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Multiklient Invest AS & TGS-NOPEC Geophysical Company ASA
Offshore Seismic Program, 2024–2028

Consolidated Review Comments – Project Description & Draft Scoping Document

Environment and Climate Change Canada (ECCC)

Applicable Legislation

Fisheries Act

Pollution prevention and control provisions of the *Fisheries Act* (<http://laws-lois.justice.gc.ca/eng/acts/F-14/FullText.html>) are administered and enforced by Environment and Climate Change Canada (ECCC). The proponent should be aware of the general applicability of Section 36(3) of the *Fisheries Act* which states: “no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish or in any place under any conditions where the deleterious substances or any other deleterious substance that results from the deposit of the deleterious substance may enter any such water”. Environmental protection and mitigation measures should reflect the need to comply with Section 36(3) of the *Fisheries Act*.

It is the responsibility of the proponent to ensure that all reasonable measures are conducted to prevent the release of substances deleterious to fish from their proposed activities. In general, compliance is determined at the last point of control of the substance before it enters waters frequented by fish, or, in any place under any conditions where a substance may enter such waters. Additional information on what constitutes a deposit under the *Fisheries Act* can be found at: <https://www.canada.ca/en/environment-climate-change/services/managing-pollution/fisheries-act-registry/frequently-asked-questions.html>.

Migratory Birds Convention Act

Migratory birds, their eggs, nests, and young are protected under the *Migratory Birds Convention Act* (MBCA). Migratory birds protected by the MBCA generally include all seabirds (except cormorants and pelicans), all waterfowl, all shorebirds, and most landbirds (birds with principally terrestrial life cycles). Migratory birds, their eggs, nests, and young are protected under the Migratory Birds Convention Act (MBCA). The list of species protected by the MBCA can be found at: <https://www.ec.gc.ca/nature/default.asp?lang=En&n=496E2702-1>. Bird species not listed may be protected under other legislation.

Under Section 5(1) of the *Migratory Bird Regulations, 2022* (MBR) [updated in July 2022], it is forbidden to capture, kill, take, injure or harass a migratory bird; or to damage, destroy or take a nest or egg of a migratory bird, excluding under the exceptions listed in 5(2) of the MBRs, or under the authority of a permit. It is important to note that under the MBR, no permits can be issued for the harm of migratory birds caused by development projects or other economic activities.

Furthermore, Section 5.1 of the MBCA describes prohibitions related to depositing substances harmful to migratory birds:

- “5.1 (1) No person or vessel shall deposit a substance that is harmful to migratory birds, or permit such a substance to be deposited, in waters or an area frequented by migratory birds or in a place from which the substance may enter such waters or such an area.
- (2) No person or vessel shall deposit a substance to be deposited in any place if the substance, in combination with one or more substances, result in a

substance – in waters or an area frequented by migratory birds or in a place from which it may enter such waters or such an area – that is harmful to migratory birds.”

It is the responsibility of the proponent to ensure that activities are managed so as to ensure compliance with the MBCA and associated regulations.

Species at Risk Act

The proponents should also be reminded that the prohibitions under the *Species at Risk Act* (SARA) are relevant for this project. The complete text of SARA, including prohibitions, is available at <http://laws-lois.justice.gc.ca/eng/acts/s-15.3/>.

It should be noted that Section 79 of the *Species at Risk Act* states:

79. (1) Every person who is required by or under an Act of Parliament to ensure that an assessment of the environmental effects of a project is conducted, and every authority who makes a determination under paragraph 67(a) or (b) of the *Canadian Environmental Assessment Act, 2012* in relation to a project, must, without delay, notify the competent minister or ministers in writing of the project if it is likely to affect a listed wildlife species or its critical habitat.
- (2) The person must identify the adverse effects of the project on the listed wildlife species and its critical habitat and, if the project is carried out, must ensure that measures are taken to avoid or lessen those effects and to monitor them. The measures must be taken in a way that is consistent with any applicable recovery strategy and action plans.

