

GENERAL COMMENTS

Environment Canada – CWS

Please note that EC's previous comments on the scoping document and project description (submitted to you on 17 January 2014) are still applicable to the project as described in the EA report.

Fisheries and Oceans Canada (DFO)

The proponent should be required to adhere to all relevant minimum mitigations outlined in the Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Marine Environment, including in 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 sections.

Fish, Food and Allied Workers (FFAW)

There is a recurring mention within the Environmental Assessment about the utilization of a 7 day temporal pre-research survey separation. It is the understanding of the FFAW|Unifor that this is being accepted by DFO when it comes to their Spring and Fall Research Vessel Trawl Surveys, but it is not feasible to be utilized in connection with the execution of the Industry-DFO Collaborative Post-Season Trap Survey for Snow Crab. If there are further questions on these matters it would be worthwhile to communicate with the shell-fish research scientists at DFO. The reviewer would suggest that in the document when there is any mention of the 7 day temporal separation, it **must** specify what science context this applies. Any possible impact, be it negative or positive, on the Industry-DFO Collaborative Post-Season Trap Survey for Snow Crab cannot be accepted.

SPECIFIC COMMENTS

Canada – Newfoundland and Labrador Offshore Petroleum Board

§2.3 project Alternatives, fourth paragraph, pg 10 – it should be *siting*, not *siting*.

§2.4 Project Survey Area (Spatial Boundaries), second paragraph, pg 11 – To say that two of the coordinates are Tribunal Points, and not provide what they are, is unacceptable. The reviewer can easily identify seven corner coordinates and suggests the following solution to clearly having the Project Area described. Start with one of the most northern points along 50° 20'N and move clockwise around the Project Area, i.e. Point 1 is 50° 20'N and 41°XX'W; Point 2 is 45°XX'N and 41°XX'W; all the way around until you identify the western point along the SPM maritime Boundary. Then you can verbally describe going around the boundary, describe that you follow the outer (seaward) boundary of Canada's Territorial Sea up to 50° 20'N and 54° XX'. This, or some derivative, is how it should be conveyed.

The Study Area should also be defined.

§2.4 Project Survey Area (Spatial Boundaries), 3rd para, pg 11 – The “Project Area” is the area in which seismic survey activities are to occur, including the area of the buffer zone normally defined for line changes. With respect to work authorizations, the *Canada-Newfoundland Atlantic Accord Implementation Act* and the *Canada-Newfoundland and Labrador Atlantic Accord Implementation Newfoundland and Labrador Act* (the “*Accord Acts*”) specifies that no person shall carry on any work or activity “related to the exploration or drilling for or the production, conservation, processing or transportation of petroleum in the offshore area” unless that person holds an operating licence and is the holder of an authorization before the commencement of operations for such work or activity. Any workers engaged in carrying out any such authorized work or activity fall within the Board's jurisdiction. As such, the Board has no authority to approve any work or activity outside the offshore area. Such work, if any, should not be referenced in this report.

Figure 2.1 Project Area and Hypothetical Representation of a Potential GrandSPAN Seismic Line Layout (For Illustrative Purposes), pg 12 – The lines (even hypothetical lines) appear to end at the northern boundary of the Project Area. It is stated in Section 2.4 that “*Acquisition lines will end 6 to 10 km short of any GrandSPAN Project Area boundary to ensure the vessel turns can be made without going outside the Project Area with gear deployed*”.

§3.2.2 Project-related Consultations in 2014, pg 29 – It is not enough to list the groups and individuals that were consulted. Section 4 of the January 28, 2014 Scoping Document states to “report on the consultations and communications”. The issues/concerns and main points raised during the consultations should be reported on.

Table 4.10 Representation of Finfish Taxa from DFO RV Surveys (2008-2012) in the Study Area, pg 101 – it should be *Greenland* Halibut, not *Greenland* Halibut.

Table 4.11 Fish Species at Risk or Otherwise of Special Conservation Concern, pg 126 – this table is not easy to read or comprehend. While the reviewer knows intuitively that the column for SARA Status is Schedule 1 listings, it should be clearly stated. Additionally, the column for species Family is unnecessary. Table 4.11 should have been formatted the same as Tables 4.18 and 4.25.

§4.2.1.8, Section identified Important and Sensitive Ecological Environments, subsection Protected Areas (Existing and Potential), second paragraph, pg 128 – it should be *southwestern*, southwestern.

