



## E&P – EAST COAST

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|------------------|---|--|-----------------------------|--|--|
| Document Number: | TN-PE-EC15-X00-155  |  |                             |  |  |
| Document Type:   | Procedure   |  |                             |  |  |
| Document Title:  | Suncor E&P East Coast Operations Newfoundland & Labrador Offshore Area Environmental Assessment Review For 2011 |  |                             |  |  |
| System           | Review Cycle  |  | Next Scheduled Review Date: |  |  |
| 00               | Annual  |  | August 2012                 |  |  |

|          |             |                |                     |                                  |               |                                 |
|----------|-------------|----------------|---------------------|----------------------------------|---------------|---------------------------------|
|          |             |                |                     |                                  |               |                                 |
| M4       | 26-Aug-2011 | Issued for Use | D.G. Taylor Inc.    | Team Lead – Env, ER and Security | Manager, EH&S | Director, Exploration           |
| M3       | 13-Jul-2011 | Issued for Use | D.G. Taylor Inc.    | Team Lead – Env, ER and Security | Manager, EH&S | Director, Exploration           |
| M2       | 8-Oct-2010  | Issued for Use | Environment Advisor | Team Lead – Env, ER and Security | --            | Exploration Manager, East Coast |
| M1       | 14-Jul-2010 | Issued for Use | D.G. Taylor Inc.    | Team Lead – Env, ER and Security | --            | Manager, DCI                    |
| Revision | Date        | Description    | Originator          | Checked By                       | Checked By    | Approved By                     |

| REVISION SUMMARY FORM |   |                           |
|-----------------------|---|---------------------------|
| Current Revision      | Revision Description / Purpose  | Pages Revised             |
| M3                    | The document has been re-formatted to meet new Suncor East Coast document control requirements, including the addition of a revision summary form, standard distribution list, management of change form for procedural documents and other sections within the document. | All                       |
| M3                    | The scope and reference to the Environmental Assessment of Petro-Canada's Jeanne d'Arc Basin Seismic Program (March 2007) and Addendum (June 2007) has been removed as the temporal scope for that assessment ended in 2010.  | All                       |
| M3                    | Section 4.0 was added to include roles and responsibilities.  | 2                         |
| M3                    | Section 5.1.4 was updated to reflect the planned activities for 2011-2012.  | 4                         |
| M3                    | Figure 2 in Section 5.2.1 was included to show cumulative pattern of fishing activity to 2003 - 2009 in Jeanne d'Arc Basin relation to 2011 Suncor proposed operations locations.   | 5-6                       |
| M3                    | Section 5.2.2 was updated to reflect changes to species at risk.  | 6                         |
| M3                    | Section 6.1.4 was updated to reflect the planned activities for 2011-2012.  | 9                         |
| M3                    | Figure 5 in Section 6.2.1 was included to show cumulative pattern of fishing activity to 2003 - 2009 in Jeanne d'Arc Basin relation to 2011 Suncor proposed operations locations.   | 10-11                     |
| M3                    | Section 6.1.6 was updated to reflect changes to species at risk.  | 12                        |
| M3                    | Section 7.0 was updated to reflect changed concluding statement.  | 13                        |
| M3                    | References were updated since the 2010 update.  | 14-15                     |
| M3                    | Appendix 1 has been updated to reflect the current SARA listed and COSEWIC assessed species in the Suncor project areas.  | Appendix 1                |
| M4                    | Corrected reference to date of issue of Geophysical, Geological, Environmental and Geotechnical Program Guidelines.   | 3 & 9                     |
| M4                    | Amended terminology regarding SARA listings and COSEWIC designations.   | 6-7 & 12-13<br>Appendix 1 |

| STANDARD DISTRIBUTION LIST                         |                 |         |                   |
|--|-----------------|---------|-------------------|
| Position   | Name            | Company | Location          |
| Vice President, East Coast                         | Sandy Martin    | Suncor  | St. John's Office |
| Director, Exploration                              | Ian DeLong      | Suncor  | St. John's Office |
| Asset Manager, Terra Nova                          | Gary Vokey      | Suncor  | St. John's Office |
| Manager, Drilling, Completions and Intervention    | Brian Stacey    | Suncor  | St. John's Office |
| Manager, Environment, Health & Safety              | Michele Farrell | Suncor  | St. John's Office |
| Team Lead, Environment, ER & Security              | Greg Janes      | Suncor  | St. John's Office |
| Team Lead, Regulatory Affairs & Quality Management | Collette Horner | Suncor  | St. John's Office |
| Environmental Advisor                              | Roger Crowley   | Suncor  | St. John's Office |
| Manager, Environmental Affairs                     | Dave Burley     | C-NLOPB | St. John's Office |
| Environmental Assessment Officer                   | Elizabeth Young | C-NLOPB | St. John's Office |

| MANAGEMENT OF CHANGE FORM FOR PROCEDURAL DOCUMENTS  |          |          |
|---|----------|----------|
| <b>1. Change Category / Description</b>   | <b>Y</b> | <b>N</b> |
| a. Is this a new document (not previously issued) or are major changes being made (examples of <b>major changes</b> include changes in process, responsibilities, requirements, frequency, type)?                   |          | ✓        |
| b. If Major Change or New, provide a description of the purpose of the changes/document:<br><br>Document has been updated to reflect new information.   |          |          |
| c. Are minor changes being made (examples of <b>minor changes</b> include clarifying intent, correction of terminology or format with no change to the process)?  | ✓        |          |
| d. Are the changes being made as a result of facility/design modifications? If yes provide the MOC notification number: _____   |          | ✓        |
| <b>2. Assessment of Change</b>  |          |          |
| a. Do the changes have the potential to introduce new hazards or impact Safety or Environmentally Critical processes?   |          | ✓        |
| b. Do the changes impact regulatory requirements (e.g. documents under the License to Operate, documents in the East Coast Management System, SAP routines)?  | ✓        |          |
| c. If <b>YES to a or b</b> , have representatives of those responsible for processes impacted by the change reviewed and accepted the proposed changes?   | ✓        |          |
| d. Is a Risk Assessment (RA) required prior to issue? If yes provide reference: _____   |          | ✓        |
| <b>3. Training Requirements</b>   |          |          |
| a. Do the proposed changes require formal training, orientation, or roll-out?   |          | ✓        |
| b. If <b>YES</b> , provide details: _____   |          |          |
| <b>4. Communication Requirements</b>  |          |          |
| a. Are all changes clearly identified / marked and summarized in the Revision Summary?  | ✓        |          |
| b. Did the review/issue processes include all those impacted by the changes?  | ✓        |          |
| c. Is the Standard Distribution List up to date?  | ✓        |          |
| <b>Completed by:</b> <u>Greg Janes</u> <u>Team Lead – Environment, ER and Security</u><br><div style="display: flex; justify-content: space-between;"> <span><b>Name</b></span> <span><b>Position</b></span> </div> |          |          |