Canadian Environmental Protection Act

The proponent should also be aware of the potential applicability of the *Canadian Environmental Protection Act* (CEPA) (<https://laws-lois.justice.gc.ca/eng/acts/C-15.31/>). The *Canadian Environmental Protection Act* enables protection of the environment, and human life and health, through the establishment of environmental quality objectives, guidelines and codes of practice, and the regulation of toxic substances, emissions and discharges from federal facilities, international air pollution, and disposal at sea.

Wildlife And Wildlife Habitat

- 1) Following the recommendations from the *Regional Assessment of Offshore Oil and Gas Exploratory Drilling East of Newfoundland and Labrador*, Environment and Climate Change Canada’s Canadian Wildlife Service (ECCC-CWS) developed a guidance package for operators regarding the development of site- or vessel-specific systematic stranded bird survey protocols in March 2021. This information has been relayed to operators, but it should be noted that a new “Stranded Birds Data Entry Form” (Microsoft Excel; attached) that replaced the previous “Stranded Birds Datasheet” (PDF) was developed in 2022 and should be provided to operators for their use during daily stranded bird surveys.
- 2) ECCC-CWS notes that although information regarding Wildlife Response Plans is not new information, ECCC-CWS’ National Wildlife Emergency Response Framework documents that are relevant for wildlife response have been uploaded onto the Government of Canada website at the following link: National Wildlife Emergency Response Framework - Canada.ca. This updated link should be passed along to the C-NLOPB for their consideration.

Considerations Specific to Migratory Birds

Migratory birds, their eggs, nests, and young are protected under the federal *Migratory Birds Convention Act* (MBCA) and the complementary regulations (*Migratory Bird Regulations*, *Migratory Bird Sanctuary Regulations*). Certain species are recognized under the federal *Species at Risk Act* (SARA), provincial endangered species legislation, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), or by the Atlantic Canada Conservation Data Centre.

In conducting the environmental assessment (EA), the vulnerability of individual species/groups of migratory birds to sampling programs should reflect a consideration of the following basic factors:

- Distribution and abundance of species during scheduled project activities;
- Impact pathways;
- Mitigations;
- Cumulative effects; and
- Provisions for follow-up on assessment accuracy and mitigation effectiveness.

The following impact pathways influencing migratory birds should be considered in the analysis of any seismic survey:

- Noise disturbance from equipment including both direct effects (physiological), or indirect effects (foraging behaviour or prey species);
- Physical displacement as a result of vessel presence (e.g., disruption of foraging activities);
- Nocturnal disturbance from light (e.g., increased opportunities for predators, attraction to vessels and subsequent collision, disruption of incubation);
- Exposure to contaminants from accidental spills (e.g., fuel, oils) and operational discharges (e.g., deck drainage, grey water, black water);
- Attraction of, and increase in, predator species as a result of waste disposal practices (i.e., sanitary and food waste) and the presence of incapacitated/dead prey behind the vessel.

The proponent should refer to any applicable Strategic Environmental Assessments (SEA), where appropriate. For annual updates, the proponent is encouraged to contact ECCC-CWS to ensure that information listed in the SEA is still accurate.

Considerations Specific to Species at Risk

If a migratory bird species is listed under Schedule 1 of SARA and could be affected by operations, steps must be taken to ensure compliance with both SARA and the *Impact Assessment Act* (2019).

The following species at risk may be found near the project site: Ivory Gull (Endangered, SARA Schedule 1), Red-necked Phalarope (Special Concern), Leach's Storm-petrel (COSEWIC-assessed as Threatened). Species at Risk (SAR) sightings should be reported to ECCC-CWS.

It should be noted that the SARA list may change through the life of the project. Species listed after project approval may require additional mitigations. The proponent is encouraged to annually update the list of SARA species potentially affected by the project.

Effects Of The Environment On The Project

Seismic operations will be somewhat sensitive to environmental conditions (e.g., wind, waves, ice). The environmental review should include considerations on how such conditions acting on the project could have consequences for the environment (e.g., increased risk of spills and impacts on valued ecosystem components).

Marine weather information can be found on the Meteorological Service of Canada website at https://weather.gc.ca/mainmenu/marine_menu_e.html. Additional information on regional

climatology can be found at climate.weather.gc.ca/index_e.html or by contacting ECCC directly (1-833-794-3556; climatatlantique-climateatlantic@ec.gc.ca).

