Statoil Canada Ltd. - East Coast Operations
Newfoundland & Labrador Offshore Area
Environmental Assessment Review for 2011

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Derek Sullivan	**Derek Sullivan**

Techn. responsible (Organisation unit):	Techn. responsible (Name):	Date/Signature:
Statoil Canada Ltd. Offshore Upstream	**Jaunty Aidamenbor**	
Responsible (Organisation unit):	Responsible (Name):	Date/Signature:
Statoil Canada Ltd. Offshore Upstream	**Derek Sullivan**	
Recommended (Organisation unit):	Recommended (Name):	Date/Signature:
Statoil Canada Ltd. Offshore Upstream	**Jim Beresford**	
Approved by (Organisation unit):	Approved by (Name):	Date/Signature:
Statoil Canada Ltd. Offshore Upstream	**Hege Rogno**	

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1 Introduction

Offshore oil and gas exploration and production programs generally 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 annual reviews, committed to in the environmental assessment referenced in Table 1, of the status and ongoing validity of the environmental assessments currently in place for Statoil Canada Ltd. (SCL) activities in the Newfoundland and Labrador Offshore Area. These reviews are intended to assist the C-NLOPB in fulfilling its responsibilities under the CEA Act by ensuring that the scope of the assessment(s) and the mitigations committed to therein remain technically valid.

The following table identifies the SCL environmental assessment, approved by the C-NLOPB, under which SCL may conduct offshore operations during 2011.

Table 1 - Environmental Assessment Approvals in Force for Statoil Canada Ltd. - January 2011[1]

Screening Determination Reference[2]	Temporal Scope	EA Report Title
CEAR No. 07-01-32083	Year round 2008 through 2016	*Environmental Assessment of StatoilHydro Canada Ltd. Exploration & Appraisal/Delineation Drilling Program for Offshore Newfoundland, 2008-2016*

The necessary information required to evaluate the validity of the environmental assessment listed in the foregoing table is provided in the following sections of this update.

[1] Although a Seismic and Geohazard survey environmental assessment approval (CEAR No. 07-01-32084) is still in force, in early 2011 Statoil will submit an revised and updated environmental assessment to address new exploration leases acquired in late 2010.

[2] Follow the link to the C-NLOPB public registry to view the environmental assessments, amendments and regulatory determinations.

2 Environmental Assessment of Statoil Canada Ltd. Exploration & Appraisal/Delineation Drilling Program for Offshore Newfoundland, 2008-2016

2.1 Project Description and Scope

2.1.1 Activities Covered

This environmental assessment addressed the potential for drilling up to 27 delineation and/or exploration wells from semi-submersible or jack-up mobile drilling units or drill ships. It also assessed the effects of geo-hazard and remotely operated vehicle (ROV) surveys and vertical seismic profiles (VSP) associated with the drilling program.

2.1.2 Geographic Scope

The geographic scope of the drilling program is depicted in Figure 1. The coordinates of the project area as depicted in that figure are as follows:

