South Groswater Bay</li> <li>• St. Peter Bay</li> <li>• Table Bay</li> <li>• The Backway</li> <li>• The Tumbledown Dick Islands and Stag Islands</li> </ul>	<ul style="list-style-type: none"> <li>• Fischot Islands</li> <li>• Northern Groais Island</li> <li>• Bell Island</li> <li>• Wadham Islands</li> <li>• Funk Island</li> </ul>

**5.7 MARINE PROTECTED AREAS (MPAS)**

DFO designates and manages marine protected areas (MPAs) under the *Oceans Act* in order to protect and conserve:

- commercial and non-commercial fishery resources and their habitats;
- endangered marine species and their habitats;
- unique habitats; and
- marine areas of high biodiversity or biological productivity.

Offshore oil and gas activities in or adjacent to the Gilbert Bay MPA will be bound by the Gilbert Bay Marine Protected Area Regulations (Department of Justice 2005), which prohibit such activities as depositing, discharging or dumping any substance that is likely to result in the disturbance, damage, destruction or removal of a living marine organism or any part of its habitat (Department of Justice Canada 2005). Operators should also be aware that the unique characteristics and rich diversity of marine life within Gilbert Bay, may result in restrictions of additional activities within or near Gilbert Bay if such activities are not consistent with the conservation objectives of the MPA.

**5.7.1 Gilbert Bay Marine Protected Area**

Currently, there is one MPA found near the Study Area. Gilbert Bay Marine Protected Area, which has been protected under the *Oceans Act* since 2005, is 47 km<sup>2</sup> in size and located approximately 300 km from Happy Valley-Goose Bay on Labrador's southeast coast (Figure 5.18). The Bay is 20 km in length but less than 100 m deep with two narrow outlets to the sea (DFO 2011c).

Gilbert Bay supports a wide range of marine species including several species of shellfish (mussels, scallops, sea urchins, snails, shrimp), pelagic fishes (herring, capelin, salmon, eels, smelt, trout), and aquatic plants (eel grass, kelp, coralline algae). The area is also inhabited by several species of waterfowl including Black Duck, geese and mergansers. Notably, the Bay also supports a resident population of Atlantic Cod, which is genetically distinct from other Labrador cod (DFO 2011c).

## **5.8 CORAL PROTECTION ZONES**

Corals are widely distributed throughout the Labrador Sea and Davis Strait, and are extremely important to the benthic community. These organisms provide structural complexity and serve as physical substrate, feeding sites and shelter for fish, invertebrates and other organisms including polychaetes, amphipods, sponges, barnacles, bryozoans, ophuroids and ichthyoplankton (Edinger *et al.* 2007 as cited in Sikumiut 2008). Corals are often damaged by bottom-fishing gear, and are increasingly susceptible to global warming and associated ocean acidification.

As of January 2007, and extending through December 31, 2014 the NAFO Fisheries Commission designated six seamount areas closed to all bottom fishing activities. These seamounts, for a variety of reasons, are considered vulnerable marine ecosystems. Included is one area at Orphan Knoll, which has been closed to activities in order to protect sensitive benthic habitat.

There are various data constraints and planning implications related to corals. The study of deep-sea corals in Newfoundland and Labrador is a new area of focus and research, and most research to date has focused on mapping of coral distributions and diversity (Gilkinson *et al.* 2006). Since 2005, the Newfoundland and Labrador deep-sea coral program has been expanded to include studies on deep-sea coral trophic relationships, reproductive ecology and the role of deep-sea corals as fish habitat. Nevertheless, the deep-sea coral program is new and there are data constraints associated with the mapping of deep-sea coral distributions and diversity, the understanding of deep sea coral ecology and their role in the ecosystem. The impacts of fishing industries on deep-sea coral communities in Canadian waters are also poorly understood.

Currently, there are no conservation measures in place to protect deep sea corals within the Newfoundland and Labrador region (Gilkinson *et al.* 2006). Operators should be aware however, that there is a possibility that conservation measures to protect deep sea corals could be adopted in the future for the Newfoundland and Labrador region.

