

**Data Acquisition and Seabed
Sampling for Basin Modelling,
Labrador Offshore to the
Jeanne d'Arc Basin (2015 to
2024) – Environmental
Assessment UPDATE**



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DATA ACQUISITION AND SEABED SAMPLING FOR BASIN MODELLING, LABRADOR OFFSHORE TO THE JEANNE D'ARC BASIN (2015 TO 2024) – ENVIRONMENTAL ASSESSMENT UPDATE

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Abbreviations, Glossary, and Units of Measure

C-NLOPB	Canada-Newfoundland and Labrador Offshore Petroleum Board
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
DFO	Fisheries and Oceans Canada
FFAW-Unifor	Fish, Food and Allied Workers-Unifor
km	kilometre
m	metre
MBES	multibeam echosounder
MMO	marine mammal observer
NAFO	Northwest Atlantic Fisheries Organization
RV	Research Vessel
SARA	<i>Species at Risk Act</i>
SBP	sub-bottom profiler
The Zone	Encompasses 48,690 km ² of ocean along the Labrador Shelf established under the Labrador Inuit Land Claims Agreement (2005) (refer to Figure 1-1).

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1.0 INTRODUCTION

This document is an environmental assessment update for the *Data Acquisition and Seabed Sampling for Basin Modelling, Labrador Offshore to the Jeanne d'Arc Basin (2015 To 2024) – Environmental Assessment* (Aivek Stantec 2015). This Environmental Assessment Update document includes the 2016 Program Area and Sample Areas (Figure 1-1). The 2016 Program Area and sampling areas are within the 2015 – 2024 Study Area assessed in the original Environmental Assessment report (Aivek Stantec 2015). Coordinates for the 2016 Program Area and Sampling Areas are provided in Tables 1.1 and 1.2, respectively.

Table 1.1 2016 Program Area Corner Coordinates (NAD 83, Zone 22)

NAD 83 Zone 22N		WGS 84			
Easting	Northing	Latitude	Longitude	Latitude	Longitude
163910.21	6341691.98	57.0954	-56.5503	N57° 5' 43.553"	W56° 33' 1.076"
482770.54	6177165.87	55.7399	-51.2744	N55° 44' 23.680"	W51° 16' 27.875"
491506.44	5926008.76	53.4830	-51.1280	N53° 28' 58.795"	W51° 7' 40.756"
370659.83	5907080.98	53.2971	-52.9407	N53° 17' 49.701"	W52° 56' 26.608"
120753.80	6115794.68	55.0438	-56.9388	N55° 2' 37.606"	W56° 56' 19.526"
81165.72	6144554.51	55.2688	-57.5968	N55° 16' 7.683"	W57° 35' 48.377"
-9351.79	6290732.57	56.4841	-59.2819	N56° 29' 2.595"	W59° 16' 54.800"
-13719.74	6343875.95	56.9516	-59.4582	N56° 57' 5.852"	W59° 27' 29.347"

Table 1.2 2016 Sampling Area Corner Coordinates (NAD 83, Zone 22)

Sample Area	NAD 83 Zone 21N		WGS 84			
	Easting	Northing	Latitude	Longitude	Latitude	Longitude
A	358797.39	6310515.19	56.9168	-59.3195	N56° 55' 0.330"	W59° 19' 10.143"
	441950.95	6313811.06	56.9642	-57.9547	N56° 57' 51.275"	W57° 57' 16.833"
	445910.73	6276461.62	56.6292	-57.8817	N56° 37' 45.205"	W57° 52' 53.954"
	362756.24	6273193.87	56.5829	-59.2345	N56° 34' 58.496"	W59° 14' 4.283"
B	544410.04	6289828.54	56.7503	-56.2738	N56° 45' 1.149"	W56° 16' 25.657"
	837557.99	6185224.25	55.6950	-51.6270	N55° 41' 41.980"	W51° 37' 37.070"
	771646.94	6009402.88	54.1607	-52.8387	N54° 9' 38.472"	W52° 50' 19.195"
	477360.19	6116292.62	55.1927	-57.3556	N55° 11' 33.710"	W57° 21' 20.261"
C	750567.13	6050797.28	54.5426	-53.1259	N54° 32' 33.310"	W53° 7' 33.361"
	815093.56	6069823.36	54.6770	-52.1115	N54° 40' 37.054"	W52° 6' 41.237"
	859121.47	5949302.62	53.5693	-51.5748	N53° 34' 9.547"	W51° 34' 29.275"
	791809.34	5930788.35	53.4451	-52.6052	N53° 26' 42.516"	W52° 36' 18.815"

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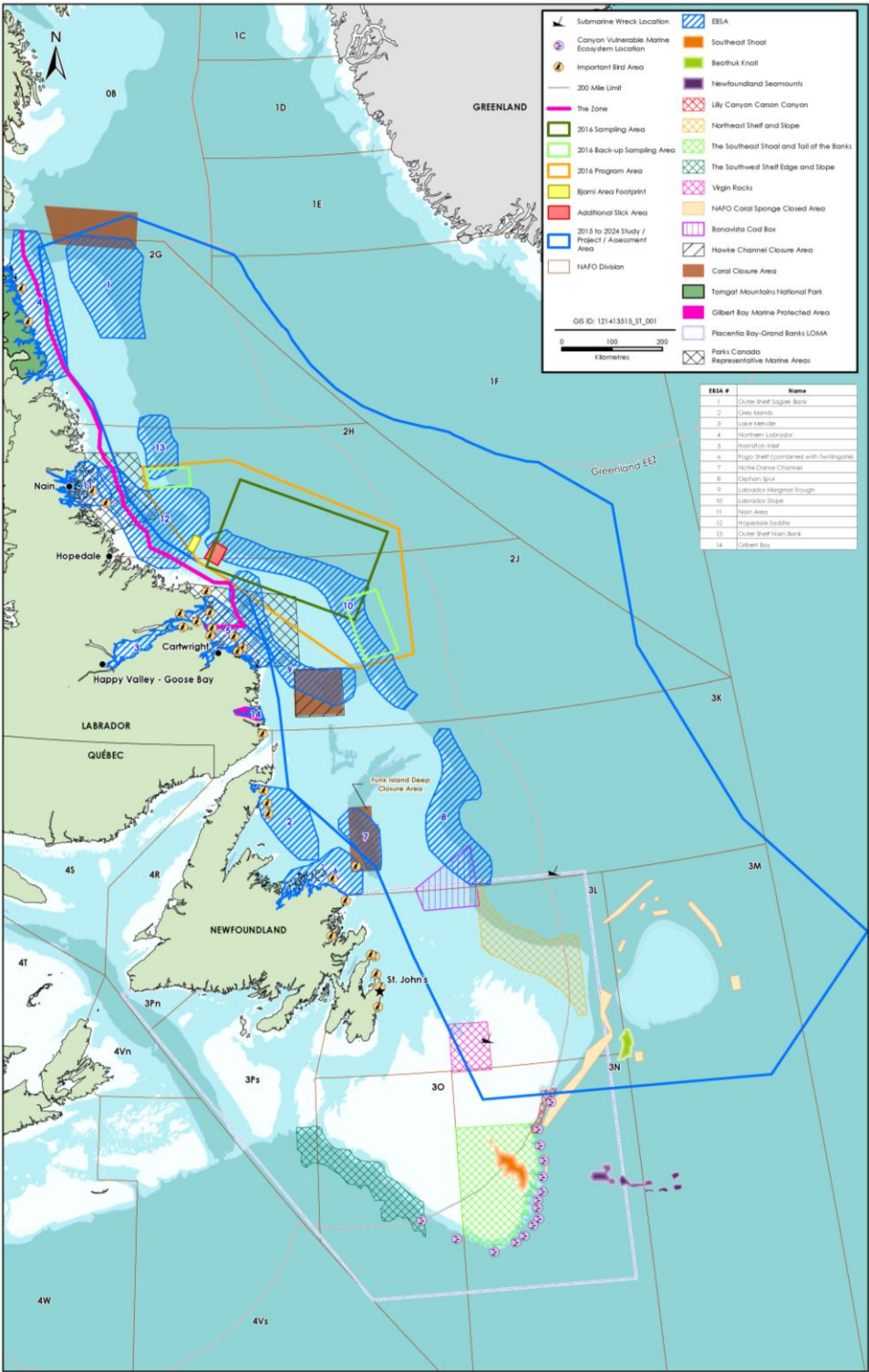


Figure 1-1 2016 Program Area and Sampling Areas

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2.0 PROJECT DESCRIPTION

2.1 2016 Activities

There are no changes to the activities described in the 2015 Environmental Assessment. The only change is the location of the activities, as the 2016 Program (and Sampling) Area slightly shifted to a different focus area. Approximately 150 to 200 cores (within the number originally assessed) will be collected, the majority (80 to 120) within Sampling Area B; sampling will also occur within the Bjarni Area footprint.