Also, ice information can be found on the Canadian Ice Service website at <https://www.canada.ca/en/environment-climate-change/services/ice-forecasts-observations/latest-conditions.html>

Effects Of Accidents And Malfunctions

The mandatory assessment of environmental effects that result from accidents and malfunctions should include a consideration of potential spill events. The assessment should be guided by the need to ensure compliance with the general prohibitions against the deposit of a deleterious substance into waters frequented by fish (Section 36, *Fisheries Act*) and against the deposit of oil, oil wastes or any other substance harmful to migratory birds in any waters or any area frequented by migratory birds (Section 35, *Migratory Birds Regulations*). In addition, it should be focused on potential worst-case scenarios (e.g., concentrations of marine birds, presence of wildlife at risk). Based on this analysis, the environmental review should describe the precautions that will be taken and the contingency measures that will be implemented to avoid or reduce the identified impacts.

Proponents are encouraged to prepare contingency plans that reflect a consideration of potential accidents and malfunctions and that take into account site-specific conditions and sensitivities. The Canadian Standards Association (CSA) publication, *Emergency Preparedness and Response, CAN/CSA-Z731-031*, is a useful reference for this.

All spills or leaks of petroleum or other hazardous materials, including those from machinery, fuel tanks or streamers, should be promptly contained, cleaned-up and reported to the 24-hour environmental emergencies reporting system (St. John's 709-772-2083; other areas 1-800-563-9089).

Fish, Food & Allied Workers (FFAW-UNIFOR)

Seafood landed in Newfoundland and Labrador by the inshore fleet is processed in the province and exported internationally. Our industry relies heavily on global markets and is subject to profit fluctuations with market prices, fuel costs and the value of the Canadian dollar. Seismic programs add an additional layer of complexity to fishing seasons. Harvesters have justified concerns surrounding reports of reduced catch rates immediately after a seismic vessel has entered an area where fishing is taking place in addition to uncertainty surrounding the long-term effects on fish and fish habitat due to seismic.

FFAW contends that seismic surveys can directly impact economic return for harvesters. In 2022, the seafood industry was valued at \$1.4 billion and as such, represents an incredibly important ocean stakeholder operating completely throughout the spatial scope of this offshore seismic project.

First and foremost, the area currently presented is extremely large in scope. It is therefore difficult to offer comment on the specific impacts to the fishing industry without knowing more spatial and temporal plans of proposed survey programs. Fishing seasons for each species are location and time specific and can vary from year to year. It is imperative that there is an effective flow of information between the fishing and seismic industries several months prior to the start of each seismic season such that early engagement can occur, and plans can be adapted, if necessary.

There is no mention within this report of the Northeast Marine Slope Refuge therefore it is not

evident whether consideration has been given to exclude this area. We question whether there will be additional mitigation measures put in place to ensure marine conservation targets in this area are met considering in 2024, it is anticipated that MKI will acquire approximately 5000–10,000 km² of seismic data in the Orphan Basin. Marine conservation must be meaningful and consistent while acknowledging that this refuge near the Orphan Basin is closed to all fishing activities. Heightened awareness and consideration in this region must be given to turbot, crab and shrimp fishing areas and seasons as their spatial extent has already been reduced.

Increased seismic prospectivity has heightened awareness of just how much traditional fishing grounds harvesters have lost, and continue to lose, due to oil and gas occupation. Seismic surveys occurring from mid-May through September and will undoubtedly interact with most commercial fishing seasons. Given the extent of the project area, consideration must be given to snow crab, Northern cod, sea cucumber, capelin, herring, monkfish, skate, white hake, lobster, and Northern shrimp fishing areas and seasons. Additionally, any annual changes to these fisheries must be considered as well as any new fisheries that may emerge within the 2024-2028 timeframe.