### **5.8.1 Coral Conservation Priority Area**

The Groundfish Allocation Enterprise Council/Canadian Association of Seafood Producers, under the auspices of NAFO, have voluntarily established the 12,500 km<sup>2</sup> Voluntary Coral Protection Zone in NAFO Division 30. Although not included within the Study Area this protected area, off Cape Chidley, is important to note as it is closed to all fishing using

bottom contact gear and aims to conserve large concentrations of species of large corals such as *Primnoa resedaeformis*, *Paragorgia arborea*, *Paramuricia placomus*, *Paramuricia grandis* and *antipathorian species*.

## **5.9 HIGHLY PRODUCTIVE AREAS**

While the Hawke Channel-Hamilton Bank has more information than most other areas within the Labrador Shelf area, there are some key data constraints with respect to these areas including locations of enhanced areas of production, and concentrations of feeding seabirds and marine mammals. Research on spawning, nursery areas, migrations and species distribution on these banks (i.e. Hamilton Bank, Nain Bank, Saglek Bank, and others) within the Study Area is limited as is the understanding of the interactions between the ecosystems in the Study Area.

Operators must be aware that the importance and productivity of Hamilton, as well as Nain and Saglek Banks, to the Labrador Shelf region may result in special mitigative measures for the project in this area, depending upon the spatial and temporal schedule of planned activities.

### **5.9.1 Hawke Channel and Hamilton Bank**

Hawke Channel-Hamilton Bank (Figure 5.18) is one of the most productive offshore areas in the northwest Atlantic, and the most productive bank in the Labrador Shelf area due to high levels of regional upwelling. Surveys have also found peak occurrences of corals at the mouth of Hawke Saddle. A coral “hotspot”, an area with high coral biodiversity, is found where Hamilton Bank overlaps with the southeast Labrador shelf edge and slope (Brown 1999; Rao *et al.*, 2009).

The Hawke Channel-Hamilton Bank area is also host to 51 recorded species of fish and several major commercial fisheries. Hawke Channel contains the largest known concentrations of Atlantic Cod and is also a known location of the northern spawning grounds for the species. The area is also considered important to seabirds and marine mammals, as many species migrate through the Hawke Channel - Hamilton Bank region (Brown 1999; Rao *et al.* 2009).

Fishing gear restrictions for fisheries, such as regulated mesh sizes on shrimp trawls, are in place to reduce by-catch in the area. The area is within a Fisheries Conservation Closed Area related to salmon fishing and conservation, administered by DFO under the *Fisheries Act*. An extension of Hamilton Inlet has also been proposed to include representation of Hamilton Bank, and has been identified as a candidate site for the creation of an NMCA to represent the Labrador Shelf (Rao *et al.* 2009).

Other highly productive areas included within the Study Area are Nain Bank and Saglek Bank on the Labrador Shelf.

## 5.10 OCEAN RESOURCES USERS

### **5.10.1 First Nations and Aboriginal Peoples**

The province of Newfoundland and Labrador today is home to four peoples of Aboriginal ancestry: the Inuit, the Innu, the Mi'kmaq, and the Metis. The Inuit are the descendants of the Thule people who migrated to Labrador from the Canadian arctic 700 to 800 years ago. The primary Inuit settlements are Nain, Hopedale, Postville, Makkovik, and Rigolet on the north coast of Labrador, but Inuit people are also found in a number of other Labrador communities. They are represented by the Labrador Inuit Association.

The Innu, formerly known as the Naskapi-Montagnais, are descended from Algonkian-speaking hunter-gatherers who were one of two Aboriginal peoples inhabiting Labrador at the time of European arrival. The major Innu communities in Labrador are Sheshatshiu on Lake Melville in central Labrador and Utshimassit (Davis Inlet) on Labrador's northern coast. Today the Innu are represented by the Innu Nation.

The Labrador Metis are descendants of Europeans and Labrador Native people, primarily the Inuit. Labrador Metis today live in a number of communities on the central and southern Labrador coast. They are represented by the Labrador Metis Association which is currently attempting to win acceptance of its Aboriginal status from the federal and provincial governments.