## TABLE OF CONTENTS

|  |     |
|--|-----|
| Revision Summary Form .....  | ii  |
| Standard Distribution List .....   | iii |
| Management of Change Form for Procedural Documents .....   | iv  |
| 1.0 Purpose .....  | 1   |
| 2.0 Scope .....  | 1   |
| 3.0 Abbreviations and Acronyms .....   | 2   |
| 4.0 Roles and Responsibilities .....   | 2   |
| 4.1 Director, Exploration .....  | 2   |
| 4.2 Asset Manager, Terra Nova .....  | 2   |
| 4.3 Team Lead – Environment, Emergency Response and Security .....   | 2   |
| 5.0 Environmental Assessment of Suncor's Vertical Seismic Profiling Program at the Terra Nova Development (June 2006) & Addendum (November 2006) ..... | 3   |
| 5.1 Project Description and Scope .....  | 3   |
| 5.1.1 Activities Covered .....   | 3   |
| 5.1.2 Geographic Scope .....   | 3   |
| 5.1.3 Temporal Scope .....   | 4   |
| 5.1.4 Planned Activities for 2011-2012 .....   | 4   |
| 5.2 Environmental Aspects .....  | 4   |
| 5.2.1 Fisheries .....  | 4   |
| 5.2.2 Species at Risk .....  | 6   |
| 5.2.3 Mitigations .....  | 7   |
| 6.0 Environmental Assessment of Suncor's Jeanne d'Arc Basin Exploration Drilling Program, 2009-2017 (December 2008) & Addendum (April 2009) .....      | 8   |
| 6.1 Project Description and Scope .....  | 8   |
| 6.1.1 Activities Covered .....   | 8   |
| 6.1.2 Geographic Scope .....   | 8   |
| 6.1.3 Temporal Scope .....   | 9   |
| 6.1.4 Planned Activities for 2011-2012 .....   | 9   |
| 6.2 Environmental Aspects .....  | 10  |
| 6.2.1 Fisheries .....  | 10  |
| 6.2.2 Species at Risk .....  | 12  |
| 6.2.3 Mitigations .....  | 13  |
| 7.0 Concluding Statement .....   | 13  |
| 8.0 References .....   | 14  |
| 8.1 Original Suncor Environmental Assessments and Updates .....  | 14  |
| 8.2 Recent & Relevant Environmental Assessments Reviewed .....   | 14  |
| 8.3 Species at Risk Recovery Strategies .....  | 14  |

## 1.0 PURPOSE

Offshore oil and gas exploration and production programs may encompass long periods of time and multiple, successive, operational steps. As a consequence of this, environmental assessments of these programs address a variety of activities undertaken over a number of years.

This document is one of a series of reviews of the status and ongoing validity of the environmental assessments currently in place for Suncor Energy Inc.'s activities in the Newfoundland and Labrador Offshore area. These reviews are intended to assist the C-NLOPB in fulfilling its responsibilities under the CEAA by ensuring that the scope of the assessment(s) and the mitigations committed to therein remain technically valid.

## 2.0 SCOPE

This review focuses on Suncor's environmental assessments that have been approved by the C-NLOPB under which Suncor may be conducting offshore operations during the next twelve months as described in this update. The table below includes a list of Suncor's current environmental assessment approvals.

| Screening Determination Reference <sup>1</sup> | Temporal Scope                            | EA Report Title   | Suncor Document Number |
|--|---|---|------------------------|
| CEAR No. 06-01-18277                           | Year round for life of Terra Nova Project | <i>Environmental Assessment of Petro-Canada's Vertical Seismic Profiling Program at the Terra Nova Development (June 2006) &amp; Addendum (November 2006)</i> | GEN-PES-TER-1103A-0002 |
| CEAR No. 08-01-42400                           | Year round 2009 through 2017              | <i>Environmental Assessment of Petro-Canada Jeanne d'Arc Basin Exploration Drilling Program, 2009-2017 (December 2008) &amp; Addendum (April 2009)</i>        | PES-CNO-OTH-0406-0015  |

Sections 5.0 and 6.0 are organized by the specific, above-listed individual environmental assessments and provide the necessary information to confirm the ongoing validity of the assessment in question or note any changes that need to be addressed.

<sup>1</sup> Follow the links to C-NLOPB public registry to view the environmental assessments, amendments and regulatory determinations.

### 3.0 ABBREVIATIONS AND ACRONYMS

|         |   |
|---------|---|
| C-NLOPB | Canada-Newfoundland and Labrador Offshore Petroleum Board |
| CEAA    | Canadian Environmental Assessment Act                     |
| CEAR    | Canadian Environmental Assessment Registry                |
| COSEWIC | Committee on the Status of Endangered Wildlife in Canada  |
| DCI     | Drilling, Completions, and Intervention                   |
| DFO     | Fisheries and Oceans Canada                               |
| E&P     | Exploration and Production                                |
| EA      | Environmental Assessment                                  |
| EH&S    | Environment, Health and Safety                            |
| FFAW    | Food, Fish and Allied Workers                             |
| FLO     | Fisheries Liaison Officer                                 |
| MMO     | Marine Mammal Observer                                    |
| NAFO    | Northwest Atlantic Fisheries Organization                 |
| NW      | Northwest   |
| SARA    | Species At Risk Act                                       |
| VSP     | Vertical Seismic Profiling                                |

### 4.0 ROLES AND RESPONSIBILITIES

#### 4.1 Director, Exploration

Responsible for ensuring the mitigation measures outlined in the environmental assessment are effectively implemented during the project.

#### 4.2 Asset Manager, Terra Nova

Responsible for ensuring the mitigation measures outlined in the environmental assessment are effectively implemented during the projects within the Terra Nova Field.

#### 4.3 Team Lead – Environment, Emergency Response and Security

Responsible for ensuring the environmental assessment review is submitted to the C-NLOPB and that environmental mitigation measures are communicated to personnel responsible for the planning and execution of the project.



## 5.0 ENVIRONMENTAL ASSESSMENT OF SUNCOR'S VERTICAL SEISMIC PROFILING PROGRAM AT THE TERRA NOVA DEVELOPMENT (JUNE 2006) & ADDENDUM (NOVEMBER 2006)

### 5.1 Project Description and Scope

#### 5.1.1 Activities Covered

This project involves the conduct of Vertical Seismic Profiling (VSP) surveys in support of the Terra Nova Development Project.

Terra Nova VSP surveys may range from a zero-offset VSP with the source deployed from the rig, to a walk-away VSP carried out from a supply vessel at uniform intervals up to 5.0 km from the rig. For each well, the survey would be a one-time event, carried out over an 8 to 36 hour period.