Table 4.15 Overview of Seabirds Known or Likely to Occur Within the Study Area, pg 141, Gulls (*Laridae*) – the scientific name for Ring-billed Gull is *Larus delawarensis*.

Table 4.18 Avian Species at Risk or Otherwise of Special Conservation Concern, pg 165, Olive-sided Flycatcher – as South and Central America are proper names, the words south and central should be written so.

Table 4.22 Overview of Baleen Whales Known or Likely to Occur within the Study Area, pg 182, Killer Whale – the reference should be to Lien et. al. 1988, not Lein.

Table 4.23 Overview of Pinnipeds Known or Likely to Occur within the Study Area, harp Seal, pg 186 – it should be *provides*, not provide.

Table 4.25 Overview of Marine Mammal and Sea Turtle Species at Risk or Otherwise of Special Conservation Concern, pg 191, Beluga Whale – as the Saguenay River is a proper name, the word river should be written so.

§4.3.1.1 Administrative Boundaries and Information Sources, pg 199 – it should be *NAFO Subdivision 4VS*, not NAFO Subivision.

§4.3.1.2 Commercial Fisheries, subsection Commercial Fish Harvests by Species, second paragraph, pg 209 – it should be *herein*, not herin.

§4.3.1.2 Commercial Fisheries, subsection Overview of key Species Fisheries – Atlantic Cod, pg 209 – the reference to DFO 2013t, k is not entirely clear. Is this supposed to a reference to both DFOt and DFOk? If so, then it should be done alphabetically.

§4.3.1.2 Commercial Fisheries,, subsection Potential Future Commercial Fisheries, third paragraph, pg 249 – it should be *identified*, not identifield.

Table 4.40 Ferry Activity in or Adjacent to the Study Area, pg 261 – it should be *La Poile*, not LePoile.

§5.1 Key Project Components, Activities and Environmental Considerations, pg 269

– If Gravity and magnetic survey activities are proposed, as per Section 2.6.4, then they should be included in the assessment of project activities.

§5.2.3 Fisheries and Science Surveys, first sentence, pg 276 – there too many periods at the end of the sentence.

§5.3.3 Existing Knowledge, first paragraph, pg 286 – References are required for the statements made in this paragraph.

§5.3.4.1 Presence and Movement of Project Vessels, first sentence, pg 292 – this is awkward. The word “possible” should be deleted and the word “possibly” should be included between “will” and “involve”

§5.3.4.1 Presence and Movement of Project Vessels, pg 292 – it should be *there*, not their.

§5.3.4.2 Seismic Sound, first paragraph, pg 293 – the “previous studies” need to be identified AND the “wide and varied range of behavioural response(s)” need references.

§5.3.4.3 Other Possible Environmental Discharges (Routine or Accidental), fourth paragraph, pg 294 – it should be *ballasting*, not balasting.

§5.4.3.1, pg 299 – “...,other mobile vessels must normally give way...” is not acceptable because: the use of a scout vessel identifies other mobile vessels before conflict occurs; and operators are supposed to avoid active fisheries.

§5.4.3.1, last bullet, pg 300 – it should be *On-going information gathering on, avoidance of,...*, not and attempted.

§5.4.3.1, pg 301 – the text “(and often somewhat narrow)” should be deleted, it is of no purpose.

§5.4.3.1, 1st para, pg 302 – More information is required on how GXT will coordinate and communicate in a timely manner with other offshore oil and gas operators to avoid or reduce adverse interactions.

§5.4.4 Cumulative Environmental Effects, second paragraph, first sentence, pg 304 – this sentence is awkward and needs to be rewritten, maybe into two or more sentences.

§5.5.6 Environmental Monitoring and Follow-up, last sentence, pg 314 – replace “on a regular basis” with “within a year of the completion of seismic activities.”

§5.6 Marine Mammals and Sea Turtles: Environmental Effects Assessment, pg 315 – it should be *pinnipeds*, not pinipeds.

§5.6.4.2 Seismic Sound, second paragraph, pg 321 – the sentence, “Permanent hearing impairment may also occur in some instances.” needs references and the word *is* should be *in*.

§5.6.4.2 Seismic Sound, first full paragraph, pg 322 – the part from “Moreover, previous research...from the affected area” is cumbersome and should be rewritten to clearly communicate what is trying to be communicated.

§5.6.4.3 Other Possible Environmental Discharges (Routine or Accidental), first line, pg 323 – it should be *vessels*, not vessel.