As in 2015, the 2016 activities will include the following non-invasive research activities:

- collecting high-resolution bathymetry using a multibeam echosounder (MBES);
- sampling of natural seabed seeps;
- collection of shallow seabed cores; and
- sub-bottom profiler (SBP; used when needed).

All activities were previously assessed in the original Environmental Assessment report.

2.2 Consultation

MG3 gave a presentation on the 2016 survey to the following stakeholders:

- Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB)
- Nunatsiavut Government
- Fish, Food and Allied Workers-Unifor (FFAW-Unifor) and One Ocean

Consultation with the C-NLOPB was held on May 10, 2016. Discussion centered around the required documentation (e.g., Safety Plan, Benefits Plan) and financial requirements (new legislation was enacted in February 2016). The requirements of the Environmental Assessment Update were discussed, with a focus on the requirement for consultation and updating species at risk (if required). The Environmental Assessment Update will be provided for information; comments will not be solicited. A copy of the MG3 presentation made to the C-NLOPB was provided to the attendees.

Consultation with the Nunatsiavut Government was held by Conference Call on May 11, 2016. No issues or concerns were raised. A copy of the MG3 presentation to Nunatsiavut Government was provided in advance of the meeting.

Consultation with the FFAW-Unifor and One Ocean was held on May 11, 2016. They indicated there would be a seismic survey occurring in the area during the summer of 2016. FFAW-Unifor

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also requested the Hawke Box¹ be included on all fisheries figures and all species catch data be illustrated for the months of July, August and September. No other issues or concerns were raised. A copy of the MG3 presentation made to FFAW-Unifor was provided to the attendees.

A copy of the MG3 presentation to Ocean Choice International (OCI) was provided to Ocean Choice International on May 16, 2016. OCI identified no issues unless a corer is lost (Note: no corers were lost in MG3's 2015 program).

Shapefiles were provided to the Torngat Joint Fisheries Board to allow viewing of the coring areas at an appropriate scale to determine what, if any, overlap there was with the locations of the Torngat Joint Fisheries Board-DFO Collaborative Post Season Trap Survey. The Torngat Joint Fisheries Board indicated there was minimal overlap between these activities.

2.3 Mitigation Measures

As the activities remain unchanged from those assessed in the 2015 Environmental Assessment, the mitigation measures also remain unchanged. These include the following key mitigation measures:

- At no time will a survey vessel enter or attempt to conduct any survey work in restricted or protected areas, including the Nunatsiavut Zone ('The Zone'), established under the Labrador Inuit Land Claims Agreement (2005)
- The program (collecting cores) is non-intrusive and its duration is short (approximately 28 days). The hull-mounted SBP and MBES will only be used in targeted locations (i.e., will not sweep large swaths of the seabed).
- There will be one Marine Mammal Observer (MMO)/bird observer on board the research vessel. As discussed during consultation with the Nunatsiavut Government on 10th June, whilst MG3 hired an NG beneficiary trainee during the 2015 program, due to berth space limitations on the research vessel, MG3 will not be including a Nunatsiavut Government beneficiary MMO trainee for the 2016 program.
- There will be a Fisheries Liaison Officer on board the research vessel.
- MG3 will conduct ongoing consultation with One Ocean and the FFAW-Unifor Petroleum Industry Liaison on the location and timing of their members who fish in the area and will avoid areas during times of heavy fixed gear use.
- MG3 will time the sampling of the identified areas in a sequence that creates the least disruption to local fishers.
- The vessel will Remain 30 km from the Torngat Joint Fisheries Board-DFO post-season survey locations and will not begin sampling those two areas until after the survey is completed
- The research vessel will maintain a minimum distance of 2 km from active seabird colonies.
- As there is potential for marine and migratory birds to be attracted to the vessel at night, the vessel crew will conduct routine checks for stranded birds and release of stranded birds per

¹ The Hawke Box trawling exclusion zone off southern Labrador is a 8,610 km² closed area enacted in 2003 to protect soft-shelled pre-recruit snow crab from mortality from bottom-impact (e.g., trawling) fisheries.

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new draft *Best Practices for Stranded Birds Encountered Offshore Atlantic Canada* (Environment Canada 2015).

- A Live Seabird Salvage permit will be acquired from the Canadian Wildlife Service prior to operations.
- MG3 have contacted Fisheries and Oceans Canada (DFO) and determined that the 2016 program will have no impact on Fisheries and Oceans Canada research operations.
- MG3 have contacted the Department of National Defence to determine where naval exercises are being conducted and will revise the sampling location order if necessary to avoid interaction with naval vessels.
- A compensation program will be made available by MG3 consistent with C-NLOPB guidelines and past practices. This program covers damage to fishing gear (or vessels) caused by the survey vessel or survey gear, and includes the value of harvest lost as a direct result of an incident.
- If in the unlikely event of a corer is lost, then a full risk assessment of the impact would be undertaken with consultation with all relevant parties, and appropriate action then undertaken for recovery if required.

MG3's status of commitments made in the Original EA Report and this EA Update are provided in Table 2.1.

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Table 2.1 MG3 2016 Data Acquisition and Seabed Sampling Program, Labrador Offshore to the Jeanne d'Arc Basin – Commitment/Mitigation Measures

Potential Effects of Related Activities	Commitment/Mitigation Measure	Status
Interference with Indigenous Activities in The Zone	At no time will a survey vessel enter or attempt to conduct any survey work in restricted or protected areas, including the Nunatsiavut Zone ('The Zone'), established under the Labrador Inuit Land Claims Agreement (2005)	Restricted areas to be flagged on vessel for avoidance.
Disturbance of Marine Mammals / seabirds	The program (collecting cores) is non-intrusive and its duration is short (approximately 28 days). The hull-mounted SBP and MBES will only be used in targeted locations (i.e., will not sweep large swaths of the seabed).	Operations to be communicated in Weekly Reports.
Disturbance of Marine Mammals / seabirds	There will be one Marine Mammal Observer (MMO)/bird observer on board the research vessel.	MMO to be provided by FFAW-Unifor.
Disturbance of Marine Mammals / seabirds	Bird observations will be made in transit (and during coring operations) and marine mammal observations will be made during operations. The bird and marine mammal observations will be made for data collection only.	MMO/bird observer to complete daily and weekly observation reports.
Interference with Fishing Activities	There will be a Fisheries Liaison Officer on board the research vessel.	FLO to be provided by FFAW-Unifor.
Potential disruption to the Post-Season Trap Survey	The FLOs on board the vessel will establish communications with the Torngat Joint Fisheries Board-DFO Collaborative Post-Season Trap Survey to prevent any potential disruption to the Post-Season Trap Survey.	Communications to be established.
Potential conflict / damage to fixed gear	The vessel will avoid areas during times of heavy fixed gear use.	FLO will provide direction so as to avoid areas of heavy fixed gear use
Potential conflict to other vessels	MG3 will post Notices to Shipping (NOTSHIP), including a notice to Fisheries Broadcast and Okalakatiget Society.	Notice to Shippers will be posted immediately prior to start of survey, including a notice to Fisheries Broadcast and Okalakatiget Society
Potential conflict / damage to fixed gear	MG3 will conduct ongoing consultation with One Ocean and the FFAW-Unifor Petroleum Industry Liaison on the location and timing of their members who fish in the area and will avoid areas during	FLO will provide direction so as to avoid areas of heavy fixed gear use

