

Amendment of MKI's Environmental Assessment of the Northeast Newfoundland Slope 2-D Seismic Survey Programme, 2012-2017 (LGL Limited June 2017)

GENERAL COMMENTS

Canada-Newfoundland and Labrador Offshore Petroleum Board

In light of the recently released publication, *Widely Used Marine Seismic Survey Air Gun Operations Negatively Impact Zooplankton* (McCauley, R. et al. Nature Ecol. Evol. 1, 0195 (2017)), please report on the implications of the study results for the conclusions of the environmental assessment and the mitigation measures that are described therein.

Environment and Climate Change Canada (ECCC)

The Canadian Wildlife Service of Environment and Climate Change Canada (ECCC-CWS) notes that mitigations regarding migratory birds as outlined in the EA are to be used on all three 3D seismic survey ships.

Groundfish Enterprise Allocation Council (GEAC)/Canadian Association of Prawn Producers (CAPP)

We understand that this amendment was put forward to validate that the conclusions of the original assessment remain supported in light of increased, simultaneous effort planned for the 2017 season. Furthermore, we accept that having multiple simultaneous surveys is not new in NL waters; however we cannot conclude that because the surveys were conducted, no impact was experienced to fish, fish habitat or the fishery. This is especially important because such a rationale would not be sufficient in a decision-making context of fisheries management and this discrepancy is troublesome.

With respect to the assessment of effects, we must question some key components of the amendment proposal.

The impact to fish and fish habitat is clearly lacking in substance. Although the level of effect is expected to be 'non-significant', the confidence in the assessment is described as 'low to medium'. In the text, the introduction of a 30 km spacing between airgun arrays should decrease the 'probability' of synergistic effects, without describing what those effects may be; what scalar movement is required to reduce the synergistic effects; and how the 30 km distance will achieve this outcome. We cannot agree with the assessment presented.

Again, with reference to fisheries impacts, we find a similar absence of assessment. The gap in scientific knowledge leads to a low-confidence assessment of 'no impacts'. We feel that this conclusion is inconsistent with the precautionary approach to fisheries and habitat management that we are regulated under by the Department of Fisheries and Oceans, and such a lens should also be applied in this assessment. As in the past, we

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contend that the impacts are significant and experienced far afield from the source location and last for an extended period after the airgun array has been deployed. This requires further study on the part of the applicant, and should be undertaken prior to exploration activity being further intensified (as is requested by this amendment).

We have historically attempted to address our concerns regarding the direct impacts of seismic activity on fishery activities on a case by case basis directly with the operator. This has been effective, save for some recent instances where planned activity has been re-allocated due to conflict with other sectors, leading to a direct impact on operations. Being forced to accept impacts to our activities because of a resistance of other sectors to accommodate seismic activities is unacceptable.

We cannot agree with the cumulative effects assessment as presented. The assessment is again challenged by a lack of knowledge on the impact of multiple surveys on fish, fish habitat and fisheries. Because of this lack of knowledge, a conclusion of 'no significant effect' is achieved, with a low to medium confidence in this decision. Again, we are forced to look at this in the context of fisheries and habitat management whereby an absence of information forces a precautionary approach to be applied. While we cannot make a decision on allowable stock removals or benthic impacts in face of poor information, why would we allow such activity in the context of seismic exploration?

Lastly, we note that the follow-up monitoring includes only sea turtles and mammals. Without a detailed plan to address existing data gaps, we are forced to ask how our understanding of direct and/or cumulative impacts of exploration will be understood without any monitoring or attempt to assess if those effects exist and the magnitude of those effects?

We are clearly concerned at this amendment and the apparent increase in seismic exploration activity in the Newfoundland and Labrador region. This is having real effects on our fishing activity and we suspect it is having impacts on the ecosystem itself. A continued identification of a data gap is not sufficient to adequately address our concerns and this must be rectified prior to further activity being authorized.

Fish, Food and Allied Workers (FFAW/Unifor)

Our concern is not with respect to the amendment's addition of a third 3D seismic vessel as the different areas designated for each seismic vessel in 2017 are distinct.

We do have grave concerns however regarding the timing of seismic data acquisition of two of the planned programs this year – Harbour Deep and Cape Broyle.

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To begin, there will be active commercial snow crab fishing in NAFO Divisions 3L and 3N during the month of July, when the company plans to start seismic work in Harbour Deep and Cape Broyle. The commercial crab quota has not been caught to date in these areas and we anticipate fishing activity to remain active in these areas until the end of the month.