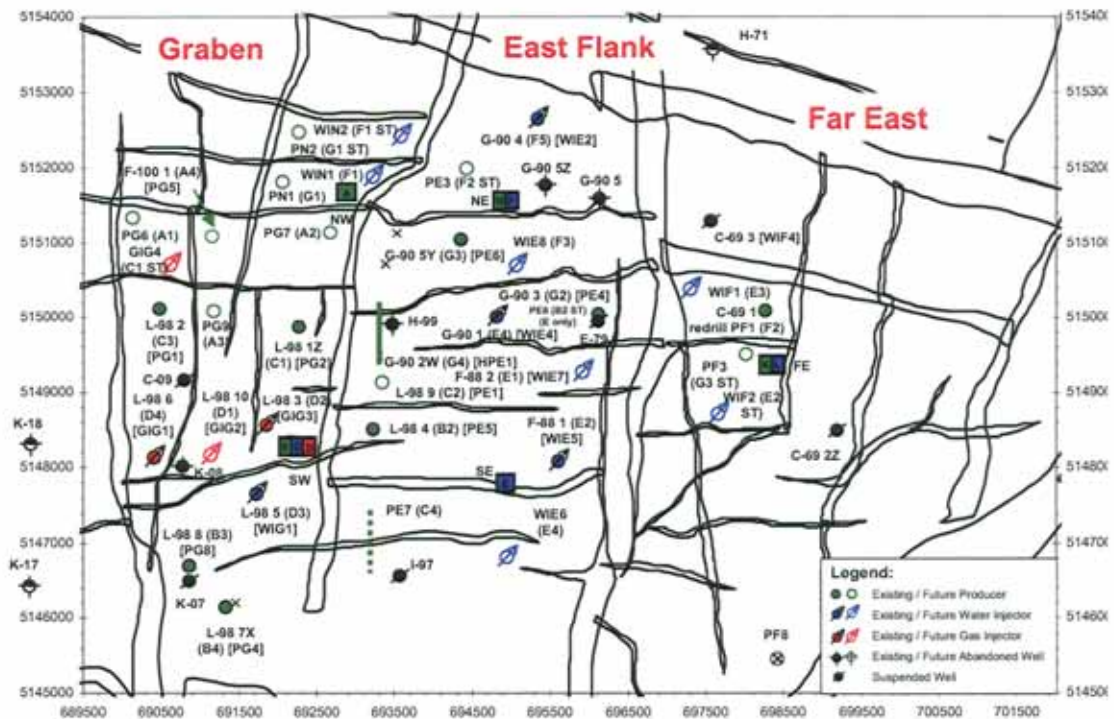
The sound source to be used will typically include a four sleeve-airgun tuned array comprised of 2 x 100 in<sup>3</sup> and 2 x 150 in<sup>3</sup> airguns, for a total volume of 500 in<sup>3</sup>. The array's airguns will be charged with nitrogen or compressed air, suspended at a constant depth of 4 to 7 metres, depending on sea-state, and operated at 2,000 psi pressure. The 0-to-peak source level is 8.45 Bar-m which converts to 238.5 dB re 1 µPa 0-P @ 1 m; maximum output occurs between 20 and 140 Hz (R. Dugal, Petro-Canada, pers. comm.).

Mitigation procedures for vertical seismic profiles undertaken pursuant to this environmental assessment will follow those defined in Appendix 2 of the *Geophysical, Geological, Environmental and Geotechnical Program Guidelines*, February 2011 (C-NLOPB), including ramp-up (i.e., soft start) of the airgun arrays, the use of Marine Mammal Observer(s) (MMOs) to monitor marine mammals and turtles and implement shut downs of the surveys when appropriate. Seabird observations will also be carried out by qualified personnel as required in the above-referenced guidelines.

#### 5.1.2 Geographic Scope

The geographic scope of the assessment is confined to the Terra Nova Field, which is portrayed in Figure 1.





**Figure 51:** Geographic Scope of Project Area for [CEAR 06-01-18277](#)

### 5.1.3 Temporal Scope

VSP surveys will typically take place during the summer season but may be conducted at any time during the year. VSP surveys will be carried out on an as-needed basis for the life of the Terra Nova project. In any one year there would be a maximum of two surveys.

### 5.1.4 Planned Activities for 2011-2012

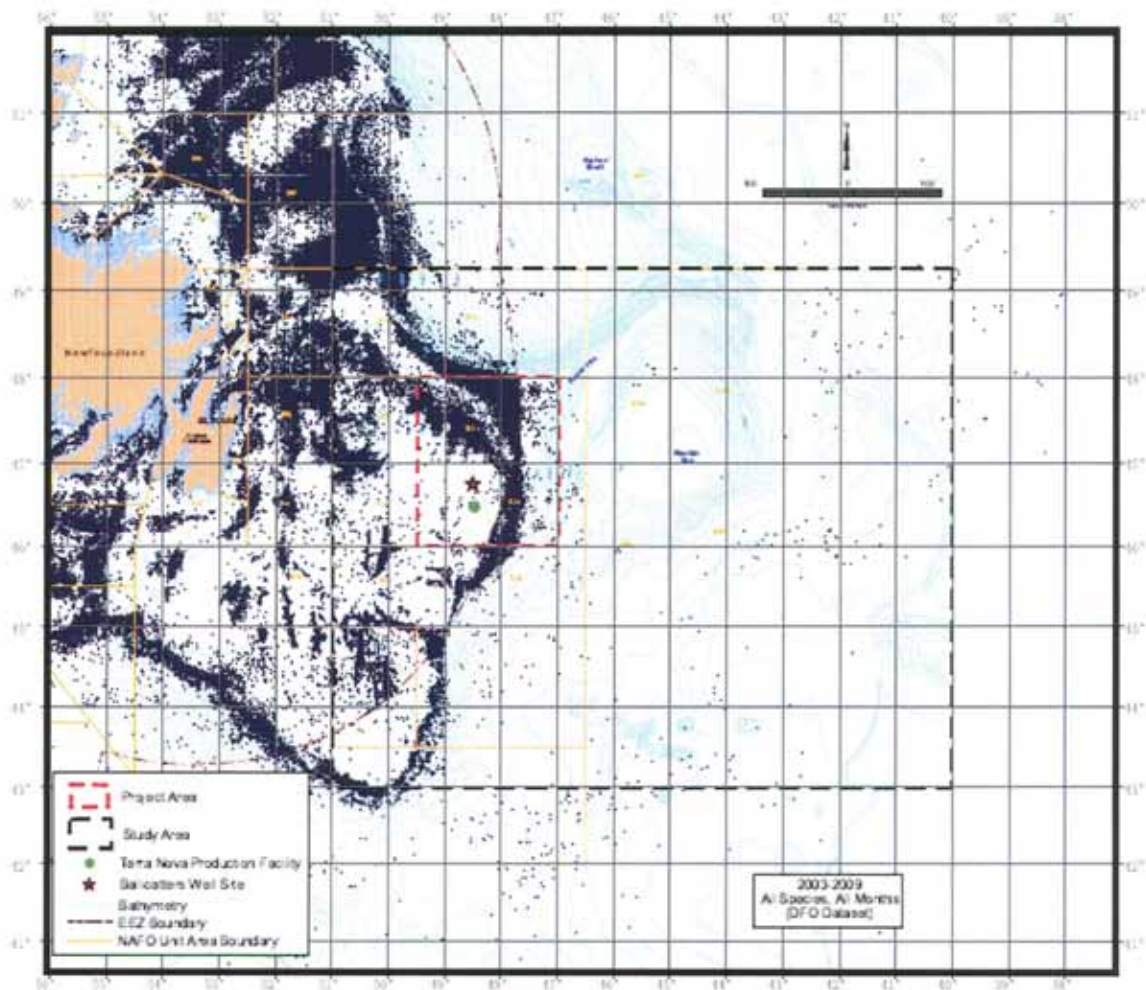
At present, there are no VSP surveys planned within the geographic scope of this environmental assessment during the next twelve months.