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Potential Effects of Related Activities	Commitment/Mitigation Measure	Status
	times of heavy fixed gear use.	
Interference with Fishing Activities	MG3 will time the sampling of the identified areas in a sequence that creates the least disruption to local fishers.	FLO will provide direction so as to minimize/avoid disruption to local fishers
Interference with the Torngat Joint Fisheries Board-DFO Collaborative Post Season Trap Survey	The research vessel will Remain 30 km from the Torngat Joint Fisheries Board-DFO Collaborative Post Season Trap Survey locations and will not begin sampling those two areas until after the survey is completed	MG3 will maintain contact with Torngat Joint Fisheries Board Fisheries Scientist to determine completion of the post-season survey
Disturbance to seabirds	The research vessel will maintain a minimum distance of 2 km from active seabird colonies.	Minimum 2-km distance will be maintained from active seabird colonies
Stranding / Injury / Mortality to birds	As there is potential for marine and migratory birds to be attracted to the vessel at night, the vessel crew will conduct routine checks for stranded birds and release of stranded birds per new draft Best Practices for Stranded Birds Encountered Offshore Atlantic Canada (Environment Canada 2015).	MMO/bird observer to complete daily and weekly observation reports.
Stranding / Injury / Mortality to birds	A Live Seabird Salvage permit will be acquired from the Canadian Wildlife Service prior to operations.	Permit received, together with report to be populated by the MMO/bird observer as appropriate.
Potential conflict with DFO Research Vessels	MG3 will contact DFO prior to start of the Project to determine where DFO research vessels are conducting surveys and will revise the sampling location order to avoid conflict with DFO research vessels.	George Sheppard, DFO contacted for DFO research vessel locations update
Potential conflict with DND Vessels	MG3 will contact DND prior to start of the Project to determine where naval exercises are being conducted and will revise the sampling location order if necessary to avoid interaction with naval vessels.	MARLANT (Maritime Forces Atlantic) Headquarters Safety and Environmental Officer for Commander contacted for confirmation of naval exercises locations
Potential damage to fishing gear	A compensation program will be made available by MG3 consistent with C-NLOPB guidelines and past practices. This program covers damage to fishing gear (or vessels) caused by the survey vessel or survey gear, and includes the value of harvest lost as a direct result of an incident. Any and all incidents will be	MG3 has a compensation program in place consistent with C-NLOPB guidelines and past practices

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Potential Effects of Related Activities	Commitment/Mitigation Measure	Status
	reported to the C-NLOPB.	
Potential damage to fishing gear	If in the unlikely event of a corer is lost, then a full risk assessment of the impact would be undertaken with consultation with all relevant parties, and appropriate action then undertaken for recovery if required.	Risk assessment of retrieving/not retrieving a lost core would be conducted with all relevant parties
Potential pollution of the marine environment	MG3 will contract a vessel that has equipment and protocols and procedures in place for prevention of pollution by oil, sewage and associated waste materials in accordance with the <i>Canadian Shipping Act</i> and international standards and certification authorities.	MG3-contracted the Canadian-flagged <i>RV Coriolis II</i> , which has the proper equipment and protocols and procedures in place
Potential damage to corals, sponges, rare or endangered species.	MG3's primary Focus Area for the 2016 program overlaps EBSA 10 area. MG3 Senior Geoscientist will be onboard performing continual near-real-time analysis of the non-invasive multibeam echosounder dataset as it is acquired. The data is high-resolution and coupled with back-scatter data, environmental habitats will be identified during acquisition of the data. MG3 Senior Geoscientist will ensure that all core locations are selected based on geological merit, and strict emphasis is noted on avoidance of identified environmental habitats.	EBSA 10, as well as all areas identified in Figure 1-1, will be provided as Shapefiles on the live navigation screen during acquisition of the non-invasive multibeam echosounder dataset. During any multibeam echosounder acquisition within EBSA 10, particular emphasis will be given to identifying core locations based on geological and geochemical merit, but in particular on avoidance of environmental habitats identified in the multibeam and backscatter datasets.

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3.0 ENVIRONMENTAL UPDATES

The commercial fisheries and species at risk sections have been updated to reflect the most current information (as of April 30, 2016).

3.1 Commercial Fisheries and Other Ocean Users

3.1.1 Commercial Fisheries

Fisheries activities for northern shrimp, snow crab, and Greenland halibut (turbot) within the Study Area were reported up to 2013 in the original Environmental Assessment (Section 3.4.1). Data for all species caught in 2014 during July, August and September are illustrated in Figures 3-1 to 3-3. Data for commercial northern shrimp, snow crab, and turbot fisheries harvested in 2014 are illustrated in Figures 3-4 to 3-6. The figures for 2014 data illustrate an average percentage of the weight percentage data provided by DFO. The weight percent for a specific cell has been summed and divided by the number of months that specific cell was fished (i.e., when the cell was fished, X% of species A was caught in the boundaries). Validated commercial fisheries data for 2015 for Northwest Atlantic Fisheries Organization (NAFO) Division 2GHJ3KLM are not available at this time.

3.1.2 Other Ocean Users

DFO will be conducting surveys from the Research Vessels (RVs) *Needler* and *Teleost*. The RV *Teleost* conducted the Newfoundland and Labrador Spring Atlantic Zone Monitoring Program in NAFO 3L in April 2016 and is conducting a capelin survey in NAFO 3KL in May 2016. The RV *Teleost* will also be conducting the Newfoundland and Labrador Summer Atlantic Zone Monitoring Program from St. Anthony to St. John's in July 2016 and the Newfoundland and Labrador Fall Survey in NAFO 2HJ3K + 3L Deep from October to early December 2016. The RV *Needler* is conducting the Newfoundland and Labrador spring survey in NAFO 3LNO in May and June 2016 and the Newfoundland and Labrador Fall survey in NAFO 3KLN in October and November 2016.

The Torngat Joint Fisheries Board-DFO Collaborative Post Season Trap Survey (see Figure 3-7) is conducted the last week of August (starting August 21, 2016) and lasts five days. The DFO-Industry Post-Season Crab Survey is conducted annually (usually starting in September) and extends from 3O north to 2J. The locations and timelines are typically the same each year.

