

Environmental Assessment Update of the MKI Labrador Sea Seismic Program 2014-2018

Prepared by



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Project No. FA0039

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1.0 Introduction

This document is an Update of the Environmental Assessment (EA) of Multi Klient Invest AS (MKI) and TGS-NOPEC Geophysical Company ASA (TGS)'s proposed 2014–2018 2-Dimensional (2D) and/or 3-Dimensional (3D) marine seismic program in the Labrador Sea area, Newfoundland and Labrador (LGL 2014a), and its associated Addendum (LGL 2014b). In 2015, MKI is proposing to conduct 2D and 3D seismic surveys in the Labrador Sea Project Area (see Figure 2.1). This document addresses the validity of the EA (Table 1.1) as it pertains to MKI's 2015 proposed seismic surveying. The EA Update is intended to assist the C-NLOPB in its regulatory review process by demonstrating that both the scope of the assessment and the mitigation measures to which MKI previously committed and implemented in 2014 remain technically valid for proposed seismic survey operations in 2015.

Table 1.1 Environmental Assessment Documents for the MKI Labrador Sea Geophysical Program.

Screening Determination Reference	Temporal Scope	EA Document Title
C-NLOPB File No. 45006-020-003	1 May to 30 November, 2014-2018	Environmental Assessment MKI Labrador Sea Seismic Program, 2014-2018 (LGL 2014a) ^a

^a On 18 August 2014, the C-NLOPB made a determination (positive) on this document.

The following sections provide the information necessary to confirm the validity of the EA and its associated documents (see Table 1.1). This Update also includes new relevant information not included in the EA and its associated documents.

2.0 Project Description

2.1 VECs and Project Activities Assessed in the EA

The EA (LGL 2014a) assessed the potential effects of 2D and 3D seismic survey activities within the defined Project Area (Figure 2.1) on the following Valued Environmental Components (VECs).

- Fish and fish habitat;
- Fisheries;
- Seabirds;
- Marine mammals and sea turtles;
- Species at risk; and
- Sensitive areas.

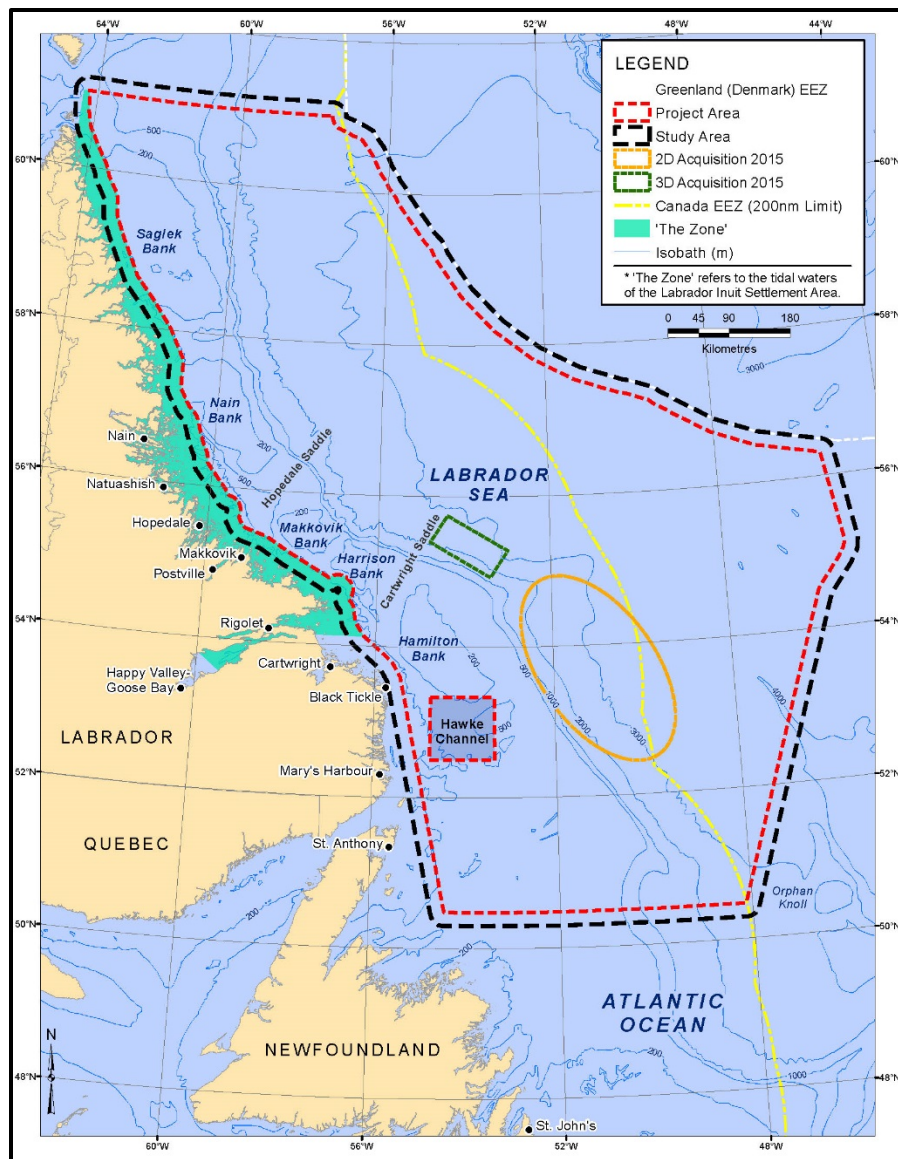


Figure 2.1 Locations of the Project Area and Study Area for Labrador Sea Seismic Program, 2014 to 2018, and the 2015 Data Acquisition Areas for 2D (orange oval) and 3D (green rectangle) Seismic.

2.2 Vessels and Equipment

In addition to the seismic vessel, 2D and/or 3D seismic surveys require two support vessels: (1) a picket vessel tasked with communicating with other vessels (primarily fishing vessels) that may be operating in the area, and scouting ahead for any other hazards such as floating debris; and (2) a supply vessel tasked with re-supply, refuelling and personnel transfer.

For 2D surveys, the seismic ship will tow a single seismic hydrophone cable (streamer) up to 10 km long, deployed near the ocean surface within a depth range of 15 to 25 m. This is a passive listening device, which will receive the sound waves reflected from structures underneath the ocean floor and

transfer the data to an on-board recording and processing system. The cable is a solid streamer, PGS GeoStreamer®. For 3D seismic surveys, the seismic ship will tow multiple streamers. Streamers will be solid with an expected length of 8,000 to 10,000 m, depending on survey design, and deployed at depths ranging from 15 to 25 m. As many as 16 streamers may be towed during a 3D seismic survey.

The 2D and 3D survey sound sources will consist of one or more airgun arrays with a total discharge volume of 3,000 to 6,000 in³, operating at tow depth of 6 to 15 m. The airgun arrays are comprised of individual airguns ranging in size from 22 to 250 in³ each. The airguns will be operated with compressed air at pressures of 2,000–2,500 psi and produce approximate peak-to-peak pressures of 100 to 200 bar-m. A typical airgun array used by MKI for 2D surveys consists of four sub-arrays with a total volume of 4,808 in³, operated at a pressure of 2,000 psi. This array is generally towed at a depth of 9 m and produces peak-to-peak pressures of 179 bar-m. The airguns in the array are strategically arranged to direct most of the energy vertically downward rather than sideways. The shot interval will be one shot every 19 to 25 s, and the survey speed will be around 4.5 knots (8.3 km/h).

The seismic vessel is also equipped with a Furuno FE-700 echosounder. The downward-facing echosounder operates at a frequency of 50 kHz or 200 kHz and will be used to collect water depth information. For this Project, sound velocity profiles will also be acquired in the water column at various locations within the survey area. This is a routine practice during seismic programs. Sound velocity profiles allow for more accurate interpretation of the acoustic data (i.e., seismic pulses) recorded by the seismic streamer. These data are acquired with a small, passive device that will be deployed by the support vessel. The device measures pressure, temperature, and salinity, from which the speed of sound can be calculated.

2.3 Spatial Scope

The Project and Study areas considered in the EA remain unchanged and are presented in Figure 2.1. The Project Area, within which all survey activities will occur, is encompassed by the Study Area. The boundary of the Study Area is 25 km outside of that for the Project Area. The 25 km wide area is intended to account for the propagation of sound being generated within the Project Area that could potentially affect marine biota.

2.4 Temporal Scope

The temporal scope indicated in the EA (LGL 2014a) was defined by a 1 May to 30 November period during each year of the 2014 to 2018 period.

2.5 Seismic Survey Activities Planned for 2015

In 2015, MKI plans to conduct 2D and 3D seismic surveying within the Project Area shown in Figure 2.1. The 2D seismic surveying will likely be conducted by the MV *Sanco Spirit* or another similar vessel. The MV *Sanco Spirit* is the same vessel that operated in this area during the 2011 to 2013 seasons. If 3D seismic surveying is conducted in 2015, the seismic vessel will likely be a V-Class

Ramform vessel (e.g., MV *Ramform Valiant* or MV *Ramform Viking*). The 2D seismic surveying will include focus in the yet to be announced NL02-LS Sector (see Figure 2.1) and possibly some further infill regional lines. 3D seismic surveying will be focused in a high graded area within the NL01-LS Sector (see Figure 2.1). All other project details presented in Section 2.0 of the EA (LGL 2014a) apply to MKI's geophysical activities in 2015.

2.6 Mitigation Measures

Mitigation measures implemented during seismic surveys carried out under this Project will follow those described in prior documents (LGL 2014a, 2015) and defined in Appendix 2 of *Geophysical, Geological, Environmental and Geotechnical Program Guidelines* (CNLOPB 2012). These include ramp-up (i.e., soft start) of the airgun arrays, the use of qualified, dedicated Marine Mammal Observer(s) (MMOs) to monitor marine mammals and sea turtles and implement shut downs/ramp up delays of the airgun array when appropriate, and the use of a Fisheries Liaison Officer (FLO) and communication procedures to avoid conflicts with fisheries. Seabird observations and monitoring/mitigation for stranded birds will also be carried out by qualified personnel according to established Canadian Wildlife Service (CWS) protocols.

