

consumption is not reduced unless there is a likely health risk from the consumption of these foods or specific quantities of these foods. If there is a potential health risk, consumption advisories should be considered; and

- include procedures in the Fisheries Communications Plan to engage in two-way communication with Indigenous groups and commercial fishers in the event of a spill requiring a tier 2 or tier 3 response.

Follow-Up

The Agency identified the following measures as part of a follow-up program to ensure the effectiveness of mitigation measures and to verify accuracy of predicted effects in the event of a spill:

- as required by and in consultation with the C-NLOPB, monitor the environmental effects of a spill on components of the marine environment until specific endpoints identified in consultation with expert government departments are achieved. As applicable, monitoring shall include:
 - sensory testing of seafood for taint and chemical analysis for oil concentrations;
 - measuring levels of contamination in recreational, commercial and traditionally harvested fish species with results integrated into a human health risk assessment to determine the fishing area closure status;
 - monitoring marine mammals, sea turtles and birds for signs of contamination or oiling and reporting results to the C-NLOPB, DFO and ECCC; and
 - monitoring benthic organisms and habitats in the event of a synthetic-based mud spill or other event that could result in smothering or localized effects to the benthic environment.
- develop a procedure to communicate monitoring results to Indigenous and commercial fishers, as well as Indigenous groups.

Agency Conclusion

In taking a precautionary approach, the Agency concludes that, even with the implementation of mitigation measures, the potential effects of a worst-case accident or malfunction from the Project (i.e., unmitigated subsea release) on migratory birds and special areas could be significant. Similarly, considering the potential presence of species at risk, the Agency concludes that the potential effects of a worst-case accident or malfunction on fish and fish habitat and marine mammals and sea turtles could also be significant. By extension and particularly considering potential effects on populations of Atlantic Salmon and their recovery, as well as the context provided by Indigenous groups, the Agency concludes that the potential effects on the current (or future, as it pertains to at-risk Atlantic Salmon populations) use of lands and resources for traditional purposes and the health and socioeconomic conditions of Indigenous peoples could be significant. With the implementation of mitigation measures, including the requirement to compensate for any damages to commercial fishing caused by an accident or malfunction, the Agency concludes that the potential effects of a worst-case accident or malfunction from the Project on commercial fisheries would not be significant.

However, the Agency recognizes that the probability of occurrence for a major event is very low and thus, these effects are unlikely to occur. Taking into account the implementation of key mitigation measures, the Agency concludes that the Project is not likely to cause significant adverse environmental effects as a result of accidents and malfunctions.

7.2. Effects of the Environment on the Project

Severe environmental conditions or events can increase the probability of an accident or malfunction that could in turn affect the environment. For this reason, the effects of the environment on a project are considered.

7.2.1. Proponent's Assessment of Environmental Effects

The Project could be affected by environmental phenomena such as weather conditions, oceanographic conditions, sea ice, icebergs, MODU and vessel icing, and geological stability and seismicity. The MODU selected would function within the environmental conditions likely or known to be encountered.

Weather and Oceanographic Conditions

Poor visibility resulting from fog, rain or snow conditions could increase the potential for accidental events. From May through August, visibility is poor (0.5 to 2 kilometres) or very poor (less than 0.5 kilometres) from 33 to 52 percent of the time. Visibility and ceiling restrictions may be a factor for shipping or for helicopter support activities. Severe sea states can occur year-round with maximum significant wave heights exceeding 12 metres from September through March and reaching 15 metres in February. Extreme wind and wave conditions could result in MODU failure or capsizing of a vessel. Currents also have the potential to increase stress on a MODU, including the riser, which could result in malfunctions and accidental events.

Sea Ice, Icebergs and Mobile Offshore Drilling Unit and Vessel Icing

As outlined in Section 5, sea ice and icebergs occur in the project area, although, with a well-designed and implemented ice management plan, there would be minimal risk for interaction with the MODU or with infrastructure on or near the seabed. Ice is a navigational hazard and may increase the risk of an accidental event. MODU and vessel icing is also a potential risk during the winter and could result in a higher centre of gravity, slower vessel speed and maneuvering difficulty, as well as problems with equipment. The icing potential in the project area is greatest from January through March with a frequency of occurrence between approximately 20 and 30 percent; marine icing conditions along the vessel route would be similar to those experienced farther offshore, with some increased potential for heavier icing closer to shore. If icing is not properly managed, damage could occur and there could be an increased likelihood of an accidental event.

Geological Stability and Seismicity

A tectonic event could cause an earthquake of a significant size that results in seafloor instability. Subsequently, landslides could damage subsea infrastructure, disrupt project activities and increase the risk of potential accidental events. The Flemish Pass area has been identified as having a one-in-500 landslide risk occurring over any 20-year period. The MODU would be designed to accommodate and withstand seismic and related environmental loads.

The proponent indicated that a tsunami from a tectonic event is unlikely to occur. If necessary, the MODU would have the capability to quickly disconnect the riser from a well reducing the risk of damage to the well, riser and MODU.

7.2.2. Views Expressed

Federal Authorities

The C-NLOPB, ECCC, NRCan and DFO advised the Agency that, as applicable to their respective mandates and areas of expertise, the proponent's analyses were adequate for the purpose of the EA.

Indigenous Peoples

MTI asked how the proponent intends to monitor iceberg movement and collision potential and how emergency evacuation and shut-down could reduce the potential of an oil spill. They requested that Indigenous groups be notified of iceberg collision potential and how iceberg activity may alter or restrict the drilling program. KMKNO commented that the proponent should develop and implement procedures and training specific to emergency riser disconnect. The procedures and training should include specific installation and forecast weather thresholds (i.e., precautionary operating limits), clear decision-making processes, and detailed and unambiguous roles and responsibilities. The proponent noted that it would monitor physical environmental conditions, including the presence and movement of icebergs, and establish practices and limits for operating in poor weather or under other conditions (e.g., presence of icebergs). It would also have an emergency disconnect protocol to disconnect the riser, shut-down the well and move the MODU to a safe location. The C-NLOPB confirmed that the proponent would be required to submit a safety plan for approval. This plan would address the possibility of pack sea ice or drifting icebergs at the drill site and the measures to protect the installation, including systems for ice detection, surveillance, data collection, reporting, forecasting and, if appropriate, ice avoidance or deflection. Through the C-NLOPB's incident disclosure policy, information on iceberg collisions would be posted on the C-NLOPB's website. More broadly, the proponent would also be required to implement a physical environment monitoring program and establish and enforce practices and limits for operating in all conditions that may be reasonably expected.

Public

The Agency did not receive comments from the general public regarding the effects of the environment on the Project.

7.2.3. Agency Analysis and Conclusion

Analysis of the Effects

Severe environmental conditions or events can increase the probability of an accident or malfunction that could in turn affect the environment. The Project could be affected by weather conditions, oceanographic conditions, sea ice, icebergs, MODU and vessel icing, and geological instability and seismicity. These environmental conditions can affect the overall stability and functioning of the MODU or support vessels. In extreme situations these conditions may result in a required evacuation, failure of the MODU or vessel capsizing or result in a spill or another unplanned event.

The proponent would obtain a Certificate of Fitness for the MODU as required by the *Newfoundland Offshore Certificate of Fitness Regulations* to ensure it is fit for purpose and can function as intended. Meteorological and oceanographic monitoring programs would also be implemented over the life of the Project to forecast and respond to severe environmental conditions. The *Offshore Physical Environmental Guidelines* describe the requirements for monitoring and reporting of environmental conditions. The development and implementation of

an Ice Management Plan is required by the *Newfoundland Drilling and Production Regulations* as part of the Safety Plan submitted by the proponent with an application for authorization by the C-NLOPB. The Ice Management Plan would outline methods for monitoring iceberg and pack ice and the measures to protect installations, including systems for ice detection, surveillance, data collection, reporting, forecasting and potentially ice avoidance or deflection. The proponent would be required to establish and enforce practices and limits for operating in all severe environmental conditions and to ensure that the MODU has the ability to quickly disconnect the riser from the well.

Key Mitigation Measures to Avoid Significant Effects

The Agency considered measures proposed by the proponent (Appendix B), comments from an Indigenous group and advice from federal authorities and identified key measures to mitigate the effects of the environment on the Project. The proponent shall:

- in consultation with the C-NLOPB and ECCC, implement a physical environment monitoring program in accordance with the *Newfoundland Offshore Petroleum Drilling and Production Regulations* and meet or exceed the requirements of the *Offshore Physical Environmental Guidelines*;
- in consultation with the C-NLOPB, establish and enforce practices and limits for operating in all conditions that may be reasonably expected, including poor weather, severe sea state, or sea ice or iceberg conditions;
- in consultation with the C-NLOPB and as part of the required Safety Plan, develop an Ice Management Plan including procedures for detection, surveillance, data collection, reporting, forecasting and avoidance or deflection of icebergs; and
- in consultation with the C-NLOPB, implement measures to ensure that the MODU has the ability to quickly disconnect the riser from the well in event of an emergency or severe weather conditions.

Follow-up

The Agency identified the following measure as part of a follow-up program:

- in accordance with the *Newfoundland Offshore Petroleum Drilling and Production Regulations*, report annually to the C-NLOPB on whether there has been a need to modify operations based on severe environmental conditions and on the efficacy of the practices and limits established for operating in poor weather, high sea state, or sea ice or iceberg conditions.

The Agency notes that incidents and near misses involving collisions (including iceberg collisions) that result in or could result in a spill or unauthorized discharge or impairment to critical equipment would be posted on the C-NLOPB's website as part of its incident disclosure policy.

Agency Conclusion

Based on commitments made by the proponent and with the implementation of the mitigation and follow-up measures listed above and required by the C-NLOPB, the Agency is satisfied that the effects of the environment on the Project have been adequately considered and are not likely to result in significant adverse environmental effects.

7.3. Cumulative Environmental Effects

7.3.1. Proponent’s Assessment of Environmental Effects

The proponent’s cumulative environmental effects assessment considered the overall effect on valued components as a result of the Project’s predicted residual environmental effects and those of other relevant projects and activities. The proponent used the same spatial and temporal boundaries for the cumulative environmental effects assessment as for the project-specific effects assessment of each valued component (Section 2.1 and Figure 1).

Other Physical Activities Considered

Physical activities that were considered in the cumulative environmental effects assessment are listed in Table 8.