§5.6.6 Environmental Monitoring and Follow-up, last sentence, pg 325 – replace “on a regular basis” with “within a year of the completion of seismic activities.”

Table 5.14 Marine/Migratory Birds Species at Risk: Analysis of Potential Environmental Effects, pg 330, Olive-sided Flycatcher - as South and Central America are proper names, the words south and central should be written so.

§5.7.5 Marine Mammals and Sea Turtles, pg 331 – “...as a whole as are the planned mitigation...” This is awkward and should be rewritten.

Environment Canada (EC) – Canadian Wildlife Service (CWS)

§1.1 Project Overview and Scope, pg 1 - The environmental assessment mentions the potential use of helicopters, but does not go into detail concerning their use. Aircraft, particularly helicopters, have been known to cause significant negative impacts to migratory birds during various life stages (i.e. chick rearing, moulting). Mitigation measures such as timing and adjusting the altitude and pattern of helicopter flight lines can minimize disturbance. Helicopter use near seabird breeding colonies should be avoided from May 1st – August 31st (with an end-date of September 30th for Northern Gannet Colonies).

Figures 4.47 – 4.59 Seasonal Distributions of Seabird Observations, pgs 146 – 158 - The source of the data in these figures should be noted here.

§5.2.5 Marine Wildlife, subsection *Seabird Strandings*, pg 279 - Quote: “GXT holds a CWS Migratory Bird Handling Permit, applicable to both ships.”

The permit should be referred to as a Migratory Birds Convention Act (MBCA) permit, not a Canadian Wildlife Service (CWS) permit.

§5.5.1 Environmental Assessment Study Areas and Effects Evaluation Criteria, last bullet, pg 306 - Quote: "Effects to more than 10 percent of individual birds"

We recommend providing a reference and explaining why the 10 percent threshold was chosen for this environmental assessment.

Table 5.7 Marine / Migratory Birds: Potential Project-VEC Interactions, pg 307 - We recommend adding lighting, particularly in low visibility conditions, to the column "Health (Individuals or Populations)".

§5.5.4.2 Seismic Sound, pg 311 - We recommend to always perform a ramp-up/soft start of the airgun prior to use. This beneficial management practice will help deter migratory birds from diving in the area.

Department of National Defence (DND)

On January 27, 2014, DND provided an excel spreadsheet with coordinates of known DND legacy sites and shipwrecks and submarines in the Study Area. Information provided by DND was clarified through email correspondence. However, the EA report (AMEC March 2014) did not specifically note the Sydney Shallow Disposal Site (46.31N, 58.65W) within the project area. This is a site that was used to dispose excess munitions following WWII. DND provided the following mitigation measure, which should be included in the EA report:

Due to the inherent dangers associated with UXO and the fact that the Northwest Atlantic Ocean was exposed to many naval engagements during WWII, and that the project includes the Sydney Shallow Disposal Site, should any suspected UXO be encountered during the course of the operations, the Proponent should not disturb/manipulate it. The Proponent should mark the location and immediately inform the Coast Guard. Additional information is available in the 2010 Annual edition – Notices to Mariners, Section 37.

Canada Nova Scotia Offshore Petroleum Board

Provide a map that indicates the Nova Scotia-Newfoundland and Labrador offshore boundary overlaid with the Study Area to show the extent of encroachment into crab fishing areas off of Cape Breton.

Fisheries and Oceans Canada (DFO)

Table 4.8 Overview of Groundfish Species that are Known or Likely to occur in the Study Area, pages 83-92

- The applicable population should be identified for all species that are SARA listed and COSEWIC designated.
- The COSEWIC assessment of Cusk (Endangered) should be included.
- The COSEWIC assessment of Spiny Dogfish is Special Concern not Threatened.
- The COSEWIC assessment of Basking Shark (Special Concern) should be included.

Section 4.2.1.6 Marine Fish

- **Page 104** - The COSEWIC assessment of Roughhead Grenadier (Special Concern) should be included in the paragraph on Roughhead Grenadier.
- **Page 105** - Applicable populations of Atlantic salmon as well as their COSEWIC statuses should be included in the paragraph on Atlantic salmon.

Table 4.11 Fish Species at Risk or Otherwise of Special Conservation Concern, page 126

- The applicable population should be identified for all species that are SARA listed and COSEWIC designated.
- The COSEWIC assessment of Spiny Dogfish is Special Concern not Threatened.