3.0 Physical Environment

MKI provided a summary description of the existing physical environment within the Project Area in its EA (LGL 2014a). Section 3.0 of the EA on the Physical Environment was based primarily on information provided in the Labrador Shelf Strategic Environmental Assessment (SEA) (C-NLOPB 2008). There is no new and relevant information available on the physical environment in the Study Area.

4.0 Biological Environment

Newly available background information related to the VECs considered in the EA and its Addendum is included in this section.

4.1 Fish and Fish Habitat

This section includes updates to the description of the Fish and Fish Habitat VEC in Section 4.2 of MKI's EA (LGL 2014a) and the associated Addendum (LGL 2014b). New information is included for snow crab (*Chionoecetes opilio*) and Atlantic salmon (*Salmo salar*) only. The new information presented in this section does not change the effects predictions made in the EA (LGL 2014a).

4.1.1 Snow Crab

Snow crab landings in NAFO Div. 2HJ have decreased by 45% since 2008 while offshore landings in NAFO Div. 3K declined by 51% between 2009 and 2012. Snow crab landings increased slightly from 2012 to 2013 (DFO 2014a).

4.1.2 Atlantic Salmon

According to DFO, recent numbers of large and small salmon in Labrador were below levels achieved prior to the moratorium. In 2012, numbers of small salmon were below the six-year average, whereas large salmon were above the previous six-year average. The low level of large salmon spawners in Labrador remains a concern (DFO 2014b).

4.2 Fisheries

This section includes updates to the description of the Fisheries VEC described in Section 4.3 of MKI's EA (LGL 2014a) and the associated Addendum (LGL 2014b). The new information presented in this section does not change the effects predictions made in the EA (LGL 2014a).

4.2.1 Commercial Fisheries

Analysis of the 2013 commercial fisheries landings data did not indicate any major differences in distribution of harvest locations for May–November 2013 (Figures 4.1 to 4.4) compared to the distributions for May–November 2005–2012 (see Figures 4.3 to 4.5 and 4.8 in LGL 2014a). Figures 4.1 to 4.4 show the distribution of 2013 harvest locations for all species, northern shrimp (*Pandalus borealis*), snow crab and Greenland halibut (*Reinhardtius hippoglossoides*), respectively. The majority of harvesting occurred in the shelf and upper slope areas, with relatively few catches occurring in deeper water areas. Northern shrimp was the most important commercial species in the Study Area in 2013 (67% of total catch in terms of total catch weight quartile code counts), as it was in previous years (see Table 4.2 in LGL 2014a), followed by snow crab (23%), Greenland halibut (6%), striped shrimp (*Pandalus montagui*) (2%), and redfish (*Sebastes* sp.) (1%) (Table 4.1); all remaining species in Table 4.1 accounted for <1% of total catch. Fewer species were captured in the Study Area in 2013 compared to previous years, with no catches reported for white hake (*Urophycis tenuis*), haddock (*Melanogrammus aeglefinus*), Icelandic scallops (*Chlamys islandica*), flounder sp. (including yellowtail *Pleuronectes ferruginea*), or monkfish (*Lophius americanus*) (see Table 4.1 below and Table 4.2 in LGL 2014a).

The distribution of harvest locations for northern shrimp in the Study Area during May–November 2013 (Figure 4.2) was consistent with those observed during May–November, 2005–2012 (see Figure 4.2 below and Figures 4.11 to 4.13 in LGL 2014a), except for fewer harvest locations in the southwest portion of the Study Area in 2013 compared to previous years (particularly 2005–2011). Although total allowable catch (TAC) quotas in nearby regions (e.g., shrimp fishing areas [SFA] 0, 1 and 7 and NAFO Divisions 3LM) have decreased considerably in recent years, the TAC quotas for northern shrimp in the Study Area (SFA 4, 5, 6) have remained relatively consistent since 2011 despite an overall decrease in SFA 5 and 6 of about 2,000–4,000 mt, and a slight increase of about 3,000 mt in SFA 4 between 2011 and 2014 (DFO 2014c).

The distribution of harvest locations for snow crab in the Study Area during May–November 2013 (Figure 4.3) was consistent with those observed during May–November, 2005–2012 (see Figure 4.3 below and Figures 4.16 to 4.18 in LGL 2014a), except for somewhat fewer harvest locations in 2013 compared to previous years. The TAC for snow crab in NAFO Division 2J has decreased from 2,227 mt in 2010 to 1,765 mt in 2014 (DFO 2014c).

The distribution of harvest locations for Greenland halibut in the Study Area during May–November 2013 (Figure 4.4) was more consistent with those observed during May–November, 2011 and 2012 than that seen during 2005–2010. Fewer harvest locations were reported in 2013 compared to previous years (see Figure 4.4 below and Figures 4.21 to 4.23 in LGL 2014a). NAFO and DFO manage the harvest for Greenland halibut in NAFO Divisions 3LMNO and 4RST, respectively (DFO 2014c; NAFO 2015). There are no TAC quotas set for this species for the NAFO Divisions that occur within the Study Area.

Similar to previous years, the majority of harvest within the Study Area in 2013 occurred during the May to August period, being lowest in the fall (see Figure 4.5 below and Figure 4.8 in LGL 2014a). Gear types used in the 2013 harvest were typical of those used in the region's commercial fisheries in recent years (see Section 4.3.3.2 in LGL 2014a).

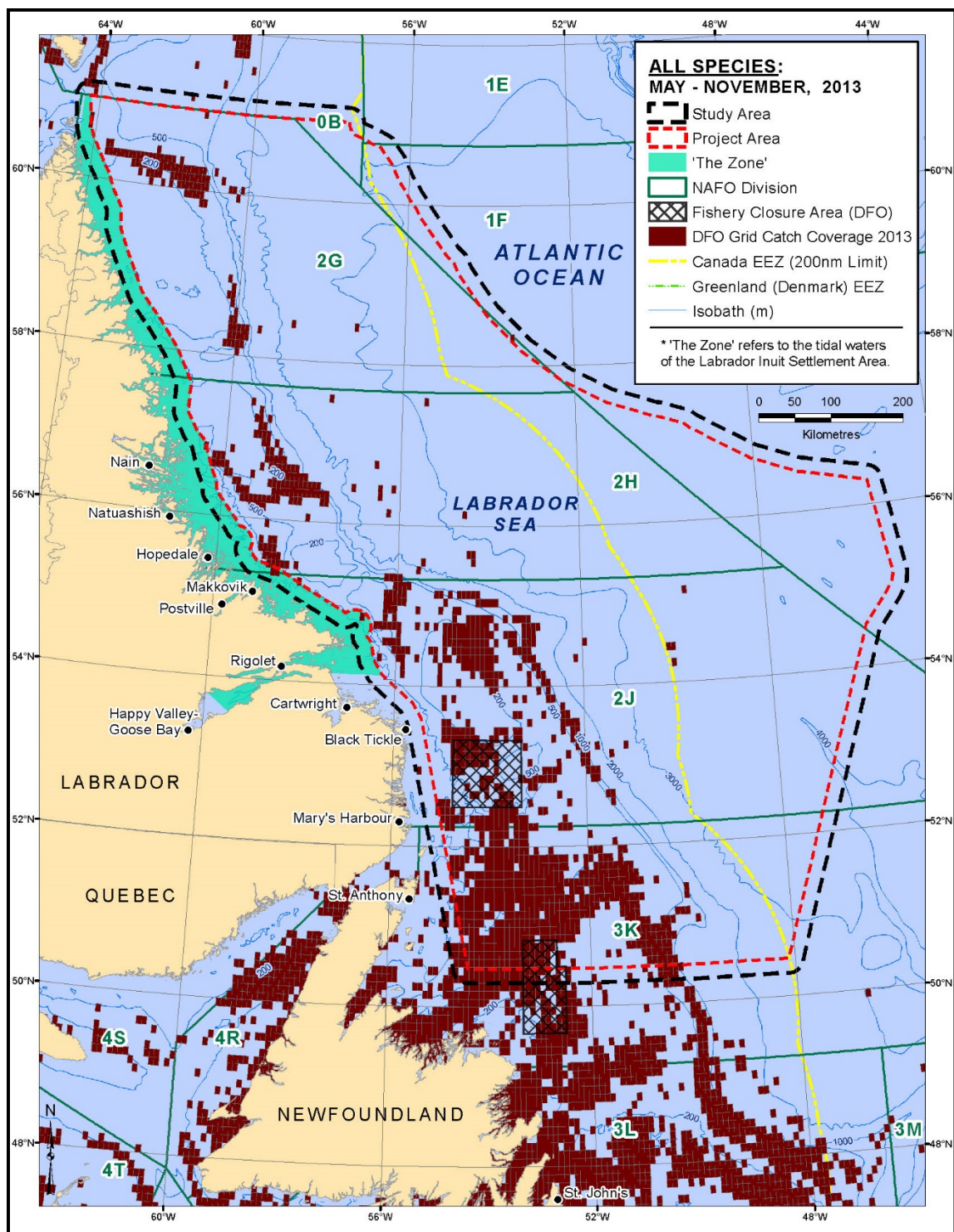
4.2.2 Traditional and Aboriginal Fisheries

There is no new information regarding traditional and aboriginal fisheries in the Study Area since the preparation of the EA in 2014 and publication of the Eastern Newfoundland Strategic Environmental Assessment (SEA) (see Section 4.3.4 in LGL 2014a and Section 4.3.4 in C-NLOPB 2014). The Nunatsiavut Government holds a Communal Snow Crab licence and allocation within NAFO Divisions 2GHJ; a portion of its area of allocation is located within the Study Area, in waters north of 54°40'N (DFO 2010). In 2014, the Communal TAC for snow crab in this area was 310 mt (DFO 2014c).