Table 8: Projects and Activities Considered in the Cumulative Environmental Effects Assessment

Project / Activity	Overview
Hibernia Oilfield	Located approximately 164 kilometres west of exploration licence 1144. Production activities at this oilfield are planned to extend throughout the temporal duration of the Project.
Terra Nova Oilfield	Located approximately 160 kilometres southwest of exploration licence 1144. Production activities at this oilfield are planned to extend throughout the temporal duration of the Project.
White Rose Oilfield and Extension Project	Located approximately 111 kilometres southwest of exploration licence 1144. Production activities at this oilfield are planned to extend throughout the temporal duration of the Project.
Hebron Oilfield	Located approximately 156 kilometres southwest of exploration licence 1144. Production activities at this oilfield are planned to extend throughout the temporal duration of the Project.
Bay du Nord Development Project (proposed)	Located 18 kilometres north of exploration licence 1144. If the proposed project is carried out, activities at this oilfield could partially overlap temporally with the Project.
Offshore Petroleum Exploration - Drilling	As of June 28, 2019, a total of 246 development wells, 98 exploration wells and 56 delineation wells had been drilled in the Jeanne d’Arc and eastern Newfoundland and Labrador offshore area (C-NLOPB, 2019a.). The Jeanne d’Arc and eastern Newfoundland offshore area is also subject to ongoing and planned offshore exploration drilling programs which have the potential to temporally overlap with the proposed project including (C-NLOPB, 2019b):

Project / Activity	Overview
	<ul style="list-style-type: none"> • Equinor Canada Ltd. Flemish Pass Exploration Drilling Project 2018-2028; • ExxonMobil Canada Limited Eastern Newfoundland Offshore Exploration Drilling Project 2018-2028; • Husky Energy Exploration Drilling Project 2018-2025; • BP Canada Energy Group ULC Newfoundland Orphan Basin Exploration Drilling Project 2017-2026; • ExxonMobil Canada Limited Southeastern Newfoundland Offshore Exploration Drilling Project 2020-2029; • Chevron Canada Limited West Flemish Pass Exploration Drilling Project 2021-2030; • BHP Canada Exploration Drilling Project 2019-2028; • Equinor Canada Limited Central Ridge Exploration Drilling Project 2020-2029; and • Suncor Energy Offshore Exploration Partnership Tilt Cove Exploration Drilling Project 2019-2028.
Offshore Petroleum Exploration – Geophysical and Other Exploration Activities	<p>Offshore geophysical surveys may include two-dimensional, three-dimensional or four-dimensional geophysical data acquisition. While geophysical and other exploration activities are multi-year programs that can cover large offshore areas, the type and level of activity conducted each year varies.</p> <p>There are approximately 14 offshore geophysical programs in the Jeanne d’Arc and eastern Newfoundland offshore area in various stages of approval which have the potential to temporally overlap with the Project (see http://www.cnlopb.ca/assessments), including:</p> <ul style="list-style-type: none"> • Husky Energy Jeanne d’Arc Basin/Flemish Pass Regional Seismic Program, 2012-2020; • Suncor Energy’s Eastern Newfoundland Offshore Area 2D/3D/4D Seismic Program, 2014-2024; • WesternGeco Canada Eastern Newfoundland Offshore Seismic Program, 2015 to 2024; • ExxonMobil Canada Eastern NL Geophysical Program 2015-2024; • CGG Services (Canada) Inc. Newfoundland Offshore 2D, 3D 4D Seismic Program 2016-2025; • Seitel’s East Coast Offshore 2D 3D 4D Seismic Program 2016-2025; • Polarcus UK Ltd. Eastern Newfoundland Offshore 2D, 3D and 4D Seismic Program 2016-2022; • CNOOC Petroleum North America ULC Eastern Newfoundland and Labrador Offshore Geophysical, Geochemical, Environmental and Geotechnical Program, 2018-2023; • Multiklient Invest AS Newfoundland Offshore Seismic Program, 2018-2023; and • Capelin 3D Seismic Survey of EL 1138 Offshore Newfoundland and Labrador (2018-2021).
Fishing Activity	Commercial fisheries within and around the project area are extensive and diverse.
Other Marine Vessel Traffic	<p>Vessel traffic includes tanker traffic and supply vessels associated with the existing offshore oil developments, as well as cargo ships, navy ships and fishing vessel traffic.</p> <p>Occurs through the region throughout the year.</p>

Project / Activity	Overview
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Hunting Activity	Wildlife (especially seabird) populations off Newfoundland and Labrador are subject to hunting. Although little or no hunting is expected to occur in the project area, these activities do affect the bird and seal populations that occur in the regional study area.
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Potential Cumulative Environmental Effects on Fish and Fish Habitat

Marine fish and their habitats have been and are being affected by a variety of anthropogenic and natural influences including ongoing fishing activity, offshore petroleum exploration and production, general vessel traffic and other human activities, as well as the effects of climate change. The Project may contribute to cumulative effects on fish, including species at risk, and fish habitat as a result of changes in habitat availability and quality; food availability and quality; fish mortality, injury and health; and fish presence and abundance.

There would likely be some overlap between the effects on fish and fish habitat of commercial fishing activities and those of the Project. However, the temporary and localized nature of the Project’s effects and the implementation of safety exclusion zones would somewhat limit the potential for direct interactions between the effects of commercial fisheries and effects of project-related activities on fish and fish habitat.

There would also be potential for interaction between effects of the Project and effects of other offshore petroleum exploration and production activities (e.g., seismic surveys, geophysical surveys and drilling) and other marine vessel traffic. Potential cumulative effects from these interactions include effects from underwater sound and disturbance to benthic species and habitats for drill cuttings accumulations around well sites; however, the proponent predicted that these interactions would be minor due to the spatially and temporally limited nature of the effects of the Project.

Potential Cumulative Environmental Effects on Marine Mammals and Sea Turtles

Ongoing and future activities that may affect marine mammals and sea turtles (including species at risk) include fishing activity, vessel traffic and other offshore oil and gas exploration and production programs. In general, there would be limited potential for the Project to contribute to cumulative effects on marine mammals and sea turtles given the transient and temporary nature of effects of the Project and generally localized nature of the majority of effects of these other activities. However, the propagation of underwater sound through the marine environment would result in greater potential for overlapping effects. As discussed in Section 6.2, the proponent predicted the behavioural thresholds for marine mammals exposed to continuous underwater sound could be exceeded up to 56.8 kilometres from the MODU and slightly further in winter. Although the highly mobile nature of marine mammals increases the potential for individuals and groups to be affected by multiple perturbations, conversely, this trait allows them to avoid or pass through disturbed areas reducing the potential adverse effects.

In particular, underwater sound from the four existing offshore production fields could interact with project-related sound and result in cumulative environmental effects. However, these projects are located 111 kilometres or more from the closest exploration licence, limiting the potential for spatial overlap of sound effects. Offshore petroleum exploration activities also present some potential for interaction, although the localized and short-term nature of these activities and their effects, along with the implementation of standard

safety and mitigation measures (e.g., planned and required safety exclusion zones; adherence to best practices with respect to seismic surveys), would limit the potential for interaction.

Effects of fishing activities on marine mammals could also interact with effects of the Project, although fishing is a transient activity and the available data do not indicate that the project area is a key fishing area. Other marine traffic also has the potential for interactions; however, the proponent assessed that the effects are localized and transient.

Project vessel activity in combination with general vessel traffic and commercial fishing activity may result in effects on marine mammals and sea turtles through an increased risk of collisions with vessels. Project-related traffic would be short-term, transient and localized, which limits the opportunity for cumulative environmental effects.

Potential Cumulative Environmental Effects on Migratory Birds

In general, while populations of most marine-associated birds occurring off eastern Newfoundland are considered stable, four of the seven major colonies of Leach's Storm-petrels in Atlantic Canada (including all three major Newfoundland colonies) have declined in recent years. This has been attributed to several factors including predation, ingestion of marine contaminants such as mercury, collisions and strandings due to attraction to lighted structures, and contact with hydrocarbons. The majority of strandings reported by operators occur in September and October, corresponding with the departure of Leach's Storm-petrel fledglings from breeding colonies and with fall landbird migration.

Potential interactions with migratory birds (including species at risk) are predicted to be short-term at any one location given the limited spatial and temporal scope of the Project. The nature of the Project itself therefore reduces the potential for particular individuals and populations to be affected repeatedly through multiple interactions with the Project, as well as the potential for, and degree and duration of, any overlap between the effects of the Project and other activities.

Within the regional study area, cumulative effects of the Project in combination with other light sources in the offshore environment have the potential to alter foraging behaviour for the Leach's Storm-petrel and other nocturnal seabirds. The current production projects are located between 90 and 140 kilometres from the project area and environmental disturbances in the 16-kilometre zone of influence associated with lighting would not likely overlap with those of the current production projects with the possible exception of vessel transits. Zones of influence associated with lighting from other marine traffic and activities, including oil and gas exploration and fishing, may overlap with that of the Project causing some temporary short-term alteration of foraging activities as birds and their forage species may be attracted to these light sources.

Entanglement in fishing gear can cause mortality and injury to seabirds. In Newfoundland and Labrador, murre and shearwaters are the birds most commonly caught as bycatch in fishing gear. General vessel traffic to and through the project area may affect marine and migratory birds through lighting, discharges and displacement/disturbance but the highly transitory nature of these disturbances limits any effects at any location and time and thus, the potential for cumulative effects. Zones of influence associated with lighting from other marine traffic (including oil and gas exploration activity and fishing vessels) may overlap with that of the Project causing some temporary short-term alteration of foraging activities as birds and their forage species may be attracted to these light sources.

The proponent did not predict that the Project would result in any adverse effects on marine or migratory bird species at risk and therefore contribute to cumulative effects on these species.

Potential Cumulative Environmental Effects on Special Areas

Several special areas overlap with the Project's exploration licence areas and vessel traffic routes (Section 6.4). Special areas could be affected by planned or potential oil and gas exploration activities, including offshore seismic or geophysical surveys and drilling, fishing activities and other marine vessel traffic. Many of the offshore activities and associated disturbances that would occur as a result of the Project would be localized and short-term in nature and the implementation of the environmental protection measures and procedures proposed for each valued component would serve to further address any direct or indirect potential effects on the special areas.

Potential Cumulative Environmental Effects on Fisheries

The project area overlaps with the NAFO fisheries footprint, although it is not in the area identified with the highest intensity of fishing. Various project components, including the safety exclusion zone around the active MODU, would temporarily reduce access for fishing and other activities; any such disturbances would be localized, short-term and reversible. This would be added to the safety zones established around the four current production projects and the safety zones around current or approved exploration drilling. However, the proponent states that the safety zones from these fields individually and collectively occupy a relatively small footprint in comparison to available fishing areas and that the safety exclusion zones from exploration projects are short-term and localized.

Marine vessel traffic is also common, although inherently transient in nature with limited disturbances to other ocean uses, and is likewise required to remain at specified distances from other marine activities, including active offshore exploration drilling and seismic programs.

The often spatially extensive nature of geophysical surveys increases the potential for these surveys and the Project to result in cumulative environmental effects on fishing enterprises. As part of the planning and implementation of survey activities, proponents of geophysical surveys would typically communicate and coordinate with relevant marine users and other stakeholders, including exploration drilling project proponents to plan and coordinate activities so as to provide spatial and temporal separation.

Potential Cumulative Environmental Effects on the Current Use of Lands and Resources for Traditional Purposes and Health and Socioeconomic Conditions of Indigenous Peoples

There are no documented food, social or ceremonial licences nor any current use of lands and resources for traditional purposes within the project area. Few of the marine associated resources that are known to be used by Indigenous groups are likely to migrate through the project area and for those that may (e.g., Atlantic Salmon) there would be a very low likelihood of interactions that could translate into a negative effect on traditional activities. The proponent predicted that there is no potential for the availability or quality of resources that are currently used for traditional purposes by Indigenous groups to be reduced or negatively affected as a result of routine project activities, especially to a degree that would alter the nature, location, timing, intensity or value of these activities or the health or heritage of Indigenous peoples.

7.3.2. Views Expressed

Federal Authorities

The C-NLOPB noted that the discussion of cumulative effects was qualitative with respect to seismic, geophysical and other exploration activities.