## 5.2 Environmental Aspects

### 5.2.1 Fisheries

Fishing activities in the study area have not changed significantly since the initial environmental assessment was accepted and the program approved. Figure 2 below provides a map of recently compiled fishing activity information that depicts an overall patterning of fishing activities that is consistent with that

documented in the original environmental assessment. This compilation, derived from Fisheries and Oceans Canada (DFO) databases including research vessel and underutilized species information, is consistent with recent environmental assessments by other offshore operators that overlap the geographic and temporal scope of Suncor's environmental assessment (c.f. Section 5.1).



**Figure 2:** Cumulative pattern of Fishing Activity to 2003 - 2009 in Jeanne d'Arc Basin relation to 2011 Suncor Proposed Operations Locations

While the general patterning of fishing relevant to this assessment is seen to generally the same over years the following paragraphs note some points relevant to the interaction between the oil and gas and fishing industry within the scope of this environmental assessment.

Preliminary decisions have been taken by Northwest Atlantic Fisheries Organization (NAFO) in the event that there is a resumption of a cod fishery in NAFO area 2J3JKL in the future (FFAW, pers. comm. & NAFO, 2010). Pursuit of



such a fishery is however contingent on both Canadian and NAFO future decision making.

As noted in previous updates, a directed fishery for American Plaice has not existed for some time and this has not changed as of 2011 (D. Fudge, OCI pers. comm.) If in the future a directed fishery is authorized then previous fishing patterns for that species may be re-established in areas in and near the Jeanne d'Arc basin.

Suncor understands that it is important to recognize that harvesters fish a resource, and not fixed points from year to year. Licenses are issued for large areas (e.g. NAFO subdivisions 3K or 3L) and fishing activity could take place anywhere within these areas and not just at the pattern of locations fished in recent years indicated by DFO data. Hence this requires that the operator should continue to consult with the fishing industry on a regular basis to keep up to date with trends in fishing from year to year.

With regard to the conduct of seismic surveys Suncor will continue to keep fishing interests informed of these activities during the operational planning phases. This will be done through the established One Ocean and FFAW contacts and others as deemed necessary or as advised.

#### 5.2.2 Species at Risk

An updated summary of SARA listed and COSEWIC designated species for the Grand Banks area of relevance to this assessment is provided in Appendix 1. SARA listed species with final recovery strategies in place are noted. None of the SARA listed species relevant to the scope of this assessment have an associated critical habitat description or an action or management plan in place. It is noted however that the North Atlantic Right Whale does have a critical habitat statement pursuant to SARA however it is rare in the study area considered under this environmental assessment (see Appendix 1 – footnotes). Appendix 1 also provides a listing of COSEWIC candidate species under assessment.

Since the last environmental assessment update no new species were added to the SARA Schedule 1 listing. However, six (6) species were added to the COSEWIC listings as noted in Appendix 1.

Of these the Loggerhead sea turtle is deemed by COSEWIC to be endangered and two the Basking shark and Spiny Dogfish are deemed to be of special concern. These three species along with the Atlantic Cod (previously designated by COSEWIC), the Deepwater and Acadian Redfish – Northern and Atlantic populations respectively – have recently been recommended for consideration for listing under SARA.



One other species, ringed seal, is under assessment as a high priority candidate for future COSEWIC designation and potentially listing under SARA.

None of the recovery plans for SARA listed species in place materially change the mitigation measures currently committed by Suncor for the scope of the operations addressed by the environmental assessment.

#### 5.2.3 Mitigations

Suncor regards the environmental predictions and consequent mitigations cited in the environmental assessment and subsequent significance determination that relates to CEAR 06-01-18277 as still valid and re-commits to implementing these mitigation measures for any activities that may be carried out under the scope of this assessment during the next twelve months.

## 6.0 ENVIRONMENTAL ASSESSMENT OF SUNCOR'S JEANNE D'ARC BASIN EXPLORATION DRILLING PROGRAM, 2009-2017 (DECEMBER 2008) & ADDENDUM (APRIL 2009)

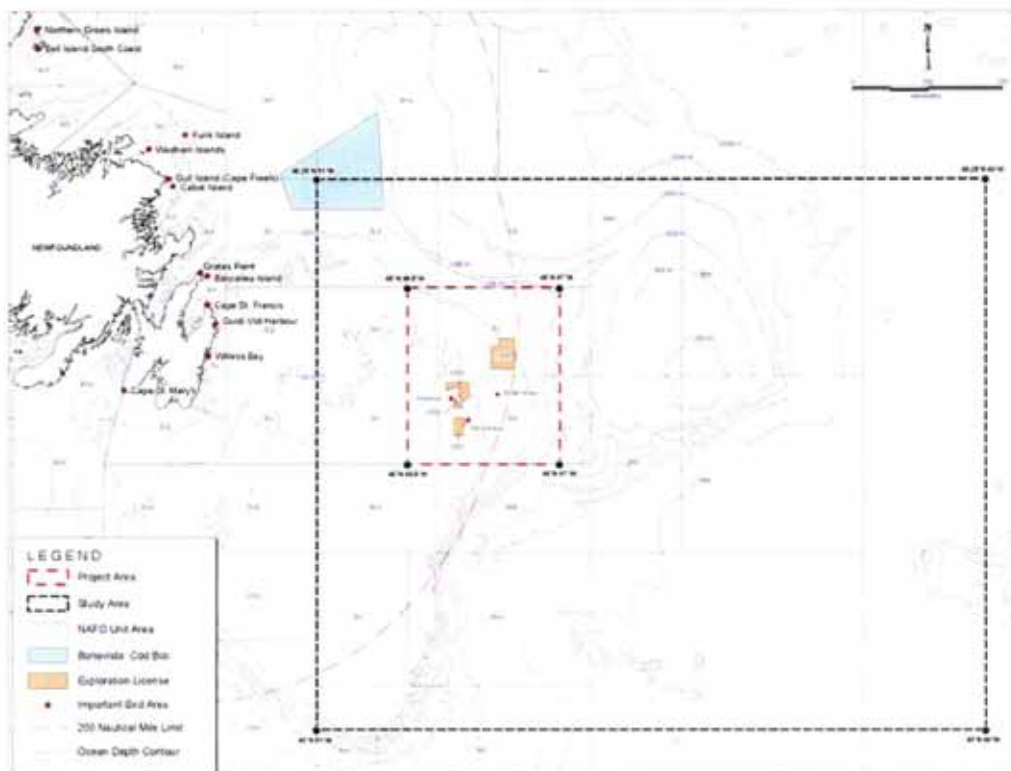
### 6.1 Project Description and Scope

#### 6.1.1 Activities Covered

This environmental assessment addresses the potential for drilling 18 delineation and/or exploration wells from semi-submersible or jack-up mobile drilling units or drill ships. It also assesses the effects of geo-hazard surveys and vertical seismic profiles associated with the drilling program.

