GX Technology Canada Ltd. 2-D Seismic, Gravity and Magnetic Survey for the Labrador Shelf Area, 2013 to 2015 Environmental Assessment

Responses to Environmental Assessment Review Comments

Prepared by

GX Technology Canada Ltd

LGL Ltd. environmental research associates

Sikumiut Environmental Management Ltd. /
Sikumiut Avatiligijingita Kamajingit

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Context / Purpose

GXT has proposed to conduct a 2-Dimensional (2-D) single streamer marine geophysical survey or surveys (GXT 2013 – 2015 LabradorSPAN 2-D Seismic, Gravity and Magnetic Survey), potentially 2013 – 2015, to collect seismic, gravity, and magnetic data focused in open (ice-free) waters of the Labrador Shelf region, potentially starting in June and concluding as late as the end of November. No acquisition or line turns will occur within the Nunatsiavut Zone (the Tidal Waters of the Labrador Inuit Settlement Area, as defined in the Labrador Inuit Land Claims Agreement). The program would use a conventional seismic ship, towing the sound source (airgun array) and a single 9-km streamer composed of receiving hydrophones. The seismic vessel would also collect (passively) gravity and magnetic data at the same time, and it will have an echosounder for depth soundings. A support vessel will be used as required.

As part of the regulatory permitting process through the Canada-Newfoundland and Labrador Offshore Board (C-NLOPB), operating under the provisions of the federal and provincial Atlantic Accord Implementation Acts, GXT filed an Environmental Assessment (EA) prepared for its proposed marine exploration program. The EA was designed to apply to the Project (i.e., all geophysical surveys seismic, gravity and magnetic) conducted over the area of operations during the proposed potential three-year period. The EA was prepared to meet the provisions of the C-NLOPB Scoping Document (26 March 2013), as well as the advice and information received and issues identified through various communications and consultations with other agencies, interest groups, stakeholders and beneficiaries.

GXT's EA (*Environmental Assessment of GXT's LabradorSPAN 2-D Seismic, Gravity and Magnetic Survey, 2013-2015*, March 2013) was submitted to the C-NLOPB and published on the Board web site for public and agency review and comment. Comments were invited between the period 2 April 2013 and 22 May 2013 (as per the C-NLOPB Request for Comments from interested parties, 2 April 2013) and on 4 June 2013 the C-NLOPB provided to GXT the comments received (Environmental Assessment of GXT's LabradorSPAN 2D Seismic, Gravity and Magnetic Survey 2013-2015 Consolidated EA Report Review Comments). The C-NLOPB stated in its letter of transmittal (4 June 2013, D. Hicks, C-NLOPB, to R. Pitt, GXT):

> The Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB), in consultation with the Board's fishery and environmental review agencies, have reviewed the above referenced environmental assessment (EA) report.
>
> The EA document does not satisfy all of the information requirements outlined in the Scoping Document provided to GX Technology Canada Ltd. on March 26, 2013. In order to satisfy the requirements of the *Canada-Newfoundland Atlantic Accord Implementation Act* and the *Canada-Newfoundland and Labrador Atlantic Accord Implementation Newfoundland and Labrador Act* and to complete a report on the C-NLOPB's determination at the conclusion of the assessment, the attached comments should be addressed.

On 14 June 2013, GXT submitted its responses to that document, and 25 June 2013 C-NLOPB provided GXT with comments from the Fish, Food and Allied Workers Union (FFAW) and requested that GXT address these and the previous comments within a single document. GXT's responses to the FFAW comments are thus attached to the previous responses in the "Response Supplement – FFAW Comments", preceding Appendix 1, in this document.

Organization of Responses

The following document (Responses to GXT 2013-15 EA Review Comments) reproduces each of the comments received by the C-NLOPB and then provides (immediately thereafter) the responses/ replies addressing the comments. Overall, this response document follows the organization of the C-NLOPB's original Consolidated EA Report Review Comments document, as received from the Board (4 June 2013). For ease of reference, the comments and responses are numbered (A1 – A11 for the General Comments, and B1 – B25 for the Specific Comments about the EA document).

As noted above, the responses to the FFAW's comments (General and Specific) are contained in the Response Supplement (beginning at page 22), organized under General and Specific comments.

There are also appendices attached to this Response which provided other requested information:

Appendix 1: Map

Appendix 2: Source References

Appendix 3: Continuing Consultations

Responses to GXT 2013-15 EA Review Comments

A. GENERAL COMMENTS

Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB)

Comment A1: Please provide the applicable reference for "*C-NLOPB Guidelines*" as it is used in various places throughout the document (e.g. pg 193 Accidental Releases).

Response: In all instances where not specified, the *C-NLOPB Guidelines* means the "Geophysical, Geological, Environmental and Geotechnical Program Guidelines" (C-NLOPB 2012), except for the reference on page 193, where the "Canada-Newfoundland Offshore Petroleum Board / Canada-Nova Scotia Offshore Petroleum Board. 2002 Compensation Guidelines Respecting Damages Relating to Offshore Petroleum Activity" is intended (C-NOPB/C-NSOPB 2002).

Department of National Defence (DND)

Comment A2: The Department of National Defence provided comments on February 11, 2013 on the draft scoping document, however, the comments are not represented in the EA Report. These comments are requested to be included in the EA report.

Response: GXT appreciates the information provided by DND in its comments on the C-NLOPB draft scoping document. Although GXT did not specifically reference DND's information in the Environmental Assessment, it was incorporated into the Project Safety Plan (filed with C-NLOPB as part of its Geophysical Program Authorization Application), and will be part of the start–up (pre-survey) crew briefings. It will also be noted that DND is likely to be operating in and/or near the Project Area. As advised, if any suspected UXO locations are found, they will not be disturbed but will be recorded, and GXT will immediately inform Canadian Coast Guard. No contact with the seabed is anticipated during the Project.

Fisheries and Oceans Canada

Comment A3: 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).

Response: GXT has followed guidance provided in the C-NLOPB's Scoping Document regarding assessment of cumulative effects (see Section 5.4). Most notably, "The assessment of cumulative environmental effects should be consistent with the principles described in the CEAA operational policy statement 'A Reference Guide for the Canadian Environmental Assessment Act Addressing Cumulative Environmental Effects'". Based on the cumulative assessment approach in GXT's EA, significant cumulative effects are not expected. An EA update will be prepared for

subsequent GXT work offshore Labrador (in 2014-2015) that considers other seismic programs within the same year. We understand that the Lawson and Lesage (2013) research document was prepared as an assessment framework for large marine development projects like Baffinland Iron Ore Company's Mary River Project and that it is considered a work in progress. A large portion of the document deals with assessing risk of ship strikes to marine mammals from large ore carriers travelling at much greater speeds than surveying seismic vessels. The risk of striking a marine mammal during a seismic survey where the ship travels at 4-5 knots and MMOs are on watch (when visibility permits) is considered negligible. At this point in the development process, it is uncertain if DFO's draft framework is consistent with CEAA policies that the C-NLOPB recommends. As DFO further develops and finalizes its framework for impact assessment for marine programs, which seems to incorporate some of the methods used in Wood et al. (2012), GXT will further consider the "newer approaches" in its EA updates and its future EAs for seismic programs offshore Newfoundland and Labrador.

Comment A4: The NAFO Convention Areas showing scientific and statistical Subareas, Divisions, and Subdivisions should be indicated on any figures that are discussed in this context.

Response: The maps that accompany discussions of fisheries in the context of NAFO statistical Subareas and Divisions do have these boundaries indicated. (The closest Subdivisions are 3Ps / 3Pn, far distant from our Study Area.) See Figures 4.11 to 4.40. The only map where the text (in Section 4.3.3, Industry and DFO Research Vessel Surveys) mentions NAFO zones (specifically 2HJ3K) without showing them, is Figure 4.42, Locations of DFO-Industry Collaborative Post-Season Snow Crab Trap Survey Stations in Relation to the Project and Study Areas. As requested, this map is reproduced with the NAFO Divisions indicated, in Appendix 1 to these responses. None of the other fish-related maps involve discussions related to NAFO lines.

Comment A5: 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.

Response: The issue of potential impacts of seismic activity on commercial fisheries will be revisited in 2014 and 2015 if GXT seismic acquisition is planned for those years. GXT will prepare an update document in each of those years if, as stated above, seismic surveying is planned.

Environment Canada

Comment A6: EC's previous comments on the scoping documents submitted during the finalization of the scoping document are still applicable to the report**.**

Response: GXT's EA and the Project Safety Plan (e.g., Spill Response Plan) considered EC's comments on the final scoping document.

Nunatsiavut Government

Comment A7: Inuit depend on the marine environment for a subsistence lifestyle and for an economic livelihood (Inuit Fishery), and this seismic program could potentially have negative impacts on Inuit health and wellbeing. The GXT seismic program overlaps with the entirety of the Inuit fishery, specifically for shrimp, crab and turbot. Also, the catch weights presented in the report, with data from Fisheries and Oceans Canada, are not representative of the decrease in

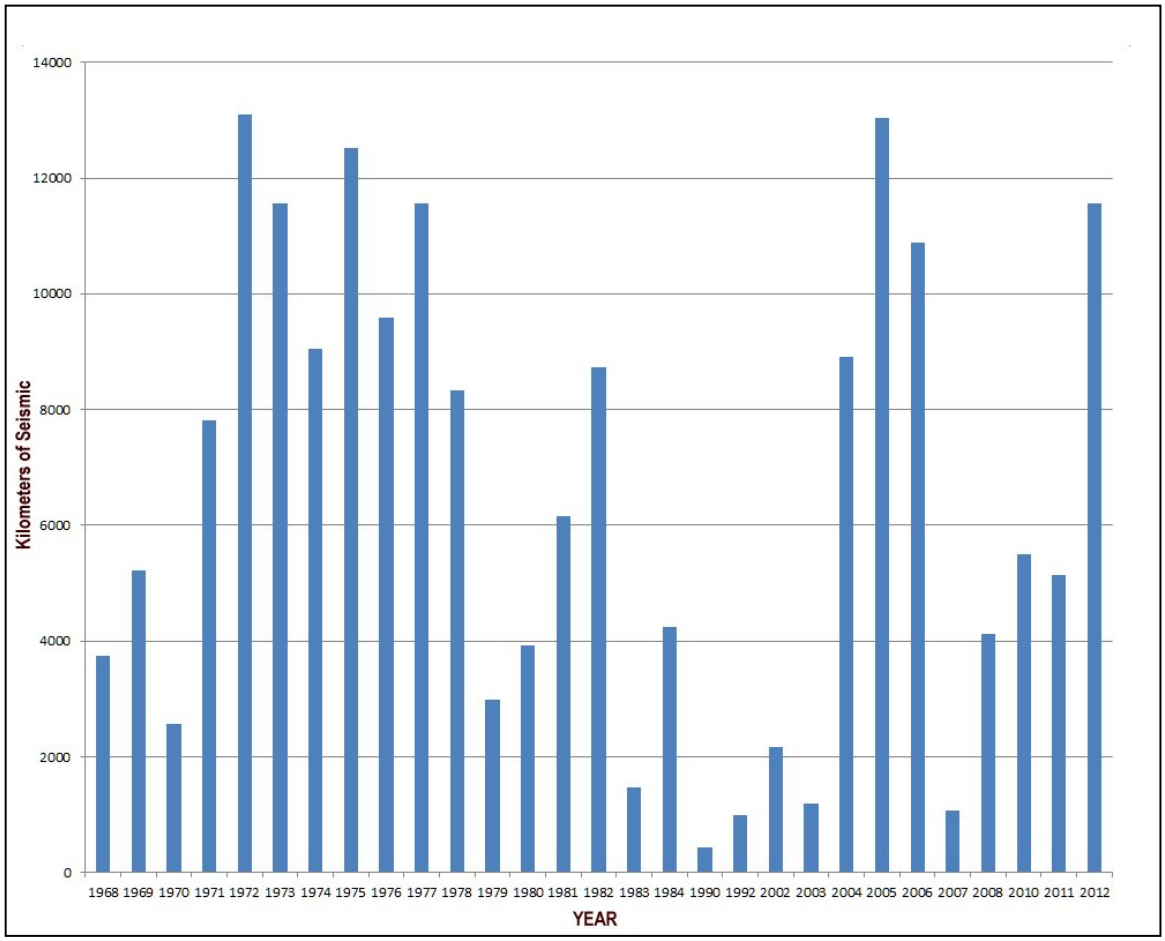
catch per unit effort for fish and shellfish experienced by fishers on the Labrador Coast since 2008, which corresponds with an increase in seismic activity on the Labrador Coast. Therefore, the Nunatsiavut Government recommends that seismic activities not begin prior to September 15 of each year and is adamant that seismic activities do not disrupt the fishery, irrespective of the seismic survey plan of GXT.