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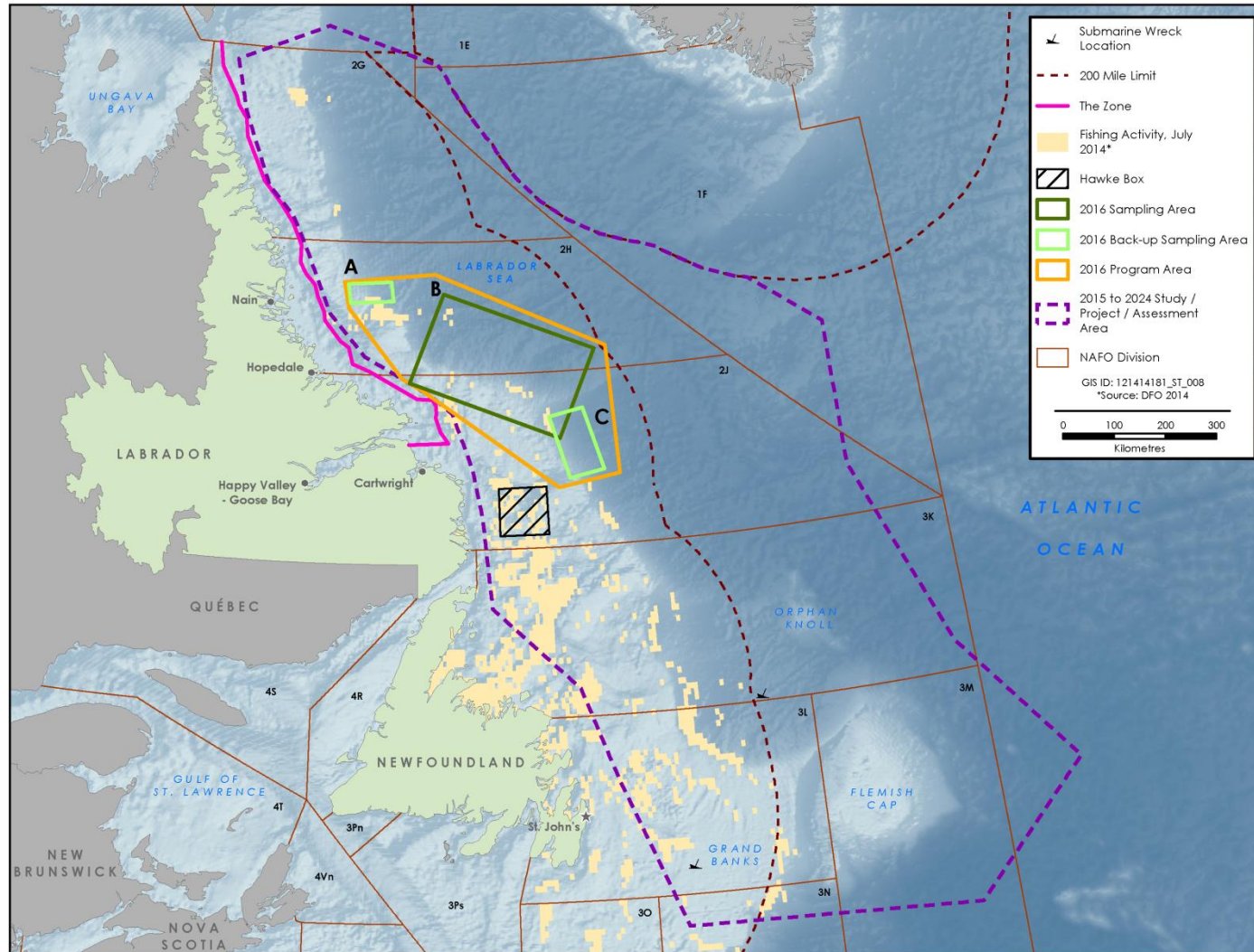


Figure 3-1 Location of All Species Harvested in July, 2014

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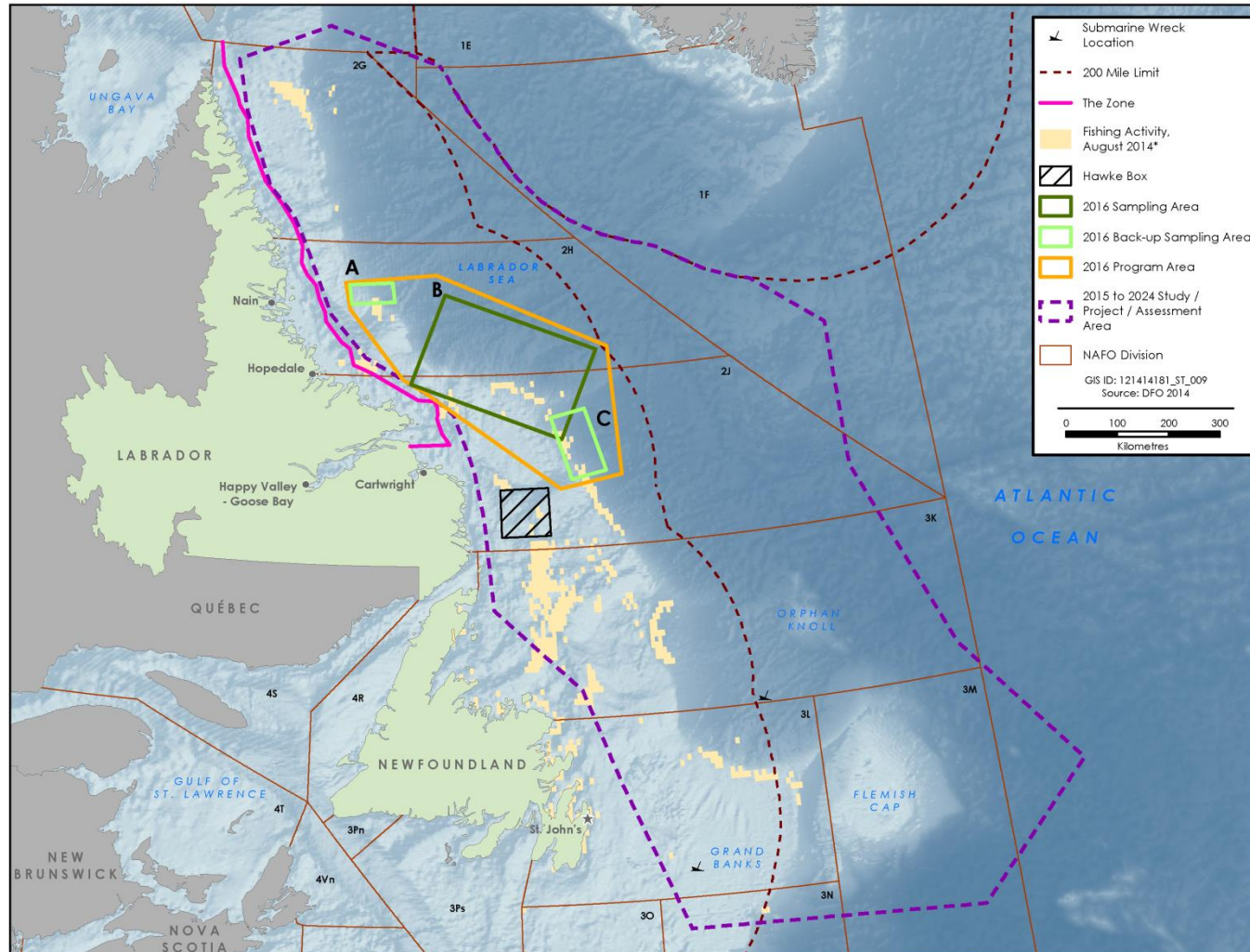


