



P.O. Box 5667
St. John's, NL A1C 5X1

Your file Votre référence

May 4, 2017

Our file Notre référence
PATH #16-HNFL-00006

Darren Hicks
Canada-Newfoundland and Labrador Offshore Petroleum Board
140 Water St., 4th Floor
St. John's, NL A1C 6H6

Dear Mr. Hicks:

Re: Review of Environmental Assessment of Polarcus Eastern Newfoundland Offshore Seismic Program 2017-2022

I am writing further to your March 13, 2017 letter requesting review of the March 2017 Environmental Assessment (EA) Report prepared in relation to the above noted offshore seismic program proposed by Polarcus in an area of the eastern Newfoundland offshore.

Based on review of the above noted EA Report the following comments are offered for your review and consideration.

- Section 1.2 Regulatory Context and Relevant Legislation (Page 1-4) - the first bullet in the second paragraph should be amended to read "Fisheries and Oceans Canada (DFO).
- Section 2.3.8 Seismic Source Parameters (page 2-8) – the first paragraph notes "two arrays consisting of three-gunstrings each" and "three arrays consisting of two gunstrings each" it is not clear what this terminology refers to - is "gunstring" analogous to "acoustic source", if so then this should be clarified accordingly.
- Section 3.1 Bathymetry (page 3-1) – the first sentence of the 2nd paragraph should refer to the "Eastern Newfoundland Offshore SEA" the wording / reference to the SEA should be consistent throughout not only this but other sections of the EA that provide reference to this SEA.
- Section 3.2.1 Air Temperature (page 3-3) – last sentence 3rd paragraph "...during the summer months the coldest observed temperatures were around 4.4 degrees Celsius in June (Figure 3.2)...", data for the month of June is not shown in Figure 3.2. It is felt that the data for air temperature should be described for all 12 months.
- Section 3.2.2 Wind (page 3-4) – It is felt that Figure 3.3 should be amended to reflect wind speed for all 12 months.
- Section 3.2.3 Precipitation and Visibility (page 3-6 & 3-7) – It is felt that both Table 3.2 and Table 3.3 should be amended to provide data for all 12 months for precipitation and visibility respectively.



- Section 3.2.4 Storms (page 3-8) - It is felt that Figure 3.5 should be amended to provide information / data on extreme wind speed for all 12 months, also it is noted that Figure 3.5 requires a description of the x- and y-axis.
- Section 3.3.1 Waves (page 3-8) – this section should be amended to provide a definition of significant wave height as well Figure 3.6 should provide data for significant and maximum wave height for all 12 months.
- Section 3.3.2 Currents (page 3-9) – it is felt that this section would benefit from the inclusion of a figure depicting the major ocean currents in the study / project area.
- Section 3.4.1 Sea Ice (page 3-10) - Figures showing 30 year median sea ice coverage within the study area can be found in the Canadian Ice Service 30-Year Ice Atlas, and should be included in this section.
- Section 3.4.2 Icebergs (page 3-10) - Figure 3.7 requires amendment to provide a description for the x- and y-axis.
- Section 4 Biological and Socioeconomic Environment (page 4-1) As a general comment it is felt that the description of the biological and socioeconomic environment should be organized to reflect the accepted VECs e.g. Fish and Fish Habitat VEC; Seabirds and Migratory Birds VEC; Marine Mammals and Sea Turtles VEC; Sensitive and Protected Areas VEC; and Fisheries VEC. This structure would then flow to the description of Environmental Effects (i.e. Chapter 5).
- Section 4 Biological and Socioeconomic Environment – Table 4.3 (page 4-1) it is not clear whether the updated baseline information relative to species at risk noted in Table 4.1 includes information available from the Species at Risk Registry available on the national DFO website. This should be clarified with proper reference to same in Table 4.1 and it must also be ensured that the relevant sections of Chapter 4 of the EA that describe the various Species at Risk also include updated information that is available from the above noted registry. Also with respect to description of commercial fisheries, Table 4.1 only references DFO commercial fishery / landing data. A portion of the study area is located outside of the 200 mile EEZ and in such areas proponents should utilize NAFO catch data and information that may be available to describe commercial fishing / landings. Table 4.1 should include reference to this data/information and subsequent descriptions of commercial fishing provided in later sections of Chapter 4 should also make use of any relevant NAFO data / information.
- Section 4.1 Plankton, Section 4.2 Benthos and Section 4.3 Deep-water Corals and Sponges (pages 4-2 to 4-4) – similar to the comment made above these sections should all be included within a larger more inclusive Fish and Fish Habitat VEC. Also the descriptions seem to lack information to describe species that may be (or that may be expected to be) present, their relative abundance, relative distribution and relative variability. It is also not clear to what extent any data gaps within the Eastern Newfoundland Offshore SEA have been acknowledged / identified / addressed and whether any new information has been brought to bear in the description. This should be clarified and amended accordingly. For example there maybe new and updated distribution data relative to coral and sponge presented in the 2016 CSAS report 'Delineation of Coral and Sponge Significant Benthic Areas in Eastern Canada Using Kernel Density Analyses and Species Distribution Models'