The fishing industry contends that critical data gaps exist in the research regarding seismic activity and behavioral changes of fish/shellfish. Increasing research has shown that seismic survey activity results in behavioral changes amongst commercial fish species. While these changes have been reported to be temporary, avoidance, startle responses and changes in swimming speed and direction, all have an impact on commercial activities taking places in finite times (ie. seasons) in finite spaces (ie. fishing areas). Moreover, research is limited on the far-reaching, long-term effects. Behavioral changes may affect migration and/or reproductive and spawning activities as well as the exploitable biomass in an area. This can impact catch rates for years to come and thus the viability of the fishing industry. There has been minimal research conducted on impacts of seismic activity on important commercial species, including shrimp, crab, turbot, and Atlantic cod. Future studies need to include commercial catchability to substantiate concerns from harvesters in NL. Harvesters should be engaged and involved in this research.

The collaborative DFO-industry post season crab survey has undergone changes in terms of the location and number of survey stations in recent years. The survey footprint has been increased with stations shifting from densely sampled regions to cover a broader snow crab habitat range. Fixed stations will remain the same for five years while random stations will change every year. A review of the data will be conducted every year by DFO, FFAW and fish harvesters. We are aware that PGS has this data and are assuming with the merger of PGS and TGS this information will be shared between the two. It continues to be FFAW's position that seismic work should NOT be conducted in the vicinity of survey stations until they have been sampled for the year. The post-season crab survey continues to be vital to the fishing industry as it informs decision making with regards to quotas for coming years. Our members rely on this survey to be completed each year, without interruption or potential effects from outside variables. It is understood that seismic planning around the survey stations is challenging.

The report acknowledges the importance of consultations with fishing organizations. FFAW was last engaged in introductory meetings with TGS and PGS, separately, in September regarding potential projects. Pre-planning is imperative to minimize potential conflicts and any negative impacts on fishing activity. It has been over a year since the last seismic programs proceeded in our offshore. It is increasingly important that adequate consultations and planning occur with supporting data that is accurate and up to date. There is an expectation that effective and regular communication will ensue with the fishing industry throughout the project lifespan so that the seismic company is kept apprised of ongoing developments within our dynamic fishing industry. We look forward to enhanced mitigation measures and more specific details to come in the Environmental Assessment.

FFAW is prepared to work cooperatively with MKI and TGS regarding the planning of seismic acquisitions to avoid interactions of seismic project activity, commercial fishing activity and science survey work.

Fisheries and Oceans Canada (DFO)

SPECIFIC COMMENTS – Project Description

Section 1.0: Introduction, page 1, Figure 1.1

Study area overlaps 4 Marine Conservation Areas in the NL Region:

- NE NL Slope OECM
- Division 30 Coral Closure
- Funk Island Deep Closure
- Laurentian Channel MPA

It also overlaps with the St Anne's Bank MPA in Maritimes Region.

Suggest adding polygons of these areas to Figure 1.1.

Section 1.0: Introduction, page 1, Figure 1.1

Co-ordinates for wxyz: is this because of St. Pierre/ Canada EEZ? Clarification recommended.

Section 2.1: Spatial and Temporal Boundaries, page 4, Table 2.1

Co-ordinates seem to be switched for latitude and longitude. Revisions recommended.

Section 2.2.1: Objectives and Rationale, page 5

Points of information: activities are assessed on a case by case basis for OECMs; no oil and gas activity allowed inside Laurentian Channel MPA.

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Section 2.2.7: Seismic Streamers and Ocean Bottom Nodes, page 7, paragraph 2, sentence 2 - "Nodes are placed in an orderly grid on the seafloor".

Throughout the EA process, recommend providing information on the following to facilitate DFO's assessment:

- 1) how will the ocean bottom nodes be deployed/recovered?
- 2) is there any lateral movement expected for the nodes?
- 3) what is the benthic footprint of a node (including any lateral movement)?
- 4) what are the locations of node placement?
- 5) what benthic habitat and species (including species at risk) will/could be present in locations of node placement?
- 6) does the number of 1000-3000 OBNs which may be used represent the entire 4 year program, 1 survey year, or for a single section/area being surveyed?
- 7) how many node placement locations will there be?

Section 2.2.8: Testing of Modified Airgun Activation Procedure, page 7, paragraph 1

This section of the project EA should include a description of how the eSeismic airgun activation procedure may differently affect pelagic and benthic fish, shellfish, species at risk, marine mammals and sea turtles in comparison to standard procedures.