The Newfoundland Mi'kmaq are found on the island of Newfoundland. They are descended from Algonkian hunter-gatherers whose homeland included what is now Nova Scotia, Prince Edward Island, part of New Brunswick, and the Gaspé peninsula. The largest Mi'kmaq community is Conne River in Bay d'Espoir on the island's south coast. Conne River is a reserve recognized by the federal government and its people are represented by the Miawpukek Band Council. Other people of Mi'kmaq descent live in central Newfoundland and on the west coast of the island. They are represented by the Federation of Newfoundland Indians (1997, Ralph T.Pastore Archaeology Unit & History Department Memorial University of Newfoundland).

#### **5.10.1.1 The Labrador Inuit Settlement Area (The Zone)**

Labrador Inuit Land Claims Agreement (2005) describes an area identified as the "Zone", which represents the Tidal Waters of the Labrador Inuit Settlement Area (Agreement, Section 1). This Agreement states that the C-NLOPB "shall notify the Nunatsiavut Government in writing about any permit, approval or authorization that it proposes to issue for:

- a) a Petroleum Exploration program in the Zone; or
- b) a Development of Minerals, or
- c) a Petroleum Exploration program in Ocean Areas Adjacent to the Zone,

The Nunatsiavut Government may make recommendations to the Regulator with respect to the proposed permit, approval or authorization (Canning and Pitt 2005). No seismic acquisition data will be acquired within the Labrador Inuit Settlement Area.

The Nunatsiavut Government Minister was contacted as a part of the list of stakeholders and received the information package on the potential project. It was advised that the information looked fine in reading the information and sitting down with the presentation that came to the community. They understood that there was some trouble before, and the fishermen were asked to haul up their gear early. They have been advised that this will not happen. That the seismic vessel will adhere to fishing vessels and both parties will continue doing what they need to do without interruption. A more detailed account of the consultations is found in Appendix C.

A Deputy Minister expressed that last year there were issues with the Nunatsiavut crab fishers. He understood that we would be communicating with Keith Watts at Torngat Fish Producers Co Op to ensure these challenges are addressed with this summer's work. He is very pleased that there is an opportunity to have Inuit observers onboard and that they are currently with Sikumiut to ensure adequate training. And would be interested in knowing if there are other potential opportunities for Inuit as a result of the project.

#### 5.10.1.2 Aboriginal Traditional Use and Subsistence Fisheries

The Labrador Shelf SEA area is used extensively by local aboriginal peoples for traditional hunting and fishing. The activities are spread widely throughout the region and vary by season. The Aboriginal people consider these activities as part of their culture and history and concerns were expressed in the public consultation sessions and through the process of collecting traditional knowledge over the impact that operations and/or accidental events may have on them. Some of the activities that could be conducted in the Study Area:

- Fishing: the area is used extensively for fishing. Species noted were crab, rock cod, Atlantic cod, arctic char, and sculpins; and
- Traditional Uses: this includes uses such as egging and berry picking that are conducted on the islands in the area.

Arctic char harvested in the traditional and recreational fisheries is not quantified or applied to resource outlooks. It is thought that these landings could be of considerable quantity and should be quantified in the future to make accurate predictions for the stock (DFO 2001). During public consultations (October 29 to November 15, 2007) in the Labrador Shelf SEA Area, Arctic char was suggested to be an important non-commercial species targeted in both traditional and recreational fisheries. In Nain, Arctic char are processed along with scallop. Within the Labrador Shelf SEA Area, Arctic char has been harvested from exclusively NAFO Unit Area 2H. The fishery currently takes place in July.

The main crab fishing area for the Torngat Fish Producers Co Op is north of Lake Melville/Groswater Bay in the management area between latitudes of 54° 40" North to 55°55" N. The crab fishing effort is about one month between June 15 to August 15 depending on weather and fishing conditions. The crab fishery is followed by a turbot 4 fishery located about 30 miles off the Makkovik coast during the period of August to the end of October. A fisher from the Postville area indicated that he is partnered with a fisher from Newfoundland for the use of his vessel to catch crab. They fish for about a month to catch the quota over the period June to September depending on the season. The area fished can be up to 180



miles offshore or further offshore depending on the crab abundance. Catch data on collaborative fishing efforts with non-native commercial fishers is captured in the DFO database.