(CSAS, Research Document 2016/093) which may have relevance to appropriate sections of this project EA.

- Section 4.4 Fish (page 4-4) – this section and the related Appendix A should include reference to important marine macro-invertebrate species (e.g. Snow crab, Northern shrimp etc) that may be present within the project / study area. Despite the risk of duplication it is felt that some of the key information presented within the noted Tables in Appendix A should / could be brought forward into the main body of this section of the project EA. Also similar to the comment provided earlier it is not clear to what extent Data gaps associated with Fish and Fish habitat VEC noted within the Eastern Newfoundland Offshore SEA have been acknowledged / identified / addressed and whether any new information has been brought to bear in the description provided in Section 4.4. This should be clarified and amended accordingly.
- Section 4.4 Fish (page 4-7) with respect to information presented within Table 4.3 and the 4th paragraph on page 4-7 and Figure 4.4 (page 4-11) reference to “broadhead wolffish” is confusing. Is the broadhead wolffish the same species as the Northern wolffish (*Anarhichas denticulatus*) if so then Table 4.3, Figure 4.4 and the noted sentence should be amended accordingly. Care should be taken when using common names to ensure that the “correct” common name is used throughout the document.
- Section 4.6 Marine Mammals and Sea Turtles (page 4-40) these sections are inadequate a more detailed description of marine mammals and sea turtles is required including among other things the likelihood of occurrence of the various species within the study area. Despite the risk of duplication it is felt that some of the key information presented within the noted Tables in Appendix A as well as within the noted DFO marine mammal sightings database should / could be brought forward into the main body of this section of the project EA. Also similar to earlier comments it is not clear to what extent data gaps associated with marine mammals and sea turtles VEC noted within the Eastern Newfoundland Offshore SEA have been acknowledged / identified / addressed and whether any new information has been brought to bear in the description provided in Section 4.6. This should be clarified and amended accordingly.
- Section 4.6.3 Species at Risk (page 4-40) as noted above it is felt that the Species at Risk VEC should be discussed in its own section and include fin fish, marine mammals and sea turtle Species at Risk. This section makes no reference to the role, purpose and information available within the various Recovery Strategies, Action Plans and/or Management Plans that have been developed for Species at Risk – all of which are available from the Species at Risk public registry. This section requires amendment accordingly specifically noting the recent development of an Action Plan for the Northern Bottlenose Whale (*Hyperoodon ampullatus*), Scotian Shelf population and a Management Plan for the Sowerby’s Beaked Whale (*Mesoplodon bidens*). Also it is not clear to what extent data gaps associated with the species at risk VEC noted within the Eastern Newfoundland Offshore SEA have been acknowledged / identified / addressed and whether any new information has been brought to bear in the description provided in Section 4.6.3. For example information on presence/ likelihood of occurrence of northern bottlenose whales from the Scotian Shelf population which has come out of surveys completed in 2016 by Dalhousie University in the Flemish Cap / Flemish Pass areas. This section should be clarified and amended accordingly.
- Section 4.7.1 Ecologically and Biologically Significant Areas (page 4-44) – with respect to the 1st paragraph we no longer reference the Placentia Bay Grand Banks Large Ocean Management Area as it is now considered to be part of the Newfoundland and Labrador



Shelves Bioregion. As such it is felt that the first sentence should be reworked to indicate that “A number of EBSAs have been identified in the Newfoundland and Labrador Bioregion (Templeman 2007, DFO 2013b)”. With respect to the second sentence it should be amended to note that EBSAs are more than important areas for marine mammals and turtle species, they are also geographically or oceanographically discrete areas that provide important services to one or more species/populations of an ecosystem or to the ecosystem as a whole, compared to other surrounding areas or areas of similar ecological characteristics.