4.2.3 Recreational Fisheries

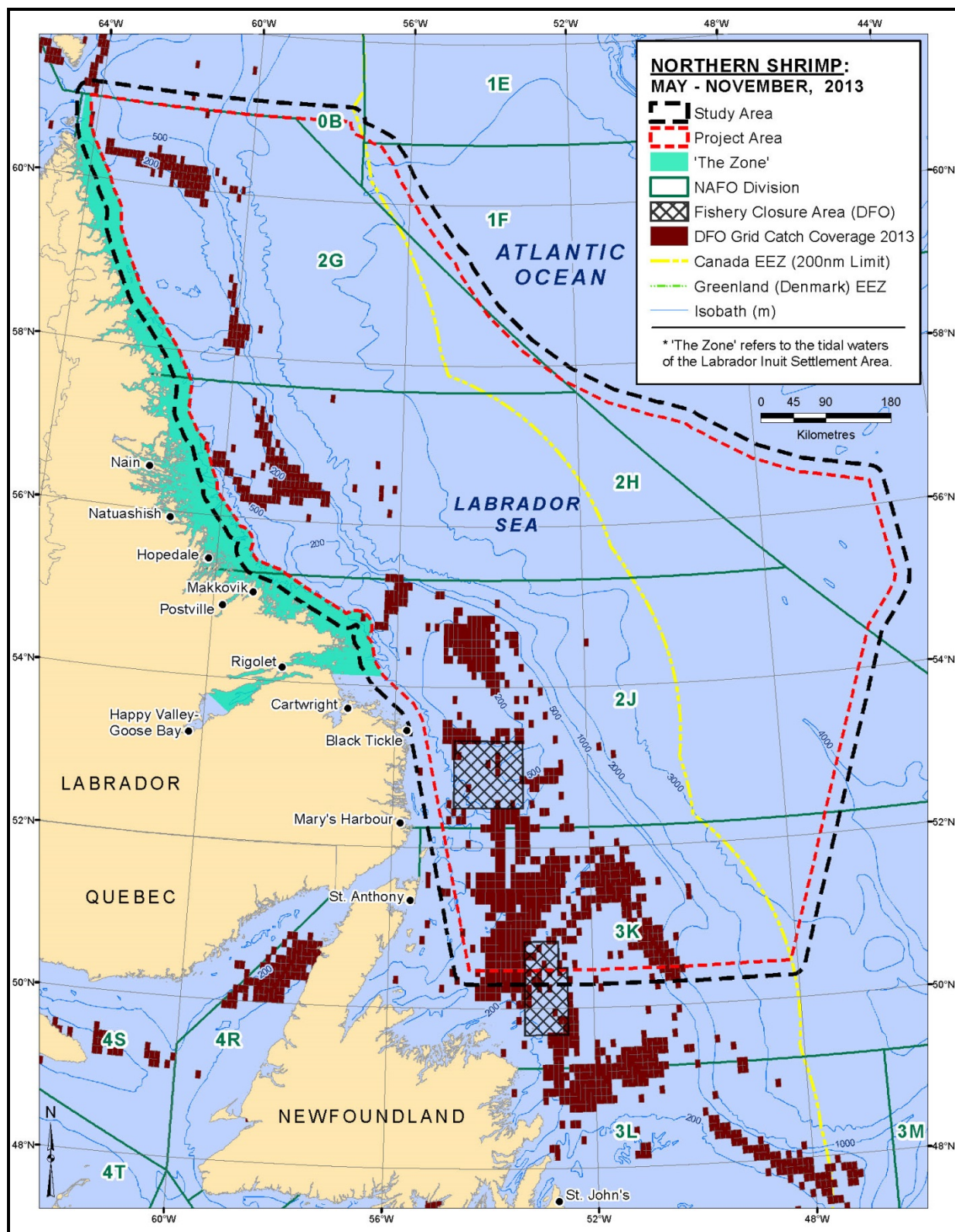
Recreational fisheries in Newfoundland and Labrador are described in Section 4.3.5 of the EA (LGL 2014a), Section 4.3.4.4 of the Eastern Newfoundland SEA (C-NLOPB 2014), and Section 3.3.3 in the Southern Newfoundland SEA (C-NLOPB 2010). In 2015, the recreational groundfish fishery will occur in all NAFO areas around Newfoundland and Labrador, including NAFO Divisions 2GH, 2J3KL, 3Ps, 3Pn and 4R (DFO 2014d). This fishery is largely conducted in coastal and inshore waters (C-NLOPB 2014), and will be open for three weeks in the summer beginning on 18 July 2015, and for nine days in the fall beginning on 19 September 2015 (dates are subject to change) (DFO 2014d).

As in previous years, the retention of Atlantic halibut, spotted wolffish (*Anarhichas minor*), northern wolffish (*A. denticulatus*), and any species of shark is prohibited in the Newfoundland and Labrador 2015 recreational fisheries (DFO 2014d). While sculpins and cunners may be released; all other groundfish caught must be retained (DFO 2014d).



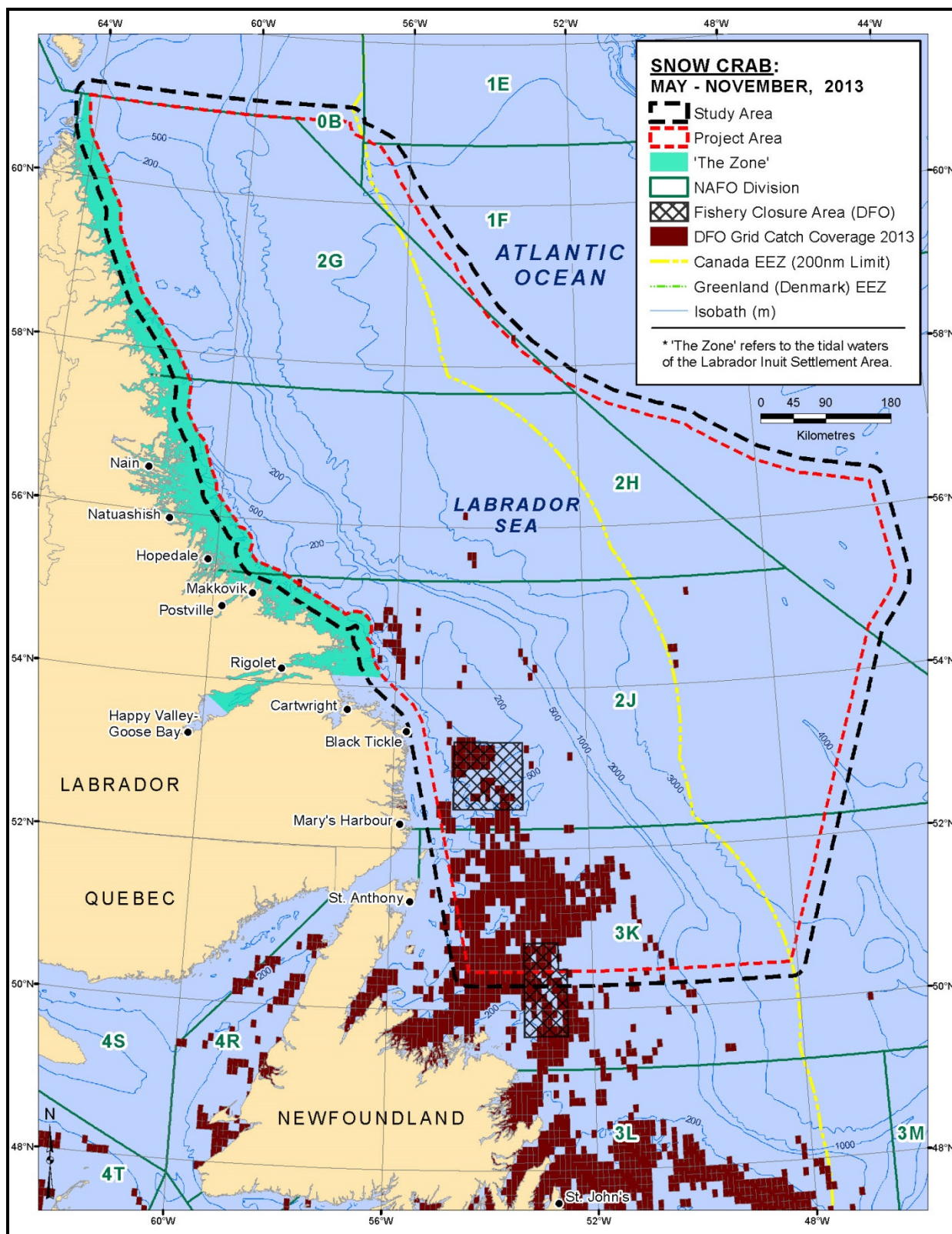
Source: DFO commercial landings database, 2013.

Figure 4.1 Distribution of Commercial Fishery Harvest Locations, All Species, May-November, 2013.



