



2014 Environmental Assessment Update Hebron Project Comprehensive Study Report

April 2014

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**2014 ENVIRONMENTAL ASSESSMENT UPDATE
HEBRON PROJECT COMPREHENSIVE STUDY REPORT**

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1.0 INTRODUCTION

This is an environmental assessment update for the Hebron Comprehensive Study Report (CSR) (EMCP 2011). This environmental assessment update document includes updated project descriptions for wellsite geohazard and engineering geophysical surveys, boulder definition and geotechnical surveys, and fish habitat survey and environmental baseline data collection, as well as updated sections on commercial fisheries and species at risk to reflect the most current information (as of March 21, 2014).

These activities will take place in the amended Offshore Project Area assessed in the Hebron Project Comprehensive Study Report Addendum (EMCP 2013) (Figure 1-1); coordinates are provided in Table 1.1.

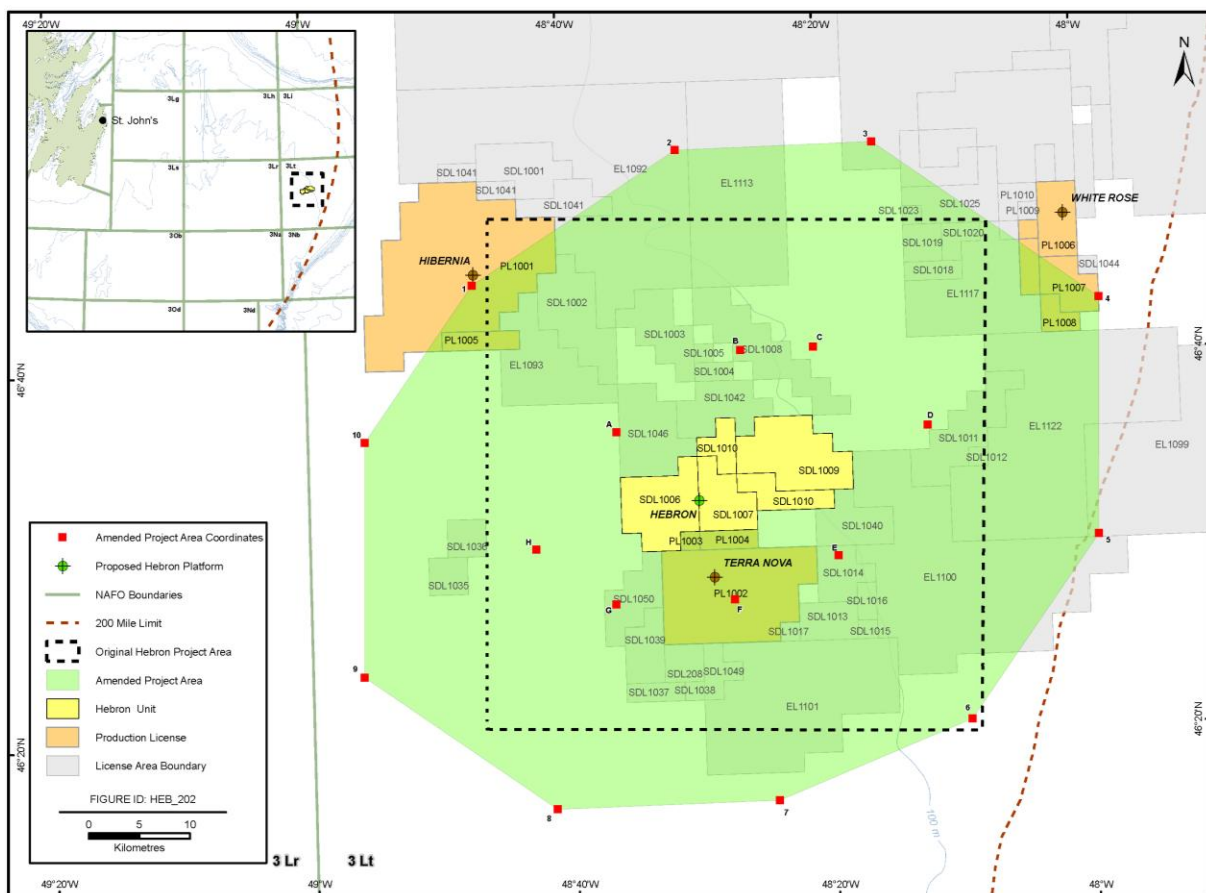


Figure 1-1 2014 Activities Project Area

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Table 1.1 Amended Project Area Coordinates

Point	Longitude	Latitude
1	-48.78352	46.74078
2	-48.51538	46.85583
3	-48.26047	46.85793
4	-47.97379	46.71297
5	-47.98496	46.50267
6	-48.15611	46.34213
7	-48.40654	46.27536
8	-48.69184	46.27328
9	-48.93517	46.39511
10	-48.92725	46.60378

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2.0 PROJECT DESCRIPTION

2.1 2014 Activities

2.1.1 Overview

Wellsite geohazard and engineering geophysical data acquisition will be collected using 2D high-resolution (2DHR) reflection seismic, deep-tow sub-bottom profiler, hull-mounted sub-bottom profiler, side-scan sonar, multi-beam echosounder, and magnetometer data. .