#### 6.1.2 Geographic Scope

The geographic scope of the drilling program is depicted in Figure 3 below. The project area is depicted by the red rectangle. The coordinates of the project area are as follows: 48° North and 49.5° West, 48° North and 47° West, 46° North and 49.5° West; and, 46° North and 47° West.



**Figure 3:** Geographic Scope of Project Area CEAR No. 08-01-42400

Mitigation procedures for geo-hazard surveys pursuant to this environmental assessment will follow those defined in Appendix 2 of the *Geophysical, Geological, Environmental and Geotechnical Program Guidelines*, February 2011 (C-NLOPB), including ramp-up (i.e., soft start) of the airgun arrays, the use of dedicated MMOs to monitor marine mammals and turtles and implement shut downs of the surveys when appropriate, and the use of a FLO and communication procedures to avoid conflicts with the fishery. Fisheries liaison measures will, in part, be governed by risk management measures developed by the oil and gas and fishing industries under the auspices of One Ocean. Seabird observations will also be carried out by qualified personnel as required in the above-referenced guidelines.

#### 6.1.3 Temporal Scope

Exploration and delineation drilling activities as outlined above will be carried out year round from 2008 through 2017.

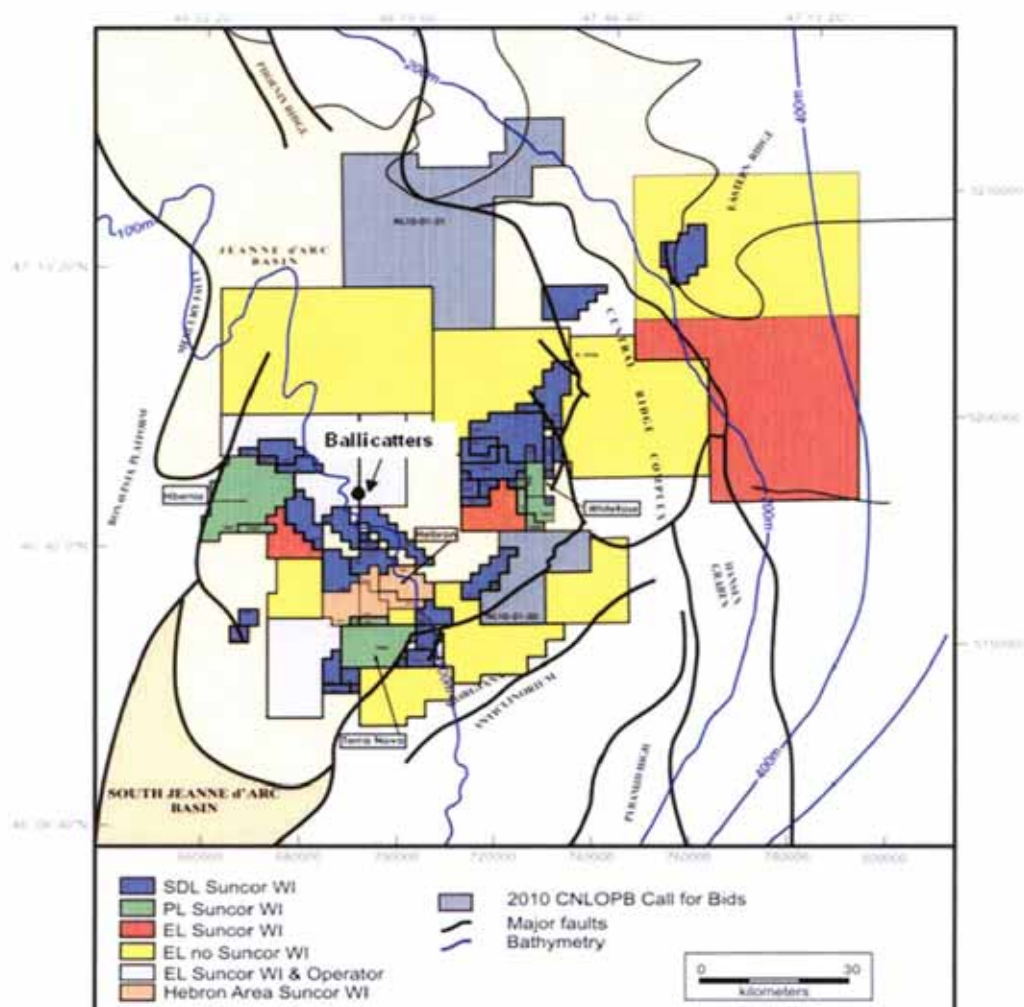
#### 6.1.4 Planned Activities for 2011-2012

Suncor drilled a second exploration well at the Ballicatters site (see Figure 4) with the Henry Goodrich semi-submersible drilling platform between November 2010 and May 2011 (as per Suncor EA Review 2010 submitted to the C-NLOPB in October 2010, Suncor Ref.: PES-CNO-OTH-0406-0033). At present, Suncor has no other plans to drill additional exploration wells during the next twelve months.

There is potential for one geohazard survey during the summer of 2011 at the Ballicatters well site.

Additional exploration wells may be drilled in 2012 through 2017 as drilling prospects are identified. Geohazard surveys will be conducted as required to support those operations.