- Section 4.7.1.1 EBSA Within the Study Area (page 4-45) – only three EBSA have been identified / described by DFO within the project study area; the Northeast Shelf and Slope, the Virgin Rocks, and the Orphan Spur. The Orphan Knoll and the Slopes of the Flemish Cape and Grand Bank are coral and sponge and/or seamount closures that have been identified by NAFO and may be better suited to include within Section 4.7.2 Other Protected Areas. It is felt that these sections should be amended accordingly.
- Section 4.7.2 Other Protected Areas (page 4-47) – as noted above it is felt that this section should be amended to include the noted NAFO coral and sponge closures and seamount closures areas. This section should also note that Ecological Risk Assessments (ERA) designed to evaluate the risk posed by bottom contact fisheries on significant coral and sponge communities have been carried out on a number of offshore areas identified in the above noted 2016 CSAS report (2016/093) including Tobin’s Point. The areas covered by the ERA are being proposed as fisheries closures and extensive consultations on each area are currently underway.
- Section 4.7.2 Other Protected Areas (page 4-47) – the 1st line of the 2nd paragraph should also indicate that MPAs may also protect important fish and marine mammal habitat and endangered aquatic species. The 2nd line of this paragraph should be amended to reflect that the correct name for the noted MPA is the “Eastport MPA” rather than the “Eastport Duck Island MPA” as written. With respect to the 4th paragraph as noted above the Placentia Bay Grand Banks Large Ocean Management Area is currently acknowledged to be a part of the Newfoundland and Labrador Shelves Bioregion and it was never considered an “offshore protected area”. As such it is felt that this paragraph should be amended accordingly.
- Section 4.8.1.1 Commercial Fishing Locations and Effort (page 4-47 to 4-64) - the figure provided on page 4-48 requires a number and title. Also with respect to description of commercial fishing locations and effort a portion of the study area is located outside of the 200 mile EEZ. In these areas proponents are encouraged to utilize NAFO catch data and information that may be available to describe commercial fishing / landings. It is not clear if this section makes use of such data this should be clarified and the section amended if necessary. It is also that in addition to the information presented (e.g. see Section 4.8.1.2 Table 4.7) this section should provide additional information including catch weight by species and value.
- Section 4.8 Fisheries and Other Ocean users (page 4-47) – this section requires mention of recreational, traditional and aboriginal fisheries that may occur in or near the project study area.
- Section 4.8.1.3 Commercial Fishing Gear (page 4-64) the description provided is not adequate and would benefit from additional details / information e.g. species associated with each gear type; catch statistics associated with each gear type; type of fisheries / fish species associated with each gear used by month.



- Section 5.3 (Valued Environmental Components (page 5-6)) – with respect to the Fish and Fish Habitat VEC the description requires addition of pelagic fish to the description / characterization of the Fish and Fish Habitat VEC provided in the 1st bullet. This would be consistent with the information presented within Table 5.2 which identifies potential interactions between project activities and pelagic fish.
- Section 5.2.2 Stakeholder Consultations (page 5-6) – the first sentence on page 5-6 makes reference to the “Freshwater Habitat Section” (of DFO) it is felt that this is an error and needs to be amended to refer to the “Fisheries Protection Program” of DFO, rather than the Freshwater Habitat Section.
- Section 5.5.1 Identification of Interactions Table 5.2 (page 5-10) – this table does not include the Species at Risk VEC. The note at the bottom of the table is odd and not acceptable. Table 5.2 should be amended to include the Species at Risk VEC.
- Section 5.6.7 Monitoring (page 5-14) – it is felt that an important component of project related monitoring and follow up includes monitoring to assess compliance with project specific mitigation and regulatory commitments/obligations. It may be necessary to add same to the 1st sentence of the 2nd paragraph in this section.
- Section 5.6 Mitigation Measures (page 5-15) – the last part of the 3rd bullet should read “...Marine Environment (DFO 2008 available from the DFO website as well as from the above noted CNLOPB Geophysical, Geological, Environmental, and Geotechnical Program Guidelines).”
- Section 5.6.4 Fishing Gear Damage Program (page 5-20) – with respect to the 4th bullet it should be noted that in accordance with Sections 26 and 27 of the Fishery (General) Regulations CFV numbers have been replaced with Vessel Registration Numbers (VRN). The 4th (and other similar bullets with reference to CFV number (see page 5-17)) should be amended accordingly.
- Section 5.6.5 Marine Mammal / Wildlife Protection (page 5-21) – this section should also reference / note the *Marine Mammal Regulations* (under the Fisheries Act). While these regulations are currently undergoing amendment it should be noted that Schedule 11 of the proposed amended *Marine Mammal Regulations (MMR)* provide approach distances for marine mammals based on species, vehicle (vessel, aircraft, etc), area and timing. Given that the proposed seismic survey(s) are scheduled to run from 2017 to 2022 it is recommended that the proponent be aware of any potential implications that may arise if any proposed amendments to *MMR* are accepted during the timeframe covered by the proposed survey program.
- Section 5.6.5 Marine Mammal / Wildlife Protection (page 5-21) – last line 2nd paragraph the link for the noted ESRF report has not been provided, the last line should add the following link <http://www.esrfunds.org/sites/www.esrfunds.org/files/pdf/publications/Report156.pdf>.
- Section 5.8.1 Fish and Fish Habitat VEC (page 5-28 to 5-29) – 1st sentence on top of page 5-28 it is felt that this sentence would be clearer if it read “...*physical (e.g. injury or mortality), physiological (e.g. primary and secondary stress responses), or behavioural...*” With respect to Table 5-7 on page 5-28, should the SEL cum of >216 dB re 1 μ Pa² for recoverable injury be lower than the peak SPL of >213 dB re 1 μ Pa this should be clarified. With respect to the 3rd sentence 2nd paragraph on page 5-29 “*There is no recorded evidence that energy sources*