DFO noted that the predicted extent of drill cuttings and associated environmental effects, as well as the mitigation measures for the protection of sensitive benthic habitat, were not discussed in terms of cumulative effects.

ECCC advised that a new light source in darker parts of the regional study area where there is currently no offshore production may have a greater direct effect on migratory birds compared to the incremental effect of a new light source in the more active southwestern portion of the regional study area given that creating a new light source in a previously dark area would expand the overall lit area in the offshore. The proponent acknowledged that the lighting associated with the Project may have a direct effect on marine and migratory birds. Even in the more active portion of the regional study area, where current sources of artificial lighting are more numerous, the addition of lighting associated with the Project would result in a cumulative increase in the potential for attraction and disorientation of marine and migratory birds. To address this, the proponent committed to developing a program for standardized searches to document the effect of lighting on stranded marine and migratory birds.

ECCC also raised concern regarding the proponent's basis for the cumulative effects analysis on migratory birds and that the presence of artificial lighting along a foraging flight path should be the basis of a cumulative analysis (rather than overlapping light sources). On this basis, the same individual or individuals from the same population could be affected by light from production facilities and/or exploration facilities located far away from one another and outside their individual zones of influence.

DFO and ECCC advised that the mitigation measures, monitoring and follow-up programs proposed by the proponent and recommended by the Agency would adequately address the potential cumulative environmental effects on migratory birds, fish and fish habitat, marine mammals, sea turtles, including applicable species at risk, as well as on commercial fishing and special areas.

Indigenous Peoples

Several Indigenous groups commented on the importance of a thorough cumulative effects assessment. Elsipogtog were of the view that the proponent's cumulative effects assessment was overly simplistic given the multitude of exploration drilling programs ongoing within and planned for the Flemish Pass area. Elsipogtog also raised the concern that changes to sediments or benthic organisms would be considered a loss of fish habitat and therefore subject to the *Fisheries Act*. They also noted that although the proponent has determined that project effects would only last for a short period of time, the proposed duration of the exploration drilling is 10 years, which would cover more than two generations of Atlantic Salmon.

MFN expressed concern about cumulative environmental effects, including on declining Atlantic Salmon populations and the potential impact this would cause on their rights. The proponent noted that the general pattern of stock decline throughout the North Atlantic region over the past three decades has likely been a response at least in part to global climate change. MFB disagreed with the proponent's finding that the Project would not result in significant adverse cumulative environmental effects on salmon and raised concerns with

routine project effects such as impaired water quality as well as effects from an accident or malfunction. The proponent stated that based on its review of the information, its initial assessment remained valid and its conclusions unchanged. MFN also raised concern about the cumulative effect of underwater sound from seismic testing, petroleum production facilities and project activities on marine mammals and fish. The proponent acknowledged that propagation of underwater sound has the potential for overlap and interactions between sources with individual marine mammals and sea turtles having the potential to be exposed to multiple sources of underwater sound. However, it noted that behavioral effects from underwater sound would be temporary in nature and spatially distributed, which would reduce the potential for cumulative effects.

MTI raised concerns regarding the cumulative effects of sound on North Atlantic Right Whales and requested hydrophones be installed at the drill site to support ongoing monitoring and recovery efforts. The proponent stated that it is not intending to verify the noise predictions based on a study of acoustic propagation in the offshore waters of eastern Newfoundland, which found that average sound pressure levels were below the behavioural disturbance threshold at 35 kilometres from the Hibernia platform. However, the proponent would be required to develop and implement marine mammal observation requirements, including the use of passive acoustic monitoring or equivalent technology and visual monitoring by marine mammal observers throughout vertical seismic surveys. MTI expressed concern that the proponent's conclusion that existing production facilities and other exploration activities are far enough away to not cause cumulative effects was not sufficiently substantiated with scientific analysis to provide confidence in the conclusion. MTI had concerns with cumulative effects of multiple drilling mud releases on species important to MTI, including Swordfish, Atlantic salmon and Bluefin tuna. The proponent responded that Atlantic salmon, Atlantic Bluefin tuna and Swordfish are highly mobile pelagic species that exhibit avoidance behaviors and that the mitigation proposed in the EIS would result in negligible effects to these species from drill muds and cuttings. MTI requested that cumulative effects be managed through an Indigenous environmental monitoring program for routine and accidental events or malfunctions.

NunatuKavut raised concerns regarding the cumulative effects of oil spills on migratory fish on which their coastal communities are reliant for food. The proponent stated that the potential for contaminated fish to be ingested by Indigenous peoples, either directly through harvest or indirectly through the food chain, is considered very low based on the extremely low probability of an uncontrolled well event combined with the low likelihood of a transient species intersecting the spilled materials and then travelling to onshore or near shore locations and being harvest and consumed.

KMKNO were concerned that the accumulation of drill cuttings from multiple wells might have a negative cumulative effect on benthic species and habitats and requested the proponent conduct a follow-up study to validate the dispersion modelling to confirm that there are no cumulative effects. KMKNO and MTI were also concerned regarding the potential cumulative effect on marine mammals and sea turtles from collisions with the addition of project supply vessels to the current commercial fishing vessels and vessels from other ocean users. The Agency considered the concerns with respect to cumulative effects from vessels resulting in collisions with marine mammals and sea turtles in developing the conditions with which the proponent must comply.

Nutashkuan was concerned that the cumulative effects analysis did not consider the numerous seismic surveys and previous exploration wells that have been drilled in the offshore of Newfoundland.

A summary of issues raised by Indigenous groups is presented in Appendix C.

Public

The Fish, Food and Allied Workers Union raised the concern that there could be cumulative effects if multiple wellheads are left in place which would require avoidance by fishers. They noted that due to the nature of how fishing gear is set it can be challenging to avoid a particular location, which leads to a larger area of avoidance. The proponent stated that very little domestic fishing occurs within the exploration licence areas. The proponent concluded that the amount of actual bottom fishing lost would be small and alternative grounds would be available nearby. The Fish, Food and Allied Workers Union was also concerned that the cumulative effects assessment did not fully examine the effects of seismic programs, drilling, produced water and oil spills on fish and fish habitat for projects over the last 60 years of offshore exploration and development.

7.3.3. Agency Analysis and Conclusion

Analysis of the Effects

The Agency has considered the analysis of cumulative environmental effects provided by the proponent, advice from federal authorities and comments from Indigenous groups and is of the opinion that the residual environmental effects of the Project could interact cumulatively with the effects of other projects and activities.

Fish and fish habitat in the regional study area may be affected by the Project in combination with effects of other projects and activities. While most mobile fish species, including Atlantic Salmon, have higher potential to interact with multiple projects and activities, these species also generally have higher avoidance capabilities and access to alternative habitats. Furthermore, given the limited zone of influence and short-term nature of project-related disturbances on these species, potential cumulative effects of the Project would be limited.

The Agency agrees with the C-NLOPB that the proponent's cumulative effects assessment was generally qualitative in nature, including its analysis of potential accumulation of drill cuttings from multiple wells and notes KMKNO and DFO's related concerns. Through a review of available information and based on the proponent's modelling of drill cuttings deposition, the Agency conducted a more quantitative assessment of potential cumulative effects from accumulation of drill cuttings from multiple wells. Based on a review of the C-NLOPB's Schedule of Wells Summary, no historical wells were drilled within the two exploration licences for the Project, which lessens the potential for cumulative effects (C-NLOPB, 2019a). The proponent also predicted that drill cuttings would be deposited with a thickness greater than 1.5 millimetres (i.e., the no-effects threshold) across a maximum area of 0.18 square kilometres (700 metres by 260 metres) in exploration licence 1144 and 0.084 square kilometres (350 metres by 240 metres) in exploration licence 1150. If all ten potential exploration wells were drilled in one of the exploration licences, the maximum area covered with drill cuttings above the no-effects threshold would be 0.11 percent and 0.05 percent of the total areas of exploration licences 1144 (approximately 1630 square kilometres) and 1150 (approximately 1696 square kilometres), respectively.

The Agency also notes that ongoing environmental effects monitoring programs for petroleum production projects have demonstrated localized (i.e., less than 10 kilometres) geographic effects on fish habitat from drill cuttings and chemical contaminants. This suggests a limited potential for cumulative environmental effects between the Project and ongoing petroleum production projects. Furthermore, cumulative environmental effects on corals and sponges are predicted to be unlikely or minimal given the requirement for the proponent to relocate drilling activities or discharges, as required, if aggregations of coral and sponges or other environmentally-sensitive species are identified during pre-drill surveys. Cumulative environmental effects on

special areas protected based on the presence of sensitive benthic features would similarly be unlikely or minimal.

Marine mammals and sea turtles in the eastern Newfoundland offshore area may be affected by the Project in combination with effects of other exploration and production activities as well as effects of vessels from shipping, fishing and other activities. The potential cumulative effects of sound on marine mammals are of particular concern. Based on the proponent's predicted zone of influence for sound and based on information available for other offshore exploration and production projects in the region, the Agency has identified at least one potential development project (the Bay du Nord Development Project) and at least three exploration drilling projects with sound effects that could spatially overlap with the Project's. Even if the Project's sound effects do not spatially overlap with those of another project or activity, marine mammals and sea turtles can generally travel across great distances and may experience disturbances from multiple anthropogenic sound sources across a relatively large region. The potential effects of sound from the Project could therefore act cumulatively with the effects of other projects and activities in a region much larger than simply the zone of influence of the Project's effects. In addition, although the mobile nature of marine mammals and sea turtles may allow them to avoid or pass through disturbed areas, avoidance of otherwise suitable habitat is in itself a negative effect and is of concern when considering potential cumulative effects from multiple projects.

Despite the potential for cumulative effects to marine mammals and sea turtles, the Agency also notes that activities producing potential behavior-altering sound in the marine environment, including those of the Project, are generally short-term, transient and temporary (e.g., VSP surveys, vessel traffic, drilling), which would limit the potential for the Project's effects to temporally overlap with the effects from other projects and activities, including those projects which have effects that may overlap spatially with those of the Project. The proponent would also be required to implement mitigation measures to reduce the effects of the Project on marine mammals and sea turtles (Section 6.2), including measures to reduce effects from sound (e.g., conduct VSP surveys in accordance with the *Statement of Canadian Practice with Respect to the Mitigation of Seismic Sound in the Marine Environment*) and from vessel transits (e.g., reduce vessel speed under certain scenarios), which would in turn reduce the Project's contribution to cumulative effects. In addition, given uncertainties about the effects of sound, the proponent would be required to verify sound predictions from drilling installations and provide the results to DFO and the C-NLOPB.

The Project would contribute to an increase in night lighting in the eastern Newfoundland offshore area. Based on the proponent's zone of influence for lighting, a MODU in exploration licence 1144 or 1150 is unlikely to have light effects which overlap with any of the existing production facilities as the maximum predicted zone of influence is 16 kilometres and the closest production facility is the White Rose Oilfield and Extension located approximately 111 kilometres from the edge of exploration licence 1144. However, a MODU in either exploration licence 1144 or 1150 may have light effects which overlap with the proposed Bay du Nord Development Project which is located approximately 18 kilometres from the edge of exploration licence 1144. Regardless of whether light effects from the Project overlap spatially with other production or exploration activities, the Agency notes ECCC's advice that the basis for the cumulative effects analysis should be the presence of artificial lighting along flight paths and not spatially overlapping light sources. In this context, the Project has a greater potential to act cumulatively with the effects of other offshore projects and activities on migratory birds. However, the Agency notes that the presence of the MODU would be short-term (45 to 160 days per well) and the effects of light would be spatially limited relative to the overall regional study area. In addition, the proponent would be required to implement mitigation to reduce light attraction (e.g., reduced flaring duration, employing alternatives to flaring) and implement a protocol for daily monitoring for the presence of stranded birds. The results of

monitoring would also be shared and would increase the level of information regarding potential effects and inform the need for additional mitigation, if applicable.