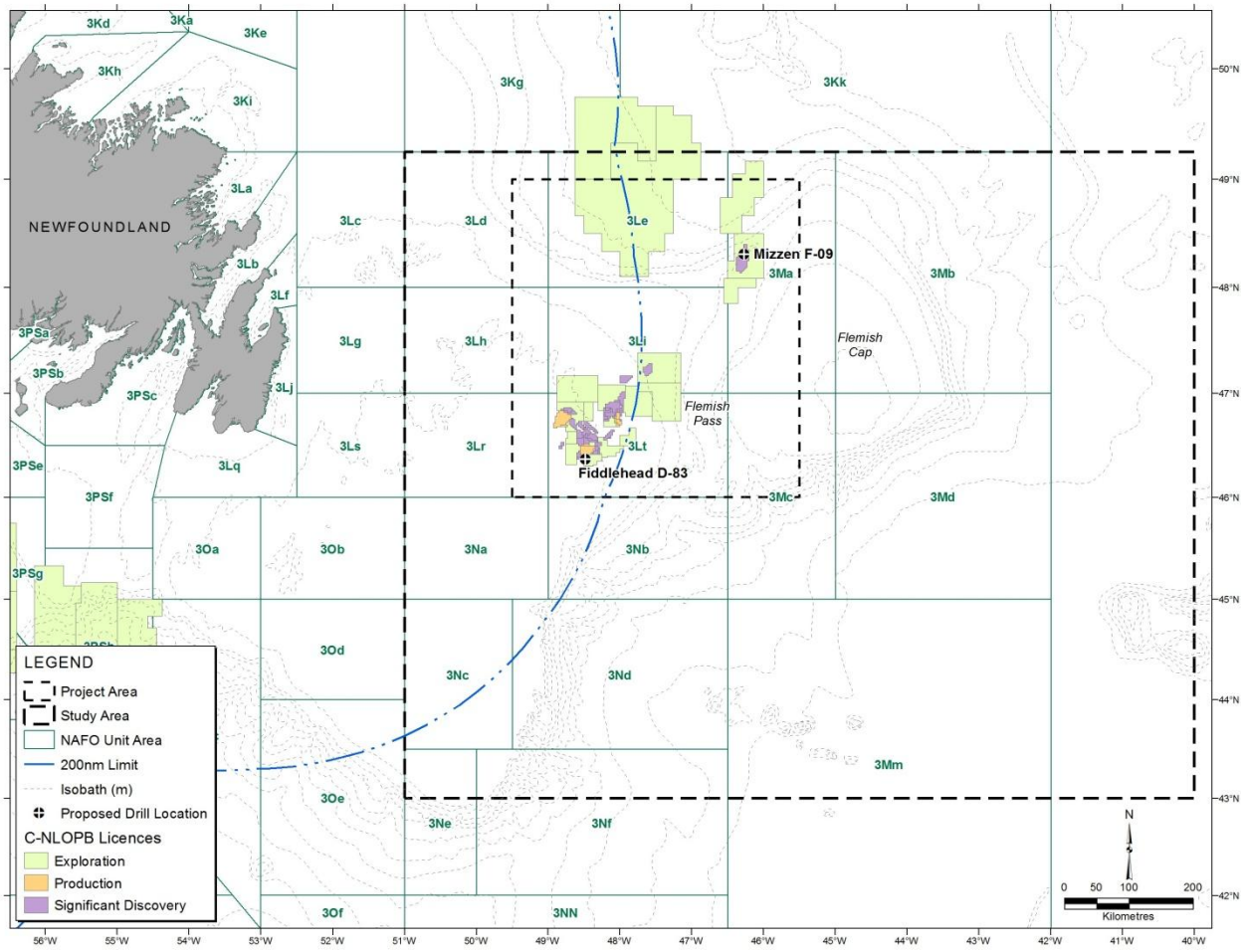
- 49° North & 49.5° West,
- 49° North & 45.5° West,
- 46° North & 49.5° West; and,
- 46° North & 45.5° West.

The Study Area (coordinates: 49.25°N & 51°W; 49.25° & 40°; 43°N & 40°W; 46°N & 49.5°W) depicted in Figure 2.1 encompasses an area potentially affected by an oil spill based on spill modeling undertaken for the original environmental assessment.

2.1.3 Temporal Scope

Exploration and delineation drilling activities as outlined above could be carried out year round from 2008 through 2016.

Figure 1: Geographic Scope of Project Area for CEAR No. 07-01-32083 with locations of 2011 drill sites



2.1.4 Planned activities for 2011

In 2011 SCL plans to drill two wells shown on Figure 1 above – one is on the Mizzen prospect in the Flemish Pass (SDL 1047) and the second is on the Fiddlehead prospect within EL1101 in the Jeanne d'Arc basin . Coordinate locations (NAD'83, UTM Zone 23 for Mizzen and UTM Zone 22 for Fiddlehead) for these wells are provided in Table 2.