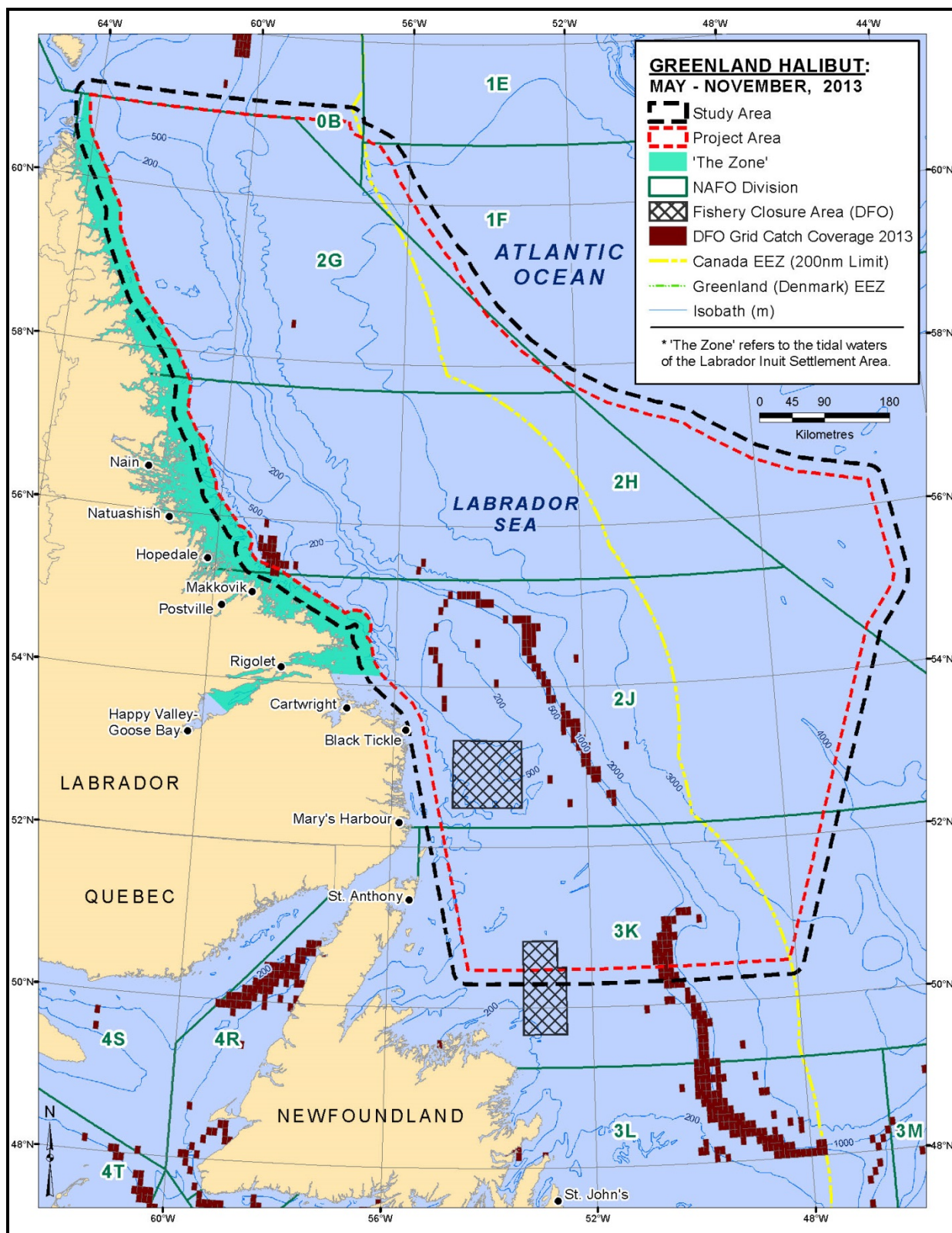
Source: DFO commercial landings database, 2013.

Figure 4.2 Distribution of Commercial Fishery Harvest Locations, Northern Shrimp, May-November, 2013.



Source: DFO commercial landings database, 2013.

Figure 4.3 Distribution of Commercial Fishery Harvest Locations, Snow Crab, May-November, 2013.



Source: DFO commercial landings database, 2013.

Figure 4.4 Distribution of Commercial Fishery Harvest Locations, Greenland Halibut, May-November, 2013.

Table 4.1 Commercial Catch Weights and Values in the Study Area, May–November, 2013
(values indicate the frequency of catch weight quartile codes [i.e., 1–4] attributed to each species. Gear types and months of effort are also indicated).

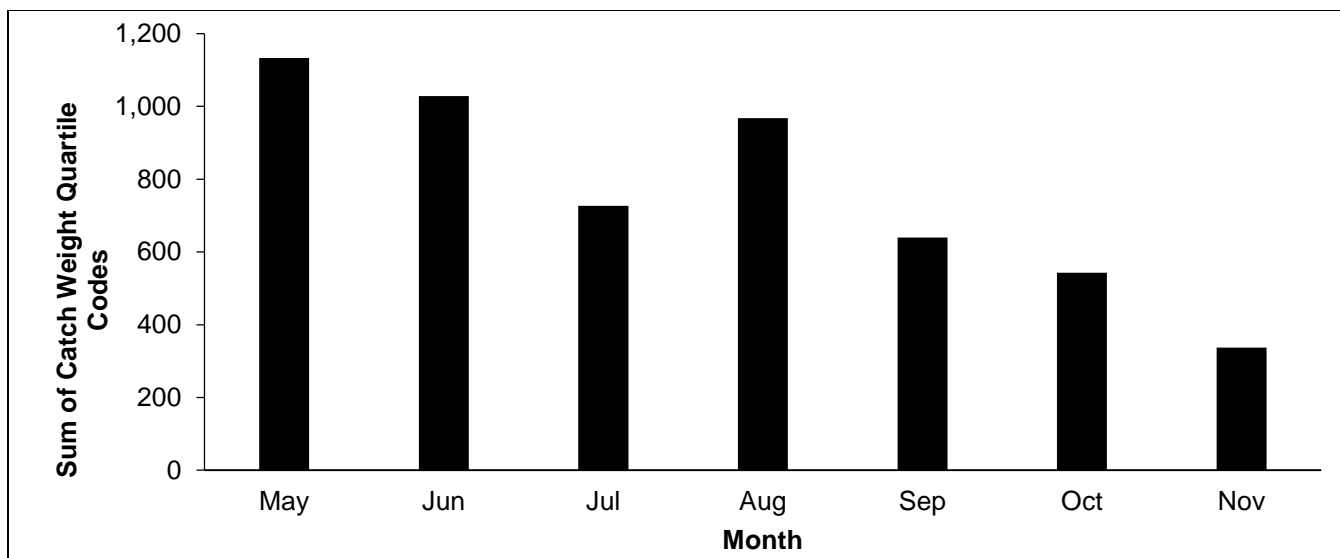
Species	Catch Weight Quartile Code Counts ^a				Catch Value Quartile Code Counts ^b				Total Counts ^c	Month Caught	Gear Type	
	1	2	3	4	1	2	3	4			Fixed	Mobile
Northern Shrimp (<i>Pandalus borealis</i>)	472	789	1,037	1,281	807	779	996	997	3,579	May–Nov	-	Trawl
Snow Crab (<i>Chionoecetes opilio</i>)	292	522	363	62	253	460	387	139	1,239	May–Jul	Pot	-
Greenland Halibut (<i>Reinhardtius hippoglossoides</i>)	50	167	104	6	64	153	93	17	327	May–Sep	Gillnet	Trawl
Striped Shrimp (<i>Pandalus montagui</i>)	12	28	39	38	11	24	36	46	117	May–Nov	-	Trawl
Redfish sp. (<i>Sebastes</i>)	7	15	20	4	8	14	17	7	46	May–Aug	Gillnet	Trawl
Witch Flounder (<i>Glyptocephalus cynoglossus</i>)	0	4	5	6	0	1	4	10	15	May–Jun	-	Trawl
Roughhead Grenadier (<i>Coryphaenoides rupestris</i>)	0	5	9	0	0	3	8	3	14	May–Aug	Gillnet	Trawl
American Plaice (<i>Hippoglossoides platessoides</i>)	0	2	6	6	0	0	3	11	14	May–Jun	-	Trawl
Skate sp.	5	2	5	0	5	3	4	0	12	Jun; Aug	Gillnet	-
Atlantic Halibut (<i>Hippoglossoides hippoglossus</i>)	0	1	4	5	0	0	2	8	10	May–Jun	-	Trawl
Capelin (<i>Mallotus villosus</i>)	0	0	1	1	1	1	0	0	2	Jul	Trap Net	Seine
Mackerel (<i>Scomber scombrus</i>)	0	0	1	0	0	1	0	0	1	Oct	-	Seine
Atlantic Cod (<i>Gadus morhua</i>)	1	0	0	0	1	0	0	0	1	Jul	-	Hand Line (Baited)
Total	839	1,535	1,594	1,409	1,150	1,439	1,550	1,238	5,377	-	-	-

Source: DFO commercial landings database, 2013.

^a Quartile code ranges provided by DFO (quartile code ranges calculated annually by DFO based on total catch weights in a given year, all species combined). 2013 quartile code ranges: 1 = 0 – 2,591 kg, 2 = 2,592 – 11,809 kg, 3 = 11,810 – 47,277 kg, 4 = ≥ 47,278 kg.

^b Quartile code ranges provided by DFO (quartile code ranges calculated annually by DFO based on total catch values in a given year, all species combined). 2013 quartile code ranges: 1 = \$0 – \$8,988, 2 = \$8,989 – \$35,457, 3 = \$35,458 – \$121,547, 4 = ≥ \$121,548.

^c Total counts of the number of catch records per species; the total quartile code counts for catch weight and catch value are equal.



Source: DFO commercial landings database, 2013.

Note: Sum of catch weight quartile codes is the summation of quartile codes (i.e., 1–4) for all catch records for all species; the greater the sum of quartile code counts, the greater the catch weight for a given month.

Figure 4.5 Monthly Sums of Catch Weight Quartile Codes in the Study Area, All Species, May–November, 2013.

4.2.3.1 Aquaculture

As per the EA (see Section 4.3.6 in LGL 2014a), there are currently no approved aquaculture sites within the Study Area. Aquaculture sites in eastern Labrador and northern Newfoundland are coastal-based and occur west and south of the Study Area (see Section 4.3.4.3 and Figure 4.150 in C-NLOPB 2014; DFA 2014).

4.2.4 DFO and Industry Science Surveys

DFO Research Vessel (RV) data collected during annual multi-species trawl surveys between 2007 and 2011 were presented in the EA (see Section 4.3.7 in LGL 2014a). Analysis of the 2012 dataset for fall (October–December) RV surveys in the Study Area did not indicate any major differences in either the predominant species caught or the harvest locations compared to previous survey years, with the exception that in 2012 there was only a single catch location within NAFO Division 2G, in the northern portion of the Study Area (see Table 4.4 and Figure 4.30 in LGL 2014a). Contrary to previous survey years, there were no RV survey data collected within the Study Area during the spring in 2012.

Fisheries research surveys conducted by DFO and the fishing industry were described in Section 4.3.8 of the EA (LGL 2014a). The tentative schedule of the 2015 DFO multispecies science surveys (RV surveys) is presented below (Table 4.2; G. Sheppard, DFO, pers. comm.). Spring RV surveys are currently set to begin at the end of March and continue into mid-June, with surveys potentially occurring within the Study Area in late-May. DFO fall RV surveys will begin in mid-September and end in early-December, and may occasionally occur in the Study Area throughout this time period.

Table 4.2 Tentative Schedule of DFO RV Surveys in 2015.