Response: GXT is very mindful of the value of the marine resources for Labrador Inuit residents in terms of their social, cultural, subsistence and economic value. The local area marine wildlife - and the fisheries in particular - are the primary focus of the EA, and have been at the centre of the past and continuing consultations in Labrador, including the five Nunatsiavut communities (see, for example, EA Appendix 3A and Appendix 3 of this current document). As stated in the EA, Section 5.2.3 (Issues Identified), "the dominant concern of most groups consulted was avoiding impacts on the commercial fisheries (fish and fish harvesting); other issues related to protecting other aspects of the marine environment in the area, such as marine mammals and seabirds, and special areas."

During consultations with fisheries interest groups in Labrador / Nunatsiavut, the extent of potential overlap was discussed and several specific mitigation measures were agreed upon and will be applied (see EA Section 5.6, Mitigation Measures). In particular – as stated in EA Section 5.6 – "GXT will avoid active fishing areas during the seismic survey. Specifically GXT will monitor the location of fishing activities and plan its work away from those grounds when fishing is active there." Also, as advised, GXT will use an Labrador Inuit FLO on board the seismic ship at all times when in waters offshore Labrador (as stated in EA p. 158 and elsewhere) to facilitate communications and assist with applying these mitigations. GXT's very widely spaced lines will also help with these logistics. Given the principles of spatial and temporal avoidance, beginning our work before 15 September would not be expected to disrupt any fisheries.

It should be noted that restricting survey work to a period after 15 September would render further exploration off the Labrador coast unfeasible, given the high costs of mounting a marine program in that region and the risk that only a very short season would remain for acquisition. Given the history of sever weather conditions and sea state in the area, sometimes as early as the first weeks of October, it would constitute an unacceptable financial, data quality and/or safety risk.

Concerning the association of a lowered CPUE with an increase in seismic after 2008, it should be observed that the averaged annual quantity of seismic offshore Labrador after 2008 (2009-2012) is lower (5556 km/year) than the averaged annual quantity (8504 km/yr) acquired in the previous 4 years (2004-2007). For a more complete perspective of past seismic acquisition off the Labrador coast the following graph is provided. (Data from C-NLOPB: http://www.cnlopb.nl.ca/pdfs/geosci/seismic.pdf)



Labrador Seismic Acquisition 1968-2012 by Acquisition Year (Source: C-NLOPB)

Comment A8: The Nunatsiavut Government recommends that adaptive management for Project-specific or cumulative effects, whether conducted by GXT, government bodies, or in combination, be required. This would include the implementation of contingency plans and resources to enable responsive action, especially in areas where effect predictions are uncertain and where predictive errors may have serious consequences (e.g. disruption to traditional livelihoods or Inuit Fishery). Currently, Labrador Inuit bear the majority of the risk associated with seismic processes with few tangible benefits to the region. The Nunatsiavut Government expects the Proponent would accept a degree of responsibility for any negative changes in the Inuit Fishery and subsistence fishing, and that the burden of proof would not rest on Inuit stakeholders to demonstrate a cause and effect relationship with seismic processes and the fisheries.

Response: The use of the onboard Labrador Inuit FLO, and GXT's commitment to continuing communications and consultations with fisheries interests and communities should greatly assist in the timely identification of unanticipated or unmitigated effects, whether cumulative or immediate. This would allow GXT to respond with any needed contingency, particularly in relation to any disruption to traditional activities or the fisheries, as the Nunatsiavut Government comment requests. GXT would propose to discuss any such effects identified immediately with Nunatsiavut Government representatives and Nunatsiavut fishing interests (e.g. the Torngat Joint Fisheries Board, and the Torngat Fish Producers Co-op) to arrive at appropriate solutions.

GXT will have a compensation program in place for any case of fishing gear damage (see EA pages 162-164), which would compensate fishers for lost or damaged equipment costs and lost fishing income as a result of the damage. This includes a mechanism which does not require undue levels or burdens of proof (typically just information about the location and timing of the gear set and the time when the loss /damage was discovered, gear details). The C-NLOPB *Guidelines* (2012) state "The scope of the compensation program should include replacement costs for lost or damaged gear and any additional financial loss that is demonstrated to be associated with the incident" (p. 46).

If any larger-scale or general negative effect on the Inuit fishery and/or subsistence fishing were suspected, GXT would expect that any investigation of causes would need to be conducted by an independent agency, such as the CNLOPB or DFO.

Comment A9: Benefits for Labrador Inuit with associated seismic processes are a necessity. Hiring, training and ensuring meaningful employment for Labrador Inuit is essential. This could be established through an employment outreach program, which would include transportation assistance and measures to address social and cultural issues including any associated language barriers, if necessary. This would also include the establishment of paid trainee positions to be in place onboard the seismic vessel in order to build capacity. Furthermore, given that our Inuit fishers are not represented by the Fish, Food and Allied Workers Union, the Nunatsiavut Government is adamant that the Inuit Fisheries Liaison Officer be present on the seismic vessel at all times during the Project.

Response: Although employment benefits are generally outside the scope of the EA process, GXT recognizes the importance of such benefits as a further offset or mitigation of any potential effects within the overall socioeconomic environment. These matters were raised during consultations in communities and with Nunatsiavut Government officials, and GXT has taken concrete steps to respond with opportunities directed specifically at Nunatsiavut beneficiaries. These are opportunities in addition to GXT's commitment to hiring Labrador Inuit FLOs for the program, and its current engagement of a Nunatsiavut business to help with its environmental assessment work.

These outreach efforts included recruiting advertisements in several media sources and agencies accessed in Nunatsiavut, such as OK Radio, The Labradorian, The Northern Pen, and the NunatuKavut Business Centre in Happy Valley-Goose Bay and HRDC. Requests for Expressions of Interest for all GXT's supply and services requirements were also published in the NOIA newsletters. GXT has also committed to target Labrador Inuit as full crew members on its ship, the *Polar Prince*; these would be full-time regular positions, not just work for the LabradorSPAN survey. The full cost of transportation between (to and from) the employee's home community and the ship (wherever it is working in the world) would be paid.

GXT notes that it also files, as a separate requirement of the C-NLOPB permitting process, a Canada – Newfoundland and Labrador Benefits Plan, which must be approved by the C-NLOPB. It is aimed at maximizing opportunities for Newfoundland and Labradorian businesses and individuals.

Comment A10: The Nunatsiavut Government recommends that an annual report be submitted to the CNLOPB and the Nunatsiavut Government no later than January 31, detailing the progress and potential environmental impacts of the Project, including progress on the implementation of mitigation measures and Inuit-specific opportunities.

Response: GXT will file a Seabird and Marine Mammal Monitoring Report after the survey is completed. This will include information about the progress/conduct of the project, how the mitigation measures were implemented, an assessment of their success (e.g. the specifics of each shutdown), and details of wildlife sighted and any noted behavioural reactions. The C-NLOPB requires that monitoring reports be submitted within a year of the end of the survey, but GXT will endeavour to meet the 31 January 2014 date recommended by the Nunatsiavut Government, though the actual submission time will depend on such factors as when the survey actually concludes and the amount of data requiring analysis. However, GXT will commit to having the report available to Nunatsiavut Government representatives by the time it applies for its 2014 permit, so that the information can be reviewed in time to guide the 2014 environmental mitigation and monitoring plans. As noted below (Response to Comment A11), GXT is also committed to re-visiting interested groups in Nunatsiavut after the survey to review program and the mitigation and monitoring results.

In addition, GXT has discussed and agreed with Nunatsiavut Government representatives to request the Labrador Inuit FLO to file weekly confidential reports to the Nunatsiavut Government, using a format agreed between the representatives and GXT.

As noted above (Response to Comment A9), GXT completes and files a Canada – Newfoundland and Labrador Benefits Plan. GXT will also file a Canada – Newfoundland and Labrador Benefits Report, detailing how the Benefits Plan was implemented. GXT will include information on Inuit-specific opportunities, which will be shared with the Nunatsiavut Government. (See also GXT's Response to Comment A9.)

Comment A11: Potential mitigation measures could still be arranged for the 2013 GXT seismic program and the Nunatsiavut Government recommends increased communication and consultation to address the ongoing concerns of Inuit in the region. Currently, few steps have been taken by the proponent to address the potential negative impacts of seismic activity within the Labrador Inuit Settlement Zone and Inuit Fishery.

Response: As described in the EA (Section 5.6 Mitigation Measures, Pages 156 – 168) extensive specific mitigation measures have been identified and incorporated for the 2013 program, many of them based on and reflecting recommendations developed during consultations and working sessions with Nunatsiavut agencies and fisheries interests. GXT has held meetings in the five Nunatsiavut communities, including several meetings with Nunatsiavut Government representatives, the Torngat Joint Fisheries Board, and the Torngat Fish Producers Co-operative Society, and in other Labrador communities. In accord with GXT's policy of proactive consultation before, during and after its marine programs (see EA Section 5.2.1, pages 145-146) GXT will continue these consultations and follow-up after the survey to discuss how the survey went, and present the monitoring and mitigation results, as it has in other northern jurisdictions.

B. SPECIFIC COMMENTS

Canada – Newfoundland and Labrador Offshore Petroleum Board

Comment B1: Section 2.2.5 Project Ships, pg 9 – It is mentioned in various places throughout the document that a "scout vessel" (pg 162) may also be used during the program. A "scout vessel" has also been identified as a mitigation measure (Table 5.2, pg 167). Please provide details on this vessel and what factors are considered to determine if and when this vessel will be utilized during the program. Also, how the information will be obtained to make a determination.

Response: The scout vessel planned is the *Polar Prince*, which will also perform other support functions for the project, as described in the EA. In general, when not required for other specific support functions such as a port call, the *Polar Prince* will be used to scout ahead for any kind of possible obstructions or risks, such as ice.

A determination will be made to use the ship in a more specifically fisheries scouting role based on advice from fisheries interests (e.g. the Torngat Co-op or the FFAW) using the communication methods described in the EA, the FLOs, or depending on location (e.g. in an area where there might be lost or misplaced fishing gear). However – as described in the EA – the main fisheries mitigation will be one of avoidance. As noted in the EA (pages 11 and 162), it is possible that GXT might need to hire another smaller boat for scouting operations if the *Polar Prince* is not available.

Comment B2: Section 4.6.1.5 White Shark, Page 134-135 – This section is lacking: the designation; critical habitat; recovery strategy; action plan; and management plan. Please provide.

Response: The Atlantic population of white shark (*Carcharodon carcharias*) currently has an endangered status on Schedule 1 of SARA and COSEWIC. There has not been any critical habitat identified for this population of white shark, nor has a recovery strategy or action/management plan been prepared for this shark. A COSEWIC assessment and status report for the Atlantic population of white shark was prepared in 2006.

Comment B3: Section 5.2.2 Program Consultations 2013, Page 147 – Did the in-person meetings planned for April occur? If so, provide details and if not, indicate why and if they are rescheduled.

Response: The meetings did occur and a report is provided in Appendix 3 to this document. Future, continuing meetings will also occur, as described in GXT's consultation policy (EA Section 5.2.1).

Comment B4: Section 5.6, 4. Fishing Gear Damage Program, last para., last sentence, pg 163 – "*GXT understands that all such incidents must be reported to the C-NLOPB…..*". Incidents must be reported "immediately" to the C-NLOPB.

Response: Acknowledged. This will be followed as stated in the C-NLOPB *Guidelines* (2012).

Comment B5: Section 5.7 Effects of the Environment on the Project, 2nd para., line 8, pg 168 – "*Seismic vessels typically suspend surveys once wind and wave conditions reach certain levels because the ambient noise affects the data*." More information is required on "*certain levels*"?

Response: Seismic surveys are typically suspended when wind speeds exceed ~25 knots or wave heights exceed ~3 m (i.e., Beaufort wind force is about 6 or higher). However, this varies with survey configuration (e.g., depth of streamers) and type of seismic gear, and is also confounded by other environmental conditions (e.g., swell).

Comment B6: Section 5.8.5.1 Sound, Vessel Presence (including streamers) 1st para., line 5, pg 192 – "*Because of the length of the streamers*….". Section 2.2.7, pg 13 states that the seismic ship will tow a single streamer.

Response: Noted. The text should have stated "streamer" in both instances.

Comment B7: Section 5.8.5.1 Sound, Vessel Presence (including streamers) 1st para., line 8, pg 192– "*There will typically be no deployment of streamer outside the Project Area*….". Streamer deployment can only occur within the Project Area assessed. "Typically" does not apply. The Project Area is the area in which seismic survey activities are to occur, including the area defined for line changes. Please confirm that this is the case. The EA has also confirmed that there will be "*No gear deployment enroute to Survey Area*" (pg 162).

Response: GXT acknowledges this requirement and undertakes that there will be no planned streamer deployment or airgun operation in Canadian waters except within the Project Area assessed. (See also response to Comment B8.)