Table 2: Coordinates of Wells Planned for 2011

Well Name	Northing (m)	Easting (m)
Mizzen (UTM Zone 23)	5351135.49	406115.35
Fiddlehead (UTM Zone 22)	5138151.2	694506.2

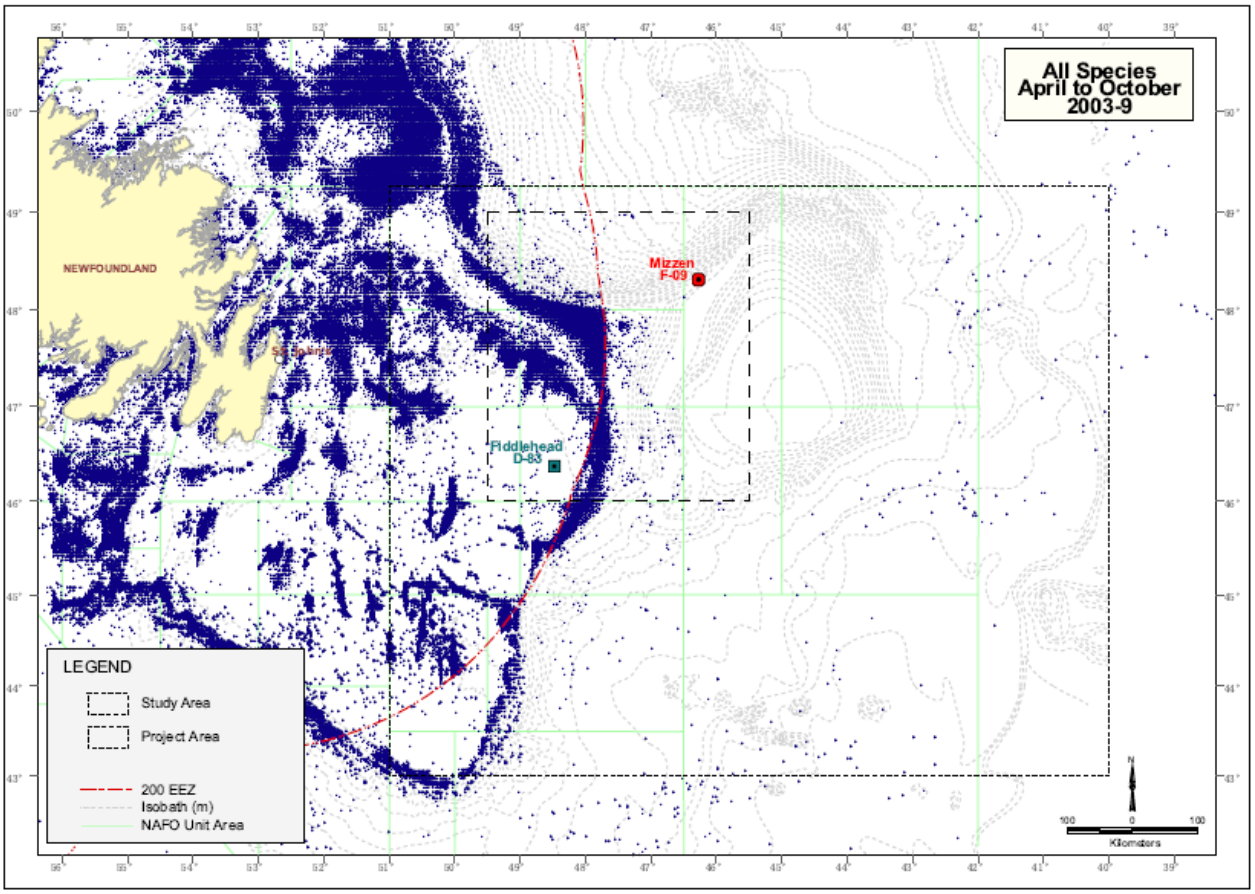
These wells are planned to include Vertical Seismic Profile (VSP) surveys. Current planning indicates that these wells will be drilled sequentially by the Henry Goodrich starting with the Mizzen F-09 well in July followed by Fiddlehead D-83 well. It is currently anticipated that drilling activities will be complete by or before the end of Q1, 2012. SCL may also conduct geohazard site surveys and/or ROV seabed surveys on its current land holdings during 2011. These surveys, if conducted, will likely occur during the months of May – Oct.

