

Agency/ Company Comment #	Government Department / Company	Section of EIS	DFO Comment /Information Request (May 2013)
1	DFO	General	With multiple human activities in the proposed project area, plus the likelihood that sound fields from multiple seismic projects on the Grand Banks (and over multiple years) will overlap to an unknown extent, and that a number of SARA-listed or non-listed marine species will incur multiple exposures to additional anthropogenic underwater noise, the proponents should consider adopting one of the newer quantitative approaches being developed to estimate cumulative impacts of this proposed project at the individual and population levels (e.g., Wood et al., 2012; Lawson and Lesage 2013)
2	DFO	General	The NAFO Convention Areas showing scientific and statistical Subareas, Divisions, and Subdivisions should be indicated on any figures that are discussed in this context
3	DFO	General	It would be prudent to periodically revisit the potential impacts on commercial fisheries if the fishing activity or the planned seismic activity varies significantly from that described in this report.
4	DFO	Section 4.2.1.1 Bathymetry (Page 23)	According to this section of the EA "Only a small proportion of the Study Area is composed of areas where water depths are less than 200 m (e.g., Saglek Bank, Nain Bank, Makkovik Bank, Harrison Bank, Hamilton Bank)." Yet, Section 4.2.1.2 states: "Figure 3.1 in Sikumiut (2008) displays the offshore Labrador surficial sediment distribution by soil type between the 200 m and 1,000 m isobaths in part of the Study Area." Thus from these two sections it would appear that no information is presented and/or available with respect to sediment distributions within the "banks" (Saglek, Nain, Makkovik, Harrison, and Hamilton) that exhibit depths of ≤ 200 m. This would represent a significant gap with respect to the description of fish and fish habitat within the study area. This is particularly true with respect to upwellings on the banks and their associated slope areas which usually represent the most biologically productive areas.
5	DFO	Section 4.2.1.4 Benthos (Page 28)	Deep Water Corals – Page 29. Figures 4.13 and 4.14 from (Sikumiut 2008) and any other relevant figures/maps from Wareham (2009) etc...should be included in the EA report such that coral distributions can be related to the study area.
6	DFO	Section 4.2.2.1 Macroinvertebrate and Fish Species Harvested during Commercial Fisheries	<p>Page 35 – Redfish. Stock delineation is based on management unit and not on biological features. This should be corrected in the fifth paragraph.</p> <p>Page 39 – Atlantic Cod. The last paragraph of this section requires clarification as it refers to Cod as a "flatfish" species: "Atlantic Cod catches in the commercial fishery are incidental in other directed fisheries. During 2005-2010, the average annual catch weight for this flatfish was about 1 mt, twelfth overall (see Table 4.5 in Section 4.3.2.2)."</p> <p>Page 40 – Atlantic Salmon. The first sentence should read that Atlantic Salmon "likely pass through the study area" and not potentially. In the second paragraph, smolt age should be specific to the Labrador area and changed to "lives in fresh water for three to five years of life" and not "two years". The stock status information should also be updated using the most recent information available. Refer to the November 2012 DFO Science Advisory Process on Atlantic Salmon: http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2012/11_19-21-eng.html.</p> <p>Page 41 – American Eel. In the last paragraph, "Newfoundland, including Labrador, is the most data-poor area of the American Eel's Canadian range, and has no data sets that indicate abundance trends or absolute abundance at any life stage." However, the EA should include a sentence indicating that based on current knowledge; it is likely that eels will occur seasonally in the study area of this project.</p> <p>Page 42 - Arctic Cod. In the third paragraph, the following statement is out of date: "...however, large numbers have been obtained off Labrador by Soviet trawlers as a bycatch in the offshore Capelin fishery (DFO 2009a)..." It is recognized that the consultant refers to a DFO 2009 publication (Underwater World series published online) but the original pamphlet publications that are reproduced are presently very dated, particularly any descriptions of fishery activity. This applies to any other species in which fisheries related information is cited via the Underwater World series.</p> <p>Page 40 - Sand Lance. It is thought that the section on Sand Lance can be removed as this species is not found in the study area. Refer to the previous</p>
7	DFO	Section 4.2.2.1, Redfish, p. 35	Acadian and Deepwater Redfish are both mentioned here as being assessed as threatened by COSEWIC. It should be clear which designatable units of these redfish species are being referred to (Acadian Redfish – Atlantic? Deepwater Redfish – Northern?). For Acadian Redfish, the Atlantic designatable unit was assessed as threatened and the Bonne Bay designatable unit was assessed as special concern. For Deepwater Redfish, the Northern designatable unit was assessed as threatened and the Gulf of St. Lawrence/Laurentian Channel designatable unit was assessed as endangered. (see also note above)
8	DFO	Table 4.12, p. 112	Under the SARA status column, Harbour Porpoise is included as Schedule 2 – threatened. Note that this is not an official status under SARA; Schedule 1 is the official list of SARA species. Schedules 2 and 3 were created to identify species that were remaining to be reassessed by COSEWIC using their revised criteria when SARA came into effect. Harbour Porpoise was reassessed by COSEWIC in 2006 using the revised criteria and they assessed it as special concern. Similarly on p. 121, the first sentence in the last paragraph should be revised, as Harbour Porpoises in the Atlantic are not considered threatened under SARA (i.e. they are not listed on Schedule 1).