Commercial fishing could be affected by the Project and other petroleum activities given that additional safety exclusion zones would be created as part of the Project. However, the contribution of the Project to cumulative environmental effects is predicted to be minor given the small size and short-term duration of safety exclusion zones.

The potential for cumulative environmental effects in the eastern Newfoundland offshore area have been raised as a concern by Indigenous groups due to the number of potential projects that could occur. Given these potential activities, the Government of Canada is working with the Province of Newfoundland and Labrador and the C-NLOPB on a regional assessment for offshore exploratory drilling in the offshore area of eastern Newfoundland, which would aim to examine the effects of existing and anticipated offshore oil and gas exploratory drilling, including cumulative environmental effects. In advance of the regional assessment, operators are working together in conducting effects analyses (including for this Project), engaging Indigenous groups and identifying research needs (e.g., migration and effects to Atlantic Salmon).

In conducting the review of this Project, the Agency has identified a series of mitigation measures, as well as follow-up and monitoring, related to fish and fish habitat, marine mammals and sea turtles, and migratory birds. These measures would reduce project-specific effects, reducing their contribution to any cumulative effects, and verify the accuracy of the predictions made during the EA. This proposed monitoring and follow-up would also enhance the understanding and reduce any uncertainty with respect to the potential effects from offshore exploratory activities, potentially contributing to the wider analysis of cumulative effects as part of the regional assessment.

Key Mitigation Measures to Avoid Significant Effects

Mitigation, follow-up and monitoring for this Project would contribute to the mitigation or monitoring of cumulative environmental effects. Additional measures have not been identified at this time but could be recommended for future projects following completion of the regional assessment.

Agency Conclusion

Taking into account the implementation of the mitigation measures proposed for the Project, the Agency concludes that the Project is not likely to cause significant adverse cumulative environmental effects.

8. Impacts on Potential or Established Aboriginal or Treaty Rights

8.1. Potential or Established Aboriginal or Treaty Rights

The Project is located in the Northwest Atlantic Ocean, with the nearest potential drilling location being approximately 400 kilometres from land and roughly 635 kilometres from the nearest Indigenous community on the island of Newfoundland. There are no recognized treaties overlapping the exploration licences or the larger project area. Since there are no Aboriginal or treaty rights in the project area, the pathways for potential impacts to rights of Indigenous groups are through impacts from project activities to migratory species that are harvested or fished within Indigenous groups' traditional territories. The potential impacts were examined through the lens of routine operations and accidents or malfunctions.

Migratory species of particular concern to Indigenous groups include Atlantic Salmon, seals, whales, migratory birds, Swordfish and American Eel. Effects assessments on migratory species are summarized in Section 6.1 Fish and Fish Habitat, Section 6.2 Marine Mammals and Sea Turtles and Section 6.3 Migratory Birds.

8.1.1. Labrador

The Nunatukavut Community Council asserts an Aboriginal right to hunt, fish and gather throughout its asserted traditional territory within Labrador and to resources along the offshore area immediately adjacent to the Labrador coast. The Nunatukavut Community Council holds food, social and ceremonial fishing licences for species that may migrate between the project area and the Labrador coast.

The Innu of Labrador (Innu Nation), who reside primarily on two reserves, Sheshatshiu in central Labrador and Natuashish on the North Coast of Labrador, assert Aboriginal rights to hunt, fish and gather resources within Labrador and along the Labrador coast. Innu Nation holds food, social and ceremonial fishing licences for species that may migrate between the project area and the Labrador coast.

The Nunatsiavut Government is an Inuit regional government within Newfoundland and Labrador. In 2005, the Province of Newfoundland and Labrador finalized the *Labrador Inuit Lands Claims Agreement*, a modern-day treaty between it, Canada and the Nunatsiavut Government. The project area is located greater than 500 kilometres southeast of the Labrador Inuit Settlement Area; however, the Nunatsiavut Government holds food, social and ceremonial fishing licences for species that may migrate between the project area and the Labrador Inuit Settlement Area.

8.1.2. Nova Scotia, New Brunswick and Prince Edward Island

Nova Scotia, New Brunswick and Prince Edward Island Indigenous groups²⁰ (Maritime First Nations) are signatories to Peace and Friendship Treaties, which provide the right to fish for a moderate livelihood. In addition, the Maritime First Nations have an established Aboriginal right to harvest migratory species within their traditional territories for food, social or ceremonial purposes. This includes on land and in the marine environment. Although the Project is located approximately 1000 kilometres east of Nova Scotia, endangered Atlantic Salmon populations, which Maritime First Nations have traditionally harvested in their territories, may pass through the project area as they migrate to or from their natal rivers located within these territories.

8.1.3. Quebec

Innu de Ekuanitshit and Première Nation de Nutashkuan, who reside on the north shore of the Gulf of St. Lawrence, assert an Aboriginal right to harvest Atlantic Salmon (and other migratory species) for food, social or ceremonial purposes in their territories, including on Anticosti Island, Quebec. Atlantic Salmon populations from the Gulf of St. Lawrence may pass through the project area during migration to or from their natal rivers located within the territories of these Innu Nations of Quebec.

Mi'gmaq of Gesgapegiag, Nation Micmac de Gespeg and Listuguj Mi'gmaq Government (represented by Mi'gmawei Mawiomi Secretariat) are part of the Peace and Friendship Treaties, which provide the right to fish for a moderate livelihood. In addition, the Mi'gmaq of Quebec have an established Aboriginal right to harvest migratory species within their traditional territories for food, social or ceremonial purposes, including Atlantic Salmon that may pass through the project area as they migrate to or from their natal rivers located within these territories.

8.2. Potential Adverse Impacts of the Project on Potential or Established Aboriginal or Treaty Rights

This section summarizes how the Project may impact potential or established Aboriginal or treaty rights. Appendix C provides a summary of concerns identified by Indigenous groups during this EA.

Proponent's Assessment

The proponent stated that most project-related activities would take place in an offshore marine environment, hundreds of kilometres from Indigenous communities. Project-related emissions and discharges and environmental interactions would be localized and short-term in nature, and are unlikely to extend to or affect the physical or social health and well-being or other socioeconomic conditions of an Indigenous community.

The proponent determined through existing documentation and engagement with Indigenous communities, that there are no food, social or ceremonial licences within or near the project area or the local study area. Indigenous

²⁰ See Section 4.1.1 of this EA Report for a list of Nova Scotia, New Brunswick and Prince Edward Island Indigenous groups the Agency consulted.

communities do not otherwise undertake the current use of resources in the marine environment for traditional purposes within or near these areas. This does not mean that those Indigenous communities would not fish in those areas in the future. However, given the nature of the Project, including its limited, localized and short-term environmental disturbances, and the associated small safety exclusion zone, it is not anticipated that there would be adverse effects to any such fishing activity, even if it did occur in the local study area over the course of the Project.

For migratory marine species, and Atlantic Salmon in particular, the proponent noted that Labrador populations of Atlantic Salmon are unlikely to migrate through the project area, but individuals from the island of Newfoundland, Nova Scotia, Prince Edward Island, New Brunswick and the Gulf of St. Lawrence could pass through the project area to and from their maturation and winter feeding grounds in the Labrador Sea and off Greenland. In addition, individuals appear to congregate south of the project area, near the southern and eastern slopes of the Grand Banks, and east of the Strait of Belle Isle prior to migrating back to natal rivers. The proponent stated that there is little to no data to support the project area being used by Atlantic Salmon as overwintering habitat or as a major feeding area (see Section 6.1 and 6.5 for additional detail). Furthermore, it stated that the potential effects of planned project activities and overall risks to Atlantic Salmon is low and would not contribute to or exacerbate declines to salmon populations.

The proponent acknowledged that there are some data gaps regarding migratory routes. The understanding of salmon migration continues to evolve and additional data on migratory routes of salmon may supplement the broad research ongoing by DFO, Indigenous groups and the Atlantic Salmon Federation. The proponent committed to contribute to research on the presence and distribution of Atlantic Salmon, which includes potential initiation of new studies through the ESRF, a national industry-funded research program which sponsors environmental and social studies. The ESRF is designed to assist in the decision-making process related to oil and gas exploration and development on Canada's frontier lands. The ESRF has issued a new call for proposals on May 15, 2019 for Environmental and Social Studies related to Atlantic Salmon.

For other migratory species of interest to Indigenous groups, like whales, birds and American Eel, the proponent found that routine project activities would not adversely affect populations. Further, there would be no change in the ability to harvest these species within the regional study area, which includes the traditional territories of all Indigenous communities consulted by the Agency for the Project.

Effects assessments on migratory species of interest to Indigenous groups are summarized in Sections 6.1, 6.2 and 6.3.

Accidental Spill

The proponent indicated that its oil spill modelling showed a limited potential for oil to reach traditional territories of Indigenous communities. Any potential effect from an oil spill would therefore be largely indirect in nature, related to its potential effects on migratory marine species harvested by Indigenous groups. With appropriate mitigation in place, the proponent predicted that accidental events would not be expected to result in significant adverse effects on marine fish, birds or mammals. As such, the proponent stated that there would be little potential for indirect biophysical effects of a spill to decrease the quantity, quality or health of marine species fished by Indigenous groups to an extent that would compromise their ability to continue fishing and harvesting activities. Nevertheless, the proponent would implement various spill prevention and response measures to further reduce the likelihood of a spill and any resultant effects. Taking into account the spill response measures, the proponent found there



would not be significant adverse effects to fish and Indigenous groups fishing activities from an accident or malfunction. See Section 7.1 Effects of Accidents and Malfunctions for further analysis and detail.

Views of Indigenous Groups

All participating Indigenous communities expressed concern about the potential for the Project to affect salmon and by extension to adversely impact the Aboriginal right to harvest salmon in their traditional territories. Salmon is a cultural keystone species for Indigenous communities in the Atlantic Region and Indigenous knowledge demonstrated the vital role that salmon plays in culture and sustenance in communities. Project-related sound from routine operations, marine shipping associated with the project, accidents and malfunctions, and cumulative effects were all cited as pathways by which migrating salmon could be adversely affected. Most Indigenous communities requested that the proponent consider the precautionary principle in its assessment owing to the endangered status of certain salmon populations, the lack of data on migration routes and overwintering locations, the high rates of at-sea mortality, climate change and the lack of information on specific effects of offshore drilling on this species. In responding to these concerns, the proponent considered additional research and data related to Atlantic Salmon. Additional information and analysis related to Atlantic Salmon has been summarized above and in Section 6.1.

KMKNO recommended that no drilling activities take place between January and August so as not to interact with migratory Atlantic salmon in the project area.