In preparation for drilling operations at the Mizzen location SCL will be presetting anchors in advance of the arrival of the drilling rig at the well site. Presetting of anchors will be done to support the drilling of the Mizzen well only and will parallel similar work done to support the previous Mizzen O-16 well in 2008. While still in the final planning stages the sequence of activities associated with this work i.e., pre-setting and pre-tensioning of the anchors, setting subsurface buoys and finally ROV inspection of the anchors will all take place in June 2011 in preparation for the rig coming on location in July. Marine interests will be advised of the anchor presetting operations and locations of the subsurface buoys through notices to shipping and through regular communications with the fishing industry.

2.1.5 Fisheries

Fishing activities in the study area have not changed significantly since the environmental assessment report cited in Table 1 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 data bases including research vessel and underutilized species information, was prepared by SCL in support of an application for the conduct of a seismic survey program and is consistent with recent environmental assessments by other offshore operators that overlap the geographic and temporal scope of SCL's (c.f. Section 4.2).

Figure 2: Cumulative pattern of Fishing Activity in relation to 2011 drilling targets



While it will be noted that Figure 2 aggregates data over the April to October period only this frame accounts for the vast majority of fishing activity during the year.

While the general patterning of fishing relevant to this assessment is seen to be 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.

Consultations relevant to this update were undertaken in February and March with Fish Food and Allied Workers Union (FFAW) and One Ocean to discuss fishing activities in the area of interest. In addition, the information generated by the consultations undertaken by SCL in the context of the development of its current seismic program environmental assessment entitled *"Statoil Canada Limited 2011-2019 Jeanne d'Arc and North Ridge/Flemish Pass Basin Geophysical Program*" which encompasses the same geographic area in which the proposed drilling operations will take place was also considered. Those consulted in this context included: Fisheries and Oceans Canada, Environment Canada, Natural History Society, Association of

Seafood Producers, Ocean Choice International, Groundfish Enterprise Allocation Council, Clearwater Seafoods, Icewater Seafoods. The individuals consulted and the views expressed can be found in Appendix B of the above-noted environmental assessment.

It is also important to note that from a fisheries perspective, the primary stakeholder affected by SCL's operations, SCL sits on the One Ocean Executive and its Technical Working Group and thus has direct and regular engagement with representatives from the FFAW and seafood producer/processors sectors. Finally, as indicated in its drilling and other environmental assessments SCL continues to engage with stakeholders as circumstances require.

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. Also in respect of cod fisheries consultations have indicated that a Canadian fish processor/harvester has a cod quota (200 T) outside the 200 mile limit that it intends to fish in mid to late April period of 2011 before any drilling or drilling-related operations would occur at the Mizzen drill site (LGL, 2011 and FFAW pers. comm.).

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 for American Plaice, then previous fishing patterns for that species may be re-established in areas near the Jeanne d'Arc basin.

SCL 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 Fisheries and Oceans 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 any ROV or geo-hazard survey and anchor placement activities planned in 2011 and beyond SCL 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.

2.1.6 Corals and Sponges

Figure 3 provides a map of North Atlantic Fisheries Organization (NAFO) coral and sponge closure areas in the vicinity of the Mizzen drilling prospect. These areas, implemented by NAFO as of January 1, 2010, are closed to fishing with bottom contact gear to protect coral and sponge habitats (DFO, 2010; c.f. also Kenchington et al 2010).

The proposed Mizzen F-09 drilling location is 12.9 kilometres from the nearest (#6 on Figure 3) of these closure areas.

The fish habitat VEC in the current environmental assessment for Statoil's exploration and delineation drilling program encompassed corals and sponges. Information on these species was provided in the assessment as well as the understanding of their distribution in the project and study areas. The data used for that evaluation was, at the time, unpublished data (LGL. Pers. Comm.) which has now also been provided publically in more recent peer-reviewed references, (DFO, 2010 and Kenchington et al 2010.

Activities planned during 2011 relevant to the coral and sponge component of the benthic community include placement of anchors to support the drilling platform and drill cuttings discharges from drilling operations. These activities are reviewed briefly below in the context of this review.

A total of 12 anchors will be pre-place in July of 2011 in preparation for the drilling installation Henry Goodrich to commence drilling operations in late July or early August of 2011. Anchors will be placed within a maximum radius of 3 kilometres of the drilling location (48 deg18 min 21.93 sec N, 46 deg15 min 52.89 sec W, NAD'83) and hence will not affect the NAFO coral and sponge habitat closure areas noted above.