Geotechnical and boulder definition data acquisition will be collected using a Van Veen or Shippek grab sampler, acoustic corer, ROV-mounted sub-bottom imager and wheeldrive cone penetrometer test (CPT).

Fish habitat survey and field environmental characterization data acquisition will be collected using a towed seabed camera/video system, modified box corer/day grab, water sampler and biological fish sampling.

All survey work and data acquisition will occur over the amended Hebron Project Area, as defined in the Hebron Project CSR Addendum (EMCP 2013) (see Figure 1-1), focusing on the Hebron Significant Discovery Licenses.

The surveys will occur from May 2014 to November 2014. If required, up to four vessels may be in the Hebron Offshore Project Area at any one time. Three of the vessels would be engaged in the geophysical/geotechnical and environmental baseline data collection. A fishing vessel, supplied by an EMCP contractor, will be engaged to collect the fish samples.

These activities were previously assessed in the Hebron Project CSR (EMCP 2011) (Section 2.9.6). The amended Project Area was assessed in the Hebron Project CSR Amendment (EMCP 2013).

2.1.2 Geophysical Data Collection Details

2D High Resolution seismic data will be acquired with an air source array, a hydrophone streamer, and an onboard digital recording system. Engineering geophysical equipment suite consists of deep-tow sub-bottom profiler, hull-mounted sub-bottom profiler, side-scan sonar, multi-beam echosounder, and magnetometer data.

The air source array typically consists of four 40 in³ air sources contained within an open box frame. The air source array is nominally towed approximately 60 to 80 m off the stern of the vessel, and at a nominal depth of 3 m. The maximum decibel notation output from this array is 244.6 dB (peak to peak)//1uPa@1m, or 238 dB (zero to peak)//1uPa@1m. The air source array can be ramped up in output prior to start of line.

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The streamer has a 600 m/1,200 m active length. The streamer will either be solid or gel-filled. It is recognized that lead-ins and stretch sections may contain small amounts of fluid. The streamer will be towed from the stern of the vessel. The end of the streamer will be marked with a tail buoy. The tail buoy is equipped with a radar reflector and strobe light.

The towed sub-bottom profiler is a Huntec DTS system which will be deployed from the stern of the survey vessel, towed between 30 and 50 m off the seabed, approximately 75 m behind the survey vessel. Maximum peak to peak amplitude is 221 dB//1uPa@1m.

Seabed imagery will be acquired with a digital, dual-frequency (100kHz/400kHz) side scan sonar system. Output power of this system is extremely low, equivalent to an echosounder in magnitude.

A multibeam echosounder will be deployed. Power output levels are similar to a standard echosounder. The system operates at a frequency of 240 kHz.

In the event that potential debris is identified by the side scan or multibeam systems, a proton magnetometer will be deployed. This system is towed behind the vessel, 5 to 10 m above the seabed, and emits a low-power electromagnetic field.

2.2 Consultation

EMCP met with the Fish, Food and Allied Workers (FFAW) Petroleum Industry Liaison and One Ocean on April 11, 2014, to provide an overview of the 2014 activities and to discuss any questions that these organizations may have with the upcoming programs.

The attendees did not express any concerns with the project area or activities proposed for 2014. The following mitigations were discussed:

- As the proposed project is a well site survey in an area with historical little fishing activity, no Fisheries Liaison Officer is required, per the One Ocean Matrix (One Ocean 2013)
- Ongoing communication with FFAW regarding timing of survey activities
- Posting to NotShip
- Single point of contact
- Use of Vessel Movement System data (as available from DFO).

EMCP has notified seafood processors (Groundfish Enterprise Allocation Council, Association of Seafood Producers, Clearwater Seafoods, Ocean Choice International and Iceswater Seafoods) of the survey start and completion dates. No comments or concerns have been expressed to date.

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2.3 Mitigations

These activities were previously assessed under the Hebron Project Comprehensive Study Report (EMCP 2011). Mitigation measures proposed in the Hebron Project Comprehensive Study Report (EMCP 2011) to reduce the potential for adverse environmental effects remain unchanged.

Guidance provided in the C-NLOPB's *Geophysical, Geological, Environmental and Geotechnical Program Guidelines* (C-NLOPB 2012) will be used as the basis for the management and mitigation of environmental risks associated with the project.

2.3.1 Wellsite Geohazard and Engineering Geophysical Data Acquisition

The primary effect of these surveys is noise and potential interference with fishing activity / gear. These activities were previously assessed under the Hebron CSR. The mitigations proposed in the Hebron CSR for wellsite/geotechnical surveys remain unchanged and include:

- Marine mammal and seabird observers(s)
- Single point of contact
- Use of Vessel Movement System data
- Ongoing communications with FFAW and fishers throughout seismic survey program (may include daily updated and 48-hour forecasts)
- Adhere to the *Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Marine Environment*, as referenced in the *Geophysical, Geological, Environmental and Geotechnical Program Guidelines* (C-NLOPB 2012).
- A Canadian Wildlife Service permit will be obtained to permit the salvage and release of seabirds that may strand on the seismic vessel. A seabird salvage log will be maintained to record all seabird interactions as per the permit conditions.