Several Indigenous communities, including the NunatuKavut Community Council, Sipekne'katik First Nation and Nunatsiavut Government were concerned that drilling muds, cuttings and accidental events would adversely affect breeding and/or feeding grounds of numerous marine species and could cause impacts to food, social and ceremonial fisheries.

Many groups including MTI, KMKNO, and NunatuKavut Community Council requested that the proponent develop Incident Management Plans, Spill Response Plans, Environmental Protection Plans, Safety Plans and Net Environmental Benefit Analyses in consultation with Indigenous communities. MMS and KMKNO recommended that, in the event of a spill, the proponent be required to compensate for any loss of productivity of species harvested by the Mi'kmaq. The proponent committed to engaging Indigenous groups in the development of the Indigenous Communities Fisheries Communications Plans and continue to share information about spill response, consider concerns and issues, and share results and learning from response exercises with Indigenous groups, if requested. MTI relayed that it remains concerned about the risk of a spill affecting migration, spawning or feeding grounds of species of importance to Mi'gmaq culture.

A summary of issues raised by Indigenous groups is presented in Appendix C.

Agency Analysis

In analyzing the Project's impacts on potential or established Aboriginal or treaty rights, the Agency relied on information in the proponent's EIS and associated documents, and information provided by Indigenous groups and federal authorities.

Indigenous groups may fish species in their traditional territories that migrate through the project area. However, the Agency determined that because the Project's routine activities would likely have limited effects on these fish species (Section 6) it would also likely have a low/negligible impact on the potential or established Aboriginal or treaty rights of Indigenous groups with food, social and ceremonial licences to harvest migratory species. With

respect to Atlantic Salmon, a species of particular concern to many Indigenous communities, DFO reviewed applicable information and confirmed that there is uncertainty regarding the at-sea migration patterns and habitat use of this species. It advised that it is possible that some salmon overwinter in the Jeanne d'Arc Basin/Flemish Pass region, and that salmon are likely to be present at some times of the year as they migrate through to and from home rivers, but this is not known to be a significant migration route or overwintering area. DFO has advised that potential effects of the Project on Atlantic Salmon are expected to be negligible to low and spatially and temporally limited. Based on advice from DFO and the C-NLOPB, the Agency determined that limiting drilling activity to certain times of year in an attempt to further mitigate potential effects on Atlantic salmon was not warranted and would unnecessarily limit the timing of proponent's drilling activities.

Although routine project operations would likely have limited effects on species that migrate through the project area, in the unlikely event of a major oil spill (discussed in Section 7.1 Effects of Accidents and Malfunctions), there is the potential for more serious effects on these species, particularly species at risk, and therefore potential impacts on the potential or established Aboriginal or treaty rights of Indigenous groups. The potential impacts from a spill event may decrease the quantity, quality and health of the fish harvested by Indigenous groups.

The Agency acknowledges the potential consequences of an accidental spill on Indigenous fishers and Indigenous communities. However, available data shows that the probability of a major subsea blowout is very low and therefore its potential effects would be unlikely to occur. In the unlikely event of a blowout, spill modelling predicts that shoreline oiling would be unlikely, and if it did occur, generally minimal. The Agency notes that the proponent would be required to take all reasonable measures to reduce the probability of an accidental event and ensure that it is prepared to respond effectively if an accidental event does occur. In conjunction with spill response measures, any damages incurred by Indigenous fishers, including the loss of commercial or food, social and ceremonial fisheries, would require compensation in accordance with the *Compensation Guidelines Respecting Damages Relating to Offshore Petroleum Activity*. The proponent would also be required to develop and implement a Fisheries Communication Plan, which would include procedures to communicate with fishers in the event of an accident or malfunction. Views of Indigenous groups would also be considered in the development of the Spill Response Plan and groups would be provided with the approved version (see Section 7.1 for additional details).

8.3. Proposed Accommodation Measures

Mitigation measures and follow-up identified for fish and fish habitat (Section 6.1), marine mammal and sea turtles (Section 6.2), migratory birds (Section 6.3), commercial fisheries (Section 6.6) and accidents and malfunctions (Section 7.1) would also function as accommodation measures to minimize or avoid potential adverse impacts on potential or established Aboriginal or treaty rights. Key mitigation and follow-up measures identified by the Agency are provided in Appendix A. Key requirements related to potential impacts on rights include:

- ensure that all waste discharges and emissions from the drilling installation into the marine environment are in accordance with the *Offshore Waste Treatment Guidelines* and the *International Convention for the Prevention of Pollution from Ships*;
- plan and conduct VSP activities in consideration of the *Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Marine Environment*;
- prepare follow-up programs for fish and fish habitat, marine mammals and sea turtles, and migratory birds to verify the accuracy of the predications made during the EA and to determine the effectiveness of the

mitigation measures. Share results of these programs with Indigenous communities as indicated in the Fisheries Communications Plan;

- in consultation with Indigenous fishers, develop and implement a Fisheries Communication Plan to facilitate and coordinate communication with fishers;
- provide Indigenous group with an opportunity to review and provide feedback on a draft version of the Spill Response Plan. Provide the approved version to Indigenous groups prior to drilling. Include a procedure to communicate with Indigenous fishers in the event of an accident or malfunction in the Fisheries Communications Plan; and
- compensate for any damages, including the loss of food, social and ceremonial fisheries in accordance with the *Compensation Guidelines Respecting Damages Relating to Offshore Petroleum Activity*.

Given the uncertainty about Atlantic Salmon and the importance of the species to Indigenous groups, the proponent has committed to contribute to research on the presence and distribution of Atlantic Salmon in Eastern Canadian offshore areas.

8.4. Issues to be Addressed During the Regulatory Approval Phase

The regulatory approval phase, during which any federal permits or authorizations would be considered, would be completed after the EA is complete. In order to proceed, the Project requires authorization by the C-NLOPB under the *Canada-Newfoundland and Labrador Atlantic Accord Implementation Act*. The proponent may also require *Fisheries Act* authorization and a *Species at Risk Act* permit from DFO. The federal government would consult Indigenous communities as appropriate prior to making regulatory decisions. The decision to undertake additional Crown consultation would take into consideration the consultation record for the EA.

8.5. Agency Conclusion

After taking into consideration the mitigation measures, the Agency concludes that routine project activities would likely have a low/negligible impact on potential or established Aboriginal or treaty rights of Indigenous groups. The Agency expects that any impacts would likely be low-magnitude, short-term and reversible. Mitigation measures would ensure that there would be no interruption in the practice of rights and that rights could be practiced in the same or similar manner as before the Project. The Agency acknowledges that a blowout incident could have more serious repercussions but has a very low probability of occurrence.

Taking into account the analysis of environmental effects of the Project and the related mitigation measures outlined for fish and fish habitat (Section 6.1), marine mammal and sea turtles (Section 6.2), migratory birds (Section 6.3), commercial fisheries (Section 6.6) and accidents and malfunctions (Section 7.1), the Agency concludes that the potential impacts of the Project on potential or established Aboriginal or treaty rights have been adequately identified and appropriately mitigated.

No specific follow-up measures are identified in relation to potential impacts on asserted or established Aboriginal and treaty rights; however, the Agency considers follow-up measures outlined for fish and fish habitat



(Section 6.1), commercial fisheries (Section 6.6) and effects of accidents and malfunctions (Section 7.1) would also be effective in confirming potential impacts to potential or established Aboriginal and treaty rights.



9. Agency Conclusion

The Agency considered the proponent's environmental impact statement and responses to information requests from the Agency. Information requirements reflected the views of the public, government agencies, and Indigenous peoples. The Agency also considered the measures that would be implemented to mitigate the Project effects, as well as the follow-up (monitoring) measures to be implemented by the proponent.

The environmental effects of the Project and their significance have been determined using assessment methods and analytical tools that reflect current accepted practices of EA practitioners, including consideration of the effects of potential accidents and malfunctions.

The Agency concludes that the proposed CNOOC International Flemish Pass Exploration Drilling Project is not likely to cause significant adverse environmental effects, taking into account the implementation of the mitigation measures described in this EA Report.

The Agency has identified key mitigation measures and follow-up program requirements for consideration by the Minister of Environment and Climate Change in establishing conditions as part of her decision statement in the event that the Project is permitted to proceed.

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11. Appendices

Appendix A: Key Mitigation and Follow-up Measures Identified by the Agency

Valued Component (VC)	Mitigation	Follow-up
<p>Fish and Fish Habitat (Section 6.1)</p>	<ul style="list-style-type: none"> • prepare a pre-drill seabed investigation plan for each well site and submit to DFO and the C-NLOPB for review and approval prior to implementing the survey. The plan should be designed to: <ul style="list-style-type: none"> ○ collect high-definition visual data to confirm the presence or absence of sensitive environmental features, including aggregations of habitat-forming corals or sponges; ○ identify the equipment used for the surveys, to be operated by a qualified individual; and ○ include information on survey transect length and pattern around each well site, which should be based on applicable drill cutting dispersion model results. Transects around anchor sites should extend at least 50 metres from the extent of each structure. • based on approved plans, undertake a seabed investigation survey at each well location and around each anchor point prior to commencing drilling a well. Retain a qualified independent marine scientist to provide advice in real-time; • provide the results of the seabed investigation survey to the C-NLOPB and DFO prior to commencing drilling. In addition, provide a description of additional mitigation and monitoring based on the results of the survey and 	<ul style="list-style-type: none"> • monitor the concentration of synthetic-based muds on drill cuttings to verify that the discharge meets, at a minimum, the performance target specified in the <i>Offshore Waste Treatment Guidelines</i>. Report results to the C-NLOPB; • for the first well on each exploration licence and for any well where drilling is undertaken in an area determined by the seabed investigation survey to be sensitive benthic habitat, conduct specific follow-up monitoring, including: <ul style="list-style-type: none"> ○ measurement of sediment deposition extent and thickness (e.g., core samples and/or high definition visual data) post-drilling and prior to departing the location to verify drill cuttings dispersion modelling predictions; ○ survey of benthic fauna present after drilling has been concluded; ○ reporting of results, including a comparison of modelling results to in situ results, to the C-NLOPB and DFO; and ○ results should be provided to Indigenous groups and posted online for public access. • participate in or support research on the presence and distribution of Atlantic Salmon in Eastern Canadian offshore areas and update the C-NLOPB and Indigenous groups annually on research activities. Research initiatives can be explored through organizations such as the ESRF and through input from and collaboration with Indigenous groups; and

Valued Component (VC)	Mitigation	Follow-up
	<p>predicted areas of sedimentation and disturbance. Results of the surveys should be provided to Indigenous groups and posted online for public access;</p> <ul style="list-style-type: none"> • if aggregations of habitat-forming corals or sponges or other environmentally sensitive features are identified when undertaking the survey: <ul style="list-style-type: none"> ○ relocate the anchors or the well and/or redirect cuttings discharges to ensure that the drilling installation, anchors or drill muds and cuttings discharges will not affect them, unless not technically feasible. No drilling should occur before a decision is made by the C-NLOPB and DFO regarding appropriate mitigation and monitoring; or ○ if it is determined, to the C-NLOPB's satisfaction, that it is not technically feasible to relocate the anchors or the well or redirect cuttings discharges, conduct a comprehensive assessment of the potentially-affected benthic habitat in consultation with DFO prior to drilling to determine the potential for non-compliance with the fish and fish habitat protection provisions of the <i>Fisheries Act</i> and related options for mitigation to reduce any identified risk. • select chemicals to be used during the Project in accordance with the <i>Offshore Chemical Selection Guidelines</i> and use lower toxicity drilling muds and biodegradable and environmentally-friendly additives within muds and cements, where feasible. • ensure that all discharges from the MODU meet the <i>Offshore Waste Treatment Guidelines</i>; • transport spent or excess synthetic-based muds that cannot be re-used during drilling operations to shore for disposal at an approved facility; 	<ul style="list-style-type: none"> • implement the follow-up measures listed in Section 6.2 Marine Mammals and Sea Turtles related to the verification of underwater sound as a result of the Project.