NAFO Division	Start Date	End Date	Vessel
3P	31 Mar	14 Apr	<i>Needler</i>
3P	14 Apr	28 Apr	<i>Needler</i>
3P + 3O	29 Apr	12 May	<i>Needler</i>
3O + 3N	12 May	26 May	<i>Needler</i>
3L + 3N	27 May	13 Jun	<i>Needler</i>
3O	16 Sep	29 Sep	<i>Needler</i>
3O + 3N	29 Sep	13 Oct	<i>Needler</i>
2H	04 Oct	13 Oct	<i>Teleost</i>
2H + 2J	14 Oct	27 Oct	<i>Teleost</i>
3N + 3L	14 Oct	27 Oct	<i>Needler</i>
2J + 3K	27 Oct	10 Nov	<i>Teleost</i>
3L	28 Oct	10 Nov	<i>Needler</i>
3K	11 Nov	24 Nov	<i>Teleost</i>
3K + 3L	11 Nov	24 Nov	<i>Needler</i>
3K + 3L Deep	24 Nov	08 Dec	<i>Teleost</i>

Start/end dates subject to change as trip plans are finalized.

As indicated in the EA (see Section 4.3.8 in LGL 2014a), several DFO-Industry collaborative post-season snow crab trap survey stations are located in the central-west and southwest portions of the Study Area, in NAFO Divisions 2J and 3K (see Figure 4.40 in LGL 2014a). Sampling at these stations will occur annually during the September to November period throughout the remainder of the Project (i.e., 2015–2018).

4.3 Seabirds

This section includes updates to the description of the Seabird VEC described in Section 4.4 of MKI's EA (LGL 2014a) and the associated Addendum (LGL 2014b). The new information presented in this section does not change the effects predictions made in the EA (LGL 2014a).

4.3.1 Seabirds and Migratory Birds

The following table (Table 4.3) is a revision of Table 4.7 in Section 4.4 the EA. It includes revised data available as of December 2014.

4.3.2 Important Bird Areas for Seabirds

The last three sentences of Section 4.4.1 of the EA (LGL 2014a) are updated as follows:

These eight IBAs contain almost 640,000 pairs of breeding seabirds of 11 species. The Gannet Islands contain the largest seabird colony on the coast of Labrador with 14,801 pairs of Razorbill (about 33% of the North American breeding population), 38,666 pairs of Atlantic Puffin, and 31,170 pairs of Common Murre (see Table 4.3 below).

Table 4.3 Breeding Pairs of Pelagic Seabirds at Important Bird Areas.

Species	Number of Nesting Pairs								
	Southeast of Nain	Quaker Hat	Northeast Groswater Bay	Gannet Islands	Bird Island	Northern Groais Island	Wadham Islands	Funk Island	Total
Northern Fulmar <i>Fulmarus glacialis</i>	-	-	-	16	-			13	29
Leach's Storm-Petrel <i>Oceanodroma leucorhoa</i>	-	-	10	20	present		6,000 ^a		6,030
Northern Gannet <i>Morus bassanus</i>								6,075	6,075
Herring Gull <i>Larus argentatus</i>	-	-	present		-			150 ^a	150+
Glaucous Gull <i>Larus hyperboreus</i>	350	-	-	-	-				350
Great Black-backed Gull <i>Larus marinus</i>	-	-	100	120	20			75 ^a	315
Black-legged Kittiwake <i>Rissa tridactyla</i>	-	4 ^a	-	72 ^a	-	2,400		100 ^a	2,576
Common Murre <i>Uria aalge</i>	2,260	-	2,060 ^a	31,170 ^a	3,100			470,000 ^a	508,590
Thick-billed Murre <i>Uria lomvia</i>	8,000	126 ^a	365 ^a	1,846 ^a	present			250	10,587+
Razorbill <i>Alca torda</i>	815	-	3,714 ^a	14,801 ^a	1,530		30	200	21,090
Black Guillemot <i>Cephus grylle</i>	341	-	present	110	-		25		476+
Atlantic Puffin <i>Fratercula arctica</i>	12,240	-	17,404 ^a	38,666 ^a	8,070		7,140 ^a	2,000	85,520
Totals	24,006	130	23,653+	86,821	12,720+	2,400	13,195	478,863	~642,148

Source: Important Bird Areas of Canada (www.ibacanada.ca); ^aCWS unpublished data (acquired 2 May 2014).

4.3.3 Distribution and Abundance

The fifth sentence of the first paragraph in Section 4.4.2.8 of the EA is updated as follows:

Common Murre breeds in large colonies on the mid-Labrador coast with a total of 39,000 pairs at five main colonies (see Table 4.3 above).

The first two sentences of the third paragraph in Section 4.4.2.8 of the EA is updated as follows:

Razorbill breeds in the north Atlantic from northern Europe, including Iceland and Greenland, to the mid-Labrador coast and south to Maine. About 43% (18,801 pairs) of the North American breeding population of Razorbill nests on the mid-section of Labrador coast (see Table 4.3 above). Most of these (14,801 pairs) are on The Gannet Islands (CWS unpubl. data).

4.4 Marine Mammals and Sea Turtles

This section includes updates to the description of the Seabird VEC described in Section 4.5 of MKI's EA (LGL 2014a) and the associated Addendum (LGL 2014b). The new information presented in this section does not change the effects predictions made in the EA (LGL 2014a).

4.4.1 Updated COSEWIC Designations

The following are updated COSEWIC designations for particular marine mammals included in Table 4.10 of the EA (LGL 2014a).

- Sei whale (*Balaenoptera borealis*) (Atlantic population) – changed from *data deficient* to *high-priority candidate* species;
- Sperm whale (*Physeter microcephalus*) (Atlantic) – changed from *low-priority candidate* species to *mid-priority candidate* species;
- Harp seal (*Pagophilus groenlandicus*) (Atlantic) – changed from *mid-priority candidate* species to *high-priority candidate* species; and
- Hooded seal (*Cystophora cristata*) (Atlantic) – changed from *mid-priority candidate* species to *high-priority candidate* species.

4.4.2 Updated Population/Abundance Estimates

Some of the marine mammal and sea turtle population/abundance estimates included in the EA (LGL 2014a) are updated below.

- Sperm whale - there is currently no reliable estimate of sperm whale abundance in the entire western North Atlantic. The best recent abundance estimate of 2,288 (CV = 0.28), based on aerial and shipboard surveys and uncorrected for dive-time, is likely an underestimate (Waring et al. 2014).

- Long-finned pilot whale (*Globicephala melas*) - although the total number of long-finned pilot whales off the east coast of the U.S. and Canada remains uncertain, an estimated 26,535 individuals occur in the Northwest Atlantic (Waring et al. 2014). Lawson and Gosselin (2009) provided an abundance estimate of 6,134 pilot whales, based on aerial surveys conducted from northern Labrador to the Scotian Shelf.
- Harp seal - the total population size for the Northwest Atlantic harp seal population was estimated at 7,411,000 in 2014 (SE = 656,000; Hammill et al. 2014a). Despite highly variable pup production among years, this population has shown little change in abundance since 2004 and is considered to be relatively stable (Hammill et al. 2014a).
- Grey seal (*Halichoerus grypus*) – 2014 population sizes for grey seal herds at Sable Island, coastal Nova Scotia and Gulf of St. Lawrence were estimated at 394,000 (95% CI 238,000-546,000), 13,800 (95% CI = 9,300–27,300), and 98,000 (95% CI = 54,000-179,000), respectively (Hammill et al. 2014b).

4.4.3 Additional References

Davoren (2013) compared data on previously described annually persistent aggregations of capelin (*Mallotus villosus*) on the northeast Newfoundland coast with data on predator distribution and abundance collected during at-sea surveys repeated over 8 years (2000–2003, 2007, and 2009–2011). They found that for all years combined, there was a higher frequency of baleen whales (predominantly humpback whales *Megaptera novaeangliae*; also minke whales *Balaenoptera acutorostrata* and fin whales *Balaenoptera physalus*) associated with three persistent prey hotspots relative to other areas. Baleen whales were associated with both spawning and staging hotspots for capelin. At capelin spawning hotspots, the baleen whales were most frequently present during spawning than before or after spawning. These hotspots are located just south of the Study Area.

In 2008 and 2009, Prieto et al. (2014) deployed satellite tags on sei whales in Portugal, and subsequent analysis of tracking data revealed a well-defined migratory corridor between the Azores and the Labrador Sea. Tracking data also showed that sei whales in the Labrador Sea spend considerable time foraging, indicating that the Labrador Sea constitutes an important feeding ground for them. Recent satellite telemetry data also suggested a discrete feeding area for sei whales may be present off the Gulf of Maine and Nova Scotia (Prieto et al. 2014). These data support the hypothesis that separate stocks of sei whales exist off the coasts of the U.S. and Canada. Some of the sei whales tracked to the Labrador Sea by Prieto et al. (2014) arrived in the area in mid-May with some remaining there until mid-September, coinciding with the time when sei whales are known to occur in the Gulf of Maine (CETAP 1982; Baumgartner et al. 2011).

McCordic et al. (2014), using images from the North Atlantic Humpback Whale Catalogue (NAHWC), examined humpback whale flukes for the presence of rake marks from killer whales. They found that within the western North Atlantic, Canada (including the Newfoundland and Labrador region and the Quebec shore of the Gulf of St. Lawrence) has a scarring rate that is almost twice that of either the Gulf of Maine or West Greenland. This suggests that the Canadian population of killer whales may prey preferentially on marine mammals.

Matthews and Ferguson (2014) analyzed stable isotopes in the tooth collagen of killer whales (*Orcinus orca*) from the Eastern Canadian Arctic (ECA) and the north-west Atlantic (NWA; samples from Newfoundland). Significant differences in stable nitrogen isotope values between killer whales from the two areas support the hypothesis that ECA and NWA killer whales are from largely non-overlapping populations. Despite these inter-area differences, ECA and NWA killer whales were found to forage at similar trophic levels.

Brown et al. (2014) measured blubber contaminants and deployed satellite tags on 13 ringed seals (*Pusa hispida*) during August and September, 2008–2011, at various locations in Saglek Fjord, Labrador. Seals were classified as either “local” or “long-range” on the basis of their PCB contaminant loads. Tracking data revealed differences in habitat use between these two groups. Local seals were found to maintain relatively small home ranges and remained within ~100km of Saglek Bay. Long-range seals generally showed little, if any, site fidelity, and dispersed greater distances. One long-range seal traveled to Ungava Bay, another traveled across Hudson Strait to the southwestern coast of Baffin Island, two traveled to the southern tip of Labrador, and another spent time ~150 km offshore.