2.3.2 Geotechnical and Fish Habitat Survey and Environmental Baseline Data Acquisition

The primary effect of this undertaking on the environment would relate to the collection of substrate samples, water samples and samples of one or two fish species for laboratory analyses. These activities were previously assessed under the Hebron CSR. The mitigations proposed in the Hebron CSR remain unchanged.

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3.0 BIOLOGICAL ENVIRONMENT UPDATES

As noted in Section 1.0, in addition to updates to Section 2.9.6 of the Hebron Project CSR (EMPC 2011), the commercial fisheries and species at risk information has been updated to reflect the most current information (as of March 21, 2014).

3.1 Commercial Fisheries

Fisheries activities within the Study Area were reported for 2007, 2008, 2009, and 2010 in the original CSR (Section 7.3.2.5) and graphically depicted up to 2008 in the original CSR. Fisheries activities within the Study Area for 2010 and 2011 were graphically depicted in the 2013 Hebron CSR Update (Stantec 2013). Commonly occurring fish and shellfish species within the Hebron Offshore Study Area included northern shrimp, snow crab, sand lance, Greenland halibut, yellowtail flounder, witch flounder, thorny skate, lumpfish, redfish, grenadier, sculpin, capelin and Arctic cod.

Data for commercial snow crab, northern shrimp and groundfish fisheries harvested in 2012 are illustrated in Figures 3-1 to 3-3. DFO research vessel locations in 2012 are illustrated in Figure 3-4.

DFO Ottawa Statistical Division has advised that there is a new policy that prohibits release of data that can be mapped due to privacy concerns. Therefore, spatial data are now released at an aggregated 1/10th degree 'cell' level only. No absolute values of weight and value are provided; the actual weight and value of a catch within each box will be given as a range and actual catch will be restricted to portions caught within a given cell.

Therefore, the figures for 2012 data for snow crab, northern shrimp and groundfish (see Figures 3-1 to 3-3) 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 2013 for NAFO Division 3L are not available at this time.

DFO will be conducting surveys in NAFO Division 3L from the *Research Vessels (RVs) Needler and Teleost* (G. Sheppard, pers. comm.). The RV *Teleost* will be conducting the Newfoundland and Labrador Spring AZMP from April 11 to 29, 2014 in NAFO Divisions 3P + 3KLMNO. The RV *Teleost* will also be conducting the Greenland halibut survey from April 30 to May 9, 2014, in NAFO 2J + 3KL and a capelin survey from May 10 to 27, 2014 in NAFO 3KL. The RV *Teleost* will be conducting a Newfoundland and Labrador Fall Survey from November 25 to December 6, 2014 in NAFO 3K + 3L Deep.

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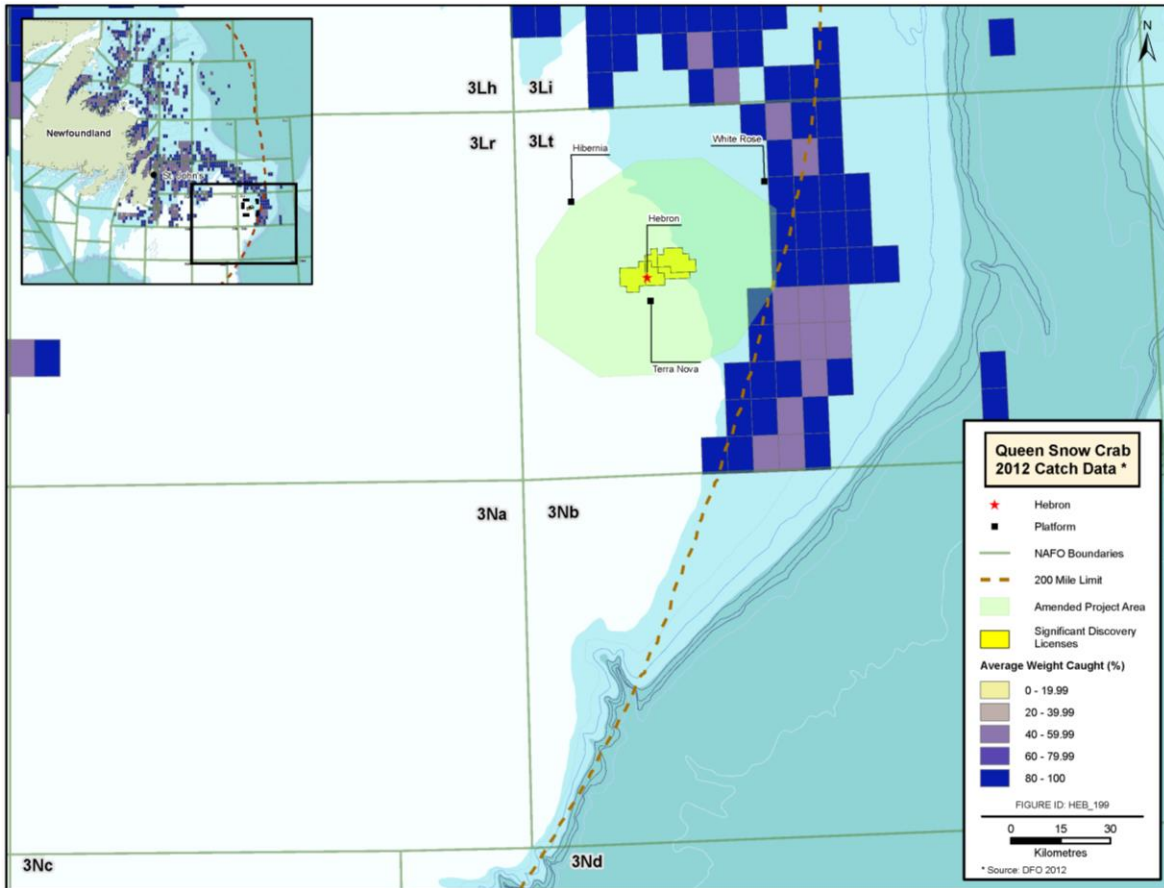