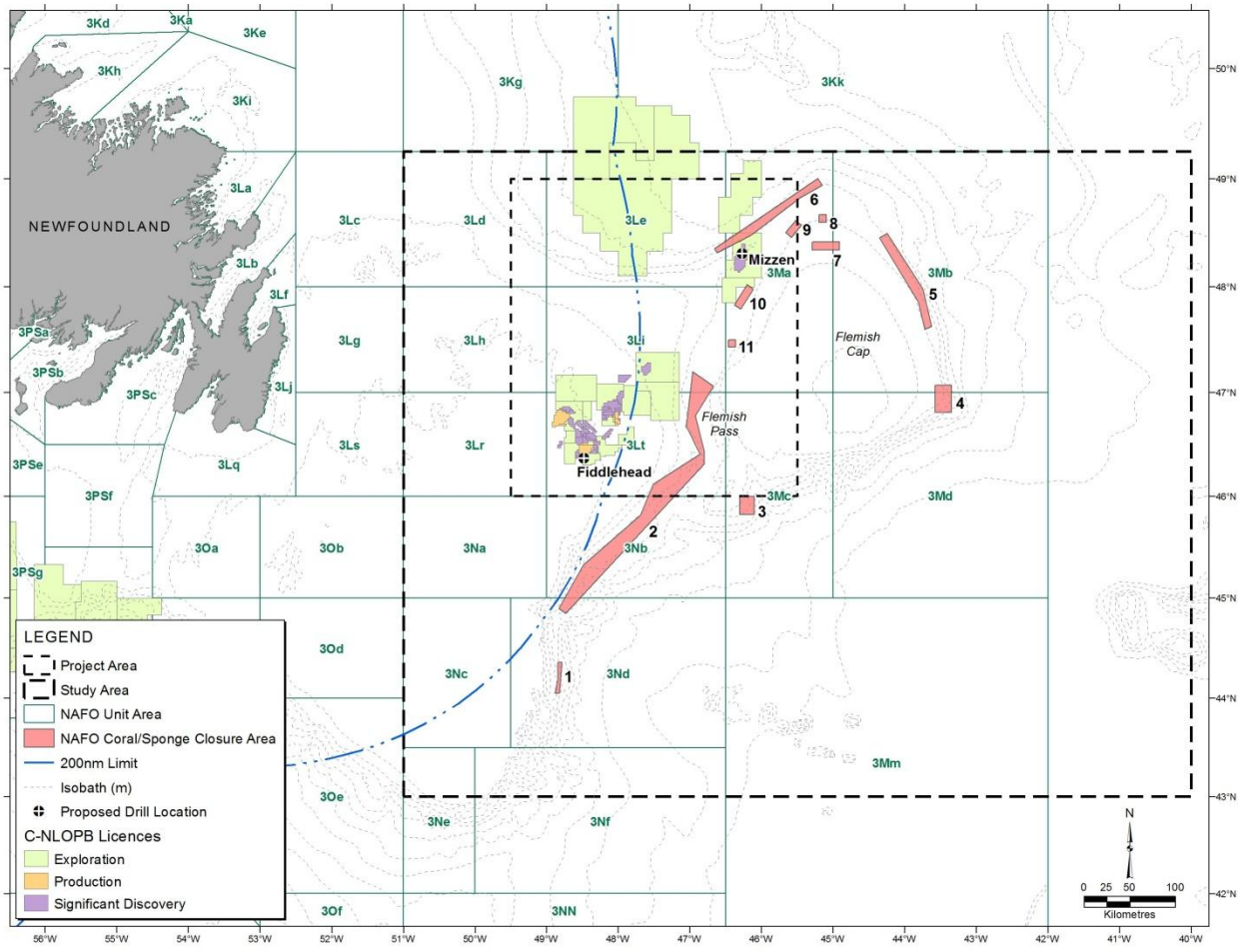
With respect to synthetic based mud (SBM) drilling discharges the modelling of SBM drill cuttings deposition carried out under the current environmental assessment is still applicable. Section 7.2.1.5 of that environmental assessment states the following with regard to the modeling of the cuttings dispersion analysis:

