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BAB 3990-15

Darren Hicks
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140 Water St., 4th Floor
St. John's, NL A1C 6H6

Dear Mr. Hicks

Subject: DFO Review – Environmental Assessment of Statoil's Geophysical Program for the Jeanne d'Arc and Central Ridge/Flemish Pass Basins, 2011-19.

As requested, DFO has completed a review of the document entitled "*Environmental Assessment of Statoil's Geophysical Program for the Jeanne d'Arc and Central Ridge/Flemish Pass Basins, 2011-19*" dated March 2011 and offers the following comments:

General Comment

Please be advised that DFO recommends that Statoil adhere to the "*Statement of Practice with Respect to the Mitigation of Seismic Sound in the Marine Environment*" (SOCP) when conducting seismic programs. The SOCP specifies the mitigation requirements that must be met during the Planning Seismic Surveys, Safety Zone and Start-up, Shut-down of Air Source Array(s), Line Changes and Maintenance Shut-downs, Operations in Low Visibility and Additional Mitigative Measures and Modifications in order to minimize impacts on life in the oceans. These requirements are set out as **minimum standards**, which will apply in all non-ice covered marine waters in Canada.

Sensitive Areas should include areas that are considered vulnerable, specifically areas that are known to have coral and/or sponge. Please consider incorporating aspects of the following documents:

- "Status Report on Coral and Sponge Conservation in Canada" for context of coral/sponge conservation in NL waters. <http://www.dfo-mpo.gc.ca/library/340259E.pdf> Sections: 3.2.2, 4.5, 7.2.1 as well as Figures: 1, 6, 7)
- Canadian Science Advisory Secretariat Science Advisory Report 2010/041 "Occurrence, Sensitivity to Fishing, and Ecological Function of Corals, Sponges, and Hydrothermal Vents in Canadian Waters" http://www.dfo-mpo.gc.ca/CSAS/Csas/publications/sar-as/2010/2010_041_e.pdf
- NAFO Conservation and Enforcement Measures 2011 Article 16 "Coral and Sponge Protection Zones" <http://www.nafo.int/fisheries/frames/regulations.html>

It is noted in the EA that electromagnetic surveys are not specifically assessed, but may be a part of the geophysical program. However the potential impacts of the electromagnetic survey, mitigations, significance, residual impacts, have not been addressed in this EA Report.



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Specific Comments

Section	Page	Comment
4.6	99	The word “ <i>designated</i> ” should be replaced with “ <i>listed</i> ” throughout these sections when referring to SARA listed species. The term “ <i>designated</i> ” would be more appropriate when referring to species that have been assessed by COSEWIC, but not listed on SARA.
5.6.5	193	
4.6	99 (3 rd paragraph)	There is also a final recovery strategy posted on the SARA Registry for the North Atlantic Right Whale.
4.6	100 (Table 4.12)	It should be noted that for the Atlantic Salmon designatable units (DU) occurring in NL, only the South Newfoundland DU was assessed as threatened by COSEWIC.
4.6	100 (Table 4.12)	For the Deepwater Redfish, it is the Northern DU which was assessed by COSEWIC as threatened.
5.1.1.1	108	DFO suggests that the consultation section be expanded to include more information on the discussion between DFO and Statoil’s consultant which included the importance of current and relevant information on SARA species and commercial fisheries. There was also additional correspondence in which DFO indicated that “DFO guidance on Seismic programs is based upon the "Statement of Practice with respect to the Mitigation of Seismic Sound in the Marine Environment" (SOCP) to protect fish (including marine mammals), SARA species and fisheries. Mitigations from the SOCP should be incorporated into the EA Report, as well as updated fisheries and SARA information.” (refer to email exchange of March 4 - 8, 2011 of S. Canning and J. Kelly titled: Statoil Canada Ltd. Geophysical Program for Jeanne d'Arc Basin and Central Ridge / Flemish Pass Basin, 2011 - 2019).
4.2.2	31	While the assessment is comprehensive and well done there is an exception with the section describing the pelagic ecosystem and the plankton of the study area. The linear foodweb described is overly simplistic and does not represent our current understanding of planktonic foodwebs. Diatoms and copepods are an important component of the planktonic ecosystem at certain times of year in this region, but they are not always dominant and do not always represent the principal pathways of energy flow or carbon cycling. The timing of the spring bloom and the release of fish larvae into the upper water column have been shown to be important determinants of larval survival. This is particularly relevant for species such as redfish which have episodic recruitment. Specific information on the composition and dynamics of the pelagic communities of the study area should be documented, as should the importance of sedimentation for carbon supply of benthic foodwebs.
4.2.5.2	40 (2 nd sentence)	Feeding is most intense in fall and spring (not late winter) and diet is primarily copepods with some amphipods and euphausiids.
4.2.5.2	40	It is not clear which dataset is being referenced here and therefore this section requires some clarification. The reference may be to the capelin by-catch in the shrimp fishery, which is not an exhaustive descriptor of their distribution as the shrimp fishery is located over a rather limited area.