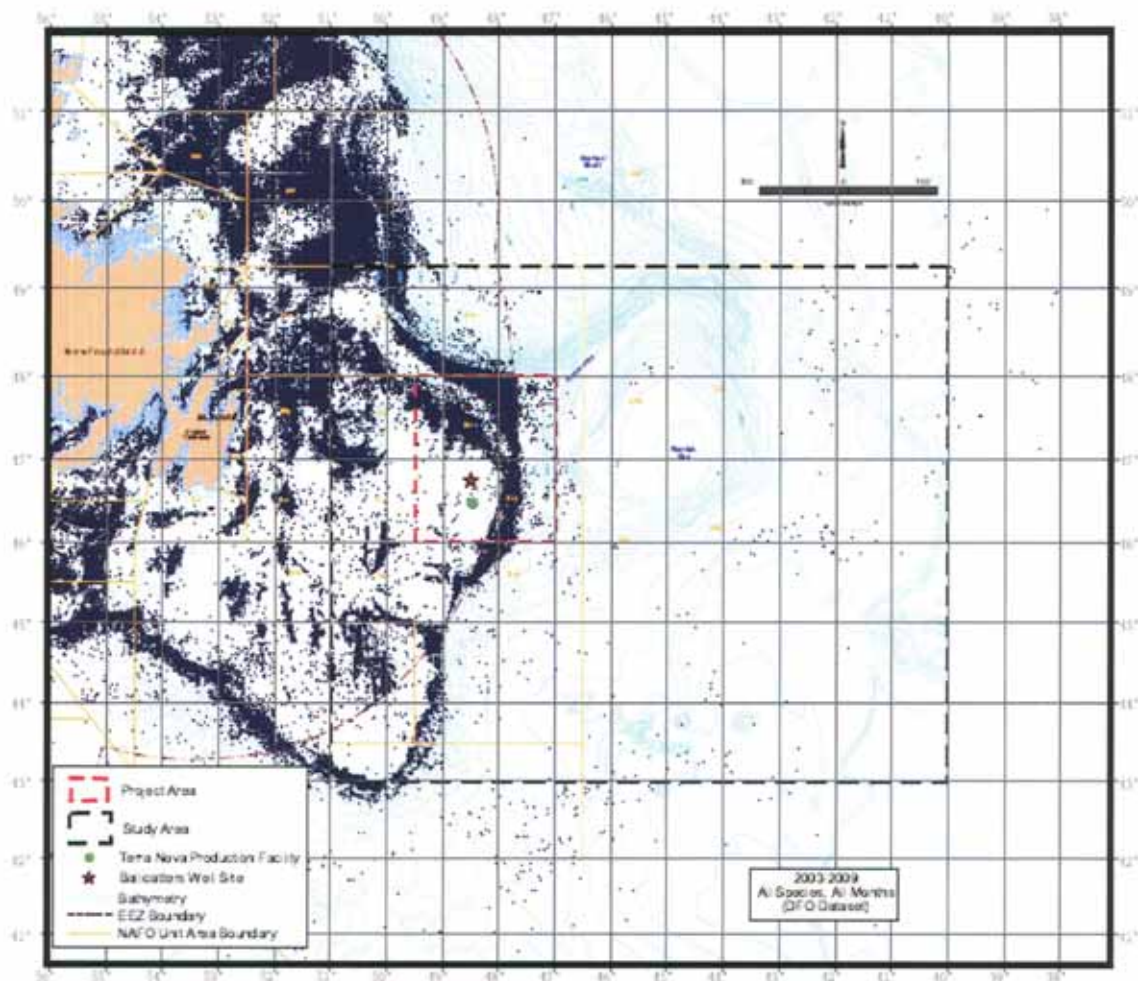


**Figure 4: General Location of Ballicatters Drill Site and Terra Nova Field**

## 6.2 Environmental Aspects

### 6.2.1 Fisheries

Fishing activities in the study area have not changed significantly since the initial environmental assessment was accepted and the program approved. Figure 5 below provides a map of recently compiled fishing activity information that depicts an overall patterning of fishing activities that is consistent with that documented in the original environmental assessment. This compilation was derived from DFO databases including research vessel and underutilized species information and is consistent with recent environmental assessments by other



offshore operators that overlap the geographic and temporal scope of Suncor's environmental assessment (c.f. Section 6.1).

**Figure 5:** Cumulative pattern of Fishing Activity to 2003 -2009 in Jeanne d'Arc Basin relation to 2011 Suncor Proposed Operations Locations

While the general patterning of fishing relevant to this assessment is seen to generally the same over years the following paragraphs note some points relevant to the interaction between the oil and gas and fishing industry within the scope of this environmental assessment.

Preliminary decisions have been taken by NAFO in the event that there is a resumption of a cod fishery in NAFO area 2J3JKL in the future (FFAW, pers. comm. & NAFO, 2010). Pursuit of such a fishery is however contingent on both Canadian and NAFO future decision making.



As noted in previous updates a directed fishery for American Plaice has not existed for some time and this has not changed as of 2011 (D. Fudge, OCI pers. comm.) If in the future a directed fisher is authorized then previous fishing patterns for that species may be re-established in areas in and near the Jeanne d'Arc basin.

Suncor understands that it is important to recognize that harvesters fish a resource, and not fixed points from year to year. Licenses are issued for large areas (e.g. NAFO subdivisions 3K or 3L) and fishing activity could take place anywhere within these areas and not just at the pattern of locations fished in recent years indicated by DFO data. Hence this requires that the operator should continue to consult with the fishing industry on a regular basis to keep up to date with trends in fishing from year to year.

With regard to the conduct of seismic surveys, Suncor will continue to keep fishing interests informed of these activities during the operational planning phases. This will be done through the established One Ocean and FFAW contacts and others as deemed necessary or as advised.

#### 6.2.2 Species at Risk

An updated summary of SARA listed and COSEWIC designated species for the Grand Banks area of relevance to this assessment is provided in Appendix 1. SARA listed species with final recovery strategies in place are noted. None of the SARA listed species relevant to the scope of this assessment have an associated critical habitat description or an action or management plan in place. It is noted however that the North Atlantic Right Whale does have a critical habitat statement pursuant to SARA however it is rare in the study area considered under this environmental assessment (see Appendix 1 – footnotes). Appendix 1 also provides a listing of COSEWIC candidate species under assessment.

Since the last environmental assessment update no new species were added to the SARA Schedule 1 listing. However, six (6) species were added to the COSEWIC listings as noted in Appendix 1.

Of these the Loggerhead sea turtle is deemed by COSEWIC to be endangered and two the Basking shark and Spiny Dogfish are deemed to be of special concern. These three species along with the Atlantic Cod (previously designated by COSEWIC), the Deepwater and Acadian Redfish – Northern and Atlantic populations respectively – have recently been recommended for consideration for listing under SARA.

One other species, ringed seal, is under assessment as a high priority candidate for future COSEWIC designation and potentially listing under SARA.



None of the recovery plans for SARA listed species in place materially change the mitigation measures currently committed by Suncor for the scope of the operations addressed by the environmental assessment.

### 6.2.3 Mitigations

Suncor regards the environmental predictions and consequent mitigations cited in the environmental assessment and subsequent significance determination that relates to CEAR No. 08-01-42400 as still valid and re-commits to implementing these mitigation measures for the activities to be carried out under the scope of this assessment this year

## 7.0 CONCLUDING STATEMENT

The activities Suncor plans to carry out during the next twelve months have been reviewed and assessed to be within the scope of the environmental assessment currently in place to address those activities, specifically:

- the scope and nature of activities planned and addressed under the approved environmental assessments have not changed;
- the nature of the species at risk in the Project and Study areas have been validated and although new species have been added to COSEWIC listings no new species have been formally listed under Schedule 1 of SARA and no critical habitats for these species have been defined pursuant to the Species at Risk legislation;
- the nature and extent of the fishing activities being undertaken in the Project Area have been validated and have not changed such that project activities pose any potential effects not previously assessed;
- the mitigation measures defined and committed to in the environmental assessments are still valid and will continue to be implemented; and
- Suncor continues to consult with stakeholders directly affected by the activities planned under the approved environmental assessments.