Valued Component (VC)	Mitigation	Follow-up
	<ul style="list-style-type: none"> • ensure that all discharges from supply vessels meet or exceed the standards established in the MARPOL; • conduct a pre-drill survey with qualified individual(s) at each well site to determine the presence of any unexploded ordnance or other seabed hazards. If any such ordnance or seabed hazard is detected, avoid disturbing or manipulating it and contact the nearest Joint Rescue Coordination Centre and the C-NLOPB prior to commencing drilling to determine an appropriate course of action; and • implement mitigation listed in Section 6.2 Marine Mammals and Sea Turtles related to the conduct of VSP surveys. 	
Marine Mammals and Sea Turtles (Section 6.2)	<ul style="list-style-type: none"> • conduct VSP surveys in accordance with or exceeding the <i>Statement of Canadian Practice with Respect to the Mitigation of Seismic Sound in the Marine Environment</i>, including: <ul style="list-style-type: none"> ◦ establishing a safety (observation) zone of a minimum of 500 metres around the sound source; ◦ implementing cetacean detection technology, such as passive acoustic monitoring, concurrent with visual observations; ◦ gradually increasing the sound source intensity over a period of at least 20 minutes (ramp up), adopting a pre-ramp up watch of 30 minutes whenever survey activities are scheduled to occur and delaying ramp up if a marine mammal or sea turtle is sighted within the safety zone; and ◦ shutting down the sound source upon observing or detecting any marine mammal or sea turtle within the 500-metre safety zone. 	<ul style="list-style-type: none"> • record and report the activities, observations and results of the Marine Mammal and Sea Turtle Monitoring Plan to the C-NLOPB and DFO; • promptly report any collisions with marine mammals or sea turtles to the C-NLOPB, DFO and the Canadian Coast Guard Environmental Emergencies Reporting Number (1 800 565-1633) and notify Indigenous groups; • verify predicted underwater sound levels with field measurements during the first well per exploration licence. Provide the plan on how this would be conducted to the C-NLOPB and DFO in advance of drilling and the monitoring results after well suspension or abandonment, as directed by C-NLOPB and DFO; and • provide follow-up program results to Indigenous groups and post online for public access.

Valued Component (VC)	Mitigation	Follow-up
	<ul style="list-style-type: none"> • to reduce risks of collisions with marine mammals and sea turtles (except during an emergency): <ul style="list-style-type: none"> ◦ limit supply vessel movements to established shipping lanes where they are available; and ◦ when and where such speeds do not present a risk to safety of navigation, reduce supply vessel speed to seven knots (13 kilometres per hour) when a marine mammal or sea turtle is observed or reported within 400 metres of the vessel. • in consultation with DFO, develop a Marine Mammal and Sea Turtle Monitoring Plan which includes marine mammal observer requirements using qualified individuals. Provide the plan to the C-NLOPB and DFO for review and approval 30 days prior to initiating activities. The plan would describe: <ul style="list-style-type: none"> ◦ monitoring during VSP, including information on visual monitoring and specific passive acoustic or equivalent technology monitoring configuration that would be implemented, to enable verification that species that may occur within the safety zone can be detected and to ensure the ability to effectively monitor for all marine mammal vocalization frequencies that may occur within the exploration licences. • implement all mitigation listed in Section 6.1 Fish and Fish Habitat related to abandonment procedures, chemical selection, disposal of spent synthetic-based muds and waste discharge. 	
Migratory Birds (6.3)	<ul style="list-style-type: none"> • follow ECCC's (2016) Procedures for Handling and Documenting Stranded Birds Encountered on Infrastructure Offshore Atlantic Canada, which identifies procedures for safe capture and handling of different types of birds; control project lighting, including the 	<ul style="list-style-type: none"> • prepare a follow-up program in consultation with ECCC to monitor effects on migratory birds to verify the accuracy of the predictions made during the EA and to determine the effectiveness of the mitigation measures. As part of the follow-up program: <ul style="list-style-type: none"> ◦ conduct monitoring for marine birds from the MODU using a trained observer following ECCC's Eastern Canada Seabirds

Valued Component (VC)	Mitigation	Follow-up
	<p>direction, timing, intensity and glare of light fixtures, while meeting operational, health and safety requirements;</p> <ul style="list-style-type: none"> • restrict flaring to the minimum required to characterize a well's hydrocarbon potential and as necessary for the safety of the operation; • where acceptable to the C-NLOPB, conduct formation testing using a drill pipe conveyed test assembly or similar technology rather than formation testing with flaring; • if formation testing while flaring is required, notify the C-NLOPB to request an authorization at least 30 days in advance of flaring to: • determine whether the flaring would occur during a period of migratory bird vulnerability (identified in consultation with ECCC); • identify how adverse environmental effects on migratory birds would be avoided, including opportunities to reduce nighttime flaring (e.g., by starting flaring for shorter periods in the morning as opposed to at night); • operate a water-curtain barrier around the flare during flaring; and • implement all mitigation listed in Section 6.1 Fish and Fish Habitat related to chemical selection, waste discharge and the disposal of spent synthetic-based muds, as well as those in Section 6.4 Special Areas related to the maintenance of buffers for supply and support vessels and helicopters over active bird areas and special areas for birds. 	<p>at Sea Standardized Protocol for Pelagic Seabird Surveys from Moving and Stationary Platforms;</p> <ul style="list-style-type: none"> ○ develop, in consultation with ECCC, and implement a protocol for systematic daily monitoring of the MODU and supply vessels for the presence of stranded birds. The protocol would include information on the frequency of searches, reporting procedures and training requirements, including qualifications of those delivering the training; ○ if stranded birds are observed, follow ECCC's (2016) Procedures for Handling and Documenting Stranded Birds Encountered on Infrastructure Offshore Atlantic Canada; ○ document and report the results of any monitoring carried out, including information on the level of effort when no birds are found and a discussion of whether the mitigation measures (e.g., water curtain) were proven effective and if additional measures are required; and ○ provide the monitoring and follow-up program and its results to the C-NLOPB and ECCC. Results should be provided to Indigenous groups and posted online for public access.
Special Areas (Section 6.4)	The Agency determined that the measures to mitigate potential effects on fish and fish habitat (Section 6.1), marine mammals and sea turtles (Section 6.2), and migratory birds (Section 6.3) would also mitigate potential	<ul style="list-style-type: none"> • conduct specific follow-up monitoring when drilling in special areas, or adjacent to or near a special area, such that drill cuttings dispersion modelling predicts that cuttings deposition could occur

Valued Component (VC)	Mitigation	Follow-up
	<p>effects on special areas. The Agency identified the following additional key measures to mitigate the Project's effects on special areas:</p> <ul style="list-style-type: none"> • restrict helicopter flying altitude to a minimum altitude of 300 metres (except during take-off and landing) over active bird colonies and to a lateral distance of 1000 metres from Cape St. Francis and Witless Bay Islands Important Bird and Biodiversity Areas (unless there is an emergency situation); and • ensure supply and other support vessels maintain a 300-metre buffer from Cape St. Francis and Witless Bay Islands Important Bird and Biodiversity Areas (unless there is an emergency situation). 	<p>within the special area at level above the biological effects threshold. Monitoring would include:</p> <ul style="list-style-type: none"> ○ measurement of sediment deposition extent and thickness post-drilling and prior to departing the location to verify drill cuttings dispersion modelling predictions; ○ survey of benthic fauna present after drilling has been concluded; ○ reporting of results, including a comparison of modelling results to in situ results, to the C-NLOPB and DFO; ○ results should be provided to Indigenous groups and posted online for public access; and ○ implement all mitigation listed in Section 6.1 Fish and Fish Habitat, Section 6.2 Marine Mammals and Sea Turtles, Section 6.3 Migratory Birds and Section 6.6 Commercial Fisheries.
Federal Species at Risk (Section 6.5)	<p>The Agency determined that the measures to mitigate potential effects on fish and fish habitat (Section 6.1), marine mammals and sea turtles (Section 6.2), and migratory birds (Section 6.3) would also mitigate potential effects on species at risk and critical habitat.</p>	<p>The Agency determined that the proposed follow-up measures for fish and fish habitat (Section 6.1), marine mammals and sea turtles (Section 6.2), and migratory birds (Section 6.3.) are also appropriate for species at risk and critical habitat.</p>
Commercial Fisheries (Section 6.6)	<ul style="list-style-type: none"> • in consultation with Indigenous groups and commercial fishers, develop and implement a Fisheries Communication Plan to address communications prior to and during drilling, testing and abandonment of each well. The plan should include: <ul style="list-style-type: none"> ○ regular updates to provide specific information on plans for project activities and an opportunity for feedback and further exchange of information on specific aspects of interest; ○ information on safety exclusions zones and suspended and abandoned wellheads; 	<ul style="list-style-type: none"> • report annually to the C-NLOPB on whether there have been incidents of lost or damaged fishing gear associated with the Project, including project-related vessels. In addition, the envisioned Fisheries Communication Plan would provide a means of identifying potential issues should they arise.