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		If this is the case then it would need to be stated. Another possibility is that the reference may be to the multi-species surveys, which are not part of a fishery. There is no offshore commercial capelin fishery.
4.3.5	74	In addition to the multi-species bottom trawl surveys listed, there is an annual Spring 3L Capelin acoustic survey which may be impacted.
4.5.1.2	88	DFO has population estimates for many cetacean and pinniped species in Atlantic Canada. These are based on systematic surveys such as those detailed in Lawson and Gosselin (2009) and Stenson <i>et al.</i> (2011). These figures could be quoted in place of the NOAA estimates unless the latter includes species for which the DFO surveys did not have enough sighting events to generate an acceptable estimate.
4.5.1.3	92 (1 st paragraph)	Based on aerial searches and acoustic recordings, the south eastern edge of the Grand Banks remains an area populated by cetaceans during the winter. Therefore, the statement “ <i>although some individual baleen whales may be present in offshore waters of NL...</i> ” is not necessarily accurate (Stenson et al 2011).
4.5.1.3	94	It is noted through DFO review that Sperm Whales are regularly sighted in shallow coastal waters, therefore may also be encountered in the Flemish Basin.
4.5.1.5	97	More information should be provided on the importance of the area for feeding Harp and Hooded Seals. The area of the NE Grand Banks, slope and Flemish Pass is critical for seals during the spring when they need to replenish their energy reserves. Satellite telemetry studies have shown that this area is used extensively by Hooded Seals in May. By late May they have left the area for the moulting ice although harps are still present through June. Harp Seals tend to remain on the continental shelf while Hooded Seals dive in the deep shelf waters.
4.5.1.5	97	The report estimates harp seal population at 6.85 million. Hammill and Stenson (2010) state the population is ~ 8 million.
4.5.1.5	97	Lavigne and Kovacs (1988) is not necessarily the best choice of reference for locations of pupping harp seals. There are a large number of papers in the primary literature indicating that the proportion pupping is not a ‘small remainder’. In fact the proportion accounts for 25-30% of total pupping, which can be over 400,000 pups (Stenson et al 1993, 2002, 2003, 2009, 2010).
5.2	110	Under section 5.2 valued ecosystem components, the first of 6 VECs is titled “Commercial fish”. However in each of the tables that follow pertaining to that VEC, it is referred to as “the fish and fish habitat VEC”. It might be more appropriate to re-name that VEC in section (5.2), from “commercial fish” to “fish and fish habitat”. The paragraph should then proceed to explain why only a few commercial species are considered under that VEC. Cod is one species mentioned under the existing commercial fish VEC, but little mention is made of spawning aggregations (i.e. breeding habitat) or mitigations to avoid breeding areas or breeding periods, should they be identified. A brief description of cod spawning characteristics might improve the EA. Although there maybe few large breeding aggregations of cod and other groundfish known to exist in the



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		proposed study area (compared to historical accounts), the study duration is sufficiently long (-2019) allowing for significant changes to develop in offshore fish populations. An appropriate mitigation measure to reduce potential harm to VECs (such as breeding aggregations) is the avoidance of known breeding fish aggregations, either spatially or temporally.
5.6.1.2	125	A report on Lobster catch rates and seismic activity in Australia is noted. It is suggested to add something similar to the following statement <i>"However, the study noted that due to natural variability and fishing pressure, a large effect on lobster would be required to link any effect to seismic"</i> .
5.8	199 (Table 5.18)	The proponent will employ multiple trained MMO's in addition to the FLO. This will enhance the efficiency of this type of mitigation, although the EA could benefit from more detailed descriptions of the MMO activities to ensure the reviewers that the best possible methods will be employed.
4.2.1	31	Please insert as follows: <i>"The physical and chemical nature of the <u>water column</u> and bottom substrate is a critical factor affecting the characterization....."</i>
4.1	31	Please insert as follows: <i>"This EA focuses on components of the ecosystem such as selected species.....that are important economically, socially, and <u>ecologically</u> with potential to interact with the project"</i> .
4.7	105	This section of the EA notes that "there are a variety of regulatory frameworks that deal directly or indirectly with sensitive areas...", and lists them, but does not mention the <i>Oceans Act</i> (it is highlighted on page 2 as relevant to environmental aspects of the EA but occurs nowhere else in the document). <u>Oceans Act Marine Protected Areas</u> are established by Fisheries and Oceans Canada to protect and conserve important fish and marine mammal habitats, endangered marine species, unique features and areas of high biological productivity or biodiversity.
4.7.1	105	In referring to the Placentia Bay/Grand Banks Large Ocean Management Area correctly refers to the existence of the Ecologically and biologically Significant Area (i.e. the Northeast Shelf and Slope) within the study area as a potential Area of Interest (i.e. AOI). However, it should also be noted within the EA Report that the <i>Oceans Act</i> provides the Minister of Fisheries and Oceans with a leadership role for coordinating the development and implementation of a federal network of Marine Protected Areas (MPA), of which can include areas within and outside of the Integrated Management (IM) area that has yet to be developed specifically within the Region to date. Therefore, there is the potential for subsequent identification of EBSAs, AOI, MPAs and other sensitive areas in the study area within the future
4.3.3.1	50 (2 nd sentence)	Northern shrimp and snow crab are described as "underutilized". There were northern shrimp and snow crab fisheries prior to the collapse of the groundfish fishery. There is no evidence that the northern shrimp stock and snow crab stock was underutilized. It is



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		suggested to replace the term " <u>underutilized species</u> " with " <i>other</i> ".
4.3.3.1	53 (1 st paragraph)	It is suggested to replace the term " <i>formally underutilized species</i> " with " <i>other</i> ", as " <i>formally underutilized species</i> " implies that they were present, but not fished. It may be that they were not there previously.
4.3.4.2	58 (2 nd sentence)	It is stated that the " <i>study area overlaps with parts of SFA 6</i> ". However SFA 6 ends at the 200 mile limit. Please clarify whether the study area does or does not overlap with SFA 6.
4.3.4.2	68 (2 nd paragraph)	It is suggested that the word " <i>Landed</i> " be placed before the word " <i>Prices</i> " to distinguish between prices paid to harvester and final project market prices.
4.3.4.3	74 (3 rd sentence)	This sentence is confusing and should be rewritten.

Thank you for providing DFO the opportunity to comment on this document. Should you have any questions or comments regarding the above, you can contact me by phone at 772-4912 or by e-mail (shawn.kean@dfo-mpo.gc.ca).

Regards

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