Andersen et al. (2013) deployed satellite tags on 65 hooded seals during five field seasons (2004–2008) and analyzed tracking data in conjunction with a variety of environmental parameters. Male and female hooded seals were found to prefer similar habitat conditions, but were separated temporally and spatially (geographically and by depth). Males were more localized in their habitat use patterns, and search effort was focused in areas of complex seabed relief (e.g., Baffin Bay, Davis Strait, and the Flemish Cap). Females concentrated their search effort along shelf areas (e.g., the Labrador shelf) and were found to use the Labrador shelf more intensively than males, especially in the autumn/winter season after moulting and prior to breeding. Some of the tagged hooded seals, particularly juveniles, were tracked within or near the Study Area in spring and fall/winter.

4.5 Species at Risk

This section includes updates to the description of the Species at Risk VEC described in Section 4.6 of MKI’s EA (LGL 2014a) and the associated Addendum (LGL 2014b). The new information presented in this section does not change the effects predictions made in the EA (LGL 2014a).

Table 4.4 summarizes species that could potentially occur in the Study Area, based on information as of March 2015 from the websites for SARA and COSEWIC. Changes to species designations since the EA was prepared in 2014 are detailed below and noted in red font and light grey shading in Table 4.4. Note that the scientific names of the animals are provided in Table 4.4.

- North Atlantic right whale added; although unlikely to occur in the Study Area, it is assessed as endangered on Schedule 1 of SARA and by COSEWIC;
- Sei whale (Atlantic population) added; it is considered a high priority candidate species by COSEWIC;
- Kemp’s Ridley sea turtle added; it is considered a low priority candidate species by COSEWIC;

- Atlantic bluefin tuna added; although unlikely to occur in the Study Area, it is assessed as endangered by COSEWIC;
- Smooth skate (Funk Island Deep population) added; it is assessed as endangered by COSEWIC;
- White hake (Atlantic population) added; it is assessed as threatened by COSEWIC;
- Thorny skate added; it is assessed as special concern by COSEWIC;
- Basking shark (Atlantic population) added; it is assessed as special concern by COSEWIC;
- Atlantic mackerel added; it is considered a mid-priority candidate species by COSEWIC;
- King Eider added; it is considered a low priority candidate species by COSEWIC;
- Hooded seal COSEWIC assessment changed from a mid-priority to a high priority candidate species;
- Harp seal COSEWIC assessment changed from a mid-priority to a high priority candidate species by COSEWIC; and
- Sperm whale COSEWIC assessment changed from a low priority to a mid-priority candidate species by COSEWIC.

As of February 2015, no additional species of special status that could potentially occur within the Study Area have been added to Schedule 1 of SARA. Additionally, no recovery strategies have been finalized since the recovery strategy for the *endangered* Ivory Gull (EC 2014), described in the EA Addendum (LGL 2014b).

MKI will monitor SARA issues through the law gazettes, the Internet, and communication with DFO and Environment Canada, and will adaptively manage any issues that may arise in the future. MKI will comply with relevant regulations pertaining to SARA Recovery Strategies and Action Plans. MKI will continue to exercise due caution to minimize impacts on species at risk during all of its operations. MKI also understands that other marine species may be designated as *endangered* or *threatened* on Schedule 1 during the course of the Project and will continue to monitor any status changes.

4.6 Sensitive Areas

This section includes updates to the description of the Sensitive Areas VEC described in Section 4.7 of MKI's EA (LGL 2014a) and the associated Addendum (LGL 2014b). The new information presented in this section does not change the effects predictions made in the EA (LGL 2014a).

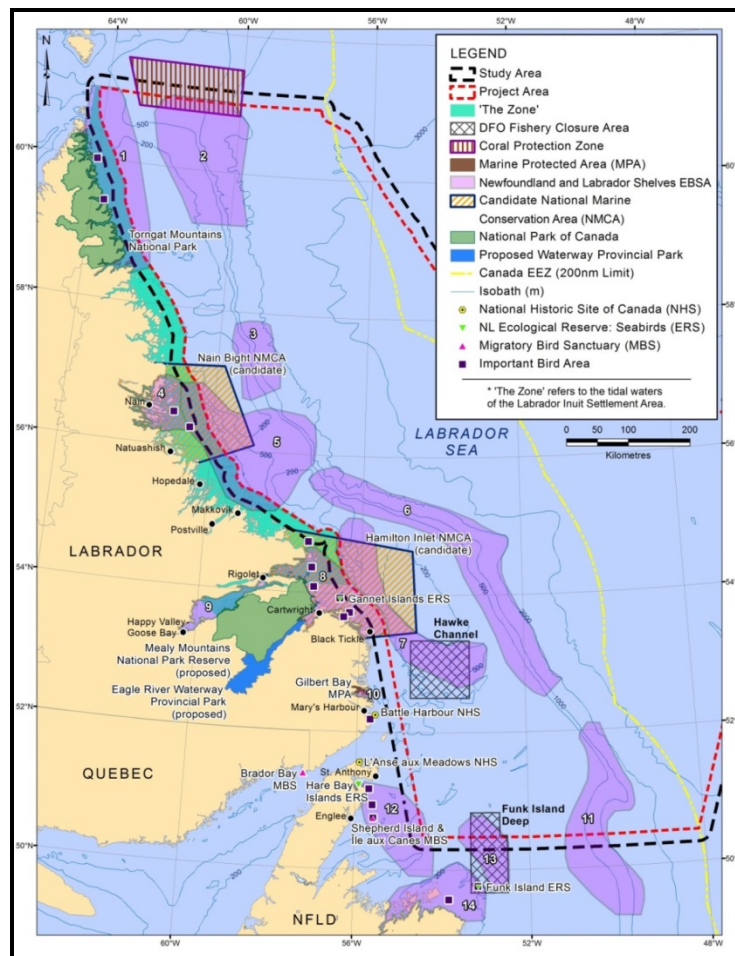
Section 4.7 of the EA provided information on Sensitive Areas, including DFO Fishery Closure Areas, Coral Protection Zones, Marine Protected Areas, Candidate National Marine Conservation Areas, and Important Bird Areas (LGL 2014a). The EA Addendum (LGL 2014b) included 11 Ecologically and Biologically Significant Areas (EBSAs) within the Newfoundland and Labrador (NL) Shelves Bioregion (DFO 2013) that either overlap or are proximate to (within 20 km) the Study Area (Figure 4.6). The key attributes of the 11 NL Shelves EBSAs are presented in Table 2 of the EA Addendum (LGL 2014b). No additional sensitive areas have been designated in the Study Area since the completion of the EA and EA Addendum.

Table 4.4 SARA Schedule 1- and COSEWIC-Listed Marine Species with Reasonable Likelihood of Occurrence in the Study Area.

SPECIES		SARA Schedule 1 ^a			COSEWIC ^b			
Common Name	Scientific Name	Endangered	Threatened	Special Concern	Endangered	Threatened	Special Concern	Candidate Species
Marine Mammals								
Blue whale (Atlantic population)	<i>Balaenoptera musculus</i>	X			X			
North Atlantic right whale	<i>Eubalaena glacialis</i>	X			X			
Northern bottlenose whale (Scotian Shelf population)	<i>Hyperoodon ampullatus</i>	X			X			
Fin whale (Atlantic population)	<i>Balaenoptera physalus</i>			X			X	
Sowerby's beaked whale	<i>Mesoplodon bidens</i>			X			X	
Polar Bear	<i>Ursus maritimus</i>			X			X	
Beluga whale (Eastern Hudson Bay population)	<i>Delphinapterus leucas</i>				X			
Beluga whale (Ungava Bay population)	<i>Delphinapterus leucas</i>				X			
Harbour porpoise (Northwest Atlantic population)	<i>Phocoena phocoena</i>						X	
Killer whale (Northwest Atlantic/Eastern Arctic population)	<i>Orcinus orca</i>						X	
Northern bottlenose whale (Davis Strait-Baffin Bay-Labrador Sea population)	<i>Hyperoodon ampullatus</i>						X	
Sei whale (Atlantic population)	<i>Balaenoptera borealis</i>							High priority
Ringed seal	<i>Phoca hispida</i>							High priority
Hooded seal	<i>Cystophora cristata</i>							High priority
Harp seal	<i>Phoca groenlandica</i>							High priority
Bearded seal	<i>Erignathus barbatus</i>							Mid priority
Sperm whale	<i>Physeter microcephalus</i>							Mid priority
Sea Turtles								
Leatherback sea turtle	<i>Dermochelys coriacea</i>	X			X			
Loggerhead sea turtle	<i>Caretta caretta</i>				X			
Kemp's Ridley sea turtle	<i>Lepidochelys kempi</i>							Low priority
Marine Fish								
White shark (Atlantic population)	<i>Carcharodon carcharias</i>	X			X			
Northern wolffish	<i>Anarhichas denticulatus</i>		X			X		
Spotted wolffish	<i>Anarhichas minor</i>		X			X		
Atlantic wolffish	<i>Anarhichas lupus</i>			X			X	

SPECIES		SARA Schedule 1 ^a			COSEWIC ^b			
Common Name	Scientific Name	Endangered	Threatened	Special Concern	Endangered	Threatened	Special Concern	Candidate Species
Atlantic cod (Newfoundland and Labrador population)	<i>Gadus morhua</i>				X			
Porbeagle shark	<i>Lamna nasus</i>				X			
Roundnose grenadier	<i>Coryphaenoides rupestris</i>				X			
Cusk	<i>Brosme brosme</i>				X			
Atlantic bluefin tuna	<i>Thunnus thynnus</i>				X			
Smooth skate (Funk Island Deep Population)	<i>Malacoraja senta</i>				X			
Atlantic salmon (various populations)	<i>Salmo salar</i>				X	X	X	
American eel	<i>Anguilla rostrata</i>					X		
American plaice (Newfoundland and Labrador population)	<i>Hippoglossoides platessoides</i>					X		
Acadian redfish (Atlantic population)	<i>Sebastes fasciatus</i>					X		
Deepwater redfish (Northern population)	<i>Sebastes mentella</i>					X		
White hake (Atlantic population)	<i>Urophycis tenuis</i>					X		
Blue shark (Atlantic population)	<i>Prionace glauca</i>						X	
Spiny dogfish (Atlantic population)	<i>Squalus acanthias</i>						X	
Roughhead grenadier	<i>Macrourus berglax</i>						X	
Thorny skate	<i>Amblyraja radiata</i>						X	
Basking shark (Atlantic population)	<i>Cetorhinus maximus</i>						X	
Northwest Atlantic Lumpfish	<i>Cyclopterus lumpus</i>							High priority
Spinytail skate	<i>Bathyraja spinicauda</i>							Mid priority
Pollock	<i>Pollachius virens</i>							Mid priority
Greenland shark	<i>Somniosus microcephalus</i>							Mid priority
Atlantic mackerel	<i>Scomber scombrus</i>							Mid priority
Birds								
Ivory Gull	<i>Pagophila eburnea</i>	X			X			
Harlequin Duck	<i>Histrionicus histrionicus</i>			X			X	
Barrow's Goldeneye	<i>Bucephala islandica</i>			X			X	
King Eider	<i>Somateria spectabilis</i>							Low priority

Sources: ^aSARA website (http://www.sararegistry.gc.ca/species/default_e.cfm), accessed February 2015; ^bCOSEWIC website (<http://www.cosewic.gc.ca/index.htm>); accessed February 2015; COSEWIC candidate species not included.