Comment B8: Section 5.8.5.1 Sound, Vessel Presence (including streamers) 1st para., last sentence, pg 192 – ""*The only circumstance under which the streamer would be deployed outside the Project Area in severe weather conditions. Sometimes retrieval of the streamer might not be possible and the seismic vessel may have to stay on the same heading for a couple days for the safety of the vessel and streamer*." We would expect activities to be planned such that deployment outside the Project Area would not occur. Planning would include consideration of forecasts of severe weather. However, if conditions unexpectedly were to deteriorate so that potentially threatening conditions prevented safe recovery of equipment, then safety considerations would prevail. If exceptional circumstances dictate that equipment cannot be safely recovered, then the C-NLOPB should be immediately notified and the energy source should be shutdown.

Response: Acknowledged. In such circumstances, the array would be shut down and the C-NLOPB would be immediately notified of the situation.

Comment B9: Section 5.8.6.1 Vessel Lights, 2nd para., line 11, pg 195 – "*e.g., 52 birds in three weeks on the Terra Nova drill rig; U. Williams, Petro-Canada, pers. comm.*). Please provide the date of this pers. comm. and provide more recent data, if available.

Response: Please disregard statement "Storm-petrels have been also reported to land on drill rigs in Newfoundland waters during summer (e.g., 52 birds in three weeks on the Terra Nova drill rig; U. Williams, Petro-Canada, pers. comm.). " The correct statement is "During seismic monitoring programs conducted in Atlantic Canada (from 2003-2012), LGL MMOs recovered 877 Leach's Storm-Petrels (B. Mactavish, LGL, unpub. data, March 2013). The maximum number of stranded petrels recovered by LGL MMOs in a single night was 46."

Comment B10: Section 6.0 Cumulative Effects, pg 254 – "*However, offshore oil and gas activity on the Grand Banks should be far enough away to avoid any disturbance effects*". Please discuss the potential effects if another seismic project is proposed in the Labrador Shelf area in 2013 and how GXT would mitigate potential negative effects.

Response: If GXT's seismic survey overlaps spatially with another seismic project on the Labrador Shelf in 2013 seismic operators will communicate with each other to ensure a spatial and/or temporal separation of operations. Concurrent seismic programs in the same general area have occurred several times in Atlantic Canada in recent years, as well as in other jurisdictions (Canadian Beaufort Sea, NW Greenland—Baffin Bay). A key mitigation approach for all of these programs, which has been endorsed by regulators (including the C-NLOPB), is a simultaneous operations plan, which will aim to establish a minimum separation distance that both/all seismic operators will maintain while acquiring seismic data. Not only is this important for mitigating cumulative effects, but separation is also necessary to prevent the sound from nearby arrays from interfering with the each other's data recording.

Environment Canada – CWS

Comment B11: Section 5.6 Mitigation Measures, Page 165 "Wildlife Data Collection" – It is stated that seabird surveys (i.e. standardized counts) will be conducted throughout the seismic program from the seismic vessel by Marine Mammal Observers (MMO) experienced in the identification of seabirds at sea. It is stated that a schedule of conducting seabird surveys (likely three times per day) at widely spaced intervals will be followed.

The proponent must provide more detail on the schedule for conducting seabird surveys. If all MMO's on board the vessel are conducting marine mammal surveys during seismic operations, a minimum of 3 one-hour surveys (i.e., morning, mid-day, evening) per day dedicated to seabirds are recommended. In addition, dedicated seabird surveys should be conducted during transits between seismic lines. If one of the MMO's can be dedicated to seabird surveys during seismic operations, EC-CWS recommends more than 3 one- hour surveys per day be completed.

Response: The primary responsibility of MMOs (as stated in the C-NLOPB Guidelines, 2012) is to ensure that mitigation measures designed to reduce the likelihood of marine mammals incurring hearing impairment from exposure to airgun pulses are properly implemented as per DFO's Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Marine Environment. This involves visual monitoring during daylight hours whenever airguns are active. Quite often, seismic operators will keep one airgun active during transits between seismic lines (i.e., line changes)—hence, MMOs need to monitor the marine mammal safety zone during line changes. Given the long periods of daylight in summer and the need to collect marine mammal data during periods with and without airgun operations (for comparing sighting rates and behaviour with and without airgun sounds), two MMOs (which GXT will have) are often needed to conduct marine mammal watches. However, MMOs also endeavor to conduct the maximum number of seabird counts possible and these data will be provided to CWS.

For this project, GXT has been working with CWS, which has developed (in collaboration with the Danish Centre for Environment and Energy) a survey protocol for seabird data collection aimed at ensuring the surveys are frequent enough to provide useful information about wildlife and are standardized across borders throughout GXT's Canadian and Greenlandic Project Areas. The methods were developed in consultation with the Department of Fisheries and Oceans so that they will not compromise marine mammal monitoring and mitigation requirements as outlined in the Statement of Canadian Practice and the *C-NLOPB Guidelines* (2012).

Comment B12: Section 5.6 Mitigation Measures, Page 165 "Wildlife Data Collection" – It is stated that a monitoring report will be submitted to the C-NLOPB within one year after completion of the surveys as per the C-NLOPB Guidelines.

EC-CWS requests to obtain the raw monitoring data as well as the report.

Response: GXT will provide the raw seabird monitoring data and the report to EC-CWS.

Fisheries and Oceans Canada

Comment B13: 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 ≤ 200m. 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.

Response: Figure 3.1 in Sikumiut (2008) does provide some information for surficial sediment classes found on the "banks" within the Study Area. Generally, the surficial sediment in these areas is dominated by sand and till. Silt is the dominant surficial sediment class on the northern part of Nain Bank.

Comment B14: Section 4.2.1.4 Benthos, 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.

Response: Considering that no contact with the bottom will occur during the seismic activities, effects on corals and sponges should be negligible. Figures 4.13 and 4.14 from Sikumiut (2008) certainly indicate that corals have a relatively wide distribution in the Study Area, particularly in its offshore portion. The text on corals in Section 4.2.1.4 provides information on corals in the Study Area, including their distributions.

Comment B15: Section 4.2.2.1 Macroinvertebrate and Fish Species Harvested during Commercial Fisheries

B15 a: Page 35 – Redfish. Stock delineation is based on management unit and not on biological features. This should be corrected in the fifth paragraph.

Response: It is agreed that the redfish stocks should not be referred to as 'biological stocks' and that stock delineation is based on management units.

B15 b: Page 39 – Atlantic Cod. The last paragraph of this section requires clarification as is 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)."

Response: It is understood that Atlantic cod is not a flatfish and should not be referred to as a flatfish.

B15 c: 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.

Response: It is agreed that the sentence should read "all of which likely pass through the Study Area" rather than "all of which potentially pass through the Study Area".

It is also agreed that the text related to salmon smolt should read "lives in fresh water for three to five years of life".

The website for the November 12 DFO Science Advisory Process on Atlantic Salmon provided by the reviewer does not yet offer access to a document associated with the November 2012 meeting. Therefore, the following stock status information update cites a recent document by Bourgeois et al. (2011).

There are three Salmon Fishing Areas (SFAs) associated with Labrador; SFA 1, SFA 2 and SFA 14B. The overall trend for recreational fishery catches of small salmon in these areas is one of decline between 2000 and 2010, the 2010 catch being the lowest of the time series. Catch Per Unit Effort (CPUE) has trended downwards since 2006. As for the subsistence and Food for Social and Ceremonial Purposes (FSC) Atlantic salmon harvesting in SFAs 1 and 2, the 2010 harvest was the second highest in the 1999-2010 time series (Bourgeois et al. 2011).

Based on abundance indices and adjustment for marine exploitation, the highest abundances of small salmon for all three Labrador SFAs occurred prior to 1998 (pre-moratorium). Abundance of small salmon has been up and down since that time, with the index value for 2008-2009 being well below the previous six-year mean. There is a continuous declining trend in the abundance index for large salmon off Labrador, with the 2010 abundance of large salmon being the lowest in the 1968-2010 time series (Bourgeois et al. 2011).

B15 d: 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.

Response: Agreed. "Based on current knowledge, it is likely that eels will occur seasonally in the EA Study Area".

B15 e: 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.

Response: It is noted that the statement "…however, large numbers have been obtained off Labrador by Soviet trawlers as a bycatch in the offshore Capelin fishery (DFO 2009a)…" is out of date and should not be included. It is also noted that some of the information included in the Underwater World Series is quite dated and should be used with discretion. A current reference related to Arctic cod in the Study Area could not be found.

B15 f: 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 comment on the Underwater World series from which the information on Sand Lance was referenced in the EA.

Response: Agreed.

B15 g: Page 44 – Table 4.1. The statement in the "Duration of Plankton Stage" column of this table for "Redfish" ("No planktonic stage") is incorrect. The larvae are frequently caught in plankton nets in surficial waters and there are many publications that can be referenced to support this point (e.g., Pikanowski et al., 1998 and Moser et al., 1991). Also, Capelin is included in Table 4.1 but a background section is not included in Section 4.2.2.1. A specific section on Capelin should be added to the EA as the project area is a key fall feeding area for this species.

Response: According to Pikanowski et al. (1998), newly spawned redfish larvae typically occur in the upper 10 m of the water column, moving lower in the water column as they grow. The redfish larvae are typically planktonic for four months or more. Text provided for redfish with respect to duration of planktonic stage in Table 4.1 of the EA is incorrect.

The following is a brief species profile for capelin: Adult capelin size ranges from about 12 to 23 cm, the males being larger than the females. Historically, capelin spawning populations were composed of mainly three and four year old fish but since the early 1990s, two and three year old fish dominate the capelin spawning populations. Juvenile capelin of the SA2 + Div. 3KL stock are found both in major bays and in offshore waters. The major nursery areas of this fish are thought to be the northern Grand Bank and the Northeast Newfoundland Shelf (DFO 2011).

In the past, schools of adult capelin migrated inshore in June and July to spawn on beaches and demersal sites. Since 1991, spawning has been delayed up to four weeks, occurring in July and August. After hatch, the larvae exit the gravel and most are carried further out to sea by surface currents (DFO 2011).

Comment B16: Section 4.2.2.1, Redfish, Page 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)

Response: The designatable units of redfish that have *threatened* status under COSEWIC and are most relevant to the Study Area include the Atlantic population of Acadian redfish (*Sebastes fasciatus*) and the northern population of deepwater redfish (*S. mentella*).

Comment B17: Table 4.12, Page 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).

Response: The sentence (page 121), "In the Atlantic, harbour porpoises are considered *threatened* (Schedule 2) on *SARA* and of *special concern* by COSEWIC (see Table 4.15 in Section 4.6)", should read "In the Atlantic, harbour porpoises are considered *special concern* by COSEWIC and they are not listed on Schedule 1 of SARA (see Table 4.15 in Section 4.6)." Table 4.12 does not indicate that the "SARA Status" is official or that SARA legislation applies to those species listed on Schedule 2 or 3.

Comment B18: Table 4.15, Page 130 - In this table, the designatable units of Deepwater and Northern Redfish should be specified.

Response: The designatable units of redfish that have *threatened* status under COSEWIC and are most relevant to the Study Area include the Atlantic population of Acadian redfish (*Sebastes fasciatus*) and the northern population of deepwater redfish (*S. mentella*). These designatable units should be considered in Table 4.15 of the EA.

Comment B19: 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).

Response: The footnote in Table 4.3 of the EA indicates which months were used for the "spring" and "fall" RV survey categories. Catches in July, August and September were classified

as ‘spring’ and catches in October and November were classified as “fall”. Catches in July, August and September should have been designated as “summer”, not “spring”.

Comment B20: 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).

Response: The comment is noted. Atlantic salmon will likely be migrating through the Study Area during the seismic activity. As indicated in the comment, there is not any evidence to suggest that the salmon migration behaviour will be altered in any significant way (i.e., cause a stoppage in migration). One can speculate that some fish may slightly shift direction of migration but not to any degree that would potentially result in harm to the fish.

Comment B21: Section 4.5.1 Marine Mammals

B21 a: 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.

Pelagic feeding habitats are mentioned else where in the text, so the table should be consistent in this regard.

Response: In Table 4.12, for Ringed Seals, *Season* should read “Year-round”; *Habitat* should read “Late fall to spring: fast and pack ice; Summer to early fall: coastal and offshore.” B. Sjare was contacted, and the following information about ringed seal biological background (page 125) is noted: Based on preliminary satellite tagging data (unpublished) for ringed seals along the central Labrador coast, ringed seals seem to feed in coastal areas within the Zone, but there is some activity (presumably feeding and seasonal migration) seaward of the Zone out to the 2000 m bathymetric contour (B. Sjare, DFO Research Scientist, pers. comm., 10 June 2013.).

B21 b: Pages 115-116 – Figures 4.44 and 4.45 - The 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.

Response: The marine mammal sightings shown in Figures 4.44 and 4.45 were based on DFO’s database of marine mammal sightings and sightings were limited to those in the GXT Study Area. Mitigation measures that GXT will use meet or exceed those

detailed in the "Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Marine Environment". The 2-D Span design of GXT's seismic survey limits the amount of surveying in a given area and as such, surveying in the areas noted by DFO would be limited. GXT would appreciate any more specific information DFO can provide in terms of locations and why the spots are considered important—also, if published information is available, GXT would appreciate receiving this.