Figure 3-2 Location of All Species Harvested in August, 2014

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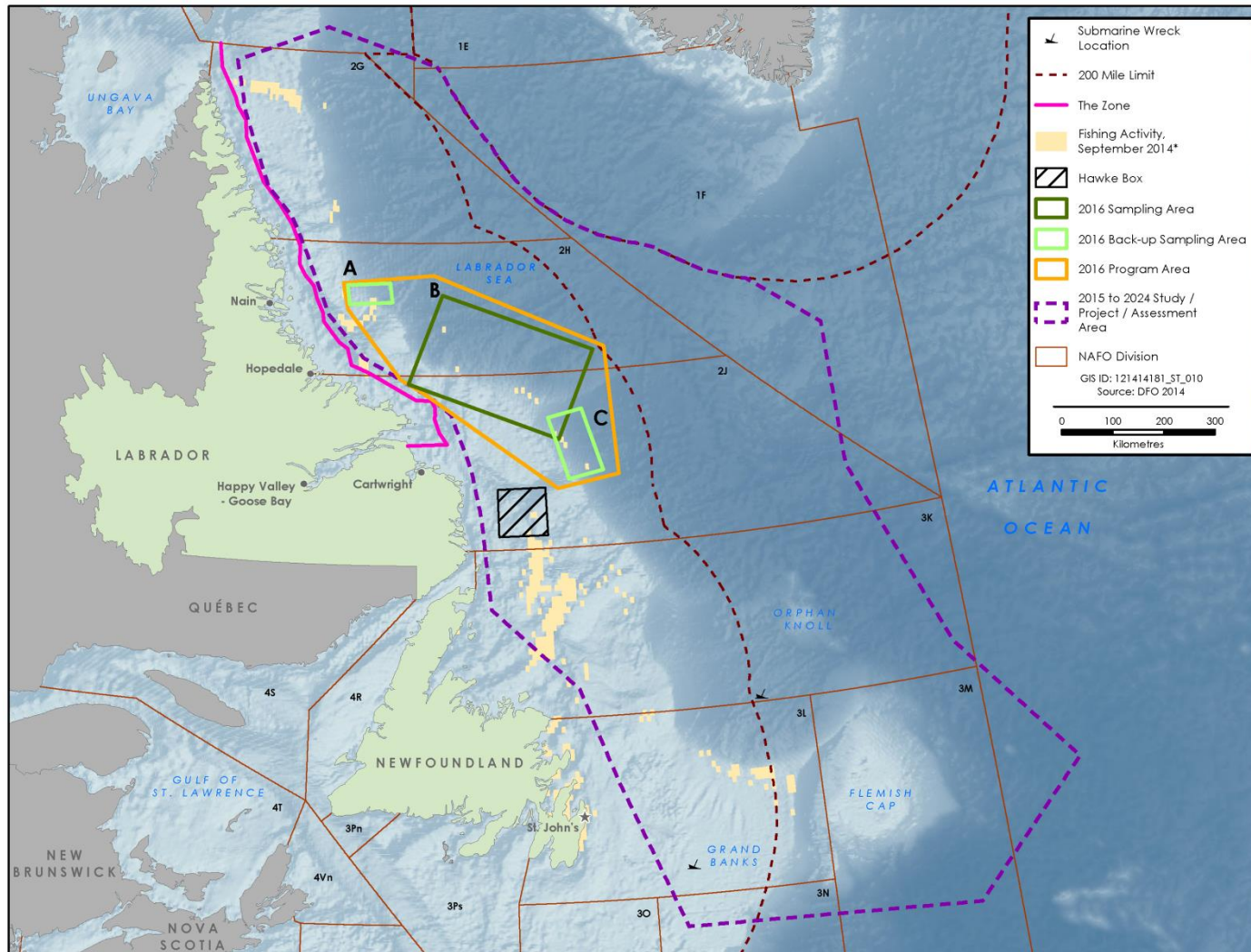


Figure 3-3 Location of All Species Harvested in September, 2014

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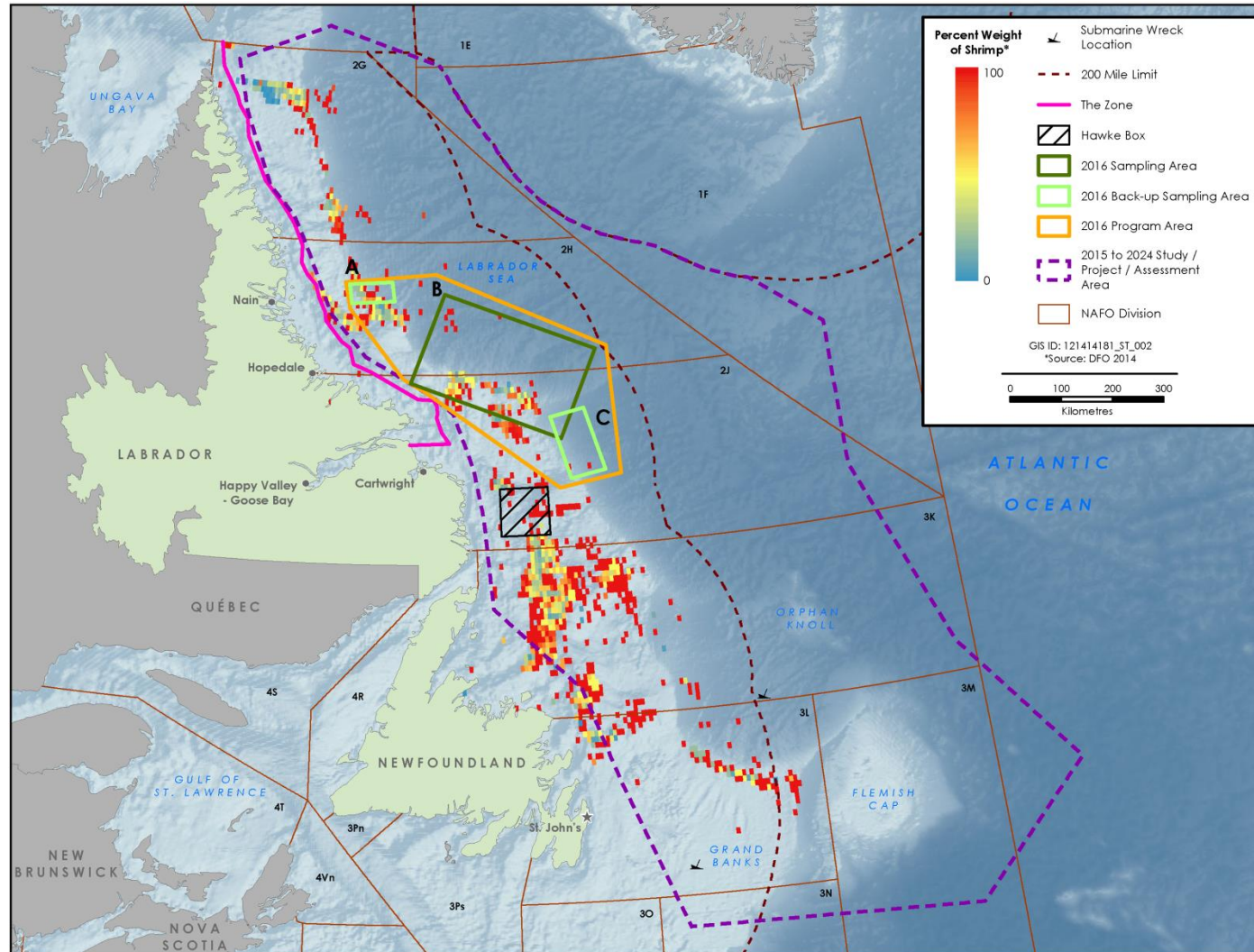


Figure 3-4 Shrimp – Percentage Average Weight Harvested (2014)