Notes: NL Shelves EBSAs: (1) Northern Labrador, (2) Outer Shelf Saglik Bank, (3) Outer Shelf Nain Bank, (4) Nain Area, (5) Hopedale Saddle, (6) Labrador Slope, (7) Labrador Marginal Trough, (8) Hamilton Inlet, (9) Lake Melville, (10) Gilbert Bay, (11) Orphan Spur, (12) Grey Islands, (13) Notre Dame Channel, (14) Fogo Shelf

Figure 4.6 Sensitive Areas Overlapping or Proximate to the Study Area.

5.0 Consultations

The document One Ocean Protocol for Consultation Meetings: Recommendations for the Fishing and Petroleum Industries in Newfoundland and Labrador (One Ocean 2013a) outlines recommendations for preparing, convening and following up on consultation meetings.

In early March 2015, MKI distributed a newsletter to various stakeholders and agencies (consultees), describing the seismic activities planned for 2015. The newsletter and list of recipients are provided in Appendices 1 and 2, respectively.

During March and April 2015, MKI met with five of the consultees: (1) DFO; (2) the Food, Fish and Allied Workers (FFAW) Union; (3) Ocean Choice International (OCI); (4) Nunatsiavut

Government (NG); and (5) Torngat Wildlife, Plants and Fisheries Secretariat (TWPFS). The points of discussion at each of these meetings are outlined below.

5.1 DFO

DFO stated that from its point of view, seismic surveying does not pose ‘serious harm to fish’. Therefore, subsequent face-to-face meetings with DFO are not necessary. Feedback from DFO will be provided, if necessary, during its review of the Update document.

5.2 FFAW

After the presentation of planned seismic activities in the Labrador Sea Project Area in 2015, the FFAW representative indicated that very little interaction between the fishing industry and the seismic surveying was expected in 2015. MKI committed to maintaining close communication with the fishing industry during 2015 operations.

5.3 OCI

After the presentation of planned seismic activities in the Labrador Sea Project Area in 2015, the OCI representative indicated that there has been minimal interaction between OCI vessels and seismic vessels during past seasons. MKI committed to maintaining close communication with OCI during 2015 operations.

5.4 NG

After the presentation of planned seismic activities in the Labrador Sea Project Area in 2015, there was discussion related to Inuit employment for Marine Mammal Observers (MMO) and Maritime crewing. Following this, MKI’s 2014 activities in the area were reviewed. Marine mammal and seabird observational data were presented, and mitigation and communication processes associated with fisheries were discussed. Representatives of the NG indicated that no interactions between fishing vessels and seismic vessels were reported in 2014. MKI committed to provide a pdf copy of the presentation as well as a copy of the 2014 Environmental Report to the NG.

5.5 TWPFS

After the presentation of planned seismic activities in the Labrador Sea Project Area in 2015, there was discussion related to TWPFS’s annual crab survey. Based on the information presented to TWPFS, it was agreed that there should not be any conflict between the crab survey and the seismic surveying. Following this, MKI’s 2014 activities in the area were reviewed. Marine mammal and seabird observational data were presented, and mitigation and communication processes associated with fisheries were discussed. Representatives of TWPFS indicated that no interactions between fishing vessels and seismic vessels were reported in 2014. MKI committed to provide a pdf copy of the

presentation to TWPFS. TWPFS agreed to provide the spatial and temporal aspects of the 2015 crab survey to MKI.

6.0 Environmental Assessment

6.1 Mitigation Measures

The mitigation measures described in the EA (Section 5.6 *in* LGL 2014a) and the associated Addendum (LGL 2014b) remain applicable to the seismic survey activities planned for 2015.

In 2011, One Ocean reviewed fishing and petroleum industry processes and practices for offshore seismic survey operations in Newfoundland and Labrador with the intention of identifying opportunities to better understand and improve operational processes that would mutually benefit both industries. Results of the review are outlined in the document One Ocean Protocol for Seismic Survey Programs in Newfoundland and Labrador (One Ocean 2013b).

6.2 Validity of Significance Determination

Based on careful consideration of newly available information presented in Section 4.0 and consultations with stakeholders, the determinations of significance of the residual effects of seismic survey activities on VECs presented in the EA (LGL 2014a) and the associated Addendum (LGL 2014b) remain valid for the 2015 seismic survey activities planned by MKI.

7.0 Concluding Statement

The seismic survey activities that MKI plans to conduct in 2015 have been reviewed and assessed to be within the scope of the EA (LGL 2014a) and its Addendum (LGL 2014b) (see Table 1.1).

The environmental effects predicted in the EA and its Addendum remain valid. MKI reaffirms its commitment to implement the mitigation measures proposed in these assessment documents and in the Screening Decisions made by the C-NLOPB.

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List of Appendices

Appendix 1 – MKI Newsletter Distributed to Consultees

Appendix 2 – List of Consultees Contacted by MKI

Appendix 1

MKI Newsletter Distributed to Consultees

Resumption of the Program in 2015

This news update is to inform stakeholders and other interested parties of the continuation of MKI's seismic current program, started in 2014, in Labrador offshore waters. The Project Area is within the regulatory jurisdiction of the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) and it is expected that the Sanco Spirit and a PGS Ramform vessel will be acquiring surveys between early August and late October 2015. It is likely that a 3D survey would be in the Sector NL01-LS that will be the subject of a C-NLOPB Call for Bids in 2019.



Figure 1: Sanco Spirit and a PGS Ramform Vessel

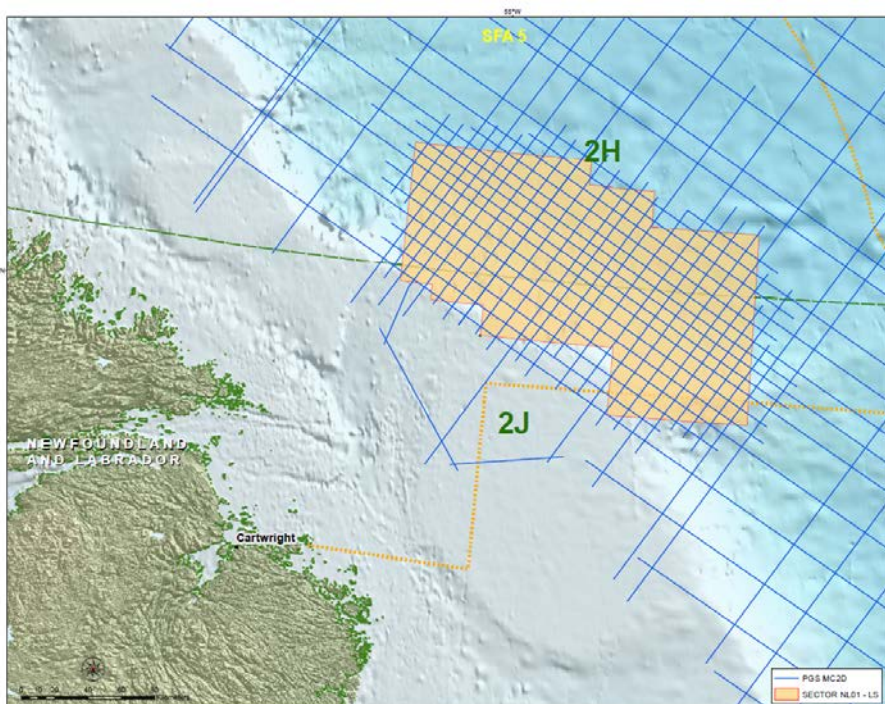


Figure 2: Lines surveyed over Sector NL01-LS; initially as part of the regional survey acquired in 2012 and then infilled in 2014 to a focused 10 x10 km grid

Ongoing Communication

As a component of the ongoing communications between MKI and local fisheries organizations, MKI will be providing weekly briefing materials including information such as updated schedules, maps, and/or revised timelines.

Employment Opportunities

Employment opportunities associated with this year's operating season have been considered and it has been determined that there will be possible positions for hire as part of the maritime crew. The recruitment process through a local agency will commence in the coming weeks and interested parties should look out for notices posted in community employment offices and other advertisements

How to Access Environmental Information about the Project

The Environmental Assessment (EA) for the Labrador Sea Seismic Program 2014-2018 along with additional documentation including the Annual EA Update can be accessed on the C-NLOPB website (www.cnlopb.ca).

From the C-NLOPB homepage, click on the link "Environmental Assessments" on the right hand side. Then click on the "Completed/On Hold Environmental Assessments" link. Once this page has opened, scroll down to the project titled "MKI Labrador Sea Seismic Program 2014- 2018" and click on the link. Here you can find all environmental documents related to this project.

The EA provides a comprehensive and detailed overview of the project. The overview includes: information on the Physical and Biological Environment, including Fisheries, Fish and Fish Habitat, Marine Mammals and Species at Risk, and a Cumulative Effects Assessment.