Section 4.2.1.8, Identified Important and Sensitive Ecological Environments, subsection Protected Areas (Existing and Potential), second paragraph, page 128

- The description of the Laurentian Channel AOI should reference Templeman's CSAS report 2007/052 as the source of the description.
- Typo southwestern in Paragraph 2, line 3

Table 4.13, Fisheries Closure Areas, page 128

- The reference to the Fisheries Closure Area Corner Seamounts should be Newfoundland Seamounts.
- Also the size in square km should be verified (for Nfld. Seamounts).

Figure 4.42, Fishery Closure Areas, page 130 - The legend needs to be corrected - Area 5 is Newfoundland Seamounts.

Table 4.21 Overview of Baleen Whales Known or Likely to Occur within the Study Area, pages 177-186 - The applicable population should be identified for all species that are SARA listed and COSEWIC designated.

Table 4.25 Overview of Marine Mammal and Sea Turtle Species at Risk or Otherwise of Special Conservation Concern, pages 190-192

- The COSEWIC assessment of Northern Bottlenose Whale, Scotian Shelf population (Endangered) should be included in this table.
- The applicable population should be included for Killer Whale.

- The COSEWIC assessment for Leatherback Sea Turtle in Endangered.

Section Large Ocean Management Areas, page 131 - Gilbert Bay is a Marine Protected Area as well as an EBSA (Figure 4.43). This should be clarified in the text to avoid confusion.

Section Ecologically and Biologically Significant Areas (EBSAs), page 131

Given their potential for interaction with seismic survey activity, marine mammals should be addressed in more detail in Table 4.14. Eleven of the 14 EBSAs that overlap the study area (Section 5.8 - Table 5.17) have significant marine mammal 'components', summarized below:

- Laurentian Channel - importance re: marine mammal migration into the Gulf of St. Lawrence.
- St. Pierre Bank - Significant feeding areas for several species of cetaceans.
- Placentia Bay Extension - Many cetaceans feed and aggregate and migrate from spring to fall.
- Southwest shelf edge and slope - many marine mammals aggregate in summer.
- Eastern Avalon - historic aggregation of many marine mammals especially in summer.
- Southeast Shoal & Tail of the Banks Important seasonal forage for marine mammals, especially Humpbacks.
- Lilly Canyon-Carson Canyon - Year-round aggregation of marine mammals for feeding and overwintering.
- Northeast Shelf edge and Slope - Potentially important feeding area for marine mammals.
- Fogo Shelf- some marine mammal presence.
- Notre Dame Channel- Significant Area for cetacean feeding and migration.
- Orphan Spur - significant concentration of marine mammals.

The above summary is based on the following two references (included in the EA doc):
Templeman, N.D. (2007). Placentia Bay-Grand Banks large Ocean Management Area Ecologically and Biologically Significant Areas. DFO Canadian Science Advisory Secretariat Research Document 2007/052.

DFO. (2013). Identification of additional ecologically and biologically significant areas (EBSAs) within the Newfoundland and Labrador Shelves Bioregion. Canadian science Advisory Secretariat 2013/048.

Section 4.3.1- Marine Fisheries, page 199 - The document quantifies the average landings of commercial species from the Project/Study area in Newfoundland and Labrador over the 2008 -2012 period. Some of fisheries within the study area are managed by NAFO and landings by countries other than Canada are not included in this report.

Section 4.3.1.2 - Commercial Fisheries, subsection Atlantic Cod, page 216 - This section indicates that the 3Ps cod fishery only uses fixed gear; in fact otter trawl gear is also used in this area.

Section 5.7 Species at Risk: Environmental effects Assessment Summary, page 326

- The Proponent should acknowledge that there could be changes in SARA regulations and requirements, new species added to Schedule 1 or critical habitat identified, and a commitment should be made to monitor for these changes and adaptively manage issues that may arise as a result of these changes.
- Why are tables for assessment of effects on individual VECs not provided? It would be beneficial to include these tables.

Fish, Food and Allied Workers (FFAW)

Section 2.3 Project Alternatives, page 10 - “As an important and valuable planning tool, (this) EA is ...” the word *this* is missing in the sentence.

Figure 2.1 Project Area and Hypothetical Representation of a Potential GrandSPAN Seismic Line Layout (For Illustrative Purposes), Page 12 - The FFAW|Unifor does have great hesitation with the potential GrandSPAN Seismic Line Layout, as it covers an area of such magnitude with lines going over many of the major fishing grounds in Newfoundland and Labrador waters.