Additionally, the members of FFAW/Unifor have ongoing concerns with seismic activity being conducted in the vicinity of post-season crab survey stations prior to the stations being sampled for the year. The collaborative DFO-industry post season crab survey starts in September and continues until November. MKI's schedule of 3D seismic work in the Harbour Deep (mid-July to mid-October) and Cape Broyle (mid-July to end of August) prospects will not allow for the DFO-industry post-season crab survey to be executed without interference from seismic activity.

This post-season crab survey is vital to the fishing industry as it informs decision making with regards to quotas for coming years. Our members rely on this survey to be completed each year, without interruption or potential effects from outside variables. To date this survey has occurred uninterrupted by seismic or other oil and gas activity, allowing confidence in the index and time series. The current proposed activity by MKI poses to throw an unknown into the data as we are currently unsure of the effect of seismic activity on snow crab catchability, behaviour and physiology. It also threatens the time series of what has been a longstanding collaborative index between fish harvesters and science. Any potential impact on the survey will have significant consequences for the crab fleets – be it either short or long term.

The collaborative DFO-industry post season crab survey is undergoing changes in terms of the location and number of survey stations. Changes have not been confirmed for 2017. While this is frustrating for planning all around it continues to be FFAW/Unifor's position that seismic work should NOT be conducted in the vicinity of survey stations until they have been sampled for the year. We have been consistent in this position with all seismic activity and remain steadfast in our stance. This is an important time series. In the past, we have worked cooperatively with MKI on this issue and anticipate the same level of understanding going forward. We must ensure our members' concerns are heard and addressed, and we must also ensure that the importance of both the fishery and the post season industry collaborative snow crab survey are recognized across each of our industries.

It should also be noted that FFAW/Unifor only became aware of the timing of the planned seismic programs for Harbour Deep and Cape Broyle within the past month. (The Harbour Deep prospect has also not been mentioned in previous EA updates for

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2017). This is not an acceptable time frame as our initial awareness of these programs falls in the middle of what is the busiest fishing season, not allowing consultation with our membership nor a sufficient amount of time for our members concerns and viewpoints to be properly voiced.

Association of Seafood Producers (ASP)

The expanding nature of seismic and other operations in waters surrounding our coast is a growing concern for industry, including ASP members. In these times of apparent ecosystem shift and change in species abundance (e.g. from apparent shellfish back to groundfish), questions are often raised about the impacts of seismic surveys, for example. Current studies underway - most particularly related to snow crab in 3L - are important in increasing our understanding of the potential negative impacts from such operations, and most specifically seismic, but they cannot always address the legitimate concerns of industry in a timely matter. Additional concerns related to specific program timing have been raised, for example, in correspondence of today's date submitted by the FFAW-Unifor in response to the MKI program.

One general concern is that the **Statement of Canadian Code of Practice with Respect to the Mitigation of Seismic Sound in the Marine Environment (DFO2007b)** is now some 10 years old, and may necessitate some changes and updating in response to new science and expanding industry – both fisheries and oil and gas - understanding of the issues relating to seismic and other activities which have the potential to impact on fish and fish habitat.

Additionally, referencing the Nexen Energy ULC-specific EA of June 2017, section 5.4.2 and most specifically Table 5.2 which summarizes existing knowledge of potential environmental impacts on marine fish and fish habitat, we would propose that the existing knowledge be compiled and presented more comprehensively for the joint benefit of both industries, i.e. we are not proposing any required change to the Nexen EA, but rather that the appropriate agencies and/or organizations be tasked with a more detailed and comprehensive summary of existing knowledge in these matters. That could also be extended to a best practices review of codes of practice for the purposes of updating the Canadian code of practice with respect to mitigation.

In closing, we would echo concerns raised in recent correspondence from Groundfish Enterprise Allocation Council (GEAC), and in particular the gaps in scientific knowledge that lead to what may be considered premature conclusions of a low-confidence assessment of 'no impacts'. This would appear inconsistent with the Precautionary Approach (PA) to fisheries and habitat management that we are regulated under by Fisheries and Oceans Canada (DFO).

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DFO defines the Precautionary Approach as follows:

In general, the precautionary approach in fisheries management is about being cautious when scientific knowledge is uncertain, and not using the absence of adequate scientific information as a reason to postpone action or failure to take action to avoid serious harm to fish stocks or their ecosystem. This approach is widely accepted as an essential part of sustainable fisheries management.¹

While a complete application of the PA to seismic impacts may be impractical, it is clear that additional work is required beyond representations such as Table 5.2 to ensure a fuller consideration of the potential impacts of seismic and related oil and gas industry activities to fish and fish habitats off our coast.