Section 2.3: Mitigation and Monitoring for Marine Mammals, Sea Turtles and Seabirds, page 9, paragraph 1

This section of the project EA should include coral and sponges, special/sensitive areas, and methodologies to avoid sensitive species (in particular corals and sponges). For the Laurentian Channel MPA, reference should be made to sea pens, smooth skate, Porbeagle shark, Leatherback sea turtle, Northern wolffish, black dogfish.

Section 3.3: Effects of the Project on VECs, page 10, paragraph 1

VECs should also include corals and sponges, Atlantic cod, species in the Laurentian Channel MPA, and sensitive areas.

SPECIFIC COMMENTS – Draft Scoping Document

Section 3: Scope of Project, bullet 3.2 – “Potential use of Ocean Bottom Nodes (OBN) in conjunction with streamers to acquire seismic data”

ROVs are sometimes used to place OBNs on the seafloor in complex bathymetry or when water depth > 100 m. Will that be an option for portions of the survey being proposed to occur within OECMs?

Section 5.2.3 to 5.2.7: Marine and/or Migratory Birds, Marine Fish and Shellfish, Marine Mammals, Sea Turtles, SAR, and Sensitive Areas, pages 6-8

Suggest the first sentence in each of the above noted should read "...changes to the following and any data and/or information gaps noted with respect to (Marine Birds, Mammals, etc.) in applicable, recent EAs for Exploratory Drilling.

Section 5.2.7: Sensitive Areas, page 8

This section of the project EA should include: Coral and Sponge focused OECMs (Northeast Newfoundland Slope, 30); the LC MPA (focused on sea pens, fish, turtle and shark); Atlantic cod focused OECM (Funk Island Deep)

Section 5.2.8: Noise/Acoustic Environment, page 8

This section of the project EA should include a description of sound levels that may be expected at distances from the source throughout the water column, and how these may affect pelagic and benthic species.

Fisheries, Forestry And Agriculture (FFA) Newfoundland & Labrador

GENERAL COMMENTS

Biosecurity in Relation to Aquatic Invasive Species and the Movement of International Vessels

Aquatic Invasive Species (AIS) are an increasing risk to the provinces native species, habitats, ecological structures and cultured fish. A coordinated approach is needed to prevent and mitigate the introduction and spread of harmful AIS. Both Fisheries, Forestry and Agriculture (FFA) and Fisheries and Oceans Canada (DFO) regularly encourage proponents to exercise best practices to help prevent the introduction and spread of AIS. To help mitigate the potential spread of AIS we should ensure that the proponent follows recommended best practices and guidelines.

Best practices to prevent the introduction and spread of AIS include:

- AIS awareness in waters frequented
- Taking precautions with respect to vessel traffic and gear movement between affected and unaffected areas to prevent introductions and spread

- Clean, drain and dry gear and ropes to prevent movement between areas by avoiding transportation of water from one location to another
- Routine vessel maintenance (i.e. cleaning the hull and using antifouling paint to prevent biofouling)
- Identifying and reporting any AIS to DFO

Additional information regarding AIS in the NL Region can be found on the [Aquatic Invasive Species website](https://www.dfo-mpo.gc.ca/species-especes/ais-eae/index-eng.html). <https://www.dfo-mpo.gc.ca/species-especes/ais-eae/index-eng.html>

Endangered North Atlantic Right Whale (NARW)

There have been increased sightings of the endangered NARW, *Eubalaena glacialis*, in Newfoundland and Labrador waters in recent years. The NARW is particularly vulnerable to extinction, being that it is a slow growing species with only approximately 336 animals remaining worldwide. DFO and Transport Canada have implemented a number of protective measures in an effort to minimize interactions with NARWs. From an economic perspective, Canada is now required to demonstrate stringent efforts to protect marine mammals to meet the United States (U.S) Import Provisions under the Marine Mammal Protection Act so that Canada may continue to export fish and seafood to the U.S. While the proponent considers that NARWs and other marine mammals could be in the area during experimental trials, they should also be aware of the possibility that interactions with NARWs can affect Canada's ability to export seafood.