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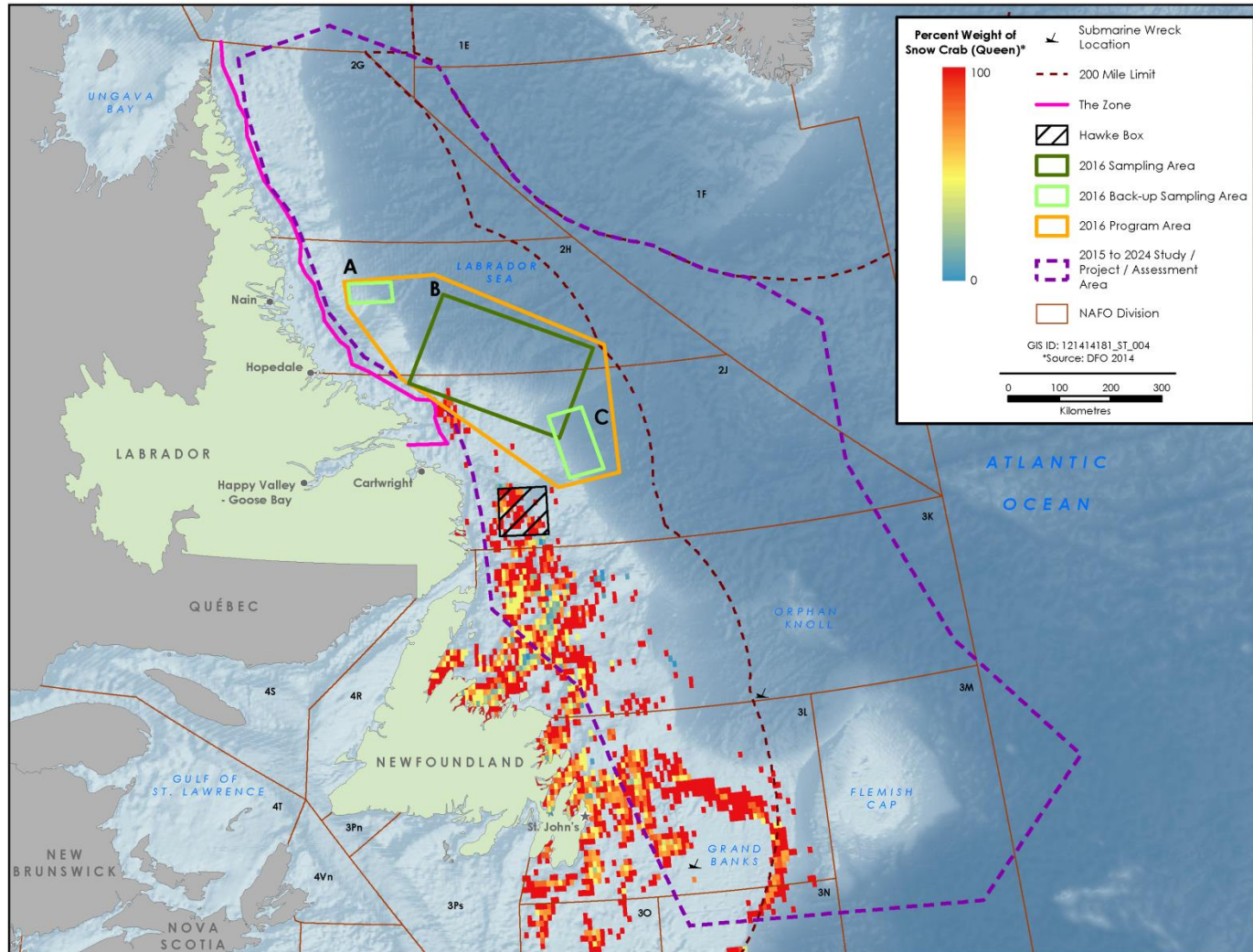


Figure 3-5 Snow Crab – Percentage Average Weight Harvested (2014)

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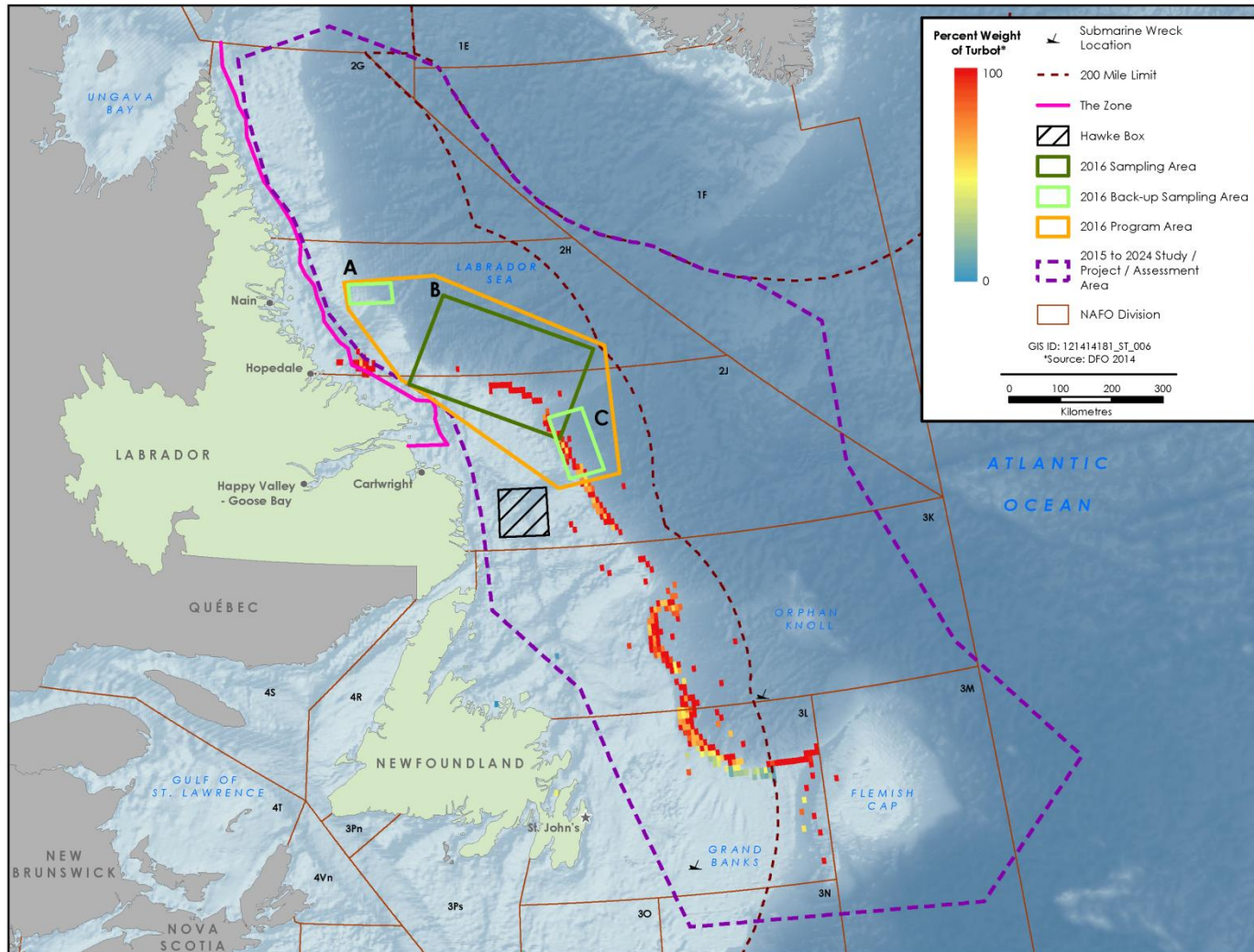


Figure 3-6 Greenland Halibut (turbot) – Percentage Average Weight Harvested (2014)