Valued Component (VC)	Mitigation	Follow-up
	<ul style="list-style-type: none">○ procedures to notify fishers a minimum of two weeks prior to the start of drilling each well;○ information on vessels travelling between Newfoundland and Labrador and exploration licences (e.g., number per week, general route); and○ procedures for determining the need for a Fisheries Liaison Officer and/or fisheries guide vessels during MODU movement and the use of a Fisheries Liaison Officer during geophysical programs;● prepare a well abandonment plan, including a wellhead abandonment strategy and submit it to the C-NLOPB for acceptance at least 30 days prior to abandonment of each well. If it is proposed that a wellhead be abandoned on the seafloor in a manner that could interfere with commercial fishing, develop the strategy in consultation with potentially affected Indigenous groups and commercial fishers;● ensure that details of safety exclusion zones and the locations of abandoned wellheads, if left on the seafloor, are published in Notices to Mariners, provided in Notices to Shipping and communicated to fishers;● provide information on the locations of any abandoned wellheads, left on the seafloor, to the Canadian Hydrographic Services for future nautical charts and planning;● ensure ongoing communication with the NAFO Secretariat, using established information exchange mechanisms that are in place with DFO, regarding planned project activities, including timely communication of drilling locations, safety exclusion zones and suspended or abandoned wellheads; and● implement all mitigation listed in fish and fish habitat (Section 6.1) related to providing the results of the	

Valued Component (VC)	Mitigation	Follow-up
	seabed investigation survey, wellhead abandonment procedures, selection of chemicals, disposal of spent synthetic-based muds and the discharge of waste.	
Current Use of Lands and Resources for Traditional Purposes and Health and Socioeconomic Conditions of Indigenous Peoples (Section 6.7)	The Agency determined that the measures to mitigate effects on fish and fish habitat (Section 6.1), marine mammals and sea turtles (Section 6.2), migratory birds (Section 6.3) and commercial fisheries (Section 6.6) would also mitigate effects on the current use of lands and resources for traditional purposes and the health and socioeconomic conditions of Indigenous peoples.	The Agency has not identified any follow-up measures specific to current use of lands and resources for traditional purposes and health and socioeconomic conditions of Indigenous peoples and notes that there are related measures proposed for fish and fish habitat (Section 6.1), marine mammals and sea turtles (Section 6.2), migratory birds (Section 6.3) and commercial fisheries (Section 6.6).
Accidents and Malfunctions (Section 7.1)	<ul style="list-style-type: none"> • undertake all reasonable measures to prevent accidents and malfunctions that may cause adverse environmental effects and effectively implement emergency response procedures and contingencies developed for the Project; • submit a Well Capping and Containment Plan, which includes strategies and measures for well capping, containment of fluids lost from the well, and the drilling of a relief well(s), as well as options to reduce overall response timelines. • Develop and implement procedures to provide up-to-date information to the C-NLOPB prior to drilling and during drilling related to the availability of appropriate cappings stacks and vessels, and appropriate drilling rigs capable of drilling a relief well at the project site; • Prior to drilling, submit a Spill Response Plan which must include: <ul style="list-style-type: none"> ○ procedures to respond to an oil spill (e.g., oil spill containment, oil recovery) and spills of other types (e.g., synthetic-based mud or cuttings spill); 	<ul style="list-style-type: none"> • as required by and in consultation with the C-NLOPB, monitor the environmental effects of a spill on components of the marine environment until specific endpoints identified in consultation with expert government departments are achieved. As applicable, monitoring shall include: <ul style="list-style-type: none"> ○ sensory testing of seafood for taint and chemical analysis for oil concentrations; ○ measuring levels of contamination in fish species with results integrated into a human health risk assessment to determine the fishing area closure status; ○ monitoring marine mammals, sea turtles and birds for signs of contamination or oiling and reporting results to the C-NLOPB, DFO and ECCC; and ○ monitoring benthic organisms and habitats in the event of a synthetic-based mud spill or other event that could result in smothering or localized effects to the benthic environment. • develop a procedure to communicate monitoring results to Indigenous and commercial fishers, as well as Indigenous groups.



Valued Component (VC)	Mitigation	Follow-up
	<ul style="list-style-type: none">○ reporting thresholds and notification procedures;○ measures for wildlife response, protection and rehabilitation (e.g., collection and cleaning of marine mammals, birds and sea turtles, including species at risk) and for shoreline protection and clean-up, developed in consultation with the C-NLOPB; and○ specific role and responsibility descriptions for offshore operations and onshore responders.● provide Indigenous groups with an opportunity to review and provide feedback on a draft version of the Spill Response Plan. Provide the approved version to Indigenous groups and make it publicly available on the Internet;● conduct an exercise of the Spill Response Plan prior to the commencement of project activities and adjust the plan to address any deficiencies identified during the exercise. Provide results of the exercise to Indigenous groups following its review by the C-NLOPB;● review and update the Spill Response Plan as required during drilling and before commencing a new well;● prepare a plan for avoidance of collisions with vessels and other hazards which may reasonably be expected in the exploration licences and submit to the C-NLOPB for acceptance prior to drilling;● undertake a spill impact mitigation assessment to consider all realistic and achievable spill response options and identify those techniques (including the possible use of dispersants) that would provide for the best opportunities to minimize environmental consequences and provide it to the C-NLOPB for review prior to drilling. Relevant federal government departments would provide advice to the C-NLOPB through the ECCC	

Valued Component (VC)	Mitigation	Follow-up
	<p>Environmental Emergency Science Table. Publish the spill impact mitigation assessment on the Internet;</p> <ul style="list-style-type: none"> • in the event of an uncontrolled subsea release from the well, begin the immediate mobilization of a capping stack and associated equipment to the site of the uncontrolled subsea release. Simultaneously, commence the mobilization of a relief well MODU; • if drilling is anticipated in water depths of 500 metres or less, undertake further analysis to confirm the capping stack technology selected can be deployed and operated safely at the proposed depth and submit this analysis to the C-NLOPB for approval; • compensate for any damages, including the loss of food, social and ceremonial fisheries in accordance with the <i>Compensation Guidelines Respecting Damages Relating to Offshore Petroleum Activity</i>; • include a procedure to notify Indigenous groups and commercial fishers, including international fishers in the event of an accident or malfunction in the Fisheries Communications Plan and to communicate the results of any associated monitoring and any potential health risks. Information that is provided to Indigenous groups and fishers needs to present a realistic estimation of potential health risks on consuming country foods, such that their consumption is not reduced unless there is a likely health risk from the consumption of these foods or specific quantities of these foods. If there is a potential health risk, consumption advisories should be considered; and • include procedures in the Fisheries Communications Plan to engage in two-way communication with Indigenous groups and commercial fishers in the event of a spill requiring a tier 2 or tier 3 response. 	

Valued Component (VC)	Mitigation	Follow-up
Effects of the Environment on the Projects (Section 7.2)	<ul style="list-style-type: none"> • in consultation with the C-NLOPB and ECCC, implement a physical environment monitoring program in accordance with the <i>Newfoundland Offshore Petroleum Drilling and Production Regulations</i> and meet or exceed the requirements of the <i>Offshore Physical Environmental Guidelines</i>; • in consultation with the C-NLOPB, establish and enforce practices and limits for operating in all conditions that may be reasonably expected, including poor weather, severe sea state or sea ice or iceberg conditions; • in consultation with the C-NLOPB and as part of the required Safety Plan, develop an Ice Management Plan including procedures for detection, surveillance, data collection, reporting, forecasting and avoidance or deflection of icebergs; and • in consultation with the C-NLOPB , implement measures to ensure that the MODU has the ability to quickly disconnect the riser from the well in event of an emergency or severe weather conditions. 	<ul style="list-style-type: none"> • in accordance with the <i>Newfoundland Offshore Petroleum Drilling and Production Regulations</i>, report annually to the C-NLOPB on whether there has been a need to modify operations based on severe environmental conditions and on the efficacy of the practices and limits established for operating in poor weather, high sea state, or sea ice or iceberg conditions.
Cumulative Environmental Effects (Section 7.3)	Mitigation for the Project would contribute to the mitigation of cumulative environment effects. Additional measures have not been identified at this time, but could be recommended for future projects following completion of the Regional Assessment.	Follow-up, and monitoring for the Project would contribute to the monitoring of cumulative environment effects. Additional measures have not been identified at this time but could be recommended for future projects following completion of the Regional Assessment.

Appendix B: Summary of Proponent’s Proposed Mitigation Measures and Follow-up

Valued Component	Mitigation	Follow-up
<p>Fish and Fish Habitat (Section 6.1)</p>	<ul style="list-style-type: none"> • Plan and implement the Project so as to avoid or minimize environmental discharges and emissions from its associated operations and activities. This would be achieved through compliance with relevant regulations and standards and company procedures regarding materials selection and use, waste management, and discharge prevention and management for any potential liquid, solid or air emissions. This would include: <ul style="list-style-type: none"> ○ undertaking the selection and screening of chemicals pursuant to the <i>Offshore Chemical Selection Guidelines and Production Activities on Frontier Lands</i>. Where technically feasible, lower toxicity drilling fluids and chemicals would preferentially be used; ○ treating operational discharges (such as sewage, deck drainage, bilge/cooling water, wash fluids, produced water, other waste) prior to release in compliance with the <i>Offshore Waste Treatment Guidelines</i>, MARPOL and other applicable regulations and standards; ○ using oil-water separators to treat contained oil-contaminated fluids, with collected oil properly stored and disposed of; ○ implementing appropriate measures for the handling, storage, transportation and on-shore disposal of solid and hazardous wastes; ○ complying with the <i>Canadian Environmental Protection Act</i>, the <i>National Ambient Air Quality Objectives</i>, the <i>Newfoundland Air Pollution Control Regulations</i> and MARPOL for specified criteria air contaminants in exhaust emissions and relevant regulations under MARPOL; ○ during drilling activities that occur after the riser has been installed, returning synthetic-based mud-associated drill cuttings to the MODU and treating them in accordance with the <i>Offshore Waste Treatment Guidelines</i> before being discharged to the marine environment. Synthetic-based mud drill cuttings are typically discharged below the sea surface in order to maximize their dispersion and thus, to help avoid or reduce any associated surface sheen and their accumulation on the seabed; and 	<ul style="list-style-type: none"> • Monitor the implementation of mitigation measures in accordance with existing operational procedures and policies. • If drilling occurs in an area that is considered sensitive based on the results of the seabed investigation survey (and confirmed by DFO and the C-NLOPB), develop a follow-up program (and submit it to DFO and C-NLOPB for review prior to commencement of drilling) to determine the effectiveness of mitigation measures in protecting the sensitive benthic habitat. The seabed investigation and the drill cuttings modelling predictions would support development of the follow-up program and would include: <ul style="list-style-type: none"> ○ post-drilling seabed core samples to measure depth of drill cuttings deposition; and/or ○ post-drilling visual assessment using high-definition images/video.

Valued Component	Mitigation	Follow-up
	<ul style="list-style-type: none"> ○ conducting maceration of sewage and kitchen waste in accordance with MARPOL and the <i>Offshore Waste Treatment Guidelines</i>. ● Minimize the frequency of vessel and aircraft traffic transits associated with the Project to the extent possible. ● Use local vessels, MODUs and equipment where technically suitable and available to reduce the potential for introduction of aquatic invasive species. All foreign vessels used for the Project operating in Canadian jurisdiction would comply with the <i>Ballast Water Control and Management Regulations</i> of the <i>Canada Shipping Act, 2001</i> during any ballasting and de-ballasting activities. This may include requiring all foreign vessels and MODUs to carry out ballast tank or system flushing prior to arriving in Canadian waters to mitigate the spread of alien invasive species. ● Undertake a seabed investigation survey with a drop camera/video system prior to the start of drilling activity to investigate the potential presence of sensitive benthic organisms (such as corals or sponges) or habitats in proximity of the well site and any anchor / transponder locations. ● Outline the details of the seabed investigation in a well site specific Seabed Investigation Plan which would be provided to the C-NLOPB and DFO for their review and acceptance prior to commencing the seabed investigation and would include the following: <ul style="list-style-type: none"> ○ a discussion of the coral and sponge species specific to the offshore Newfoundland and Labrador area and information on the species that may be present in the planned well site location (if known); ○ proposed survey methods for hard coral, soft coral and sponges; ○ the proposed survey area which would include an area a minimum of 250-metre radius from the wellhead location in an eight transect radial pattern (50 metre from anchor and transponder locations) and would focus on coral colonies/gardens as well as sponges and would record observations of any species at risk; ○ a requirement for an assessment of the presence of sensitive benthic organisms or habitats in real time by a marine scientist onboard the MODU or support vessel; ○ a requirement for preparation of a summary report (outlining the findings and proposed mitigative actions including mapping) upon completion of each seabed investigation that would be provided to the C-NLOPB and DFO for their review and acceptance prior to commencing drilling. The summary report would outline the following: 	<ul style="list-style-type: none"> ● Through the ESRF, support research to address knowledge gaps regarding Atlantic Salmon migration.