9	DFO	Table 4.15, p. 130	In this table, the designatable units of Deepwater and Northern Redfish should be specified
10	DFO	Section 4.2.2.3 Macroinvertebrates and Fishes Collected during DFO Research Vessel (RV) Surveys (Page 45)	DFO RV spring surveys (Div. 3LNOPs) do not overlap with the study area (Div. 2GHJ3K).
11	DFO	Section 4.3.5 Recreational Fisheries (Page 96)	The seismic program will occur during the marine migration periods for Atlantic Salmon. Young Salmon (smolts) migrate through the study area from late-May through June and adult Salmon will return to fresh water from June through the end of September. There is no information specific to the study area regarding the impact of seismic activity on Atlantic Salmon migration. However, no overt scaring in Salmon exposed to high levels of sound has been reported in Coho Salmon (Ruggerone et al., 2008) and Atlantic Salmon (Andrews et al., 2013, unpublished manuscript and M.Sc. thesis).

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12	DFO	Section 4.5.1 Marine Mammals	<p>Page 112 - Table 4.12. There is information in the literature that Ringed Seals feed pelagically in the summer and fall (check summer feeding research by Lois Harwood and others). Unpublished data on satellite tracking of Ringed Seals along the central Labrador coast indicates that these seals primarily feed in coastal areas within the Zone, but there is some activity (both presumed feeding and seasonal migration) between the eastern edge of the Zone and the 2000 m contour. Contact B. Sjare to confirm that a pers. comm. can be used. Consequently, the wording in the table under the habitat column should either focus on the ice-free period or include both summer and winter habitats.</p> <p>Pelagic feeding habitats are mentioned else where in the text, so the table should be consistent in this regard.</p> <p>Pages 115-116 – Figures 4.44 and 4.45. e south coast of Labrador and the area east of the Strait of Belle Isle is very important for a number of species at certain times of the year. More attention needs to be paid to this area in terms of mitigation of project activities. There are also several spots along the slope edge that appear to be important for a number of species.</p> <p>Page 119, and elsewhere - DFO does have minimum population estimates for many cetacean and pinniped species in Atlantic Canada. These are based on In the Northern Wolffish section, the information presented in the last paragraph should be referenced to Simpson et al. (2012).</p>
13	DFO	Section 4.6.1.6 Wolffishes (Page 135)	
14	DFO	Section 4.7 Sensitive Areas (Page 140)	<p>Science Branch NL Region recently conducted a peer review advisory process on the identification of Ecologically and Biologically Significant Areas (EBSAs) in Labrador waters (refer to http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2012/10_23-25-eng.html). Although the Science Advisory Report (SAR) from this process has not yet been published, much of the advice contained within this report is applicable to the 2013-2015 Labrador GXT EA, especially with regards to the identification of sensitive areas. DFO Science should be contacted by the proponent to determine the status and availability of this publication (even in draft form) to permit the timely incorporation of the SAR contents into the EA. Specifically, the Areas of Interest (AOIs) identified in the SAR should be include in the final EA document as a figure and the proponents must acknowledge them in the text with a clear statement that they will be considered for project mitigation.</p>
15	DFO	Section 5.6 Mitigation Measures	<p>Page 164-165 - DFO recommends that the proponent employ multiple, trained MMOs in addition to the Fisheries Liaison Officers (FLO). This will enhance the efficacy of this type of mitigation, and the EA could benefit from more detailed descriptions of the MMO activities to ensure the reviewers that the best possible methods will be employed. This is important also with regards to MMO workload and opportunities for biological data collection.</p>
16	DFO	Section 5.6 Mitigation Measures; Section 5 Marine Mammal Protection (Page 164)	<p>The proponent clearly states that project activity including survey layout, location and to some degree timing will accommodate fishing activity, fishing gear and research surveys - which are all important (as are the safety zones and ramping-up procedures). However, the above mentions survey activity should also accommodate the occurrence of major seasonal, multi-species feeding aggregations of marine mammals and sea birds.</p> <p>This is particularly the case when surveys are being conducted when visibility conditions are low and at night. Passive Acoustic Monitoring (PAM) is employed as a complement to visual observation when the latter monitoring technique is compromised by poor visibility or when marine mammals are below the surface or beyond visual range (DFO, 2010). PAM is a mitigation tool that has benefits in the sea conditions that prevail in the study area and should be discussed as a viable mitigation measure in this Section. In particular recent advancements such as the "WhaleWatcher" PAM system take advantage of the acoustic data stream from the seismic towed array to detect and track vocalizing marine mammals in real time at much less cost than installing and towing as dedicated towed array. DFO Science acknowledges that the benefits of PAM have been mentioned elsewhere in the EA.</p>
17	DFO	Appendix 3 – Consultation Reports A. Labrador – Nunatsiavut Consultation Report	<p>This document makes some rather definitive and imprecise statements: (i) effects on fish would only be expected within 1 m or so from a survey ship (page 5), and (ii) there has been no measurable impact on fish stocks through surveys carried out in Newfoundland (also, page 5; but note that these effects have not been studied in this region yet, and behavioral effects on groundfish exposed to seismic sounds have been reported elsewhere [Engås et al., 1996a and 1996b]). Given the large area over which these sounds could be detected in excess of 1 m from the survey ship and elicit behavioral responses by marine organisms this statement is wrong. Likewise, given natural mortality and fishing, major or massive impacts would generally be required for seismic surveys before being scientifically detectable at the population level in any commercial species in the offshore. Therefore, as noted by others, laboratory and mesocosm studies are required for assessing potential harmful effects. It is important that this information be corrected.</p>