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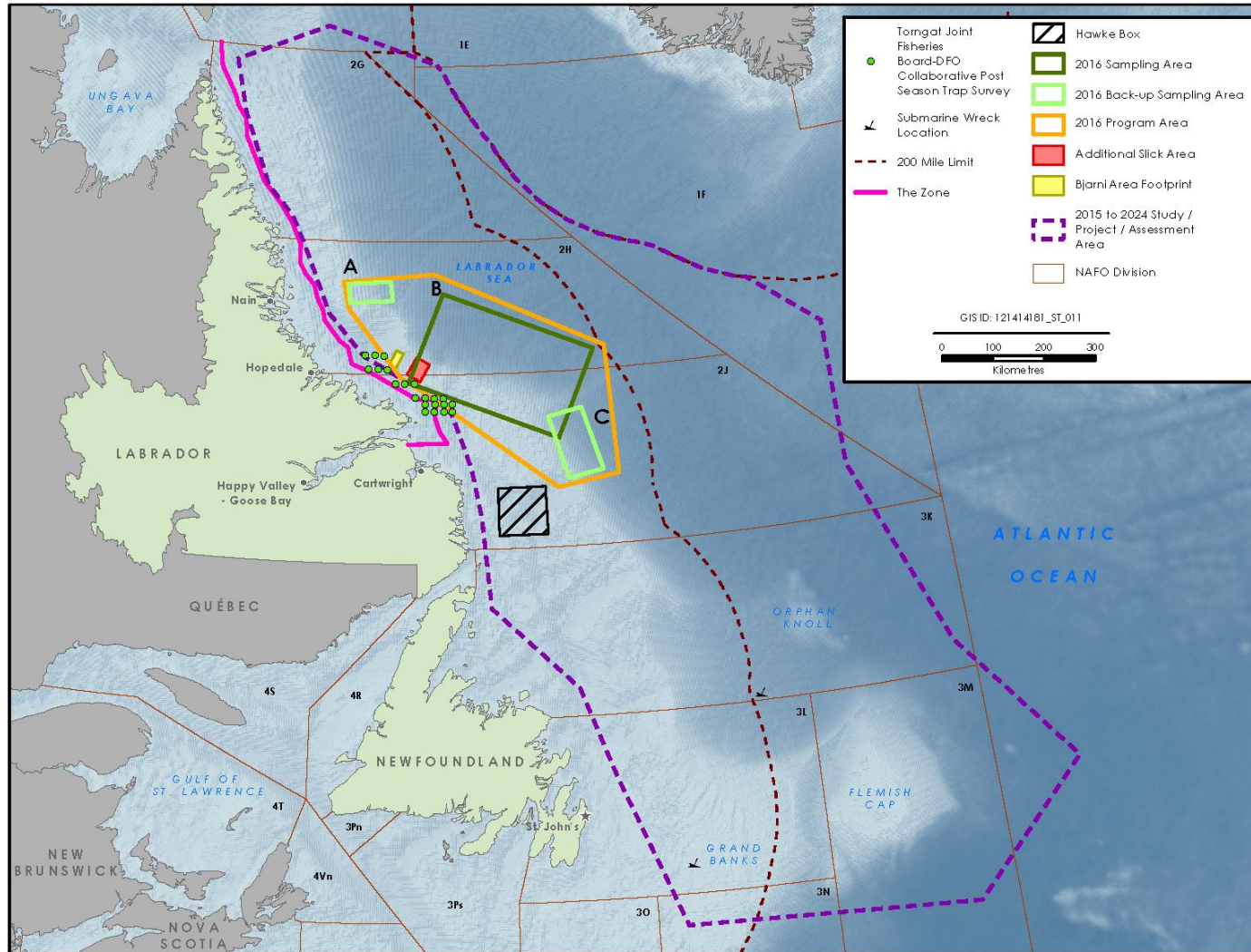


Figure 3-7 Torngat Joint Fisheries Board-DFO Collaborative Post Season Trap Survey Locations

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3.2 Species at Risk

A number of species at risk (as listed under the *Species at Risk Act* (SARA) or assessed as at risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC)) have the potential to occur throughout the 2015 to 2024 Study Area (Figure 1-1), either as sporadic visitors or regular inhabitants. Compared to the original Environmental Assessment, there was no change to the species listed on SARA Schedule 1 as of April 30, 2016:

- blue whale – Atlantic population (Endangered);
- Ivory Gull (Endangered);
- leatherback sea turtle – Atlantic population (Endangered);
- North Atlantic right whale (Endangered);
- white shark – Atlantic population (Endangered);
- northern wolffish (Threatened);
- spotted wolffish (Threatened);
- Atlantic wolffish (Special Concern);
- fin whale - Atlantic population (Special Concern);
- polar bear (Special Concern); and
- Sowerby's beaked whale (Special Concern).

Compared to the original Environmental Assessment, there was no change to the species assessed as at risk by COSEWIC (but are not listed on SARA Schedule 1) as of April 30, 2016:

- Atlantic bluefin tuna (Grand Banks of Newfoundland only) (Endangered);
- Atlantic cod - Newfoundland and Labrador population (Endangered);
- Atlantic salmon (various populations) (Endangered, Threatened, Special Concern);
- beluga whale (various populations) (Endangered);
- cusk (Endangered);
- loggerhead sea turtle (Endangered);
- porbeagle shark (Endangered);
- roundnose grenadier (Endangered);
- smooth skate - Funk Island Deep population (Endangered) (note: Hopedale Channel and Nose of the Grand Banks populations have been assessed by COSEWIC as Data Deficient; there is also a Flemish Cap population that is outside Canadian jurisdiction, but within the 2015 to 2024 Study Area);
- winter skate – Eastern Scotian Shelf – Newfoundland population (Endangered)
- Acadian redfish – Atlantic population (Threatened);
- American eel (Threatened);
- American plaice - Newfoundland and Labrador population (Threatened);
- deepwater redfish – Northern population (Threatened);
- shortfin mako shark – Atlantic population (Threatened);
- white hake - Atlantic and Northern Gulf of St. Lawrence population (Threatened)

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- basking shark - Atlantic population (Special Concern);
- blue shark - Atlantic population (Special Concern);
- bowhead whale – Eastern Canada – West Greenland population (Special Concern);
- harbour porpoise – Northwest Atlantic population (Special Concern);
- killer whale – Northwest Atlantic/Eastern Arctic population (Special Concern);
- northern bottlenose whale – Davis Strait-Baffin Bay-Labrador Sea population (Special Concern)
- roughhead grenadier (Special Concern);
- spiny dogfish – Atlantic population (Special Concern); and
- thorny skate (Special Concern).

Since the submission of the original Environmental Assessment (Aivek Stantec 2015) and Addendum, there has been no new addition to the list of species included under SARA or assessed as at risk by COSEWIC as of April 30, 2016. None of the species previously described since the original Environmental Assessment or Addendum (Aivek Stantec 2015) have had a designation change. None of the Action Plans, Management Plans, Recovery Strategies or associated critical habitat designations for these species have been finalized since submission of the original Environmental Assessment and Addendum, although draft plans or strategies for northern and spotted wolfish and leatherback sea turtle were developed and released in 2015 (DFO 2015a, 2015b, 2015c).

The locations of the Labrador Ecologically and Biologically Sensitive Areas in relation to the 2016 coring program are illustrated in Figure 3-8.

3.3 Summary of 2015 Survey Environmental Observations

No fishing vessels were observed during the 2015 survey. A total of 166 individual marine mammals representing nine species were observed during the 2015 survey (Figure 3-9). A total of 2,240 seabirds representing 16 species were observed during the 2015 survey (Figure 3-10).