SPECIFIC COMMENTS - Draft Scoping Document

Section 5.1. Boundaries

Boundaries section indicate that the proponent will consider the potential effects of the proposed seismic survey program within spatial and temporal boundaries that encompass the periods and areas during and within which the project may potentially interact with, and have an effect on, one or more VCs. These boundaries may vary with each VC and the factors considered.

FFA advises that the proponent be aware of the Federal Marine Bioregion (the Newfoundland-Labrador Shelves) within the project/study area. All available ecological information and data (including experiential/traditional knowledge) should be taken into consideration when forming boundaries between biogeographic units. Testing should consider these data sources.

Section 5.2.6 Species at Risk (SAR)

SAR section indicates that the proponent will provide new or updated information to address any changes to the following:

- A description of critical habitat (as defined under the *Species At Risk Act (SARA)*), if applicable, to the Study Area;
- Monitoring and mitigation, consistent with recovery strategies/action plans (endangered/threatened) and management plans (special concern);
- A summary statement stating whether project effects are expected to contravene the prohibitions of SARA (Sections 32(1), 33, 58(1));
- Means by which adverse effects upon SAR and their critical habitat may be mitigated through design, scheduling, and/or operational procedures; and
- Assessment of effects (adverse and significant) on SAR and critical habitat, including cumulative effects.

FFA advises that the proponent be aware of the DFO Species at Risk Critical Habitats (Northwest Atlantic Fisheries Organization (NAFO) Divisions 3K, 3L, and 3Ps) within the project/study area (See Annex 1). Critical habitat is identified for species listed as Endangered or Threatened under SARA. Section 49(1)(a) of SARA requires that a species' Recovery Strategy/Action Plan include an identification of the species' critical habitat to the extent possible, based on the best available information, including information provided by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). It is important that the critical habitats be described and displayed in species recovery documents and action plans.

Section 5.2.6 Species at Risk (SAR)

SAR section indicates that the proponent will provide new or updated information to address any changes to the following:

- A description of SAR as listed in Schedule 1 of the SARA, and those under consideration by COSEWIC in the Study Area, including fish, marine mammal, sea turtles, and seabird species. It is advised that the SARA Registry and COSEWIC website be referred to for the most recent information;

FFA advises that the proponent be aware of the DFO Aquatic Species at Risk Distribution (NAFO Divisions 3K, 3L, 3N, 3O, 3Ps, 4Vn, and 4Vs) within the project/study area (See Annex 1). The SAR Program is responsible for carrying out DFO's mandate under the SARA to protect, recover and conserve all listed aquatic SAR in Canada.

Section 5.2.7 Sensitive Areas

Sensitive areas section indicates that the proponent will provide new or updated information to address any changes to the following:

- Sensitive Areas in the Study Area deemed important or essential habitat to support any of the marine resources identified;

FFA advises that the proponent be aware of the Ecologically and Biologically Significant Areas (EBSAs) (NAFO Divisions 3K, 3L, 3N, 3O, 3Ps, 4Vn, and 4Vs) within the project/study area (See Annex 1). EBSAs are areas within Canada's oceans that have been identified through formal scientific assessments as having special biological or ecological significance when compared with the surrounding marine ecosystem. Areas identified as EBSAs should be viewed as important areas where, with existing knowledge, regulators and marine users should be particularly risk averse to ensure ecosystems remain healthy and productive.

Section 5.2.8 Noise/Acoustic Environment

Noise/Acoustic environment section indicates that the proponent will provide new or updated information to address any changes to the following:

- Disturbance/displacement of VCs and SAR associated with seismic survey activities;
- Means by which potentially significant effects may be mitigated through design, scheduling and/or operational procedures; and
- Effects of seismic activities (direct and indirect) including cumulative effects, on the VCs and SAR identified within the EA. Critical life stages should be included.

FFA advises that the proponent recognize that anthropogenic noise and vibration can cause auditory masking, leading to changes in individual and social behavior of marine species, hinder population recruitment and ultimately affecting the health of marine ecosystems. FFA recommends reduced vessel speeds as a method to reduce excess noise and vibration.