Figure 3-1 Snow Crab – Percent Average Weight Harvested (2012)

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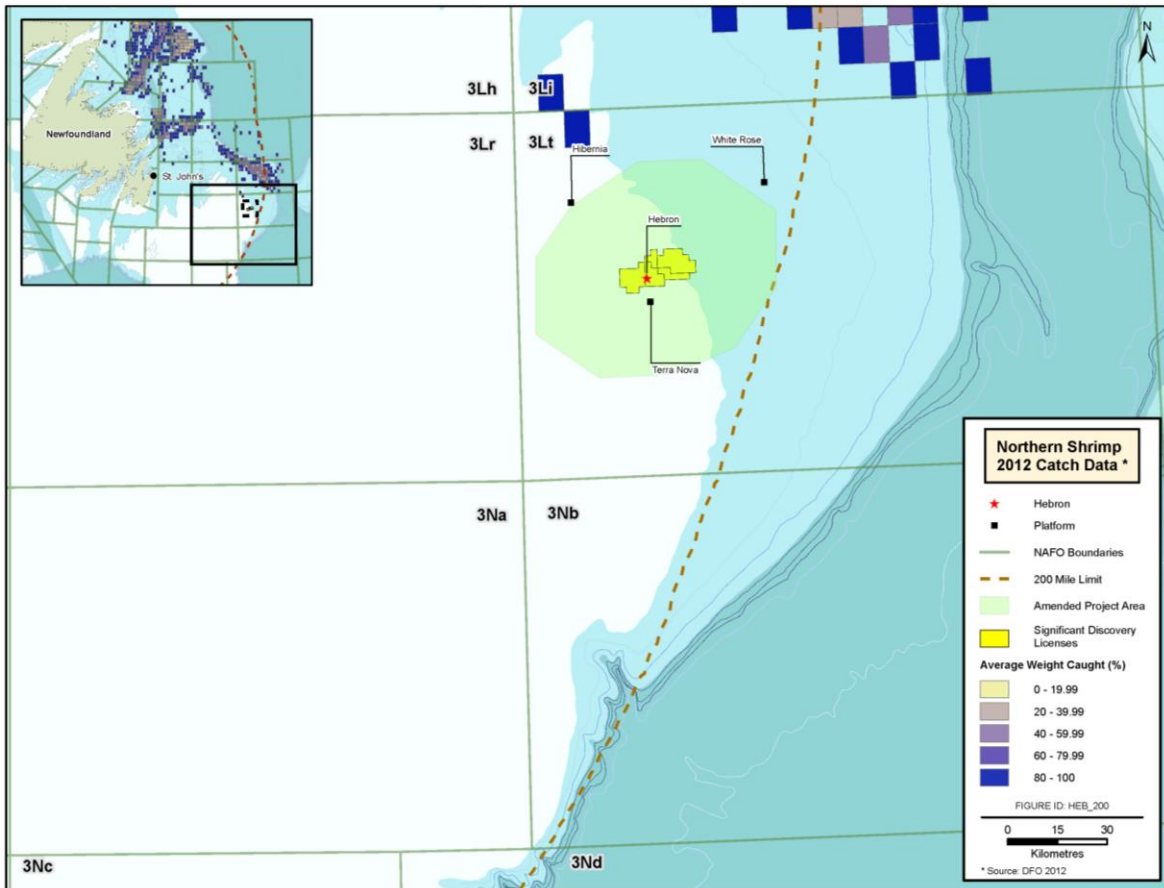


Figure 3-2 Northern Shrimp – Percent Average Weight Harvested (2012)