Upon the completion of every acquisition season an Environmental Report is supplied to the C-NLOPB and other government agencies. This report summarizes the marine mammal observations, bird observations and interactions with fishing.

Contact Information

If you have any inquiries regarding the Labrador Seismic Program (2014-2018) please feel free to contact:

Petroleum Geo-Services
15150 Memorial Drive
Houston, Texas, 77079
(P) 1-281-509-8000
(F) 1-281-509-8500
canada@pgs.com

Appendix 2

List of Consultees Contacted by MKI

Organization or Group Name	Email Address	Contact Name	Engagement Type
Section 1: Cartwright			
Municipality of Cartwright	twcouncil@bellaliant.com	Shirley Hopkins	Table Meeting
Labrador Fishermen's Union Shrimp Company Limited	Generalmanager@lfuscl.com	Gilbert Linstead	Table Meeting
Pratt Falls Salmon Lodge	Dwight@prattfallsldodge.com	Dwight Lethbridge	Information Pack
Cloud 9 Salmon Lodge	Cloud9salmonlodge@hotmail.com	Norman Lethbridge	Information Pack
Southeastern Aurora Development Corporation	bgillis@nf.sympatico.ca	Blair Gillis	Information Pack
Section 2: Charlottetown			
Town of Charlottetown	ctown@nf.aibn.com	Charmaine Powell	Information Pack
Labrador Choice Seafoods Ltd.	pwalsh@labchoice.net	Pius Walsh	Information Pack
Fishers' Committee	ddkippenhuck@nf.sympatico.ca	Don Kippenhuck	Information Pack
Section 3: Forteau			
Forteau Community Council	forteaucouncil@hotmail.com	Lauralee James	Information Pack
Section 4: Happy Valley-Goose Bay			
Town of Happy Valley-Goose Bay	development@happyvalley-goosebay.com	Karen Wheeler	Table Meeting
Newfoundland and Labrador Department of Innovation, Business, and Rural Development	rkean@gov.nl.ca	Reg Kean	Information Pack
Newfoundland and Labrador Department of Labrador and Aboriginal Affairs	Michellewatkins@gov.nl.ca	Michelle Watkins	Information Pack
Nunatukavut Community Council Inc. (Labrador Metis Nation)	grussell@nunatukavut.ca	George Russell	Table Meeting
Nunacor Development Corporation	andy@nunacor.com	Andy Turnbull	Information Pack
Torngat Fish Producers Co-operative Society Ltd.	gm@torngatfishcoop.com	Keith Watts	Table Meeting
Torngat Secretariat	Julie.whalen@torngatsecretariat.com	Julie Whalen	Table Meeting
Nunatsiavut Government Department of Lands and Natural Resources	Carl.mclean@nunatsiavut.com	Carl Mclean	Table Meeting
Nunatsiavut Government Non-Renewable Resources	harry_borlase@nunatsiavut.com	Harry Borlase	Table Meeting
Nunatsiavut Government Department of Education and Economic Development	Gary.mitchell@nunatsiavut.com	Gary Mitchell	Table Meeting
Labrador Friendship Centre	Jhefler-elson@lfchvgb.ca	Jennifer Heffer-Elson	Information Pack
Section 5: Hopedale			
Hopedale Inuit Community Government	Wayne.piercy@nunatsiavut.com	Wayne Piercy	Table Meeting

Organization or Group Name	Email Address	Contact Name	Engagement Type
Section 6: L'Anse au Clair			
L'Anse au Clair Community	townoflanseauclair@hotmail.com		Information Pack
Section 7: L'Anse au Loup			
Town of L'Anse au Loup	lanseauloup@nf.aibn.com	Janice Normore	Table Meeting
Labrador Fishermen's Union Shrimp Company Limited	generalmanager@lfuscl.com	Gilbert Linstead	Information Pack
Section 8: Mary's Harbour			
Town of Mary's Harbour	maryshbr@nf.aibn.com	Glenys Rumbolt	Information Pack
Labrador Fishermen's Union Shrimp Company Limited	Generalmanager@lfuscl.com	Gilbert Linstead	Information Pack
Section 9: Makkovik			
Makkovik Inuit Community Government	Herbert.jacque@nunatsiavut.com	Herbert Jacque	Table Meeting
Section 10: Mud Lake			
Mud Lake Community	Dave.raeburn@xplornet.ca	Dave Rayburn	Information Pack
Section 11: Nain			
Nain Inuit Community Government	tony.andersen@nunatsiavut.com	Tony Andersen	Table Meeting
Fishers' Committee	jangnatok@hotmail.com	Joey Angnatok	Information Pack
Section 12: Natuashish			
Mushuau Innu Band Council	Kanikue@gmail.com	Gregory Rich	Table Meeting
Innu Nation	Ppoker@innu.ca	Prote Poker	Table Meeting
Section 13: North West River			
Town of North West River	manager@townofnwr.ca	Arthur Williams	Table Meeting
Sivunivut Inuit Community Corporation Inc.	Ed.tuttauk@nunatsiavut.com	Ed Tuttauk	Table Meeting
Innu Nation	Preid@innu.ca	Paula Reid	Table Meeting
Section 14: Pinsent's Arm			
Community of Pinsent's Arm	localservicepa@yahoo.ca	Mildred Clark (secretary)	Information Pack
Labrador Fishermen's Union Shrimp Company Limited	generalmanager@lfuscl.com	Gilbert Linstead	Information Pack
Section 15: Port Hope Simpson			
Town of Port Hope Simpson	porthopesimpson@nf.aibn.com	Michelle Clark	Information Pack

Organization or Group Name	Email Address	Contact Name	Engagement Type
Labrador Southeast Coastal Action Program	lscap@nf.aibn.com	Rex Turnbull	Information Pack
Section 16: Postville			
Postville Inuit Community Government	Diane.gear@nunatsiavut.com	Diane Gear	Table Meeting
Nunatsiavut Government Department of Lands and Natural Resources	Glen.sheppard@nunatsiavut.com	Glen Sheppard	Table Meeting
Section 17: Rigolet			
Rigolet Inuit Community Government	townmanager@rigolet.ca	Sherri Wolfrey	Table Meeting
Fishers' Committee	richardrich749@gmail.com	Richard Rich	Information Pack
Section 18: Sheshatshiu			
Sheshatshiu Innu First Nation Band Council	jandrew@innu.ca	Jeremy Andrew	Information Pack
Innu Development Ltd. Partnership	madams@innudev.com	Melissa Adams	Information Pack
Section 19: St. Anthony			
Town of St. Anthony	stanthony@nf.aibn.com	Ernest Simms	Table Meeting
Clearwater Fisheries Limited	lsmith@clearwater.ca		Information Pack
St. Anthony Port Authority	Stanthonyportauthorityinc@bellaliant.com	Malcolm Campbell	Table Meeting
St. Anthony Basin Resources Inc.	s.elliott@nf.aibn.com	Sam Elliott	Table Meeting
Section 20: St. Johns			
Fisheries and Oceans Canada- Coast Guard	Jason.kelly@dfo-mpo.gc.ca	Jason Kelly, Senior Fisheries Protection Biologist	Table Meeting
Environment Canada	Glenn.troke@ec.gc.ca	Glenn Troke. EA Coordinator	Table Meeting
Transport Canada	Clement.murphy@tc.gc.ca	Clement Murphy, Manager, Examinations, and Enforcement	Table Meeting
Parks Canada	Randy.thompson@pc.gc.ca	Randy Thompson, Resource Management Officer	Information Pack

Organization or Group Name	Email Address	Contact Name	Engagement Type
National Defence	information@forces.gc.ca		Information Pack
St. Johns Port Authority	jmcgrath@sjpa.com	Jeff McGrath, Director of Marine Safety and Security	Table Meeting
Newfoundland and Labrador Fisheries and Aquaculture	Davidlewis@gov.nl.ca	David Lewis, Deputy Minister	Table Meeting
City of St. Johns	rellsworth@stjohns.ca	Ron Ellsworth, Deputy Mayor	Table Meeting
Food, Fish, and Allied Workers	jjoensen@ffaw.net	Johan Joensen, Petroleum Industry Liaison	Table Meeting
One Ocean	Maureen.murphy@mi.mun.ca	Director	Table Meeting
Groundfish Enterprise Allocation Council	bchapman@sympatico.ca	Bruce Chapman, Executive Director	Information Pack
Association of Seafood Producers	dbutler@seafoodproducers.org	Derek Butler, Executive Director	Table Meeting
Beothic Fish Processors Ltd.	pgrant@beothic.com	Paul Grant, Executive Vice President	Information Pack
Breakwater Fisheries Limited	rrbarnes@nf.sympatico.ca	Randy Barnes	Information Pack
Conche Seafoods Inc.	dphilpott@quinsea.com	Derrick Philpott, Director	Information Pack
Deep Atlantic International Inc.	Martha@deepatlanticsea.com	Martha Mallowney, Director	Information Pack
Dorset Fisheries Limited	dphilpott@quinsea.com	Derrick Philpott, Director	Information Pack
GC Rieber Carino Ltd.	John.c.kearley@carino.ca	John Kearley, CEO	Information Pack
Gulf Shrimp Limited	Dphilpott@quinsea.com	Derrick Philpott, Director	Table Meeting

Organization or Group Name	Email Address	Contact Name	Engagement Type
HSF Ocean Products Limited	todd@hsfgroup.ca	Todd Hickey, Director	Information Pack
Nataaqnaq Fisheries	keith@natfish.ca	Keith Coady, Fleet Manager	Information Pack
Newfound Resources Limited	jeff@nrl.nf.net	Jeff Simms, Operations Manager	Table Meeting
Notre Dame Seafoods Inc.	jeveleigh@notredameseafoods.com	Jason Eveleigh, President	Information Pack
San-Can Fisheries Limited	sgoff@san-can.com	Sandra Goff, Director	Information Pack
Ocean Choice International	rellis@oceanchoice.com	Rick Ellis, Director of Fleet Operations	Table Meeting
Quinlan Brothers Ltd.	dearle@quinlanbros.ca	David Earle, Chief Financial Officer	Table Meeting
Nature Newfoundland and Labrador	zedel@mun.ca	Len Zedel	Table Meeting