Suncor considers the environmental effects predicted in the environmental assessments to still be valid. Suncor reaffirms its commitment to implement the mitigation measures proposed in the assessments and in the Screening Decisions made by the C-NLOPB in consultation with other Federal and Provincial regulatory agencies.

## **8.0 REFERENCES**

### **8.1 Original Suncor Environmental Assessments and Updates**

- Christian, John R. 2008. Environmental Assessment of Petro-Canada Jeanne d'Arc Basin Exploration Drilling Program, 2009-2017. LGL Rep. SA993. Prepared by LGL, St. John's, NL prepared for Petro-Canada, St. John's, NL 258 p. + Appendix.
- Christian, John R. 2009. Environmental Assessment of Petro-Canada Jeanne d'Arc Basin Exploration Drilling Program, 2009-2017 Addendum. LGL Rep. SA993. Prepared by LGL, St. John's, NL prepared for Petro-Canada, St. John's, NL 22 p.
- LGL Limited. 2006. Environmental assessment of Petro-Canada's vertical seismic profiling program at the Terra Nova Development. LGL Rep. SA890a. Rep. by LGL Limited, St. John's, NL, for Petro-Canada, St. John's, NL. 92 p + appendix.
- Suncor 2010, Suncor I&O East Coast Operations Newfoundland & Labrador Offshore Area Environmental Assessment Review for 2010. Doc. No. TN-PE-EC15-X00-155.

### **8.2 Recent & Relevant Environmental Assessments Reviewed**

- LGL Limited. 2011. Environmental assessment of Statoil's Geophysical Program for Jeanne d'Arc and Central Ridge/Flemish Pass Basins, 2011-2019. LGL Rep. SA1121. Rep. by LGL Limited, in association with Canning & Pitt Associates Inc., and Oceans Ltd., St. John's, NL, for Statoil Canada Ltd., St. John's, NL. 227 p. + appendices.
- Stantec. 2010. Hebron Project Comprehensive Study Report. Prepared by Stantec Ltd. on behalf of ExxonMobil Canada Properties

### **8.3 Species at Risk Recovery Strategies**

- Atlantic Leatherback Turtle Recovery Team 2006. Recovery Strategy for Leatherback Turtle (*Dermochelys coriacea*) in Atlantic Canada. Species at Risk Act Recovery Strategy Series. Fisheries and Oceans Canada, Ottawa, vi + 45 pp.
- Kulka, D., C. Hood and J. Huntington. 2007. Recovery Strategy for Northern Wolffish (*Anarhichas denticulatus*) and Spotted Wolffish (*Anarhichas minor*), and Management Plan for Atlantic Wolffish (*Anarhichas lupus*) in Canada.

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Fisheries and Oceans Canada: Newfoundland and Labrador Region. St. John's, NL. x + 103 pp.

- DFO (Fisheries and Oceans Canada). 2008. Recovery Strategy for the Atlantic walrus (*Odobenus rosmarus rosmarus*), Northwest Atlantic population, in Canada. Species at Risk Act Recovery Strategy Series. Fisheries and Oceans Canada, Ottawa, ON. x + 11 pp.
- Beauchamp, J., Bouchard, H., de Margerie, P., Otis, N., Savaria, J.-Y., 2009. Recovery Strategy for the blue whale (*Balaenoptera musculus*), Northwest Atlantic population, in Canada [FINAL]. Species at Risk Act Recovery Strategy Series. Fisheries and Oceans Canada, Ottawa. 62 pp.
- Brown, M.W., Fenton, D., Smedbol, K., Merriman, C., Robichaud-Leblanc, K., and Conway, J.D. 2009. Recovery Strategy for the North Atlantic Right Whale (*Eubalaena glacialis*) in Atlantic Canadian Waters [Final]. Species at Risk Act Recovery Strategy Series. Fisheries and Oceans Canada. vi + 66p.



Current<sup>2</sup> SARA Listed and COSEWIC Designated & Assessed Species in the Suncor Project Areas<sup>3</sup>

| Species  |       | Scientific Name                 | New Since Last Update |            | SARA Status noted as Schedules 1,2 or 3 |                 |            |            | COSEWIC Status  |                        |   |     |
|--|-------|---------------------------------|-----------------------|------------|---|-----------------|------------|------------|-----------------|------------------------|---|-----|
| Common Name                                    | Drill |                                 | VSP                   | Endangered | Threatened                              | Special Concern | Endangered | Threatened | Special Concern | Candidate <sup>4</sup> |   |     |
| Birds  |       |                                 |                       |            |   |                 |            |            |                 |                        |   |     |
| Ivory Gull                                     |       | <i>Pagophila eburnea</i>        |                       |            | 1                                       |                 |            | X          |                 |                        |   |     |
| Marine Fish                                    |       |                                 |                       |            |   |                 |            |            |                 |                        |   |     |
| Northern wolffish                              |       | <i>Anarhichas denticulatus</i>  |                       |            |   | 1               |            |            | X               |                        |   |     |
| Spotted wolffish                               |       | <i>Anarhichas minor</i>         |                       |            |   | 1               |            |            | X               |                        |   |     |
| Atlantic wolffish                              |       | <i>Anarhichas lupus</i>         |                       |            |   |                 | 1          |            |                 | X                      |   |     |
| Atlantic cod                                   |       | <i>Gadus morhua</i>             |                       |            |   |                 | 3          |            |                 |                        |   |     |
| Atlantic cod (NL population)                   |       | <i>Gadus morhua</i>             |                       |            |   |                 |            | X          |                 |                        |   |     |
| Atlantic Salmon (various regional populations) |       | <i>Salmo salar</i>              |                       |            |   |                 |            | X          |                 |                        |   |     |
| Porbeagle shark                                |       | <i>Lamna nasus</i>              |                       |            |   |                 |            | X          |                 |                        |   |     |
| White shark                                    |       | <i>Carcharodon carcharias</i>   |                       |            |   |                 |            | X          |                 |                        |   |     |
| Roundnose Grenadier                            |       | <i>Coryphaenoides rupestris</i> |                       |            |   |                 |            | X          |                 |                        |   |     |
| Cusk   |       | <i>Brosme brosme</i>            |                       |            |   |                 |            |            | X               |                        |   |     |
| American Shad                                  |       | <i>Alosa sapidissima</i>        |                       |            |   |                 |            |            |                 |                        |   | MPC |
| Alewife  |       | <i>Alosa pseudoharengus</i>     |                       |            |   |                 |            |            |                 |                        |   | MPC |
| Capelin  |       | <i>Mallotus villosus</i>        |                       |            |   |                 |            |            |                 |                        |   | MPC |
| Haddock  |       | <i>Melanogrammus aeglefinus</i> |                       |            |   |                 |            |            |                 |                        |   | MPC |
| Shortfin mako shark                            |       | <i>Isurus oxyrinchus</i>        |                       |            |   |                 |            |            | X               |                        |   |     |
| Blue shark                                     |       | <i>Prionace glauca</i>          |                       |            |   |                 |            |            |                 | X                      |   |     |
| American Eel                                   |       | <i>Anguilla rostrata</i>        |                       |            |   |                 |            |            |                 |                        | X |     |