The commercial fishing of Atlantic salmon in the SEA Area waters was placed under moratorium in 1997 (for the Straits area of Labrador) and 1998 for the rest of Labrador (DFO 2006I), in an effort to increase the number of salmon spawning in freshwater, resulting in higher production in future years. Prior to the closure of the commercial fishery in Labrador in 1998, total landings (both large and small salmon) averaged 369 t annually from 1984 to 1986 and 111 t annually from 1990 to 1997 (DFO 2006I). Despite the commercial fishery being closed in Labrador, there is still an Aboriginal traditional fishery for Atlantic salmon, as well as char and trout (DFO 2006I). During 2005, 32 t of salmon were harvested in the traditional fishery, with large salmon representing 34 % of the catch by weight and 21 % by number (DFO 2006I). Although commercial exploitation of the stock ended in 1998, overall abundance remains relatively low when compared with levels when commercial fishing was occurring (DFO 2006I). During public consultations (October 29 to November 15, 2007) in the Labrador Shelf SEA Area, Atlantic salmon was suggested to be an important non-commercial species targeted in both traditional and recreational fisheries.

### **5.11 COMMERCIAL FISHERIES**

This section describes the existing commercial fisheries in the Study Area for MKI's 2-D seismic surveys and provides additional context for the area's foreign commercial fisheries. It also describes economic and logistical aspects of the fisheries.

The data used to characterize the fisheries in this section are quantities of harvest. Harvest values are no longer provided by DFO Statistic Branch.

**Datasets.** Fisheries within the Study Area are primarily managed by DFO and NAFO, for convention countries. While the domestic commercial fisheries analysis in this section is based primarily on data derived from the DFO Newfoundland and Labrador Region catch and effort datasets, foreign catches landed outside the regions are not included in these. The DFO data used in the report (DFO 2005 to 2009) represent all catch landed within Newfoundland and Labrador region (whether managed by NAFO or DFO, as described above). The DFO catch data within the Study Area are georeferenced (typically >95% of the harvest, by quantity), so that past harvesting locations can be plotted with a high level of accuracy, and these locations are shown on the fisheries maps in this section. The positions given in the datasets are those recorded in the vessel's fishing log, and are reported in the database by degree and minute of latitude and longitude; thus the positions should be accurate within approximately 0.5 nautical mile of the reported co-ordinates. For some gear, such as mobile gear towed over an extensive area, or for extended gear, such as longlines, the reference point does not represent the full distribution of the gear or activity on the water. However, over many data entries, the reported locations create a fairly accurate indication of where such fishing activities occur. In addition, to provide a historical summary of catches in the general area of the proposed Project Area, DFO data for Unit Areas NAFO 2G, 2H, 2J, 3K, 0B and 1F are used (the Project Area UAs).

### 5.11.1 Study Area Domestic Fisheries

#### 5.11.1.1 2005 to 2009, July to November Study Area Catch Analysis

Table 5.9 shows the average annual Canadian-landed harvest by species, 2005 to 2009, from within the Study Area from July to November, based on the georeferenced DFO datasets. As the data show, the domestic harvest in the Study Area has been singly dominated by shrimp throughout this period, in terms of quantity.

**Table 5.9: Average Study Area Harvest by Species, July to November, 2005-2009**

Year of Catch	Commercial Species	Total Landed Weight (tones)	Total Landed Weight in Study Area (tons)	% Total of Landed Weight in Study Area
2009	American Place	0.00	5.00	0.00%
2009	Capelin	9823236.00		0.00%
2009	Cod	1145459.00		0.00%
2009	Greysole-Witch Flounder	1383.00	268.00	0.00%
2009	Groundfish, Heads	811387.00	195229.00	0.61%
2009	Herring	423556.00		0.00%
2009	Icelandic Scallops	17734.00	1326.00	0.00%
2009	Mackerel	6898293.00	2922.00	0.01%
2009	Pand. Montagu Shrimp	984421.00	636233.00	1.98%
2009	Pandalus Borealis Shrimp	45092994.00	27299065.00	85.04%
2009	Queen-Snow Crab	3672807.00	1728917.00	5.39%
2009	Redfish	15389.00	8324.00	0.03%
2009	Roughhead Grenadier	4092.00	412.00	0.00%
2009	Skate	2109.00	173.00	0.00%
2009	Turbot-Greenland Halibut	6072189.00	2230389.00	6.95%
<b>2009</b>	<b>Grand Total</b>		<b>32103263.00</b>	<b>100.00%</b>
2008	American Place	237.00		0.00%
2008	Arctic Charr	17754.00		0.00%