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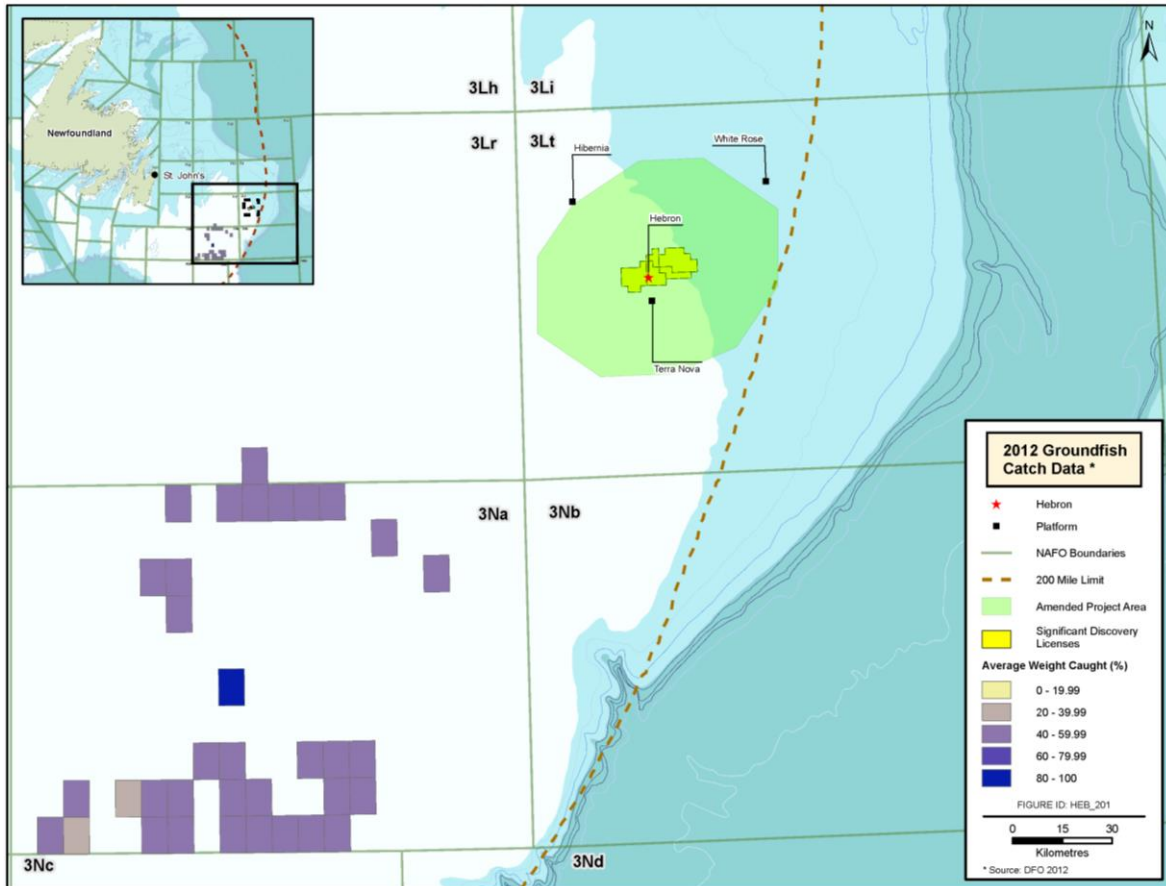


Figure 3-3 Groundfish – Percent Average Weight Harvested (2012)

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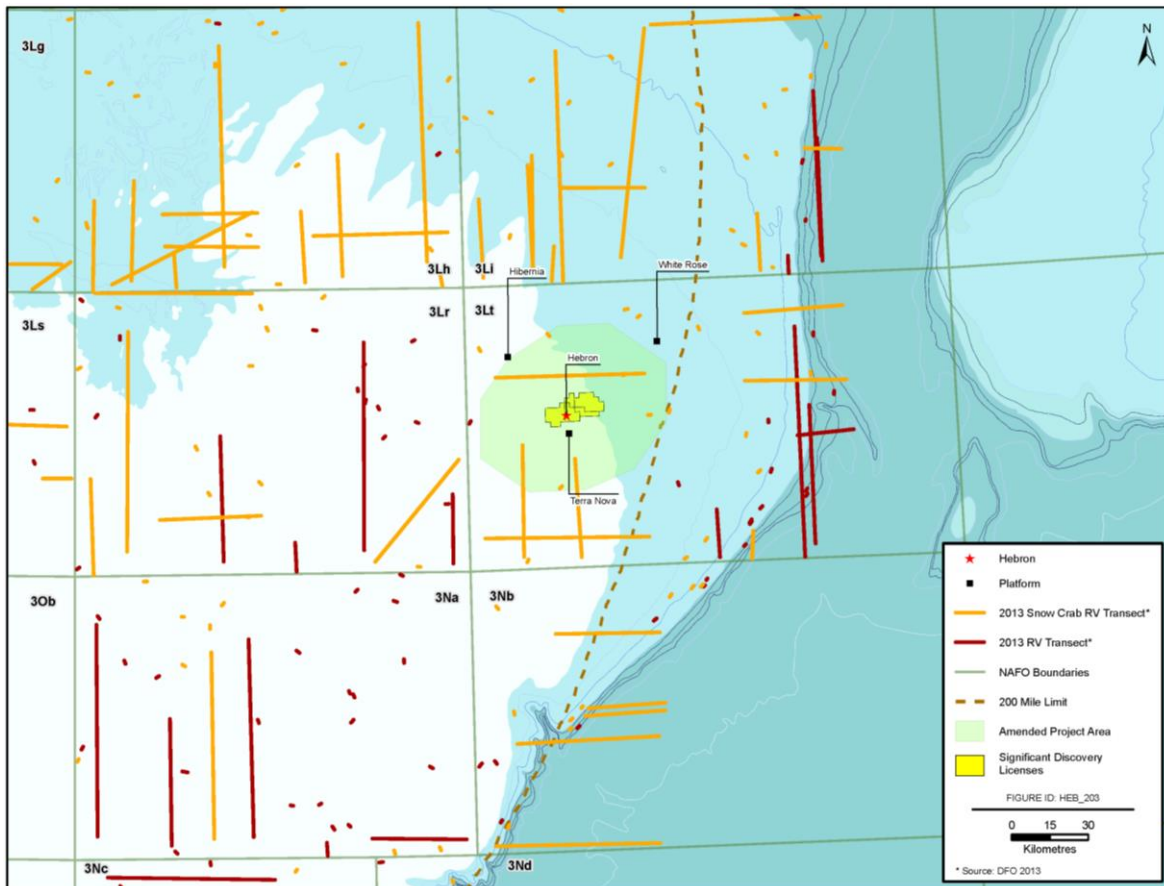