B21 c: Page 119, and elsewhere - DFO does have minimum population estimates for many cetacean and pinniped species in Atlantic Canada. These are based on systematic surveys such as detailed in Lawson and Gosselin (2009), and Hammill and Stenson (2006 and 2010). These figures could be quoted in place of the National Oceanic and Atmospheric Administration (NOAA) estimates unless the latter include species for which the DFO surveys did not have enough sighting events to generate an acceptable estimate.

Response: Where appropriate, the EA does consider the minimum population estimates in DFO documents. As noted on page 114 of the EA: "Lawson and Gosselin (2009) provided preliminary minimum abundance estimates, without the application of correction factors, for the most frequently sighted cetacean species detected during aerial surveys from Nova Scotia to Labrador during the summer of 2007. A total of 741,699 km2 were surveyed off southern and eastern Newfoundland and off Labrador from 17 July to 24 August 2007, yielding a total of 584 cetacean sightings or a density of 0.0008 sightings/km^2. There were 19 sightings along the Labrador coast, but these were too few to obtain reliable abundance estimates in the Labrador stratum."

Comment B22: Section 4.6.1.6 Wolffishes, Page 135 - In the Northern Wolffish section, the information presented in the last paragraph should be referenced to Simpson et al. (2012).

Response: Agreed. The information in the last paragraph on wolffishes in Section 4.6.1.6 of the EA should be referenced to: Simpson, M.R., Mello, L.G.S., Miri, C.M., and Treble, M. 2012. A pre-COSEWIC assessment of three species of Wolffish (*Anarhichas denticulatus, A. minor, and A. lupus*) in Canadian waters of the Northwest Atlantic Ocean. DFO Can. Sci. Advis. Sec. Res. Doc. 2011/122. iv + 69 p.

Comment B23: Section 4.7 Sensitive Areas, Page 140 - 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.

Response: GXT has contacted DFO and requested access to the draft report, but it is not available at the time of filing this response.

Comment B24: Section 5.6 Mitigation Measures 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.

Response: Two highly-trained and experienced biologist MMOs will onboard at all times in Canadian waters. In addition there will be at least two (and likely three) FLOs who will also have MMO training, who may also be able supplement the MMO work when not engaged in their primary fisheries-related duties.

The MMO duties/responsibilities are described in the EA (pages 164 – 165); for specific protocols the C-NLOPB *Guidelines* (2012), direct operators to follow the monitoring protocol detailed in ESRF Report #156, Recommended Seabird and Marine Mammal Observation Protocols for Atlantic Canada (2004) (www.esrfunds.org/pdf/156.pdf).

The means of implementing them will be consistent with the activities employed in recent monitoring reports prepared by LGL Ltd environmental research associates (the authors of the ESRF Report 156, who will provide the biologist MMOs, MMO management, and report preparation services for GXT's survey) as submitted to the C-NLOPB and to DFO.

Comment B25: Section 5.6 Mitigation Measures; Section 5 Marine Mammal Protection, Page 164 - 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.

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.

Response: GXT does not plan to utilize PAM during their LabradorSPAN seismic program. The efficacy of PAM as a mitigation tool (i.e., for delaying ramp up or implementing shut downs of the airgun array for cetaceans detected inside the safety zone) is questionable at this stage in its development (see Moulton et al. 2009 for a review). GXT will adhere to the procedures specified in the *Statement of Canadian Practice with Respect to the Mitigation of Sound in the Marine Environment* (as recommended in the C-NLOPB Guidelines, 2012), Section 6 and 7 relating to visibility, observing the Safety Zone and delaying start-up using visual observation. For "Operations in Low Visibility" (under the conditions specified in Section 11), a ramp-up would not start until the full extent of the safety zone was visible since GXT will not use PAM. However, GXT will not be operating in areas designated as critical habitat and significant adverse effects are not expected for cetaceans.

Comment B26: Appendix 3 – Consultation Reports A. Labrador – Nunatsiavut Consultation Report 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), (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.

Response: The DFO comments on point (i) do not accurately represent what is written on p. 5 of the Consultation Report. The DFO implies that GXT claimed "effects on fish would only be expected within 1 m or so from a survey ship (page 5)", and states, "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."

Rather, the Consultation Report reference to a "1m or so" distance is explicitly about traumatic physical damage only. In the specific context of participant questions about fish mortality (paragraph 2, page 5), the consultation report states "experiments examining *physical* impacts … have indicated that unless the animal was directly under an array (i.e., within a metre or so), there would be little to no *physical* effect [emphasis added]". (This is discussed in detail in the EA Section 5.8.4.1, Physical Effects.) For behavioural effects, the Consultation Report states "fish, especially the free swimming fin fish, tend to move away from array noise, which protects them from physical harm but might affect catchability" (p.5), and notes that less is known about such behavioural effects (p.5).

More to the point, the much greater distances at which behavioural impacts might occur is clearly the central assumption behind the discussions which took place (reported in the Consultation Report on pages, 2 – 4) during meetings with fishing interests, which considered a variety of measures that GXT should apply, such as working in areas away from any active fisheries. Section 3.1 of the Consultation Report says, in part, "A general recommendation from most attendees was complete avoidance of the active fishing areas during fishing season. Detailed discussion about specific management measures to address these concerns focused on selecting the right timing for the operations; using observers on board the seismic ship; gear avoidance protocols; noise protocols (staying away from active areas where harvesting might be affected by the seismic array sound); and other operational requirements to avoid conflicts. … GXT agreed that each of these fishery considerations will be written into the Environmental Assessment (EA)." As Section 5.6 of the EA evidences, such measures have been built into the mitigation plan, as GXT undertook to do during the meetings. These discussions, the advice provided, and the measures incorporated by GXT into the project mitigation plans are inconsistent with an interpretation that GXT implied - or that consultation participants were lead to believe - that behavioural effects were limited to a metre or so of the ship.

At various points then, and during subsequent consultations, when questions of behavioural responses of fish and potential effects on fish catches came up, the Engås et al studies were referenced, as in the EA (Section 5.8.5.1; see also EA Section 5.8.4.1, Behavioural Effects).

During the meetings GXT / consultants invited reference to the full EA report and noted where the files could be accessed (on the C-NLOPB site). GXT also offered to provide copies of the studies referenced to interested participants (direct project telephone and email contact information was provided at all meetings and in the take-home brochures).

With regard to DFO's point (ii), GXT does not understand the dispute with the statement that "there has been no measurable impact on fish stocks" as a result of seismic surveys off Labrador. GXT is not aware of evidence to the contrary. (There has been more than 187,000 km of 2-D acquisition off Labrador and 1,735,235 km of 2-D and 3-D in the Province's offshore as a whole since the 1960s, according to C-NLOPB historical data acquisition reports - see reference in GXT's Response to Comment A7.) This perspective is also consonant with DFO's conclusion in its Review of Scientific Information on Impacts of Seismic Sound on Fish, Invertebrates, Marine Turtles and Marine Mammals (Can. Sci. Advis. Sec. Habitat Status Report 2004/002) which states that "The long and widespread history of seismic surveys globally in marine environments with no documented fish or invertebrate kills, … suggest that seismic surveys with fairly routine mitigation measures in place are unlikely to pose high risk of mortality of marine organisms." It seems reasonable that if such effects do not occur at the individual level, they would not occur at a stock level.

Response Supplement – Fish, Food and Allied Workers (FFAW) Comments

Fish, Food and Allied Workers General Comments

FFAW Comment A1. It would be incumbent on GX Technology to submit an Environmental Assessment entailing all proposed operations to be pursued. Within the second paragraph of the document it is indicated that the temporal scope for this project is 2013-2015, albeit there are only indications of current plans showing 2D seismic acquisition in 2013.

Response: GXT's Environmental Assessment does consider and assess all proposed operations for the 2-D basin span project. As described in the EA (pp. 6 - 8) GXT's assessment is designed to be for three years of possible seismic work; thus the document assesses the full potential Project Area (the geographical scope of the assessment) where seismic acquisition could occur over the June to November timeframe, 2013 to 2015 (the temporal scope of the assessment).

Where the specific seismic lines will be within the Project Area during a second or third year of acquisition is not yet known, and will depend on several factors that can change with circumstances, such as the information gained from the 2013 survey, changing client interests and priorities, the licensing block format change (announced by the Premier at the 2013 NOIA conference), etc.

Further, GXT's surveys are non-exclusive, which means the data is intended for multiple industry interests. The non-exclusive seismic industry works with several clients to design regional programs that maximize the strategic value of the data. GXT and client priorities and budgets are reviewed and set each year, so that the seismic line layout is not finalized until a relatively short time before the start of the program.

The EA is therefore not intended to assess specific lines, which would limit the value of the assessment, since the lines will change over the period proposed. Rather, the EA assesses any potential programs within the Project Area, based on several stated assumptions that will hold true for each future program, such as acquiring approximately 8,500 km using the same technology and procedures, avoiding sensitive/special areas, remaining outside the Nunatsiavut Zone, applying all the mitigations, precautions and safety procedures described, continuing our strategic and informational consultations with agencies, interest groups, stakeholders and rightsholders.

For each year that the program goes ahead the specific lines will be presented at the various consultations and meetings, which maps will also include the latest available fisheries location data, NAFO zones, etc, as GXT has done this year. For the 2013 program, GXT has presented specific proposed lines to the FFAW, and will meet with representatives again before startup to update the situation *vis-a-vis* current fisheries activities and seismic plans.

FFAW Comment A2. For some general commentary on the document, there are references to Newfoundland and Labrador, then there is Newfoundland including Labrador, finally there is reference to NL – there should be consistency through out the document.

Response: Agreed that consistency is generally preferred, except were another form is used for emphasis or greater clarity. Both "Newfoundland and Labrador" (the legal name of the province in both provincial and federal legislation) and "NL" (the internationally approved alpha code/abbreviated designation for the province (http://www12.statcan.gc.ca/census-recensement/2011/ref/dict/table-tableau/table-tableau-8-eng.cfm) are acceptable and commonly used together in publications such as DFO Science Advisory Reports and the FFAW Union Forum.

FFAW Comment A3. Another disturbance within the document is the usage of location/direction using letter form and full written form – same recommendation, there needs to be consistency throughout the document.

Response: As above, it is agreed that consistency is generally preferred. However, the directional abbreviations in the EA do not seem to be confusing or ambiguous as written, and are those standardly used in Canadian nautical charts. For reference see, for instance, www.charts.gc.ca/publications/chart1-carte1/chart1-carte1.pdf

FFAW Comment A4. Finally, on the same point of consistency it is recommended that the document always include the Genus and Species names for the various animals/fish being discussed – there are multiple instances where only the common English name is being used.

Response: The scientific name is provided with the first substantive reference to a particular species in the EA. Afterwards, where there is no ambiguity, only the common name is used for brevity. This is common practice in science publications; see for instance current DFO Science Advisory Reports and CSAS Research Documents.

FFAW Comment A5. Further, looking on page 147 there is a list of organizations contacted during the consultation process; in this the Groundfish Enterprise Allocation Council is listed twice.

Response: Noted. GEAC should be there once only.

FFAW Comment A6. The FFAW would like to suggest that the proponent prepare maps in a context where it is possible to see the project area, fish distribution, Seismic survey lines and NAFO regions all in one depiction. It is not sufficient that the variety of information be presented individually.

Response: Figures displaying any distributions related to commercial fisheries do include relevant areas (as discussed also in GXT's response to DFO's Comment A4, above). See for instance, the maps in the EA, Figures 4.14 - 4.40, which all show - in one depiction - the Project Area, fisheries distribution, and NAFO regions. GXT's response to FFAW Comment A1 (above) explains why specific survey lines are not shown in the EA, but are instead presented in consultations/ discussions for each survey year. It should also be noted that figures can sometimes contain too much information and would be considered too busy if all possible designations were included; therefore, it is important to only show the information vital to the interpretation or discussion of any particular figure.

FFAW Comment A7. In the context of avoidance of fishing grounds and areas in which the Industry-DFO Collaborative Post-Season Trap Survey for Snow Crab, the FFAW would reiterate as we have done with other projects, there should be no seismic activity in vicinity of either active fishing grounds or survey locations. With the lack of scientific evidence showing that seismic activity does not have an impact on the biological strata. Page 162 indicates that there for previous Newfoundland & Labrador surveys has been a temporal and spatial separation plan; the FFAW would feel inclined for the proponent to indicate said occurrences. In the context of the surveys estimating the biological abundance, for the FFAW Science there is no such concept of adequate "quiet time" – the FFAW is unsure what is being implied and would like to reiterate that there be

no activity in the areas of the Industry-DFO Collaborative Post-Season Trap Survey for Snow Crab.