¹ <http://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/precaution-back-fiche-eng.htm>

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SPECIFIC COMMENTS

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Section 1.0 Introduction, pg 1 – The EA Amendment should provide an assessment of three 3-D and one 2-D seismic vessels concurrently operating in the Project Area.

Section 2.0 Assessment of Simultaneous Seismic Surveys, pg 2 – *The effects of two concurrent 3-D seismic surveys and a 2-D survey were **assessed** in the 2017 EA Update.* The purpose of an EA Update is to outline the proposed activities, confirm that the proposed program activities fall within the scope of the previously assessed program, and indicate if, with this information, the EA predictions remain valid. In addition, information is to be provided regarding the adaptive management of requirements of the SARA into program activities (e.g., introduction of new species or critical habitat to Schedule 1; additional mitigations; implementation of recovery strategies and/or monitoring plans). If there are any changes in the scope or if new information becomes available that may alter the EA conclusions, then a revised EA will be required at the time of authorization application and/or renewal. The purpose of an EA Update is not to assess the environmental effects of activities.

Section 2.2 Mitigation Measures, pg 5 -- The use of an escort vessel, also known as a scout, picket, or chase vessel, has been identified as a mitigation measure to prevent negative interactions with fishers and others. The primary purpose of an escort vessel is to increase the forward looking range (both radar and visual surveillance) of the seismic vessel by travelling ahead on the planned data acquisition route. This action increases the amount of time available for gear/vessel avoidance by the seismic vessel and thus reduces the likelihood of a negative interaction between the seismic program and fishers.

When the absence of an escort vessel is unavoidable and prior to that absence, MKI will risk assess the conduct of the operation without the escort vessel present and plan and implement appropriate measures to reduce the likelihood of a negative interaction with fishers. The following mitigation measures are considered appropriate in the absence of an escort vessel and may be implemented, as required, to maintain safe operations and avoid negative interaction with fishers:

- maximize communication with commercial fishers in the area via the Fisheries Liaison Officer (FLO);
- maintain vigilant visual and radar watch from the seismic vessel;
- scout ahead with the escort vessel as far as appropriate and practical, prior to departure;

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- plan the absence, when possible, for a time when the seismic vessel is operating in an area of least commercial fishing activity;
- move to an area of lesser fishing activity until the escort vessel returns; and/or
- suspend data acquisition and recover seismic equipment until the program can proceed without potential negative interaction with fishing activities.

In cases where an absence is unplanned [e.g. medical evacuation, other emergency], the seismic vessel will, as a minimum, maximize communication with fishers and maintain a high level of vigilance for visual and radar observation. Once the situation is under control, MKI will complete a risk assessment to determine what other mitigations, if any, are appropriate.

Section 3.0 Cumulative, page 16 - The description provided is not adequate and requires additional details / information on other relevant marine project users (e.g. fishing activities, marine transportation, cruise ships). It should include a consideration of environmental effects that are likely to result from the proposed project in combination with other projects or activities that have been or will be carried out. Only with this information, combined with a prediction of future activity, can the statement *"Thus, it seems...the current prediction is that no significant residual effects will result"*.

Section 3.1 Follow-up Monitoring, page 18 – The Geophysical, Geological, Environmental and Geotechnical Program Guidelines were updated in April 2017.

Fisheries and Oceans Canada (DFO)

Section 2.2 Mitigation Measures – Table 2.2 Summary of environmental commitments and mitigation measures, page 6 – for Marine Mammals, Sea Turtles and Species at Risk it is noted that start-up of the seismic array will be delayed and shut down if any marine mammals, sea turtles, or species at risk are observed within 500 m of the array and that Marine Mammal Observers will monitor marine mammals and sea turtles during daylight seismic operations and implement shut downs and ramps ups as appropriate. It is also noted in Section 2.3.4 (page 13) and Section 2.3.5 (page 14) that there is uncertainty with respect to effects of multiple simultaneous surveys leading to a noted low to medium level of confidence with the prediction of residual impacts (i.e. not significant) on marine mammals including species at risk. In recognition of this uncertainty and the possible/likely presence of marine mammal species at risk (e.g. northern bottlenose whales (Scotian Shelf and/or Labrador Sea population)) and in keeping with the precautionary approach provided for within the SOCP it is suggested that the operator be encouraged to employ passive acoustic monitoring (PAM) to

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monitor marine mammal observation within 500 m of the seismic arrays during periods of low visibility and to reflect same within Table 2.2.

Section 3.1 Follow Up Monitoring, page 17 - the commitment to prepare and submit a comprehensive marine mammal and sea turtle monitoring report is a positive and welcomed commitment. If possible we would appreciate receiving a copy of this report.