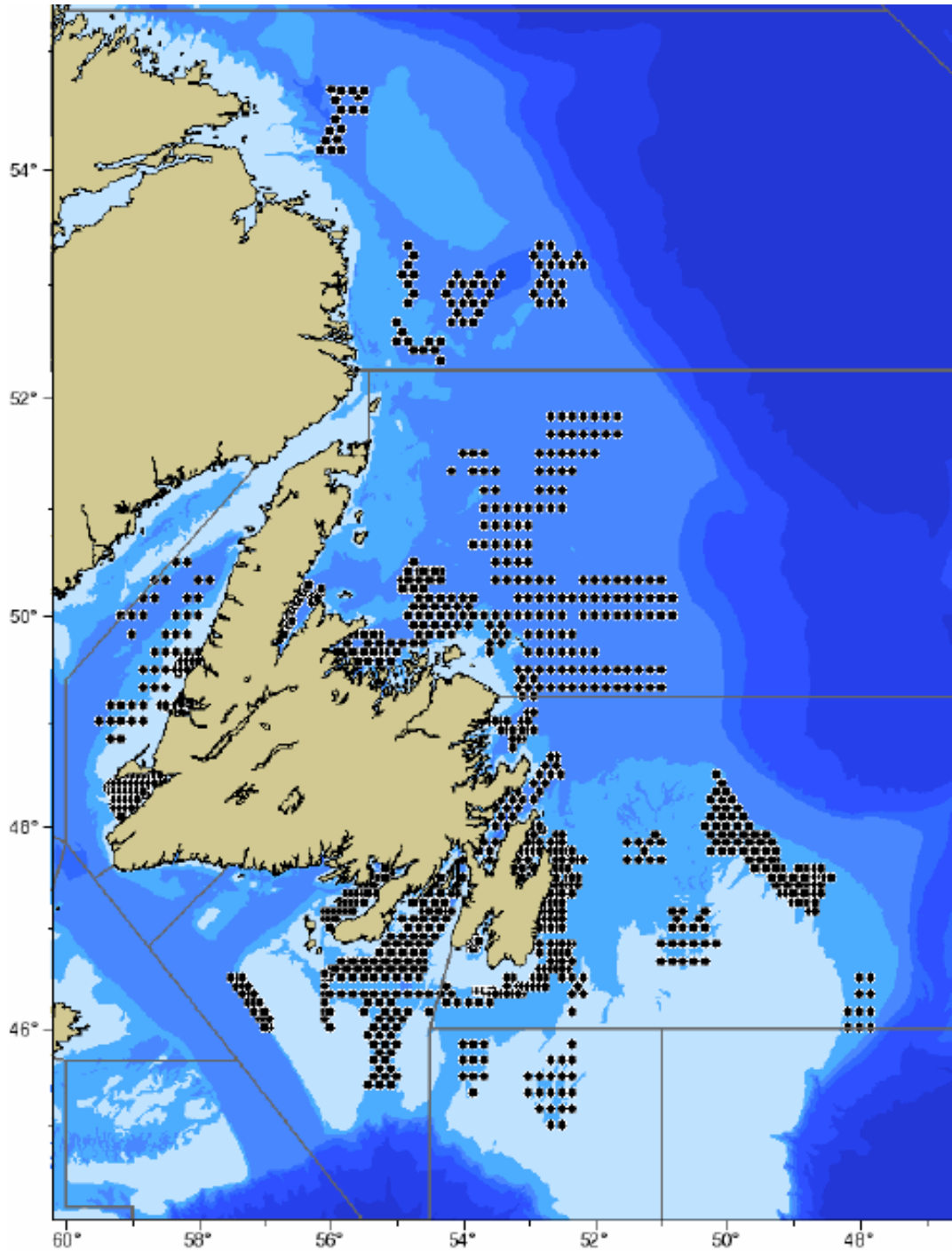
Figure 3-4 DFO Research Vessel Transects (2013)