Response: Temporal and spatial avoidance of specific areas has been employed in the past during seismic surveys. At consultation meetings with the FFAW, fisher representatives have agreed that airgun discharges at locations greater than 20 km from an active fishing area are acceptable. The commitment by GXT on page 162 of the EA states that, in the case of fisheries science surveys, the seismic survey vessel will avoid research survey locations by at least 30 km and a seven day pre-research survey time period. The spatial separation criterion on page 162 is even more conservative than the 20 km frequently discussed at consultation meetings. Fisheries and Oceans Canada have not expressed any concern regarding the spatial and temporal mitigations described in the EA.

FFAW Comment A8. The FFAW is only aware of the implementation of spatial separation of about 20 nautical miles having been discussed in the context of any recent programs in Newfoundland & Labrador. The FFAW therefore reiterates the concern that exposure to seismic activity can have an effect on harvested species. Any impact on surveys and/or stock assessments would have a lasting impact for harvesters. Although the proponent suggests that there would be no significant cumulative effects on the commercial fisheries from the seismic program (page 251). The FFAW is obliged to again state that any impact on either harvesting or fisheries science should be recognized as unacceptable in Newfoundland & Labrador waters.

Response: The concern expressed by the reviewer is noted. The consistent aim of the mitigations presented in the EA is to prevent any impact on either harvesting or fisheries science, and GXT will continue its discussions with the relevant parties as noted in the EA.

Spatial separation discussed in the context of recent programs in NL is 20 km, not 20 nm. The conclusion of "no significant cumulative effects" on commercial fisheries from the proposed seismic program was based on existing scientific literature and professional judgement. Fisheries and Oceans Canada have not expressed any concern with the conclusion stated in the EA.

Fish, Food and Allied Workers Specific Comments

FFAW Comment B1. Section 2.2.1 Objectives, Rationale and Alternatives, last paragraph - the word "though" should likely read *through*.

Response: Correct.

FFAW Comment B2. Section 4.2.1.3, page 26, second last bullet - it is suspected that "trends" should read *tends*.

Response: Correct.

FFAW Comment B3. S**ection 4.2.2.1 Macroinvertebrate and Fish Species Harvested during Commercial Fisheries, subsection American Plaice, Page 36 -** In the section dealing with American Plaice there is a reference to SA2, without a qualifier of any kind. The term is used in the context of what appears to be NAFO region 3K, yet there is nothing clearly identifying this either. It is unfortunate that a document aiming to inform the reader of the environmental circumstance fails the clearly identify that which is being talked about. On page 37 there is a

reference to SA2 without any qualifier what this is. Again on page 40 there is reference to "maiden 2SW salmon" and "SFA 1" are brought up without qualifiers, SFAs are not properly mentioned and depicted until on page 75.

Response: Agreed.

SA2 = NAFO Sub-Area 2

Maiden 2SW salmon = salmon that have remained at sea over 2 winters before returning to freshwater to spawn for the first time.

SFA = in the context of salmon: Salmon Fishing Area; in the context of shrimp: Shrimp Fishing Area

FFAW Comment B4. Section 4.2.2.1 Macroinvertebrate and Fish Species Harvested during Commercial Fisheries, subsection Atlantic Cod, Page 39, paragraph four – the Atlantic cod is not a flatfish, please correct.

Response: Noted; see also response to DFO, Response to Comment B15b.

Section 5.6 Mitigation Measures, subsection Communications and Liaison, page 158, first paragraph - There is a need for clarity, or spell check, on the first full sentence on page 158 "…Project have indicate that frequent, timely…" (sic).

Response: "indicated" was intended.

Section 5.6 Mitigation Measures, subsection Fisheries Avoidance, page 162, third paragraph - "GXT will not deploy is array or streamer …" (sic.) the proponent would have to clarify what is implied with "is" in this instance.

Response: This is a typographical error for "its".

Appendices

Appendix 1: Map

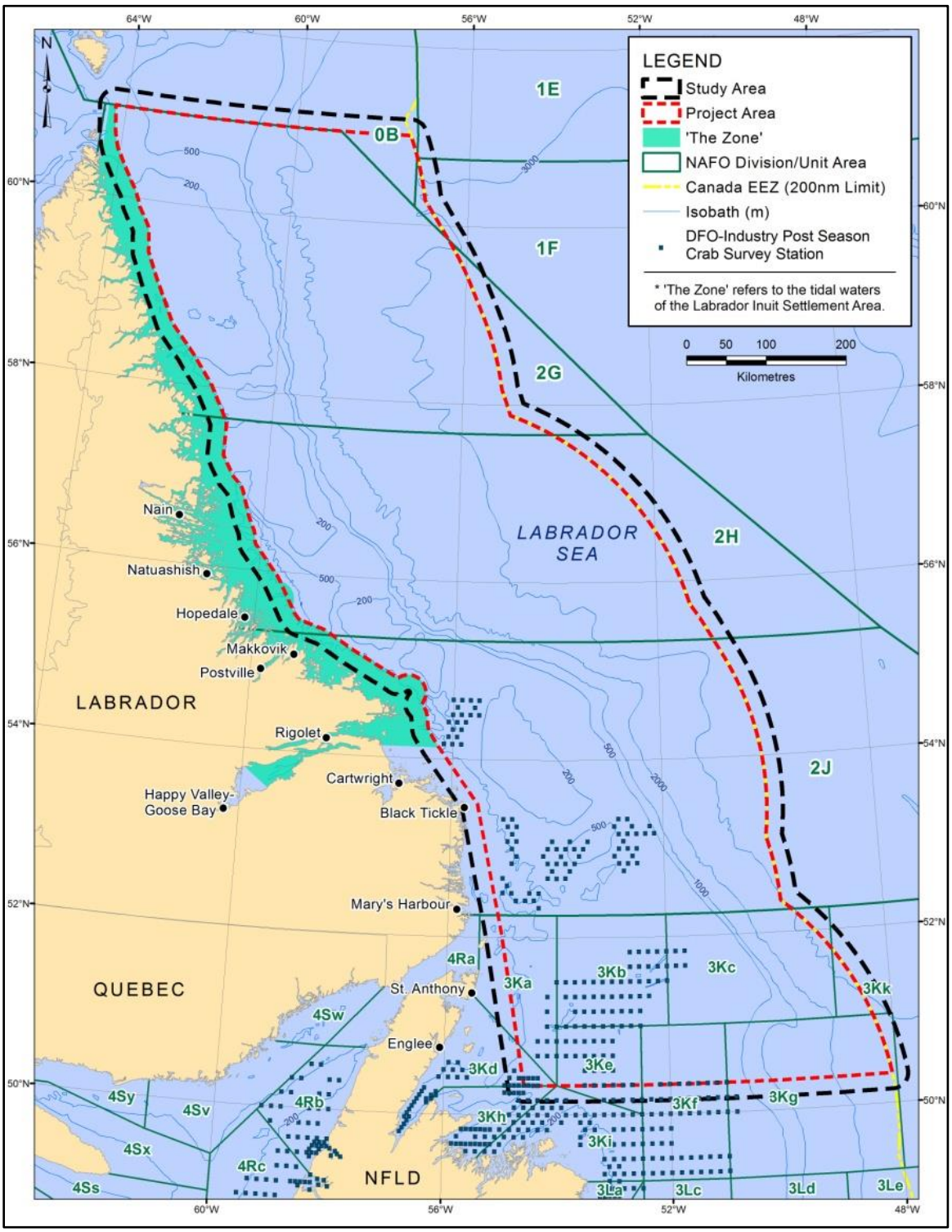


Figure 4.42. Locations of DFO-Industry Collaborative Post-Season Snow Crab Trap Survey Stations in Relation to the Project and Study Areas

Appendix 2. Additional Source References

Bourgeois, C.E., Dempson, J.B., Reddin, D.G., Veinott, G.I., Robertson, M.J., Poole, R., and Cochrane, N.M. 2012. Status of Atlantic salmon (*Salmo salar* L.) stocks of the Newfoundland and Labrador Region (SFAs 1-14A), 2010. DFO Can. Sci. Advis.Sec. Res. Doc. 2011/117. iv + 58 p.

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Canada-Newfoundland and Labrador Offshore Petroleum Board. 2012. Seismic Acquired in the Newfoundland and Labrador Offshore Area (January 11, 2012). http://www.cnlopb.nl.ca/pdfs/geosci/seismic.pdf

DFO. 2011. Assessment of capelin in SA 2 + Div. 3KL in 2010. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2010/090.

DFO. 2004. Review of Scientific Information on Impacts of Seismic Sound on Fish, Invertebrates, Marine Turtles and Marine Mammals (Can. Sci. Advis. Sec. Habitat Status Report 2004/002)

Environmental Studies Research Fund (ESRF). 2004. Recommended Seabird and Marine Mammal Observation Protocols for Atlantic Canada. ESRF Report # 156.

Moulton, V.D., P. Abgrall, M. Holst, and W.E. Cross. 2009. Efficacy of operational mitigation measures used to minimize impacts of seismic survey sound on marine mammals. LGL Rep. SA1019-1. Rep. from LGL Limited, St. John's, NL, King City, Ont., and Sidney, B.C., for Department of Fisheries and Oceans, Habitat Science Branch, Ottawa, Ont. 32 p. + appendix.

Pikanowski, R.A., W.W. Morse, P.L. Berrien, D.L. Johnson and D.G. McMillan. 1999. Essential Fish Habitat Source Document: Redfish, *Sebastes* spp., Life History and Habitat Characteristics. NOAA Technical Memorandum NMFS-NE-132. 28 p.

Simpson, M.R., Mello, L.G.S., Miri, C.M., and Treble, M. 2012. A pre-COSEWIC assessment of three species of Wolffish (*Anarhichas denticulatus, A. minor, and A. lupus*) in Canadian waters of the Northwest Atlantic Ocean. DFO Can. Sci. Advis. Sec. Res. Doc. 2011/122. iv + 69 p.

Appendix 3. Continuing Consultations

Labrador Consultations
LabradorSPAN Offshore Seismic Operations 2013

Submitted to:

GX Technology Canada Ltd.

Submitted by:

Sikumiut Environmental Management Ltd.
P.O. Box 39089, St. John's, NL
A1E 5Y7

May 15, 2013

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Appendices

1.0 CONTEXT

The 2013 Labrador Shelf Seismic Operations public consultation and agency meetings were held on behalf of GX Technology (GXT) with support from Sikumiut Environmental Management Ltd. (SEM). The 2013 consultation process was set for May 3rd – 8th with meetings planned for four communities along the coast of Labrador: Nain, Hopedale, Postville, Makkovik and Rigolet. Meetings were scheduled for both stakeholders (e.g., Nunatsiavut Government) as well as public sessions, which usually included Community Government participants. These consultations represent the continuation of the public consultation efforts GXT has previously held, in Happy Valley – Goose Bay, North West River and Nain. GXT intends to hold additional sessions on the south coast of Labrador as part of their continuing consultation policy and approach. It will also hold follow-up and after-survey sessions to report on the program and on wildlife monitoring results.

2.0 CONSULTATION PROCESS

Dean Kennedy, GXT Project Manager, along with Robert Pitt, GXT Environmental Manager were present for all of the meetings. Crystal Kehoe of SEM coordinated meeting logistics and facilitated the meetings.

2.1 Communications

The public awareness processes for the meetings were as follows:

- Notice of meetings was e-mailed to community leaders, town councils, fishers, and government fisheries officials;
- Personal telephone calls were made to town councils, town governments and fisheries associations;
- A CBC announcement was made on the Labrador Morning Show, The Fisherman's Broadcast and the news service from Corner Brook;
- Radio announcements were made on OKâlaKatiget Society Radio; and
- Public Meeting Notifications were placed in The Labradorian newspaper, in print and online.

Attendance at the individual meetings ranged from one to nine persons for a total of 27 persons which included government officials and concerned local residents (meeting attendance is documented in Appendix A).

Each meeting was opened with a brief introduction and an explanation of context and process for the consultations. A MS PowerPoint presentation was shown regarding marine seismic operations in general, the specific seismic lines planned for the 2013 season, the timeframes in which the lines would be acquired, and several maps showing fish-harvesting locations (key

species) in relation to the 2013 lines. GXT/SEM also recorded information and local knowledge about commercial fish harvesting related to the Project Area: any issues and concerns raised by participants; advice about mitigations (particularly avoiding concurrent fisheries); and communications. Meeting participants were provided with the Project Information Brochure (Appendix B) in English and Inuktitut, including extra copies for wider distribution. The meeting was open to questions and discussion during and after the presentation. At the meeting in Makkovik an interpreter was present in case one was needed.

3.0 ISSUE IDENTIFICATION

Notes from each meeting are presented in Appendix C. The following summarizes the main areas of concern:

- The sensitivity of the area in relation to the commercial fishery resources such as crab, shrimp and turbot was raised at all of the meetings. It was mentioned that many would prefer no seismic activity in these areas during relevant fishing seasons.
- The effect of seismic energy on fish and other animal populations (primarily seals, whales) was a concern.
- Compensation for damage to the fishery and fishing gear was discussed at most meetings.
- Community benefits particularly in the context of port services and employment was an important consideration.