Additionally, the proposed project area holds economic and ecologic value, FFA further encourages the establishment of a noise and vibration monitoring plan to monitor potential long term effects.

Annex 1:

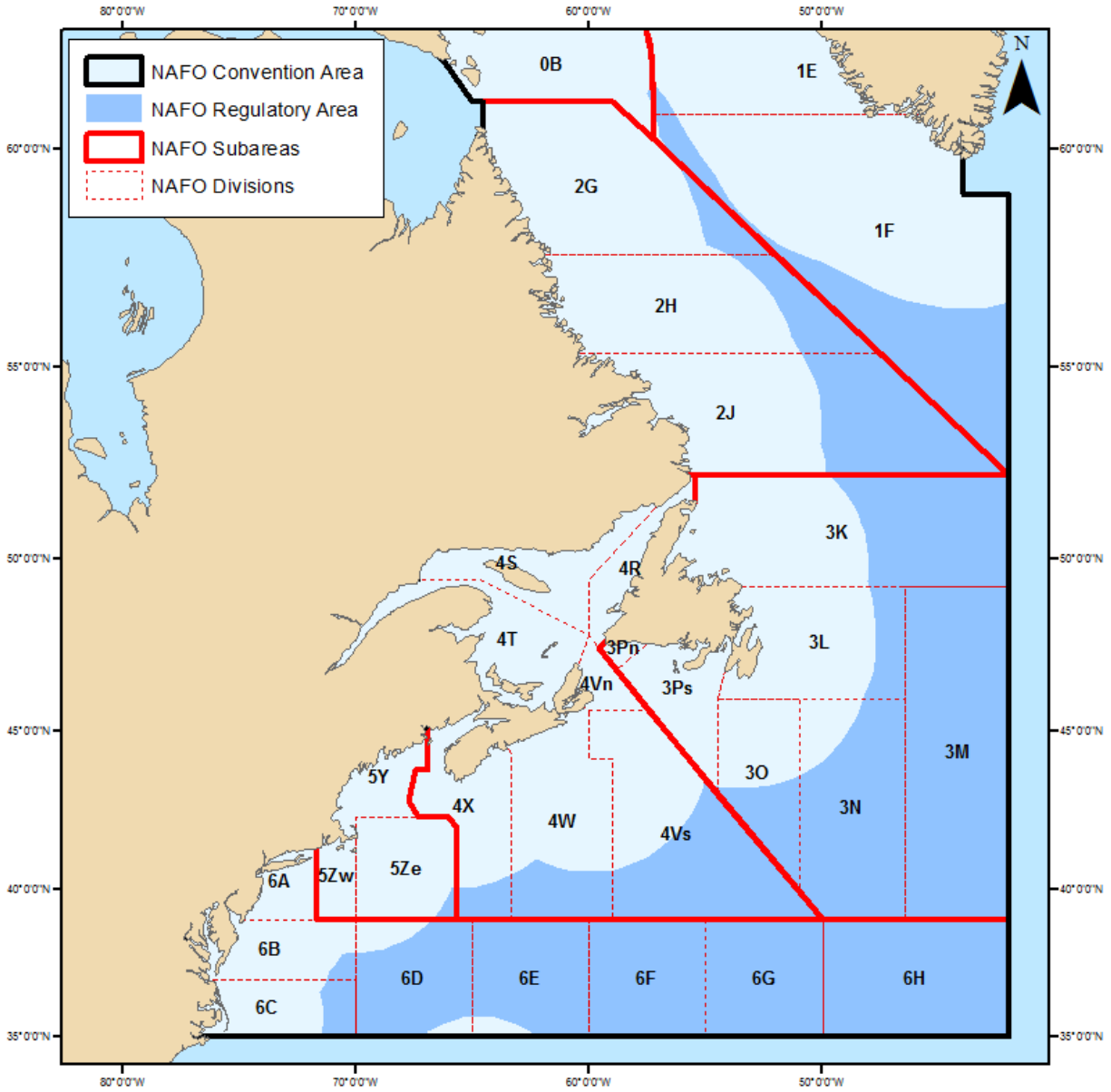


Figure 1: Northwest Atlantic Fishery Organization (NAFO) Regulatory Areas Map

SPECIFIC COMMENTS - Project Description

Section 2.3 Mitigation and Monitoring for Marine Mammals, Sea Turtles and Seabirds