<sup>2</sup> March 2011<sup>3</sup> Green Shade means a final Recovery Strategy is in place but no Critical Habitat has been identified nor have Action or Management plans been finalized for these species with the exception of the North Atlantic Right Whale (see footnote 7). Note that two other species that have recovery strategies, the Atlantic Walrus and Grey Whale, have been extirpated from Eastern Canadian waters and therefore are not listed in the above table.<sup>4</sup> Candidate COSEWIC species are classified as High (H), Medium (M) or Low (L) Priority Candidate (PC) species

| Species   |                                     | New Since Last Update |                | SARA Status noted as Schedules 1,2 or 3 |            |                 |            |            | COSEWIC Status  |                        |  |     |
|---|-------------------------------------|-----------------------|----------------|---|------------|-----------------|------------|------------|-----------------|------------------------|--|-----|
|   |                                     | Drill                 | VSP            | Endangered                              | Threatened | Special Concern | Endangered | Threatened | Special Concern | Candidate <sup>4</sup> |  |     |
| Roughhead grenadier   | <i>Macrourus bergslagi</i>          |                       |                |   |            |                 |            |            | X               |                        |  |     |
| Bluefin Tuna  | <i>Thunnus thynnus</i>              | • <sup>5</sup>        | • <sup>5</sup> |   |            |                 | X          |            |                 |                        |  |     |
| Spiny eel   | <i>Notacanthus cheimnitzii</i>      |                       |                |   |            |                 |            |            |                 |                        |  | MPC |
| Pollock   | <i>Pollachius virens</i>            |                       |                |   |            |                 |            |            |                 |                        |  | MPC |
| Spinytail Skate   | <i>Bathyraja spinicauda</i>         |                       |                |   |            |                 |            |            |                 |                        |  | MPC |
| Ocean pout  | <i>Zoarces americanus</i>           |                       |                |   |            |                 |            |            |                 |                        |  | MPC |
| American Plaice (NL pop.)   | <i>Hippoglossoides platessoides</i> |                       |                |   |            |                 |            | X          |                 |                        |  |     |
| Acadian Redfish (Atlantic pop.)                                   | <i>Sebastes fasciatus</i>           | •                     | •              |   |            |                 |            | X          |                 |                        |  |     |
| Deepwater Redfish (Northern pop.)                                 | <i>Sebastes mentella</i>            | •                     | •              |   |            |                 |            | X          |                 |                        |  |     |
| Spiny Dogfish   | <i>Squalus acanthias</i>            | •                     | •              |   |            |                 |            |            | X               |                        |  |     |
| Basking Shark   | <i>Cetorhinus maximus</i>           | •                     | •              |   |            |                 |            | X          |                 |                        |  |     |
| <b>Marine Mammals</b>   |                                     |                       |                |   |            |                 |            |            |                 |                        |  |     |
| Blue whale  | <i>Balaenoptera musculus</i>        |                       |                | 1                                       |            |                 | X          |            |                 |                        |  |     |
| Humpbacked whale  | <i>Megaptera novaeangliae</i>       |                       |                |   |            | 3               |            |            |                 |                        |  |     |
| North Atlantic right whale <sup>6</sup>                           | <i>Eubalaena glacialis</i>          |                       |                | 1                                       |            |                 | X          |            |                 |                        |  |     |
| Fin whale (Atlantic pop.)   | <i>Balaenoptera physalus</i>        |                       |                |   |            | 1               |            |            | X               |                        |  |     |
| Killer Whale (NW Atl./East Arctic population)                     | <i>Orcinus orca</i>                 |                       |                |   |            |                 |            |            | X               |                        |  |     |
| Sperm whale   | <i>Physeter macrocephalus</i>       |                       |                |   |            |                 |            |            |                 |                        |  | LPC |
| Cuvier's Beaked Whale   | <i>Ziphius cavirostris</i>          |                       |                |   |            |                 |            |            |                 |                        |  | MPC |
| Northern Bottlenose whale ( Davis Strait/Baffin Bay/Labrador Sea) | <i>Hyperoodon ampullatus</i>        | • <sup>7</sup>        | • <sup>7</sup> |   |            | 3               |            |            |                 |                        |  |     |
| Sowerby's beaked whale  | <i>Mesoplodon bidens</i>            |                       |                |   |            | 3               |            |            | X               |                        |  |     |
| Harbour porpoise  | <i>Phocoena phocoena</i>            |                       |                | 2                                       |            |                 |            |            | X               |                        |  |     |

<sup>5</sup> Recently re-assessed by COSEWIC<sup>6</sup> A critical habitat statement exists for this species however it is rare in the study area considered in this assessment with one sighting of two individuals recorded in the DFO cetacean database.<sup>7</sup> Although not new pursuant to COSEWIC this species added given that its general distribution encompasses the North-west Atlantic however apart from a localized population on the edge of the Scotian Shelf the nearest known population is along the northern coast of Labrador and into the Davis Strait.

|                        |                             | New Since Last Update |     | COSEWIC Status                          |            |                 |            |            |                 |                        |
|------------------------|-----------------------------|-----------------------|-----|---|------------|-----------------|------------|------------|-----------------|------------------------|
| Species                |                             | Drill                 | VSP | SARA Status noted as Schedules 1,2 or 3 |            |                 |            |            |                 |                        |
| Common Name            | Scientific Name             |                       |     | Endangered                              | Threatened | Special Concern | Endangered | Threatened | Special Concern | Candidate <sup>4</sup> |
| Hooded seal            | <i>Cystophora cristata</i>  |                       |     |   |            |                 |            |            |                 | LPC                    |
| Harp seal              | <i>Phoca groenlandica</i>   |                       |     |   |            |                 |            |            |                 | LPC                    |
| Ringed Seal            | <i>Pusa hispida</i>         | ●                     | ●   |   |            |                 |            |            |                 | LPC                    |
| Reptiles               |                             |                       |     |   |            |                 |            |            |                 |                        |
| Leatherback sea turtle | <i>Dermochelys coriacea</i> |                       |     | 1                                       |            |                 | X          |            |                 |                        |
| Loggerhead sea turtle  | <i>Caretta caretta</i>      | ●                     | ●   |   |            |                 | X          |            |                 |                        |