The *RV Needler* will be conducting the Newfoundland and Labrador spring survey from April 30 to May 14, 2014, in NAFO 3O + 3N, from May 15 to 27 in NAFO 3L + 3N and from May 28 to June 16, 2014, in NAFO 3L. The *RV Needler* will be conducting the Newfoundland and Labrador fall survey from October 1 to 14, 2014, in NAFO 3O + 3N, from October 15 to 28, 2014, in NAFO 3N + 3L, from October 29 to November 11, 2014, in NAFO 3L and from November 12 to 25, 2014, in NAFO 3K + 3L.

The DFO-Industry Post-Season Crab Survey is conducted annually (usually starting in September) and extends from 3O north to 2J. The 2012 post-season crab survey ran from August 29 to November 17. The 2013 post-season crab survey collected samples from the same locations as the 2012 survey (Figure 3-5) and the locations and timelines for the 2014 survey will be exactly the same as they were last year (D. Power, pers. comm.).

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Source: Stansbury et al. 2013

Figure 3-5 Stations for DFO-Industry Post-Season Crab Survey

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3.2 Species at Risk Updates

Since the submission of the Hebron CSR (EMCP 2011) and the 2013 update (Stantec 2013), there has been one addition (white hake, described below) to the list of species included under the *Species at Risk Act* (SARA) or assessed as at risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) (Table 3.1). None of the species previously described since the last update (Stantec 2013) have had a designation change.

Table 3.1 Occurrence of Species at Risk within the Study Area

SPECIES		SARA Status	COSEWIC Status	Occurrence in the Study Area
Common Name	Scientific Name			
Birds				
Ivory Gull	<i>Pagophila eburnea</i>	Schedule 1 – Special Concern	Endangered	May occur but area is not known to be critical habitat for the species
Marine Mammals				
Blue Whale	<i>Balenoptera musculus</i>	Schedule 1 – Endangered	Endangered	Occurs but area is not known to be critical habitat for the species
North Atlantic Right Whale	<i>Eubalaena glacialis</i>	Schedule 1 – Endangered	Endangered	Occurs but area is not known to be critical habitat for the species
Fin Whale	<i>Balenoptera physalus</i>	Schedule 1 – Special Concern	Special Concern	Occurs but area is not known to be critical habitat for the species
Sowerby's Beaked Whale	<i>Mesoplodon bidens</i>	Schedule 1 – Special Concern	Special Concern	May occur in small numbers but area is not known to be critical habitat for the species
Killer Whale	<i>Orcinus orca</i>	No Schedule – No Status	Special Concern	May occur in small numbers but area is not known to be critical habitat for the species
Harbour Porpoise	<i>Phocoena phocoena</i>	Schedule 2 – Threatened	Special Concern	Occurs but area is not known to be critical habitat for the species
Northern Bottlenose Whale (Davis Strait-Baffin Bay-Labrador Sea pop)	<i>Hyperoodon ampullatus</i>	No Schedule – No Status	Special Concern	May occur in small numbers but area is not known to be critical habitat for the species

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SPECIES		SARA Status	COSEWIC Status	Occurrence in the Study Area
Common Name	Scientific Name			
Fish				
Atlantic Cod (NL Pop)	<i>Gadus morhua</i>	No Schedule – No Status	Endangered	Occurs but area is not known to be critical habitat for the species
Atlantic Wolffish	<i>Anarhichas lupus</i>	Schedule 1 – Special Concern	Special Concern	Occurs but area is not known to be critical habitat for the species
American Plaice (NL Pop)	<i>Hippoglossoides platessoides</i>	No Schedule – No Status	Threatened	Occurs but area is not known to be critical habitat for the species
American Eel	<i>Anguilla rostrata</i>	No Schedule – No Status	Threatened	Occurs but area is not known to be critical habitat for the species
Blue Shark	<i>Prionace glauca</i>	No Schedule – No Status	Special Concern	Not likely to occur
Roughhead Grenadier	<i>Macrourus berglax</i>	No Schedule – No Status	Special Concern	Occurs but area is not known to be critical habitat for the species
Roundnose Grenadier	<i>Coryphaenoides rupestris</i>	No Schedule – No Status	Endangered	Occurs but area is not known to be critical habitat for the species
Basking Shark	<i>Cetorhinus maximus</i>	No Schedule – No Status	Special Concern	May occur in small numbers but area is not known to be critical habitat for the species
Northern Wolffish	<i>Anarhichas denticulatus</i>	Schedule 1 – Threatened	Threatened	Occurs but area is not known to be critical habitat for the species
Porbeagle Shark	<i>Lamna nasus</i>	No Schedule – No Status	Endangered	Occurs but area is not known to be critical habitat for the species
Shortfin Mako	<i>Isurus oxyrinchus</i>	No Schedule – No Status	Threatened	Not likely to occur
Spotted Wolffish	<i>Anarhichas minor</i>	Schedule 1 – Threatened	Threatened	Occurs but area is not known to be critical habitat for the species
Cusk	<i>Brosme brosme</i>	No Schedule – No Status	Endangered	Not likely to occur
White Shark	<i>Carcharodon carcharias</i>	Schedule 1 – Endangered	Endangered	Not likely to occur