Mitigation and monitoring section indicates that the proponent project mitigation measures will be detailed in the EA. The C-NLOPB's *Geophysical, Geological, Environmental and Geotechnical Program Guidelines* (C-NLOPB 2019) will be used as the basis for the marine mammal and sea turtle monitoring and mitigation program for the seismic surveys. MMOs will monitor for marine mammals and sea turtles and implement mitigation measures as appropriate. PAM Operators will also monitor for marine mammals.

FFA advises that although the proponent states that the airgun array ramp ups will be delayed if a marine mammal or sea turtle is detected within the appropriate safety zone (minimum of 500 m), there is concern that the size of the safe zone may not be sufficient in protecting marine mammals and/or sea turtles from the electromagnetic fields. It should be noted that research on the effects of electromagnetic surveys on the behavior of electrosensitive animals is still very limited.

Project Description – Section 2.2.8 Testing of Modified Airgun Activation Procedure

Testing of modified airgun activation procedure section indicates that the proponent will test a modified activation procedure of the airguns called eSeismic. This technology involves the activation of individual airguns in a pseudo-random pattern every 200 ms or every 1–2 m along a seismic survey line. As such, only one airgun is activated at a time, but the airguns are activated on a near continuous basis versus every 10–12 seconds in a conventional seismic survey. In any given year, MKI may test eSeismic in an area ranging from 50–200 km², which is estimated to require 7–21 days to conduct.

FFA advises that the proponent be aware airguns may have many types of effects on marine organisms, ranging in severity from short-term physical startle reactions to long-term behavioral changes. It should be noted that research on the effects of airguns is still very limited. The implementation of marine vibroseis over airgun surveying is recommended. Research shows that the decreased amount of decibels used for the process of marine vibroseis can reduce the interference with marine organisms in the vicinity.

Section 3.0 Environmental Assessment

Environmental assessment section indicates that the proponent will closely follow previous assessments of seismic programs in the Newfoundland and Labrador offshore (e.g., LGL 2018). The primary issue of concern relates to the potential effects of underwater noise from the airgun arrays on marine fauna and the effects of the seismic survey on fisheries.

FFA advises that the proponent be aware that the project/study area for the Controlled Source Electromagnetic Survey overlaps with the Northeast Slope Marine Refuge, as well as additional Significant Benthic Areas for sea pens outside of the Refuge. The Northeast Slope Marine Refuge was created to protect slow-growing, fragile cold-water corals and sponges and is closed to bottom contact fisheries. Sea pens, which are thought to be the dominant species of coral in the area, have slow growth rates meaning that once a colony is destroyed or threatened it takes a considerable amount of time for sea pens to re-establish. Cold-water corals and sponges provide essential habitat for juvenile fish, including those that are commercially valuable.

Section 3.4 Consultations

Consultation section indicates that the proponent will consult with the Fish, Food and Allied Workers (FFAW) to discuss the project. The Newfoundland and Labrador fishing industry is an important ocean stakeholder. To mitigate any potential negative impacts on the marine environment and local fisheries, FFA advises that the proponent must consult local fish harvesters, in all the NAFO Divisions within the project/study area, 3K, 3L, 3M, 3N, 3O, 3Ps, 4Vn, 4Vs, and 6H, for information regarding fisheries in the area and to notify harvesters of their

plans to use said area. Harvesters can be consulted directly, by way of local Small Craft Harbour authorities or through FFAW. Engagement with fish harvesters must continue to be a top priority throughout the lifetime of the project.

The project/study boundary also extends just beyond the Exclusive Economic Zone (EEZ) where NAFO holds jurisdiction over commercial fishing activity in those areas. It is advised that the proponent seek to include data from NAFO on fishing activity that might occur during the summer and fall in the project area that extends just beyond the EEZ. In addition to domestic fishing fleets, there may also be international vessels actively fishing in this area during the timeframe of the project.