Year of Catch	Commercial Species	Total Landed Weight (tones)	Total Landed Weight in Study Area (tons)	% Total of Landed Weight in Study Area
2008	Arctic Cod	0.00		0.00%
2008	Capelin	13043162.00		0.00%
2008	Cod	1461449.00		0.00%
2008	Eel	9649.00		0.00%
2008	Greysole-Witch Flounder	1.00		0.00%
2008	Goundfish, Heads	372109.00		0.00%
2008	Icelandic Scallops	17199.00	328.00	0.00%
2008	Illex Squid	237126.00		0.00%
2008	Lobster	16783.00		0.00%
2008	Lumpfish	11752.00		0.00%
2008	Lumpfish Roe	62627.00		0.00%
2008	Mackerel	9124654.00		0.00%
2008	Pand. Montagu Shrimp	1133661.00	868195.00	2.29%
2008	Pandalus Borealis Shrimp	58798189.00	36454951.00	95.97%
2008	Queen-Snow Crab	1274281.00	293967.00	0.77%
2008	Redfish	1349.00	774.00	0.00%
2008	Rock Cod	18.00		0.00%
2008	Rock Crab	41377.00		0.00%
2008	Roughhead Grenadier	1072.00		0.00%
2008	Skate	979.00		0.00%
2008	Spider Toad Crab	179029.00		0.00%
2008	Turbot-Greenland Halibut	3492058.00	368258.00	0.97%
2008	Whelks	153026.00		0.00%
2008	Winter Flounder	53970.00		0.00%
<b>2008</b>	<b>Grand Total</b>		<b>37986473.00</b>	<b>100.00%</b>
2007	American Place	2397.00		0.00%
2007	Arctic Charr	28725.00		0.00%
2007	Atlantic Halibut	86.00	72.00	0.00%

Year of Catch	Commercial Species	Total Landed Weight (tones)	Total Landed Weight in Study Area (tons)	% Total of Landed Weight in Study Area
2007	Capelin	13023818.00		0.00%
2007	Cod	1035787.00		0.00%
2007	Eel	12607.00		0.00%
2007	Illex Squid	117403.00		0.00%
2007	Lobster	34351.00		0.00%
2007	Lumpfish Roe	47550.00		0.00%
2007	Greyscale-Witch Flounder	1717.00	1697.00	0.00%
2007	Groundfish, Heads	538749.00	3877.00	0.01%
2007	Icelandic Scallops	38217.00		0.00%
2007	Pand. Montagu Shrimp	3054476.00	1885923.00	4.10%
2007	Pandalus Borealis Shrimp	66433851.00	42657120.00	92.82%
2007	Queen-Snow Crab	1634142.00	410924.00	0.89%
2007	Redfish	13866.00	4576.00	0.01%
2007	Rock Cod	64.00		0.00%
2007	Rock Crab	52827.00		0.00%
2007	Roughhead Grenadier	15155.00	8956.00	0.02%
2007	Sculpin	19163.00		0.00%
2007	Sea Raven	22857.00		0.00%
2007	Sea Urchin	39519.00		0.00%
2007	Skate	3126.00	1549.00	0.00%
2007	Turbot-Greenland Halibut	3932703.00	980644.00	2.13%
2007	Whelks	134015.00		0.00%
2007	Winter Flounder	82570.00		0.00%
2007	Yellowtail Flounder	191.00		0.00%
<b>2007</b>	<b>Grand Total</b>		<b>45955338.00</b>	<b>100.00%</b>
2006	American Place	961.00		0.00%
2006	Arctic Charr	36515.00		0.00%
2006	Atlantic Halibut	2003.00	212.00	0.00%