In addition, there was discussion about the purpose of the Project, how it was to be conducted and the use of the seismic data obtained. All persons who attended the meetings were very interested in the project and posed various questions and comments. They were interested in being kept informed about the project and any future plans for development.

3.1 Fisheries

The commercial fisheries were discussed and attendees indicated the importance of that industry to the entire coast of Labrador. Some participants felt the commercial fisheries are still in the process of being built up and it was mentioned that long-term implications must be looked at as well. The Makkovik Fish plant is a major seasonal employer and while GXT is expecting to provide some employment, many felt that if there were long-term detrimental effects from seismic projects on the local fisheries the losses would not equal the short term employment opportunities offered by the programs.

GXT managers showed slides of maps showing the fishing locations using data provided by Fisheries and Oceans Canada (DFO). A general recommendation from most attendees was complete avoidance of the active fishing areas during fishing season. GXT noted that this was

their plan and is reflected in the EA. Detailed discussion about specific management measures to address these concerns focused on selecting the right timing for the operations; using observers on board the seismic ship; gear avoidance protocols; noise protocols (staying away from active areas where harvesting might be affected by the seismic array); and other operational requirements to avoid conflicts. Participants agreed that central to implementing successful management and avoidance measures will be effective on-going communications before and during the fisheries. There was considerable discussion about this with some participants, including the details that willbe incorporated within the Project mitigation / communication plan .

In addition, it was suggested that the south coast communities would want to be consulted as well (i.e., Cartwright, Mary's Harbour, Port Hope Simpson). It was explained that as Cartwright was being considered as a potential service port, these communities would be included in the future continuing consultations.

GXT stated that constant communications with any fishing vessels in the area helps to avoid fishing gear and activities. This would be done by a Labrador Inuit Fisheries Liaison Officer (FLO), advanced work plans, Vessel Management Systems (VMS) which would allow identification and location of vessels in real time, as well as regular communication, among the Torngat Fish Producers Co-op, GXT and the seismic vessel.

3.1.1 Possible Impact on Crab Fishery

It was noted more than once that during the 2011 crab season fishers believed that seismic operations may have impacted the success of the crab fishery. People felt that the catch was affected and the gear itself was snagged and dragged away on the seismic equipment. The experience of crab fishers is that there was good fishing in an area prior to seismic activity and poor catches occurred after the ship had passed through the area and the low catches persisted into the following year. A comment was made that waters were warmer than usual last year which would contribute to some decrease in crab stocks; however, there were also comments that the cod stocks seem to be increasing and according to fishers, increased cod means decreased crab stocks. The fishers located on marine charts the areas fished for crab, which corresponded with the DFO fisheries data maps presented. The crab season can begin around mid-July and end around the end of July or into August, depending on catch rates. It was indicated that the Torngat Fish Producers Co-op would provide fishing positions once they were determined. It was also stated that in a previous seismic survey a seismic ship ordered fishers to move their gear to make way for the seismic ship. GXT stated that they would not expect a fishing vessel to do this and understand that fishing has priority.

GXT managers noted that they would have a Gear Damage Compensation Program in place for the survey (which would include compensation for lost catch), with a well-publicized toll-free phone number and an email address for fishers to contact and/or make a claim. GXT also noted that it understands very well that it cannot tell fishers to move their gear (or touch their gear) and that the fisheries take precedence under the *Fisheries Act.* This is why Fisheries Liaison Officers (FLOs) are very important as they will have a central communication and logistics roleif fishers and gear are observed.

3.1.2 Possible Impact on Shrimp Fishery

It was noted by shrimp fishers that during the 2011 season they believed that seismic operations may have impacted the success of the shrimp fishery. The experience of shrimp fishers is that there was good fishing in an area prior to seismic activity and poor catches occurred after the ship had passed through the area and the low catches persisted through the remainder of the fishing season. However, the following year's catch seemed to be better. The shrimp fishery occurs from about mid-August to mid-October, especially in Area 5. Only one Nunatsiavut beneficiary owns a fishing vessel and the rest need to lease. This means that most of the shrimp fishery depends on fishing vessel availability.

3.2 Seismic Activity and the Nunatsiavut Zone

Proposed seismic lines range from northeast Newfoundland to the northern tip of Labrador (2013) and across to Greenland (2013). The seismic surveys would not enter the Nunatsiavut Zone or Hawke Channel. In fact, the lines would terminate about 6 km outside of the Zone to give room for the vessel to turn and not enter the Zone at all. GXT did mention that there was interest in conducting exploration within the Zone. GXT is hoping to begin communications for entering the Zone in the future but it understood that a separate EA along with additional discussions with government and meetings would be needed. However, GXT also explained that there is definite interest in these areas but that they have often been avoided in the past due to perceived restrictions or uncertainties about the process that would be required. GXT stated that even if no development was to take place within the Zone, it would be still beneficial to survey the area to obtain a more thorough understanding of the broader Labrador Basin.

1.1 3.3 Concerns with Noise and the Environment

Some participants were interested and concerned with the amount of noise created by the seismic array. Because this particular survey has to go deep, the size of the array is somewhat largerr than some previous surveys. Concerns were raised regarding where the sound goes and how the sound affects the fish and other wildlife. GXT explained that while this array arrangement was larger, the array did not fire as many times in one area. For this survey, the array activates about every 20-22 seconds while the typical array is fired every 8-10 seconds. The aim is for the sound to go straight down and in this configuration, about 80% reaches the bottom; the other ~20% does spread more horizontally. In addition, the lines for this survey will be further apart than a typical configuration which means the vessel would only be in a given area once or maybe twice where the lines intersect.

There were inquiries about the effects that the seismic sounds had on fish, and specifically whether dead fish were seen after the ship passed. In response it was explained that many seismic programs have been carried out in Newfoundland and Labrador waters and elsewhere in the past and dead fish have not been reported by observers. Some studies show that fish,

especially the free swimming fin fish, tend to move away from the array noise, which protects them from physical harm but might affect catchability. However, the behavioral effects are more difficult to demonstrate than physical effects in a laboratory and currently they are not as well understood, though new studies are being planned for NL fisheries. It was questioned whether this type of seismic work could be used to further studies of behavioral effects and what the long-term trends would be around seismic surveys. It was explained that while GXT would assistwith this type of study, but it would not be feasible to undertake this work on its own and could be considered a conflict of interest. GXT stated that the Environmental Studies Research Fund (ESRF), along with other organizations, have funded these types of studies in the past and similar ones should be conducted for the Labrador Sea.

When it comes to whales and other marine mammals, the Canadian standard (in the Statement of Canadian Practice, DFO) is to use a Safety Shutdown Zone of 500 m from the centre of the array. This means that the array will not be started or will be shut down if active, if a marine mammal or sea turtle comes within that area. However, GXT has shutdown up to 1.5 km away for known feeding/critical habitat areas. This is why Marine Mammal Observers (MMOs) are very important as they have full authority for shutdowns when whales and other marine mammals are observed in these situations. The effect of the seismic program on whales and other large mammals was a particular concern for those from Hopedale and Rigolet. Hopedale's main area of concern was the effect on dolphins and porpoises. Porpoise hunting occurs from mid-August until the end of September and they hunt about 60 km offshore. This would be directly in the area of the seismic work. These mammals follow the capelin and local fishers are also concerned about the seismic activity on these fish. Rigolet's main area of concern related to the effect this project may have on whales as they do not have a fisheries issue but whale watching for tourism is an expanding industry.

Concerns regarding possible effects of seismic on seals were voiced by participants from Rigolet and Makkovik. They said that there had been reports of strange behavior (giving birth too early, found in unusual areas) and dead seal carcasses washing up on shore for no apparent reason in the November - December 2010 period. While it did not appear that there was any physical damage (no signs observed), participants wondered if there may have been behavioral effects that led to the fatalities. Local residents stated that DFO took many of the carcasses to study. While they did receive reports back that the seals were safe and that there was no disease found, no additional feedback has been presented to the communities about the cause of death. GXT asked if this had been observed before or since and participants said that these were the only instances they knew of. GXT said that they were not aware of this occurrence and would contact DFO to try to find out more. GXT noted that the literature indicates that seals typically are considered to have a higher behavioural tolerance for seismic sound than most whales, and also that they had never heard of similar cases associated with seals or seal deaths, including in the western Arctic where GXT and others have conducted seismic over many years. GXT offered to return and discuss whatever information it found concerning the occurrence and/or about the literature related to seal responses to seismic sound.

[GXT discussed this with the marine mammal and seal specialists at LGL who reported that they know of no studies or reports in the global literature to suggest such effects on seals associated with seismic surveys. Specifically, there have been no documented cases of seal injury/mortality associated with seismic surveying or even exposure to pulsed sounds in a

laboratory setting. DFO (St. John's), when contacted, indicated that the seal carcasses, which were quite decomposed when received by DFO, did not show signs of acoustic trauma, although the ear structures were not specifically examined. The cause of the seal mortalities was undetermined but may have been linked to a virus. In reviewing past seismic history on the Labrador shelf, GXT notes that considering much greater amounts of seismic surveying took place there over many years since 1968 (see graph with Response to Comment A7, in the comment responses, above),similar occurrences would likely have been observed before or since if seismic were the cause. Based on the C-NLOPB statistics, 2010 was a lower-than-average year in terms of seismic km acquired.]

3.4 Employment Opportunities

GXT indicated that its seismic operations involve chartering a seismic ship and crew that are equipped and dedicated to this purpose. Because these ships come with their own maritime crew, local benefits typically are restricted. For this project, GXT will be hiring observers and other support services, and will focus on the coastal communities. The ability to engage local residents on seismic vessels was raised at several meetings. GXT explained that job postings were currently being advertised in Labrador. Since GXT owns the support ship (the *Polar Prince*), their crewing company will offer positions, as posted in the Northern Pen and Labradorian newspapers. In addition, the posting for this ship's crew will be sent to the coastal communities. In the past, in the Inuvialuit Settlement Region in Canada's western Arctic, for example, two Inuvialuit had been hired for permanent (not Project-related) positions on that ship.

A number of questions were asked in relation to how the MMOs and FLOs were chosen and what sort of training could be offered. GXT explained that there could be five observers on the vessel at any one time (two MMOs, one Labrador Inuit FLO, one FFAW FLO and one Greenlandic FLO). The MMOs would be required to have degrees as per the requirements of Greenland. The Labrador Inuit FLO would be chosen by a company that GXT would hire for this purpose, with preference given to those from the coastal communities. The FLOs would require MED and other standard offshore training. Additional training could be given onboard the vessel. For instance, while in Greenland, the FLO could be cross-trained as a MMO while in Greenland when the Labrador Inuit FLO was not required for fisheries work.

3.5 Other Issues / Questions

The participants asked about the need for more seismic data since this was already conducted in the 1970s and it was thought that any oil that had been identified had already been discovered. It was explained that previous exploration provided insufficient data and that seismic technology has increased dramatically and interpretation has changed. The differences would be great compared to any information that had been collected in the past and that more information is needed. In particular, GXT explained that their proposed survey was a basin span which was quite different in its objectives and design from other surveys.

Basin spans look deeper and at different structures than typical seismic surveys, in order to develop an understanding of wide geological structures at the basin level.

The seismic study could take place within the period from June to November. However, due to the fisheries seasons and timing, work will probably commence first in Greenland for June and into July. Work for Labrador waters would likely not begin until mid to late July.

Port location was another issue raised by participants on a number of occasions. GXT highlighted the possibility of Nain and Cartwright as service ports and crew change locations. Waste disposal was questioned and whether any dumping would be carried out. GXT explained that all vessel garbage is self-contained and there is no dumping allowed, similar to the coastal vessels. Any liquid wastes would be fully treated before release following MARPOL requirements, and non-toxic waste will be incinerated following MARPOL regulations. Concerns were raised about excess waste going to landfill but GXT explained that unless the area could handle that type of disposal, it would not be disposed of until an applicable area was found that could accommodate the waste.

The following information was provided to questions from the attendees:

- There has been no tangling or entrapment of marine mammals in seismic arrays.
- This survey will use a solid-core streamer, which means that if a streamer breaks there is nothing to leak into the waters.
- The cable behind the boat sits approximately 8 to 12 m deep, depending on the area, and is 9 km long.
- Explosives were used in the past and sometimes gave good results but were detrimental to the environment, and especially harmful to fish. Explosives have now been replaced with compressed air (airgun) technology in marine areas, which has significantly reduced environmental effects.
- Although this survey will not be conducted during ice cover, small icebergs and other such obstacles can be avoided without affecting the survey. The availability of the support ship, which is an icebreaker, will be a good safety measure.
- The survey results are similar to a picture of a cliff face which shows all of the lines of rock, and from this information, potentially where oil could be found. Since the sound goes up to 40 km deep, it looks below the sea floor and would not be useful for mapping the sea floor.
- GXT provides an in-depth orientation session explaining all the environmental commitments and requirements for all people on board the vessel and will include the fisheries as an important component.
- The option between the different source vessels would not affect the program as they are responsible under the same safety regulations.