> *"The model results suggest that ocean currents in the vicinity of the Mizzen site would transport virtually all of the discharged fine material out of the 20 km square model grid, leaving only 8% of the original mass to settle on the seafloor over a radius of approximately 6 km (113 km^2). Within this 6 km, however, all deposits are less than 0.13 mm thick (Fig. 3-4), and the area in which the deposit thickness is greater than 0.10 mm is approximately 0.1 km^2 (Fig. 3-4)."*

Water-based muds used in the upper drill hole sections and deposited at the seafloor are not subject to the same dispersion behaviour as the SBM drilling discharges discussed above.

Given the location of the coral and sponge habitat closure areas the conclusions of the current environmental assessment on this issue remain valid.

Figure 3: Locations of NAFO Coral and Sponge Closure Areas



2.1.7 Species at Risk

An updated listing of Species at Risk Act (SARA) and Committee on the Status of Endangered Wildlife in Canada (COSEWIC) listed 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 consideration.

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[3] as noted in Appendix 1.

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

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

A review of the SARA species specific recovery plans and the one critical habitat statement in place, as noted in Appendix 1, does not indicate that any new or modified mitigation measures are required beyond those already committed to by SCL for the scope of the operations addressed by the environmental assessment.

2.1.8 Mitigations

SCL considers the environmental predictions and consequent mitigations cited in the environmental assessment and subsequent significance determination that relates to CEAR No. 07-01-32083 as valid and re-commits to implementing these mitigation measures for the activities to be carried out under the scope of this assessment this year.

[3] i.e., categorized as threatened, endangered or of special concern or as candidate species of High, Medium or Low priority for assessment

3 Concluding Statement

The activities SCL plans to carry out in 2011 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 assessment 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; and,
- the mitigation measures defined and committed to in the environmental assessment are still valid and will continue to be implemented
- SCL continues to consult with stakeholders directly affected by the activities planned under the approved environmental assessment.

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

4 References

4.1 Original Statoil Canada Ltd. Environmental Assessments[4]

1. LGL Limited. 2008. Environmental Assessment of StatoilHydro Canada Ltd. Exploration and Appraisal/Delineation Drilling Program for Offshore Newfoundland, 2008-2016. LGL Rep. SA947b. Rep. by LGL Limited, Canning & Pitt Associates Inc., and Oceans Ltd., St. John's, NL, for StatoilHydro Canada Ltd., St. John's, NL. 292 p. + appendices.

4.2 Previous Environmental Assessment Updates

1. Statoil Canada Limited East Coast Operations. Newfoundland & Labrador Offshore Area Environmental Assessment Review for 2010

4.3 Recent & Relevant Environmental Assessments Reviewed for this Update

1. 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.

2. Stantec. 2010. Hebron Project Comprehensive Study Report. Prepared by Stantec Ltd. on behalf of ExxonMobil Canada Properties

4.4 Relevant Species at Risk Recovery Strategies Reviewed for this Update[5]

1. 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.

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

3. 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.

[4] Documents referenced in Sections 4.1, 4.2, 4.3 are accessible on the Canada-Newfoundland & Labrador Offshore Petroleum Board website

[5] Documents referenced in Section 4.4 are available on the Environment Canada Species at Risk website

4. 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.

5. 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.

5 Other References

1. Northwest Atlantic Fisheries Organization Conservation and Enforcement Measures NAFO/FC Doc. 11/1 Serial No. N5867 (updated 03 December 2010)

2. Kenchington, E., Lirette, C., Cogswell, A., Archambault, D., Archambault, P., Benoit, H.Bernier, D., Brodie, B., Fuller, S., Gilkinson, K., Lévesque, M., Power, D., Siferd, T.,Treble, M., and Wareham, V. 2010. Delineating Coral and Sponge Concentrations in the Biogeographic Regions of the East Coast of Canada Using Spatial Analyses. DFO Can.Sci. Advis. Sec. Res. Doc. 2010/041. vi + 202 pp..

3. DFO. 2010. Occurrence, susceptibility to fishing, and ecological function of corals, sponges, and hydrothermal vents in Canadian waters. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep.