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SPECIES		SARA Status	COSEWIC Status	Occurrence in the Study Area
Common Name	Scientific Name			
Deepwater Redfish (northern pop)	<i>Sebastes mentella</i>	No Schedule – No Status	Threatened	Occurs but area is not known to be critical habitat for the species
Acadian Redfish (Atlantic pop)	<i>Sebastes fasciatus</i>	No Schedule – No Status	Threatened	May occur in small numbers but area is not known to be critical habitat for the species
Atlantic Salmon (South NL pop)	<i>Salmo salar</i>	No Schedule – No Status	Threatened	Not likely to occur
Atlantic Bluefin Tuna	<i>Thunnus thynnus</i>	No Schedule – No Status	Endangered	May occur in small numbers but area is not known to be critical habitat for the species
Smooth Skate (Funk Island Deep, NL pop)	<i>Malacoraja senta</i>	No Schedule – No Status	Endangered	Occurs but area is not known to be critical habitat for the species
Thorny Skate	<i>Amblyraja radiata</i>	No Schedule – No Status	Special Concern	Occurs but area is not known to be critical habitat for the species
Spiny Dogfish	<i>Squalus acanthias</i>	No Schedule – No Status	Special Concern	Occurs but area is not known to be critical habitat for the species
White Hake (Atlantic and Northern Gulf of St. Lawrence pop)	<i>Urophycis tenuis</i>	No Schedule – No Status	Threatened	Uncommon on the Grand Banks
Reptiles				
Leatherback Turtle	<i>Dermochelys coriacea</i>	Schedule 1 – Endangered	Endangered	Occurs but area is not known to be critical habitat for the species
Loggerhead Sea Turtle	<i>Caretta caretta</i>	No Schedule – No Status	Endangered	Occurs but area is not known to be critical habitat for the species
Update to Table B.1 (Stantec 2013) Bolded species are new to the table				

As of November 2013, COSEWIC has assessed the white hake as threatened. This species does not have status under SARA. Nor does it have final recovery strategies, action plans or associated critical habitat identified. None of the recovery or action plans that are available for the SARA species affect the mitigation measures committed to by EMCP in the Hebron CSR (EMCP 2011).

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The following updates Section 11.3 of the Hebron CSR (EMCP 2011) and the 2013 CSR Update (Stantec 2013) and Amendment (EMCP 2013), as white hake was not previously described in any of the cited reports.

White Hake

White hake are a benthic species that is found in cold (5°C to 11°C), 200 to 1,000 m-deep water along the continental shelf and upper continental slope (Scott and Scott 1988). The prey of adult white hake is primarily other fish (including Atlantic herring, red, silver and longfin hake, Atlantic mackerel, cod and flatfish) and crustaceans, primarily shrimp (Scott and Scott 1988; Kulka and DeBlois (1996).

White hake may occur from southern Labrador to Cape Hatteras, but is most abundant in the Gulf of St. Lawrence, on the Scotian Shelf and in the Gulf of Maine. On the Grand Banks, white hake occurs infrequently except in the warm waters along the southwest slope (Kulka et al. 2004). White hake have been identified in ichthyoplankton surveys on the northeast Grand Banks, during late summer and early fall (Dalley et al. 2000).

Over the past three generations, adults in Atlantic and Northern Gulf of St. Lawrence population have declined by an estimated 70 percent. The population has remained fairly stable since the mid-1990s (when most of the decline occurred due to fishing pressure) due to restrictions on fisheries over most of their range since the mid to late 1990s. Because their abundance has stabilized over the past generation, the Atlantic and Northern Gulf of St. Lawrence population of white hake were assessed by COSEWIC as threatened (COSEWIC 2011).

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Environmental Effects Assessment
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4.0 ENVIRONMENTAL EFFECTS ASSESSMENT

A review of the environmental effects assessment (Chapter 16) predictions and mitigations that were assessed as part of the Hebron Project CSR (EMCP 2011) was conducted as a result of updated commercial fisheries data and COSEWIC addition. All proposed activities fall within the scope of the Hebron Project CSR (EMCP 2011) (Section 2.9.6).

The mitigations for the activities planned to be carried out under the scope assessed in the Hebron Project CSR (EMCP 2011) are still appropriate, and the Hebron Project partners reaffirm their commitment to the mitigation measures cited in this assessment validation, the Hebron Project CSR (EMCP 2011) and the Scoping Document (C-NLOPB 2009).

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5.0 REFERENCES

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Sheppard, G., Technician, Program Services and Planning DFO, St. John's, NL. Personal Communication (schedules for *R/V Teleost* and *R/V Needler*).

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