- The seismic data obtained as a result of the program are given to the government (who are responsible for keeping them confidential for ten years) and the companies who pay for them.
- During seismic activities, the MMOs would be doing seabird counts. Canadian Wildlife Service (CWS) and GXT are looking into a study of seabirds between Labrador and Greenland.

3.6 Information Sharing and Communications Processes

GXT stated that sharing fisheries and seismic ship location information and communications coordinated through various mechanisms and FLOs was very helpful and necessary, as was the use of the scout boat to locate fishing activities and communicate with fishers. VMS usage would also give real time identification and location information.

3.7 Public Consultations

Many individuals thanked and complimented the company for engaging in public consultation. The process is seen as an important avenue to iron out issues of concern and to engage with the fishery.

4.0 CONCLUSION

The meetings were successful and well received though the public sessions were not highly attended. Generally, the attendees appreciated the information sharing that is part of the public consultation process and were clear on what they identify as potential challenges between the seismic operations and fisheries. The presentation helped fishers understand the length of time the seismic vessel would be in an area, the speed at which it moves, the role of the support ship and the various ways the seismic ship can be in communication with fishing vessels. As for the comments relating to complete avoidance of the fishing areas during fishing season, GXT expressed that it would like to stay away from the fishing gear as much as the fishers want them to stay away. This is especially true for areas of fixed gear. The seismic equipment is very expensive and ideally must also avoid any entanglement.

In addition, GXT determined that a good part of the communication plan would be to present an advanced line plan (e.g., a ten day plan) and then when the time came closer, a five day work plan. The advance plan could give the fishers a chance to determine where they would be and give any feedback to assist in determining the final three day work plan, with the aim of avoiding the active fishing areas. It would also be useful to have a ship dedicated to scouting during June to August depending on where the survey ship will be.

The effects on mammals and other wildlife was also a general area of concern and GXT, with the help of other organizations, will try to minimize any negative effects as much as possible.

GXT intends to continue its consultation efforts in southern Labrador in the coming weeks. A follow up consultation report on those activities will follow.

GXT also noted its intention to convene other meetings with the groups during and after the survey.

APPENDIX 4A

Attendees at 2013 LabradorSPAN Seismic Operations Consultation Meetings

Attendees at 2013 LabradorSPAN Seismic Operations Agency and Public Consultation Meetings

(Crystal Kehoe of SEM also attended all meetings)

Nain

Nunatsiavut Government, Department of Lands and Natural Resources

Presenters: Robert Pitt, GXT Environmental Manager
Dean Kennedy, GXT Project Manager
Tom Sheldon Director, Environment Division
Christina Goldhar Environmental Analyst

Postville

Public Meeting

Presenter: Robert Pitt, GXT Environmental Manager

Note: No presentation was made since there were no attendees.

Hopedale

Public Meeting

Presenters: Robert Pitt, GXT Environmental Manager
Dean Kennedy, GXT Project Manager
Wayne Piercy – AngajukKâk
Martha Winters-Abel - councillor
Andrew Boase
Darlene Nochasak – councillor
Charlotte Lucy- Piercy
Kendall Piercy
Priscilla Nochasak
Christine Lampe
Melvin Hurley

Makkovik

Public Meeting

Presenters: Robert Pitt, GXT Environmental Manager
Dean Kennedy, GXT Project Manager
Katie Haye
Herb Jacque
Keith Watts

Council Meeting

Presenters: Robert Pitt, GXT Environmental Manager

Dean Kennedy, GXT Project Manager
Herb Jacque
Doreen Winters
Rachel Edmunds
Denise Lane
Dawn Michelin
Clemence Jararuse
Norman Broomfield
Cathy Ford

Rigolet

Public Meeting

Presenters: Robert Pitt, GXT Environmental Manager
Dean Kennedy, GXT Project Manager
Charlotte Wolfrey – AngajukKâk
Marie Rich
Angela Blake
Tom Mugford
Max Pottle
Melva Williams

APPENDIX 4B

Communications

GX Technology Canada Ltd. (GXT) is proposing to conduct a marine 2D (two-dimensional) seismic survey offshore north-eastern Canada, in the area of the Labrador Sea area between 2013 - 2015, within the regulatory jurisdiction of the C-NLOPB.

GXT is being assisted by Sikumiut Environmental Management Ltd. (SEM) for these consultations. GXT is here today to share information about the 2013 project with you, and to listen to your comments and advice to help make sure we do it right.

GXT believes in meeting with local interests before, during and after a project. This is one of several meetings we have planned. We will come back to tell interested groups how things are going and to find out if any issues have come up. We will also return after the survey to report on how things went (e.g., wildlife monitoring results, fisheries liaison results).

Thank you for taking the time to meet with us today and sharing your thoughts.

Proposed 2D Seismic Survey, Offshore Labrador Shelf

GX TECHNOLOGY

GX Technology Canada Ltd.
An ION company
www.iongeo.com

GX Technology Canada Ltd.

(GXT)

PROJECT DESCRIPTION

GXT is proposing to conduct an offshore two-dimensional (2D) seismic reflection survey along the Labrador Shelf between 2013 - 2015.

The survey will use a seismic ship (*MV Discover)* and a support ship, the GXT-owned *Polar Prince* (formerly the CCG/DFO icebreaker *Sir Humphrey Gilbert)*. It will tow a seismic sound source array and a 9-km long hydrophone (listening) streamer / cable.

Acquisition will not occur within the Nunatsiavut Zone (the Tidal Waters of the Labrador Inuit Settlement Area, as defined in the Labrador Inuit Land Claims Agreement). Part of the survey is within the "Ocean Areas Adjacent to the Zone" (as defined in Part 6.1.1 of the Agreement).

GXT plans to include biological and resource experts (Marine Mammal Observers / Fisheries Liaison Officers) to represent and assist with marine mammal, seabird, fisheries matters, and Nunatsiavut interests. These will include Labrador Inuit / Nunatsiavut representatives on the seismic ship.

SCHEDULE OF THE WORK

The survey season is potentially June through mid-November, depending on local weather conditions, work in other areas (e.g., Greenland) and other marine activities (e.g., fish harvesting).

OBJECTIVE OF THE WORK

The proposed project is a regional Basin Span survey designed to provide a better understanding of the offshore geology of the Northern Labrador Shelf, and to use this information to identify new exploration opportunities to the industry. GXT's Basin Span programs are different from other surveys because they look very deep to understand broad regional structures. This unique information will be used to determine the regional extent of geological formations not previously known through conventional methods.

OPERATING SCHEDULE

The vessel will be at sea and operate continuously (i.e., 24-hour operations) during the operations if possible. Unlike most surveys, GXT's Span surveys activate the airguns only about half as often as other 2D seismic programs, to allow us to listen for the very deep sound echoes. Crew changes will be made via port call, possibly at Cartwright, usually every 6 – 8 weeks.

YOUR ENVIRONMENT

GX Technology Canada Ltd. (GXT) has prepared an Environmental Assessment of potential effects on the surrounding environment. The main sensitivities identified in the project area include fisheries, marine mammals, fish species, and resident breeding and migrant bird species.

Your input during these meetings is an important way for us to understand your concerns and to make sure we address them as we move forward, before the survey.

GXT has a lot of experience working in other sensitive areas in the north. We want to continue to work in partnership with you, to keep our good record and improve opportunities for local people.

PROTECTION & MITIGATION

GXT has conducted several seismic surveys in the Canadian north and other areas around the world during the past decade without any spills, or impacts on marine wildlife.

GXT will continue to apply a comprehensive set of mitigation measures to prevent or reduce the likelihood of affecting the environment and wildlife in this area. These measures will be similar to those GXT has used successfully in the past in several northern and Arctic regions, such as the Canadian Beaufort Sea (most years since 2006), with additional measures specific to the Labrador Shelf area.

The survey will avoid sensitive areas. For example, the survey will not enter the Hawke Channel, Gilbert Bay or other similar areas.

To reduce potential effects on fisheries, GXT will stay out of the Hawke Channel area, avoid active fishing areas, plan its activities away from key species areas during high seasons, avoid fisheries research surveys, and maintain close consultation / information exchange with fishing groups during the survey.

Onboard Fisheries Liaison Officers will provide dedicated marine radio contacts for all fishing vessels in the vicinity of the survey vessel to help identify gear locations, discuss potential interactions and find solutions, and provide guidance to the Bridge.

GXT, through its on-shore managers and on-board representatives, will communicate with appropriate fisheries organizations to inform them of planned survey activities and to facilitate information exchange with fisheries participants.

Relevant information about the survey will also be publicized using established communications mechanisms, such as the Notices to Shipping, OKâlaKitiget radio, and CBC Radio's Fisheries Broadcast, as well as direct communications between the survey vessel and fishing vessels via marine radio at sea.

To avoid or reduce potential impacts on marine mammals (particularly whales) GXT will follow the 'Statement of Canadian Practice on the Mitigation of Seismic Noise in the Marine Environment' developed by DFO (Fisheries and Oceans Canada, 2004). This document is available on the internet at http://www.dfo-mpo.gc.ca/oceans-habitat/oceans/im-gi/seismic-sismique/index_e.asp.

The Statement of Canadian Practice was created to standardize the mitigation measures used in Canada for marine seismic surveys.

Other environmental protection measures include waste management, grey / black water disposal methods, reduction of air emissions, and emergency (spill) response plans, procedures and drills, that meet and exceed national and international standards (MARPOL).

GXT also meets with all project crew before project start-up to make sure they know and respect all of our environmental commitments and requirements.

THANK YOU FOR YOUR INTEREST

Please contact us if you have any further concerns or other information.

Robert Pitt, GXT - Environmental Manager
rpitt@gxt.com 709-682-3342

Dean Kennedy, GXT - Project Manager
dkennedy@gxt.com 709-682-2336

Crystal Kehoe, Sikumiut - Consultation Support
crystal.kehoe@sikumiut.ca 709-754-0499 (ext. 211)

GX Kanantussentakant assists tshekuan kanata LTD. (GXT) eukun kauiuauitakuau tshetshi tshishipinitatau nenu nipits eshinakuats 2D (nishuets) tshika tshitapakanu ne assits eshinakuats nete tampekuats enanamiskueats ute mamits Kanata, mak ute mishiue Napuatua Uinipekuts nta tshetshishipinanuts 2013 ispish 2015, ntshe uinuau C-NLOPB nenu essi tipenitakuau essi uanutshiakanits.

GX Kanantussentakant eukun shash uiuitshinuepant ume Sikumiut kamiste Ntussenitakuau Eniuimakanits tshekuanu mak Kakanauenitakuau LTD (Sikumiut) eukun uinuau kaueuetishueshits. GXT shash tauts ute anuts eukun tsheuauitamatshets nenu tsheinitutakanits ume atusseunu eku mak tshenitutamek tan uainissishueiek mak tan etenitamek tshetutakants mak tshetshi uauitshinuek tshetapuanuts tshetshi minupanits.

GXT tapuetamuts nenu tshetshi mamuitunanuts mak mamunikanitshi nenu mamu essishuenanuts, ume kauitutakanits atusseunu. Eukun nistam emitshetuau miste mamuitunanuts mak tsheuaueshitanau. Eku minuats nika takushinian tshetshi etuish uauitamatats tan etenitakants ume tshekuan enaspantshi eku mak tshetshi etuish ntumeskamats tan etenitakant ne euauitakant kutak tshekuan. Mak eiapits tshika petanan ne mamu kakukuetshimitunanuts tan etentakantshi euauitamek (eg mak nenu kanutshikuats aueshisha etenitakuau mak kanutimeshets nenu etenitakuau)

Tshinaskumitinau katshi mamuitunanuts anuts mak kauitamuiats tan etenitamek

Tsheishi uauitakant 2D (Nishueets) assi Enanamiskueats nete Tampekuts tan tsheishi Tshitapatakant, Ute Nashipetamits Napuatua Epipikauats

GX TECHNOLOGY

GX Kanantussentakant assits tshekuan ute kanata LTD
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GX Kanantussentakant assits Tshekuan Kanata LTD

(GXT)

ATUSSEUNA EUAUITAKANTSHI

GXT uiuauitamuts nenu tsheishinakunits 2D (nishuets eshinakuats) nete tampenkuts enanamiskuemikats assin ute Napuatua Epipikauats ume nta 2013 ispish 2015 tshessintussenitakant.