have killed or caused injuries during seismic survey operations (Turnpenny and Nedwell, 1994).” Is there a more recent reference supporting / refuting this statement, if so it should be noted.

- Section 5.8.1 Fish and Fish Habitat VEC (page 5-29 to 5-32) – the 1st and 4th sentences of 4th paragraph require suitable references. With respect to Figure 5.1 on page 5-30 the term “On Axis” should be defined. The 1st sentence of 2nd paragraph (Underwater Noise page 5-32) requires a suitable reference. Also it should be clarified is the noise level (i.e. 190 dB re 1 μ Pa”) peak SPL or SEL and how was it determined that stunning “may occur” at this distance, if it is based on modelling this should be noted accordingly.
- Section 5.8.4 Marine Mammals and Sea Turtles VEC – Acoustic Masking (page 5-43) - with respect to the first sentence in the 3rd paragraph “... given the frequency range of the seismic sound source (between 10 and 200 hertz)....” it is felt that the frequency range provided should be consistent with other sections in the report. For example, Section 2.4.1 Underwater Noise (page 2-11) “The noise generated by these processes tends to be of low frequency in the range of <1 to 250 hertz...”, and “...the sound from seismic operations is primarily low frequency (between <1 to 200 hertz)....” is also on page 5-45. There should be consistency or clarification on what is being discussed with respect to frequency range and all other measures of sound energy.
- Section 5.8.5 Species at Risk VEC (page 5-49 to 5-51) – as noted in an earlier comment Table 5.2 (page 5-10) does not include the Species at Risk VEC, as such both the first sentence of Section 5.8.5 and (as previously noted) Table 5.2 must be amended accordingly. This section should also be amended to include a discussion of the interactions for each Species at Risk, since not all species will have the same potential interactions. With respect to the bullets on page 5-50 it is felt that the listing should include the population names for the species at risk where applicable e.g. Blue whale (Atlantic population).
- Section 5.8.5 Species at Risk VEC – Environmental Effects Assessment (page 5-50) – The last sentence of the 2nd paragraph in this section indicates “The mitigation measure of ramping-up the airgun array (over a minimum 20 min period) is expected to minimize the potential for impacts on these marine mammals and turtles”. While this is an important measure there are additional measures discussed in the Mitigations section of the EA including adherence to the “CNLOB Guidelines” and the DFO “Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Marine Environment”. This paragraph requires amendment accordingly. The last sentence on page 5-50 requires amendment the table reference should be Table 5-14 rather Table 5-10.

Thank you for providing the opportunity to review and provide comment on this project EA Report. If you have any questions or comments with respect to the above or if you require anything further please contact me by phone (709.772.3521) or email (darrin.sooley@dfo-mpo.gc.ca.).

Sincerely,

Original Signed by

Senior Fisheries Protection Biologist – Marine, Coastal, Oil and Gas Development
Fisheries Protection and Regulatory Reviews
Ecosystems Management Branch