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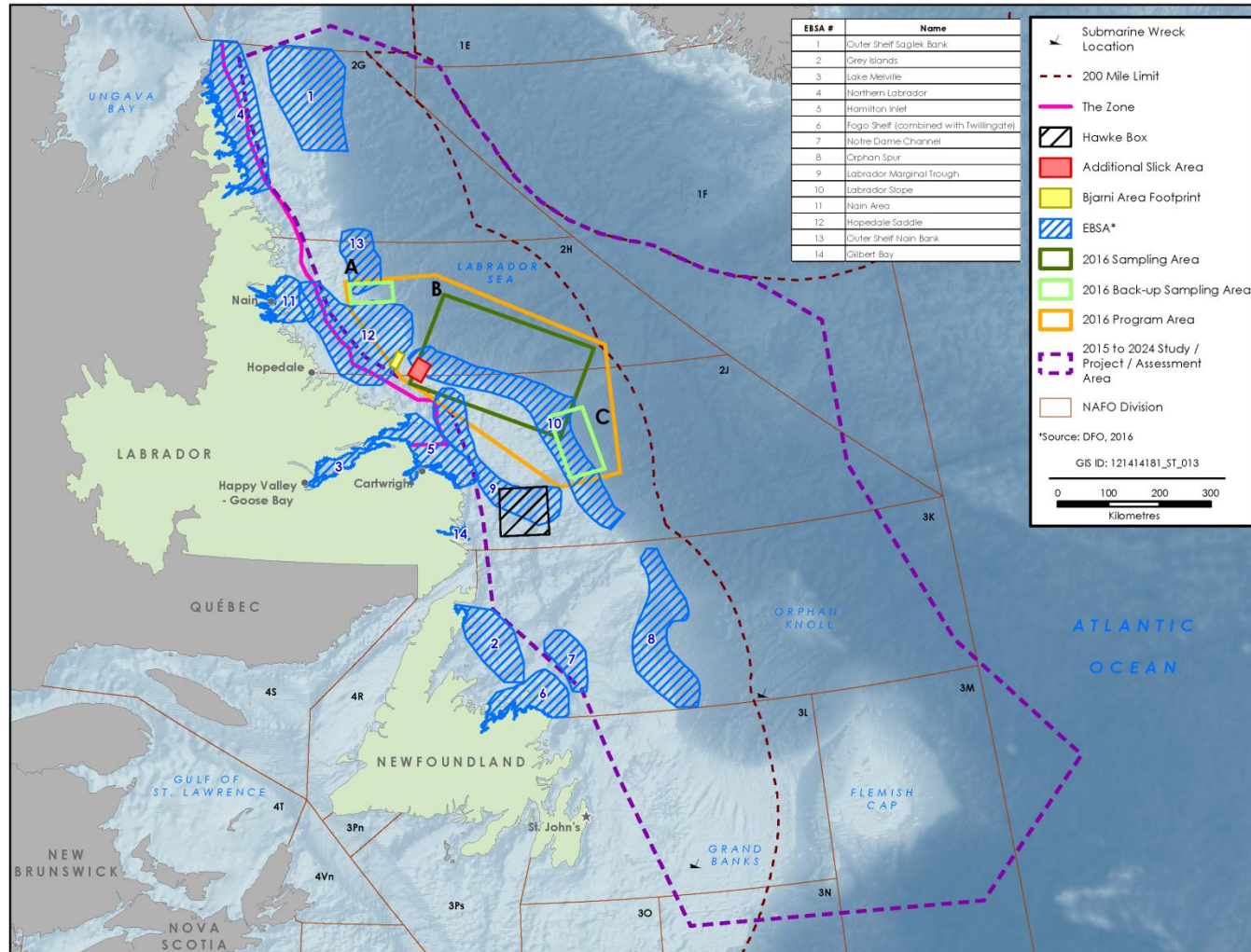


Figure 3-8 Labrador Ecologically and Biologically Sensitive Areas

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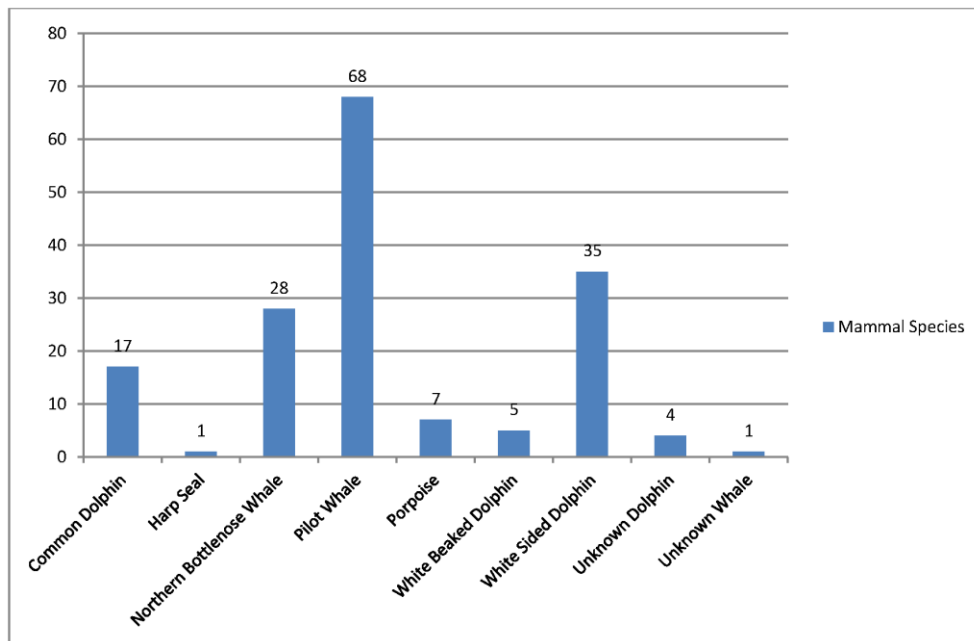


Figure 3-9 Marine Mammals Observed during the 2015 Survey

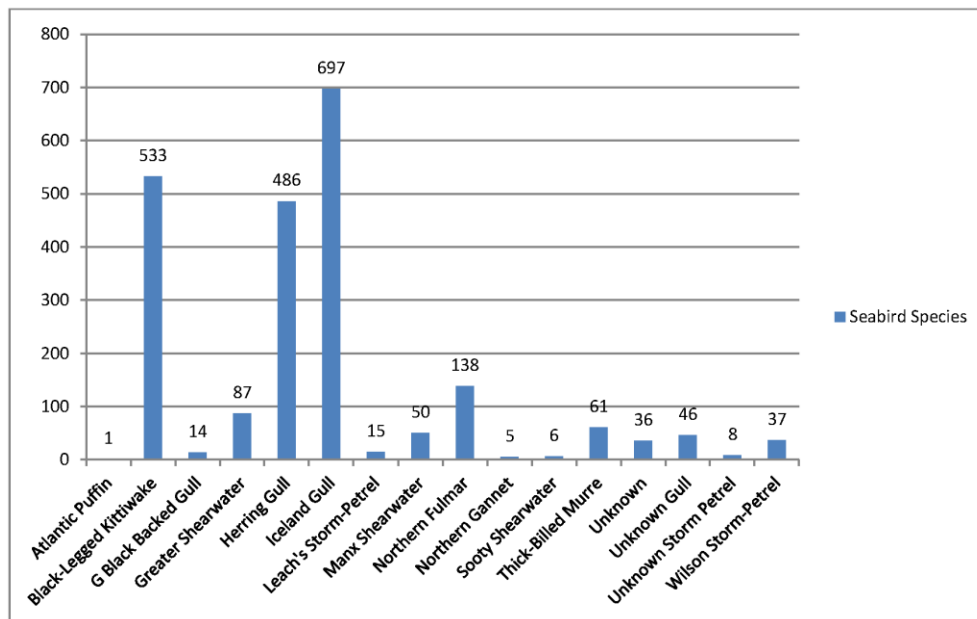


Figure 3-10 Seabirds Observed during the 2015 Survey

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4.0 ENVIRONMENTAL EFFECTS ASSESSMENT

A review of the environmental effects assessment (Chapter 6) predictions and mitigation assessed as part of the original Environmental Assessment (Aivek Stantec 2015) was conducted as a result of updated commercial fisheries data. All proposed activities fall within the scope of the original Project (Section 2.3).

The mitigation for the activities planned to be carried out under the scope assessed in the original Environmental Assessment are still appropriate, and MG3 reaffirms their commitment to the mitigation measures cited in this environmental assessment update and the original Environmental Assessment.

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REFERENCES

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5.0 REFERENCES

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