1. Appendices

5.1 Appendix 1 - Current Listing[6] of SARA and COSEWIC Listed Species in the Statoil Project Area(s)[7]

Species		New since last update	SARA Status noted as Schedules 1, 2 or 3			COSEWIC Status			
Common Name	Scientific Name		Endangered	Threatened	Special Concern	Endangered	Threatened	Special Concern	Candidate[8]
Birds									
Ivory Gull	*Pagophila eburnean*		1			X			
Marine Fish									
Northern wolffish	Anarhichas denticulatus			1			X		
Spotted wolffish	Anarhichas minor			1			X		
Atlantic wolffish	Anarhichas lupus				1			X	
Atlantic cod	*Gadus morhua*				3				
Atlantic cod (Newfoundland & Labrador population)	*Gadus morhua*					X			
Atlantic Salmon (various regional populations)	*Salmo salar*					X	X	X	
Porbeagle shark	*Lamna nasus*					X			
White shark	*Carcharodon carcharias*					X			
Roundnose Grenadier	*Coryphaenoides rupestris*					X			
Cusk	*Brosme brosme*						X		
American Shad	*Alosa sapidissima*								MPC

[6] *March 2011*

[7] *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 8). 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.*

[8] *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			
Common Name	**Scientific Name**		**Endangered**	**Threatened**	**Special Concern**	**Endangered**	**Threatened**	**Special Concern**	**Candidate[8]**
Alewife	*Alosa pseudoharengus*								MPC
Capelin	*Mallotus villosus*								MPC
Haddock	*Melanogrammus aeglefinus*								MPC
Shortfin mako shark	*Isurus oxyrinchus*						X		
Blue shark	*Prionace glauca*							X	
American Eel	*Anguilla rostrata*							X	
Roughhead grenadier	*Macrourus bersgla*							X	
Bluefin Tuna	*Thunnus thynnus*	●[9]				X			
Spiny eel	*Notacanthus chemnitzi*								MPC
Pollock	*Pollachius virens*								MPC
Spinytail Skate	Bathyraja spinicauda								MPC
Ocean pout	*Zoarces americanus*								MPC
American Plaice (Newfoundland & Labrador Population)	*Hippoglossoides platessoides*						X		
Acadian Redfish (*Atlantic Population)*	*Sebastes fasciatus*	●					X		
Deepwater Redfish (*Northern Population)*	*Sebastes mentella*	●					X		
Spiny Dogfish	*Squalus acanthias*	●						X	
Basking Shark	*Cetorihinus maximus*	●						X	
Marine Mammals									
Blue whale	*Balaenoptera musculus*		1			X			

[9] *Recently re-assessed by COSEWIC*

Species		New since last update	SARA Status noted as Schedules 1, 2 or 3			COSEWIC Status			
Common Name	**Scientific Name**		**Endangered**	**Threatened**	**Special Concern**	**Endangered**	**Threatened**	**Special Concern**	**Candidate[8]**
Humpbacked whale	*Megaptea movaeanglia*				3				
North Atlantic right whale[10]	*Eubalaena glacialis*		1			X			
Fin whale (Atlantic population)	*Balaenoptera physalus*				1			X	
Killer Whale (NW Atlantic & Eastern \Arctic Populations)	*Orcinus orca*							X	
Sperm whale	*Physeter macrocephalus*								LPC
Cuvier's Beaked Whale	Ziphius cavirostris								MPC
Sowerby's beaked whale	*Mesoplodon bidens*				3			X	
Northern Bottlenose whale (Davis Strait/Baffin Bay/Labrador Sea)	Hyperoodon ampullatus	●[11]						X	
Harbour porpoise	*Phocoena phocoena*			2				X	
Hooded seal	*Cystophora cristata*								LPC
Harp seal	*Phoca groenlandica*								LPC
Ringed seal	*Pusa hispida*	●							HPC
Reptiles									
Leatherback sea turtle	Dermochelys coriacea		1			X			
Loggerhead sea turtle	*Caretta caretta*	●				X			

[10] *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.*

[11] *Although not new pursuant to COSEWIC this species added at DFO's suggestion 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.*