Section 2.6.1.2 Support Ship, page 14 - There should be no interference or impact on active fisheries or fisheries science activities, see Appendix 2 of C-NLOPBs *Geophysical, Geological, Environmental and Geotechnical Program Guidelines*. Further, the FFAW|Unifor would suggest that communication with fishing vessels should go through the Fisheries Liaison Officer and not the support ship as per what is in the One Ocean Seismic Program Protocol and Fisheries Liaison Officer video developed by the Canadian Association of Petroleum Producers.

Section 3.3 Identification of Valued Environmental Components, first sentence, page 32 – it would read better and more appropriately: “EAs focus on components of the environment that are of particular ecological and/or social importance, which have potential to be affected (adversely or positively) by the proposed ...”

Section 4.2.1.5 Benthic Invertebrates, subsection Shrimp, page 76 - Looking at the text discussing Figure 4.16 it is not wholly accurate to suggest “that Northern shrimp are concentrated in the northeast portions of the Study Area”.

Figure 4.18 Distribution of Snow Crab in the Study Area (Canadian RV Surveys, 2008-2012) - discussion on page 76 about Snow Crab relies on the DFO RV Trawl Survey, although the Industry-DFO Collaborative Post Season Trap Survey for Snow Crab has been found to be more reliable when it comes to the estimation of abundance.

Section 4.3.1.2 Commercial Fisheries, subsection Shrimp, page 214 - It would be warranted to discuss the value of Newfoundland and Labrador shrimp as compared to the Canadian value.

Section 4.3.1.2 Commercial Fisheries, subsection Shrimp, page 215 - The review would suggest removal of the word *under* when talking about the 17 offshore shrimp licences. Industry-designated trip limits and harvesting caps are set each year depending on the Total Allowable Catch. These measures also vary depending on time of the harvesting activity. It is not accurate to source an 11 year old document when it comes to an annual adjustment made to the fishery. Further, at-sea observers are exactly this: observers who record and report at sea.

Section 4.3.1.2 Commercial Fisheries, subsection Atlantic Cod, page 216 - there is no mention of the sentinel and stewardship fisheries for cod that take place through-out the province.

Section 4.3.1.2 Commercial Fisheries, subsection Potential Future Commercial Fisheries, page 249 - Harvesters and DFO scientists have strong evidence that we are already in a much warmer oceanographic regime, compared to the situation of the early 1990s. Further, when talking about future fisheries in the context of changing climatic circumstances, a discussion about the fisheries on the Ground Banks before 1990 would have been warranted.

Section 5.2 Environmental Planning, management and Mitigation, page 270 - FFAW|Unifor must indicate that what was proposed as a quiet time before the Industry-DFO Collaborative Post Season Trap Survey for Snow Crab in the Environmental Assessment for LabradorSPAN remains inappropriate for implementation.

Section 5.2.3 Fisheries and Science Surveys, page 276 - There has been no agreement as to any temporal separation plan between a Seismic Program and the Industry-DFO Collaborative Post Season Trap Survey for Snow Crab. FFAW|Unifor has been asking proponents to provide evidence of where suggested 7 day separations come from. All that has been coming back is that it was accepted in the past or that DFO accepts it for the RV Trawl Survey. It remains that the Industry-DFO Collaborative Post Season Trap Survey for Snow Crab involves the surveying of approximately 1,500 stations utilizing commercial harvesting vessels and commercial gear. As it stands it is untenable to do firm scheduling on this as the scientific licences are not issued until September and the harvesters participating cannot be active on a commercial and a scientific licence at the same time.

Section 5.3.5 Cumulative Environmental Effects, page 296 - Harvesting activity and its impact on mortality and habitat is managed with the guiding principle being the precautionary approach. When it comes to introducing Seismic Programs on the fishing grounds it is only fair to expect that the same principle be followed with regards to the potential of impact on species abundance and/or behaviour.

Section 5.4.3.1 Presence and Movement of Project Vessels and Survey Equipment, page 299 - Looking at Appendix 2 of C-NLOPB's *Geophysical, Geological, Environmental and Geotechnical Program Guidelines* it is clear that there should be no such interfering from seismic activity on fisheries or fisheries science.

Section 5.4.3.1 Presence and Movement of Project Vessels and Survey Equipment, Page 302 - Again the 7 day temporal separation has likely only been discussed in a positive context for the DFO RV Trawl Surveys that take place. It is not viable to use temporal separation for the Industry-DFO Collaborative Post Season Trap Survey for Snow Crab.