Ume uets tsheuts ntussenitakant utt ishinakun tshemiste uauapatak nenu eshinakunits, mak MV Discover Explorer ishinikateu utt, mak kutakua utta etakuatshi nete, ume GXT kaishinakatets uin tepenitam nenua Polar Prince (eukun CCG/DFO kapikuauak miskumina Sir Humphrey Gilbert) Eukun ume utt tshika papamautau nenu nishekunu mak 9km essitshinuapekanits tshetshi nitutakant nete tamatum uinipekuts eukun tshepekestuapishenikants ne kapitepintunanuts enitutakantshi ume neshekueapin.

Aman tshika tapuetakanu tshetshi atussenanuts nete Nunatsiavut Zone (nenu eiessimieuts uinipekuts katats ute Napuatua utassiuau. Ume Napuatua essimieu uttassiuau kauinistuapatakuau nenu essi tipenitakuau nete. Ume katutakant kakukuetshimitunanuts mishinanikan eukun eiapits nete etutakant eatussenanuts (eukun part 6.1.1 etapuetakanuts) tsheuapatamek assi mishinanikan emishinanikant.

GXT uitutamuts tshetshi atussets mak nantussenitakuau nenua aueshisha mak enitautshinik tshekuanu mak kamiste tshitapatakuau uinuau essenitakuau (nete uinipekuts aueshisha mak kaistimeshentshi) eukun tshetshi miste uauitakuau nenua uinipekuts etats aueshishats mak netamuk eshinakust napeshats etats nete mak Nunatsiavut nenu etenitakuau. Eukun mamu aissimeuts mak Nunatsiavut kaishiuitamatsheshuts katats mamu nete uttits kantussenitakanits nenu assinu kananamiskuemikanits.

TSHEUSHITAKANT KAIATUSSESHETS TIPANIKEA NTA TSHEATUSSEKUAU

Ume kantussentakant tshetshishipinanuts nta Uapukun Pishum nispish tetauts Takuatshipishum miskumin nenu enispint tshishuk eshinakuats, mak utta enispinitau (kanutimesheshats)

TAN ETENITAKANTSHI UME ATUSSEUN

Ume auauitakant atusseun eukun miste tshika uauitakanu nete Basin Span etshitapatakant tan tsheishinakutakant tshetshi ettu miste tshissenitakant utte Napuatua epipikauats mak tsehtshi apatshitakant ume essi ssenitakant tan tsheishinakutakant tutakantshi. GXT's Basin Span kaishinikatets tetekuats ishinakuna etutakanitshi nenu ekukuetshimakanits auentshi tante passe miste tshitapatamuts tshetshi nistutamitishuts nenu eshinakutakanits nete atussetaui. Ume eukun muku tshekuan euauitakant tshetshi apatshitakant tshetshi ushitakant nete uatshitapatakant mak tsheishinakuats.

TSHEISHIPIPINITAKANT EATUSSENANUT TIPANIKEA

Ume utt kauintussenitak nenu assinu kauinanamiskueuants nete uinipekuts mak uiatusseskatakanu (24 hours tipanikea tsheishipimpinitakant mushinau) ume atuskatakantshe. Eku mak ume kauintussentakantshi, GXT's kauishipimpinitakantshi eukun tshika tshishipinua ne tshekuan uets ntussenitakant ispish pusk tipanikea tsheishi ntussenitakantshi tante ume 2D kantussenitant tshika nitutakanua epimpinitau nete tamatum tampekuts estauetakuats ni nete nipits. Mak kaiatusseshuts tshika mushinau miskutinakanuts nenu tshetshi uishamakanits put nete Cartwright, nanekutini ma 6-8 minastakana tshemiskutshipitakanits eatussetaui.

TSHI NISHINAKUTAKANT TUTAKANITSHE

GX kanantussentakant Kanata LTD. (GXT) eukun shash uiushitauts tan tsheishinakutats kaatussetau eukun mamu tsheinispanit tshekuan Uauishinakutakant. Eukun uets mamuitunanuts tshepets uauitamuanats eukun tshitshue tshemiste animenitakuats tshetshi nistutamats etuish tan etenitamek mamu miste uauitamats nenu etenitameku.

Eukun eiapits tshetshi miste uauitamats nenu kanutimeshets mak aueshishats etats eukun tanate miste apatshitapants mak eukun tante uets nitautshits mak mamu mamu etakuau.

Nenu essi uauitakant tshekuan eianimuanuts eukun tshitshue animenitamek mak tshetshi uitapuenants esk eka nistutamants esk eka mishinamats.

GXT shash miste atuskatumupants nenu etutakuau tante nakatuenitamuts tshetshi eka nanu uitakuau tshekuanu put kie nakatuenimats nenua aueshisha etantshi, eukun mak tshetshi atuskatats mamu atussenau mak nakatuenitamats mamu etutamats emishinatamats tseh uitshinukuts kutakuts auentshi nenu etatussetau.

NAKATUENITAKANT MAK USHITAKANT

GXT shash miste tshishipinipan nenu etutak nete netamits Kanata mak nete kuestetshe assits esk apu enanuuitakuau tshekuanu essi tshishipinitau mak tshetshi nanuuitakuau nenu pimina nete mistshima etantshi aueshisha.

Nete passe etutakant GXT tshika minuats uitutamuts tshetshi metinu ushitakuau nenu tsheeka eash nispinits nete mamu kanutimeshets etakuau, aueshishats etakuau nete enutshikakanits uinipekuts eatussenanuts. Ume uatutakanuts tapiskun tshika ishinakushin nete kaatussenanuts ete Northern Arctic Regions eukun Canadian Beaufort Sea (nta 2006 kanutshiakanike) eukun uanishinakutakant ute Napuatua epipikauats.

Ama shuka mishitakanu nenu uatutakant tante kaistimeshets tshika nanispitukuts, GXT ama tshika tauts nete Hawk Channel Katanauts mitshima, tante eukun nete kanutimeshenanuts. Mak neka tshika tutakanu tshetshi atussenanuts mak tsheeka tutakanu nete mitshima etatau ne aueshishats enutshikuakanits, tante uinuau kanutimeshats uintussentamuepants nenua aueshishats etats nete uinipekuts.

Nenu kapushitau aissimeuts mak kanutimeshenitshi kanakatuapamats eukun tshika mushinau uauitamuets nete mitshima tananutshe nenua kanutimeshentshi etanitshi eukun mak tshetshi uauitshiakanits tan eshinakushintshi anipina eiapitshakanitshi mak tshetshi uauitamuakanits tshetshi eka mitshima tatau nenu enitshiakanits nete uinipekuts eatussenanuts nete Bridge kaishinikatakanits.

GXT mak natakam utshimauts katats mak kapushitau kaiatusseshuts eukun tshika minu uauitamuakanuts nenua kakusseshintshi etanitshi mak nete mamu etatussenanuts enutshikakanits entussenitakanits tshekuanu nte tampenkuts mak kakusseshuts eukun eiapits tshetshi astitshimakanits eatussenanuts nenu entussenitakanits.

Ne kaishiuauitakanut kainimenitakuats eukun tshitshue tshemiste uauitakanu tsheapatshitakanut mak nenu Coast Guard (kauitshiats auenua) eukun tshika minu uauitamuakanuts mak tshika Petakutakanu nete kanitutakanits kanutimeshets tshetshi petakuau nenu etutakanuts nete etananuts eatussenanuts epepampapinanuts mak ne utta epapampintshi eukun eiapits tshika petamuts nete etataui uinipekuts.

Tshakatshikatuenitakanu put mak tshika apishitakanu tshetshimiste tshitapatakant tante eukun kamiste apatshitakau ne aueshishat katats nete tampekuts (eukun miste mekuts) GXT tshika ketshestinuapatumuts nenu katutakuau ne Kanata Practice kaissiapatshitakuau nenu enitutakanits nete tampekuts uinuau katutakuau ume DFO (kanutimeshets nete uinipekuts katats nta 2004). Ume unauitakant mishiue tshekuan essi nutshiakant nete uinipekuts eatussenanuts. Eku mak uintussenitamekue tsheuapatamek nta internet http://www.dfo-mpo.gc.ca/oceans-habitat/oceans/im-gi/seismic-sismique/index_e.asp.

Ume kaushitakuau Canadian ushitapants tshemiste uauapatinuets nenu eshinakutatau eatuskatatau eapatshitats nenu uttinu epapamautats tshekuanu uantussenitakuau enanamiskkuentshi assinu tamatum mak tsheishi uapatuakuau nete uinipekuts kanutimeshetau.

Kutak tshekuan kanutshiakant tsheeka nanuuitakant eukun eiapits unauitakant mak netamuk eshinakuats kauinipakamats mak eniuakamats nipi eukun tshetshinue tshenaniakant eukun tshetshi mishiue nanispants mak tsheminukakant enanuuiakant pimi nete nipits eukun tshekeuinutshiakanu esk eka mishiue nishinakuats eukun (eg MARPOL)

GXT eukun tshika mishiue uauitakanu nenu tshekuan tsheishintutuskanuts mak mishiue auentshi tshika uitamuakanuts tshekuanu esk eka tshishipinanuts. Eku mak tshika kukuetshimakanuts tsheishinakatuenitakuau nenu tsheishi apatshitakuau mak nakatuenitakuau esk eka nanuuitats tshekuanu nenu uaminu nakatuenitakanitss tshekuanu nete eatussenanuts.

TSHINASKUMITINAU KATSHI UITUTAMEK NE UATUTAKANTS

Ume tshekuekuetshimekuts tan etenitamek

Robert Pitt, GXT -Kaminukanauenitak Utshimau
rpitt@gxt.com 709-682-3342

Dean Kennedy-GXT Utshimau Kaushitat Atusseunu
dkennedt@gxt.com 709-682-2336

Crystal Kehoe, Sikumuit- Kauauitshinuet Atusseuna
crystal.kehoe@sikumuit.ca 709-754-0499 (ext 211)

NOTICE

Public Consultation Meetings
GX Technology Canada Ltd
Proposed Labrador Shelf
Offshore 2D Seismic Program

GX Technology Canada Ltd. (GXT) is holding public meetings to provide information and discuss its proposed marine seismic project with local beneficiaries, stakeholders and other interested people. The project is a 2-dimensional (2D) seismic survey using a single seismic ship in the marine areas off the Labrador Shelf. The survey lines do not enter the Nunatsiavut Marine Zone. The work is planned for June to November over a two or three year period, starting in 2013. Similar surveys have been conducted in the offshore Labrador area in recent years. A local Labrador Inuit observer will be placed on the seismic vessel.

Initial community meetings were held in Happy Valley – Goose Bay, North West River and Nain. This current round of meetings will include Postville, Hopedale, Makkovik and Rigolet. The times of additional meetings in other Labrador communities will be announced later.

Scheduled Meetings:

Postville	**May 5, 2013 - 3:00 PM**	**Postville Recreation Centre**
Hopedale	**May 6, 2013 - 7:00 PM**	**Hopedale Inuit Community Boardroom**
Makkovik	**May 7, 2013 - 7:00 PM**	**Makkovik Community Hall**
Rigolet	**May 8, 2013 - 7:30 PM**	**Rigolet Inuit Community Boardroom**

Everyone Welcome. Contact for consultations:

Crystal Kehoe Sikumiut Environmental Management Ltd.
E-mail: Crystal.Kehoe@sikumiut.ca
Telephone (709) 754-0499 x211

GX TECHNOLOGY

Sikumiut

Consultation Meetings for Proposed 2D Marine Seismic Program, Offshore Labrador Shelf

GX Technology Canada Ltd. (GXT) is holding public meetings to provide information and discuss its proposed seismic project with local beneficiaries, stakeholders and other interested people. The project is a 2-dimensional (2D) seismic survey using a single seismic ship in the marine areas off the Labrador Shelf. The survey lines do not enter the Nunatsiavut Marine Zone. The work is planned for June to November over a two or three year period, starting in 2013 and is similar to other surveys that have been conducted in the offshore Labrador area in recent years. There will be a local Labrador Inuit observer on the seismic ship.

Initial community meetings were held in Happy Valley – Goose Bay, North West River and Nain. This current round of meetings will include Postville, Hopedale, Makkovik and Rigolet. The times of additional meetings in other Labrador communities will be announced later.

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Everyone welcome. Contact for consultations is
Crystal Kehoe Sikumiut Environmental Management Ltd.
E-mail: Crystal.Kehoe@sikumiut.ca
Telephone (709) 754-0499 x211

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FOR RADIO

Re: Consultation Meetings for GXT Offshore Seismic Project

GX Technology Canada Ltd. (GXT) will hold public meetings between May 5th and 8th in several Labrador communities to provide information and discuss a proposed offshore seismic survey. The survey is a 2-dimensional program using a single seismic ship in marine areas off the Labrador Shelf. The work is planned for June to November over a two or three year period, starting this year. Similar surveys have been conducted in the offshore Labrador area in recent years and a local Labrador Inuit observer will be placed on the seismic ship. Initial community meetings were held in Happy Valley – Goose Bay, North West River and Nain. This current round of meetings will include Postville, Hopedale, Makkovik and Rigolet. The times of additional meetings in other Labrador communities will be announced later.

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