Valued Component	Mitigation	Follow-up
	<ul style="list-style-type: none"> ○ results of survey(s); <ul style="list-style-type: none"> ▪ predicted areas of sedimentation by drill cuttings deposition; ▪ predicted areas of sedimentation by bottom contact of subsea equipment; ▪ physical disturbance predicted by bottom contact of subsea equipment; ▪ description of the mitigation to be used based on several factors (e.g., percentage of living reef-building coral, number of living soft corals per a defined area, condition of hard and soft corals, percentage of sponge coverage, predicted degree of sedimentation and bottom contact); and ▪ potential requirements for monitoring. • The drill cuttings modelling predictions would inform the extent of the pre-drill seabed investigation survey as well as the placement of the well site. • Should coral colonies (as defined below) be observed within or in proximity to a planned well site location, apply a “set-back” from these organisms based on the drill cuttings modeling predictions, to avoid or reduce the potential for direct interaction with sensitive organisms or other potential effects. The implementation of this mitigation would adhere to the C-NLOPB’s standard regulatory guidance on this matter, as follows: <ul style="list-style-type: none"> ○ Drilling activities, including moorings, shall not occur within 100 metres of coral colonies without the prior approval of the Chief Conservation Officer. A coral colony is defined as: <ul style="list-style-type: none"> ▪ <i>Lophelia pertusa</i> reef complex; or ▪ five or more large corals (larger than 30 centimeters in height or width) within a 100 square metre area. ○ If moving the well site in this manner is not feasible, consult with the C-NLOPB to determine an appropriate course of action. • Base the placement locations of anchors, transponders or other subsea equipment on the agreed upon approach outlined in the Seabed Investigation Summary Report. • During any associated well testing, flare any produced hydrocarbons and small amounts of produced water using high-efficiency burners. If there is a significant amount of produced water encountered, treat it in accordance with the relevant regulatory requirements prior to ocean discharge. • If removal of the wellhead is required as part of abandonment procedures, complete it via mechanical separation (i.e., cutting, as opposed to the use of explosives). 	

Valued Component	Mitigation	Follow-up
	<ul style="list-style-type: none"> Mitigation measures that apply to marine mammals and sea turtles and migratory birds (below) may also apply to fish and fish habitat. 	
<p>Migratory Birds (Section 6.3)</p>	<ul style="list-style-type: none"> Mitigation measures that apply to fish and fish habitat and marine mammals and sea turtles (above) would also apply to migratory birds. Operate in accordance with the Measures to Protect and Monitor Seabirds in Petroleum-Related Activity in the Canada-Newfoundland and Labrador Offshore Area. Avoid known and observed bird colonies, other significant aggregations of avifauna and other identified sensitive areas, where possible, in the planning and conduct of project-related exploration activities in accordance with the <i>Seabird Ecological Reserve Regulations, 2015</i>. This would include prohibiting aircraft from flying at an altitude of less than 300 metres over ecological reserves over specified time periods and ensuring project-related support vessel traffic would avoid known seabird colonies and utilize existing and established routes wherever possible. Minimize the frequency of vessel and aircraft transits and avoid low-level aircraft operations, wherever possible and feasible. Minimize project-related artificial lighting to the greatest extent possible without compromising safety. Keep flaring to the minimum amount necessary and require the use of a water curtain around flares. Notify the C-NLOPB of plans to flare in association with formation flow testing. The C-NLOPB would then consult with ECCC to determine a safe timeline to reduce effects on migrating birds. Conduct routine searches for, and collection and release of, stranded birds on the platform and supply vessels using ECCC's Oiled Birds Protocol and Protocol for Collecting Dead Birds From Platforms, Best Practices for Stranded Birds Encountered Offshore Atlantic Canada and The Leach's Storm Petrel: General Information and Handling Instructions (Williams and Chardine, n.d.). Obtain a seabird handling permit from ECCC. 	<ul style="list-style-type: none"> Develop and implement a stranded seabird observation protocol in consultation with ECCC, which includes information on frequency of searches, reporting procedures and training requirements. Implement a live bird monitoring and observation program in accordance with ECCC's monitoring protocol from fixed platforms that would include having a trained environmental observer onboard to record marine bird sightings during operations. Submit a yearly report of the seabird monitoring program's results, with any recommended changes, to the C-NLOPB and the Canadian Wildlife Service.
<p>Marine Mammals and Sea Turtles (Section 6.2)</p>	<ul style="list-style-type: none"> Mitigation measures that apply to fish and fish habitat (above) would also apply to marine mammals and sea turtles. 	<ul style="list-style-type: none"> Monitor the implementation of mitigation measures in accordance with existing

Valued Component	Mitigation	Follow-up
	<ul style="list-style-type: none"> • For any required VSP surveys using seismic sound arrays, operate in compliance with the <i>Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Marine Environment</i>. Key mitigations that would be applied include: <ul style="list-style-type: none"> ○ keeping seismic sound levels at the minimum level possible based on the associated technical requirements for the survey; ○ implementing a gradual “ramp up” procedure at the commencement of the VSP survey, to allow any mobile marine animals to move away from the area if they are disturbed by it; and ○ planning the shut-down of the seismic sound arrays or reduction to the smallest single source element during any required maintenance activities. • Use existing vessel travel routes wherever practical. • Maintain a steady vessel course and vessel speed (vessel transit speeds would typically be between 10 to 12 knots and occasionally 13 to 14 knots). • Adjust vessel speed or direction to reduce potential effects if marine mammals and/or sea turtles are observed in close proximity to project activities. • Maintain MODU and supply vessel equipment per contractor management system, to ensure all equipment is properly maintained / operating efficiently and reducing the risk of excess noise. • Use a trained marine mammal observer to continuously observe a pre-determined zone starting 30 minutes prior to the start-up of the sound source array and during VSP surveys. • Monitor and report (by trained marine mammal observers) on marine mammal and sea turtle sightings during any VSP surveys. • If a marine mammal or sea turtle is observed within the pre-determined zone (500 metres radius surrounding the VSP sound source) while the sound source is in operation, shutdown the sound source array and start the 30 minute monitoring period again. 	<p>operational procedures and policies.</p> <ul style="list-style-type: none"> • Submit observation reports annually to the C-NLOPB and DFO. • Report any vessel strikes of marine mammals or sea turtles to DFO within 24 hours.
Special Areas (Section 6.4)	<ul style="list-style-type: none"> • Proposed mitigation measures related to fish and fish habitat, marine mammals and sea turtles, migratory birds (above) and commercial fisheries (below) would mitigate potential effects on special areas. 	<ul style="list-style-type: none"> • If drilling is proposed within an identified fisheries closure area or if drilling cuttings could be deposited within such an area, a follow-up program would be



Valued Component	Mitigation	Follow-up
		<p>proposed to determine the effectiveness of mitigation measures in protecting sensitive benthic habitat. The proponent would consult with DFO and the C-NLOPB on the requirements for such a follow-up program which may include parameters such as:</p> <ul style="list-style-type: none">○ post-drilling seabed core samples to measure drill cuttings deposition; and○ post-drilling visual assessment using high-definition images/video.
Species at Risk (Section 6.5)	<ul style="list-style-type: none">• Proposed mitigation measures related to fish and fish habitat, marine mammals and sea turtles, and migratory birds (above) would mitigate potential effects on species at risk.	<ul style="list-style-type: none">• Proposed follow-up programs related to fish and fish habitat indicated, marine mammals and sea turtles, and migratory birds (above) would mitigate potential effects on species at risk.
Commercial Fisheries (Section 6.6)	<ul style="list-style-type: none">• Proposed mitigation measures related to fish and fish habitat (above) would also apply to commercial fisheries.• Issue a Navigational Warning for planned project activities (including activity, safety zones, installation locations and timing) and information about contacting project representatives (e.g., the single point of contact).• Continue communications and regular information exchanges (Fish, Food and Allied Workers-Unifor, DFO Science Branch, One Ocean, other stakeholders) about current fishing plans and project activities. It is also expected that regular updates would be submitted to the C-NLOPB before each year's operations commence, which would report on recent information exchanges, updates, any changes in the fisheries (including any new fisheries) and current-year project plans and schedules and associated mitigations.	<ul style="list-style-type: none">• Ensure ongoing communication and information exchange mechanisms are implemented throughout the Project.

Valued Component	Mitigation	Follow-up
	<ul style="list-style-type: none"> • Conduct at-sea monitoring of, and direct communications with, vessels (radar, automatic identification system, direct at-sea radio communications) and use of automatic identification system by all sea-going project vessels. • Establish and communicate the identified safety zones (with ship hailing protocols and other measures) to protect the safety of personnel and equipment and eliminate the risk of fishing gear or vessel damage near the MODU. • Use of a Fisheries Liaison Officer onboard survey vessels and during MODU movements as appropriate; the requirement for this is to be determined in discussion with regulatory authorities and the Fish, Food and Allied Workers -Unifor in accordance with the <i>Risk Management Matrix Guidelines</i> developed by One Ocean. • Establishment, implementation and communication of a compensation program, in accordance with applicable C-NLOPB requirements, for damages to physical fishing assets resulting from routine project activities and a compensation program for economic damages to fish harvesters resulting from project-related spills, escape of debris or dropped objects left in place. • Designation and use of a single point of contact during marine operations to facilitate Project-fishing industry communications in real time and to respond to gear/vessel damage claims. • Communication of the locations of any wellheads left in place to harvesters and appropriate authorities for inclusion on nautical charts for the information of commercial fishers and other mariners as applicable. 	
<p>Current Use of Lands and Resources for Traditional Purposes and Health and Socioeconomic Conditions of Indigenous Peoples (Section 6.7)</p>	<ul style="list-style-type: none"> • Develop and implement an Indigenous Fisheries Communications Plan. Indigenous groups would be invited to provide comments on the plan. • Proposed mitigation measures related to fish and fish habitat, marine mammals, migratory birds and commercial fisheries (above) would mitigate potential effects on the current use of lands and resources for traditional purposes and health and socioeconomic conditions of Indigenous peoples. 	<ul style="list-style-type: none"> • No monitoring or follow-up specific to Indigenous communities and activities have been proposed. Proposed monitoring and follow-up related to fish and fish habitat, marine mammals, migratory birds and commercial fisheries (above) would mitigate potential effects on the current use of lands and resources for traditional purposes and health and

Valued Component	Mitigation	Follow-up
Accidents and Malfunctions (Section 7.1)	<ul style="list-style-type: none"> • Ensure wells are designed for the full range of anticipated risks, including kick²¹ tolerance. • Inspect, test and maintain well barriers including casing, wellhead and blowout preventer²² equipment. • Ensure real time pore pressure assessment while drilling and implement kick detection and instrumentation. • Use of highly trained and competent personnel with appropriate level of deepwater well control training. • Prepare and implement prevention, contingency and response plans including: <ul style="list-style-type: none"> ○ Onshore Emergency Response Plan – details the proponent’s emergency response organization, process and tactical support activities to assist the field asset (e.g., support vessel or MODU) dealing with an emergency event; ○ Vessel Emergency Response Plan – deals with managing emergency events related to supply vessels; ○ Oil Spill Response Plan - defines protocols and strategies for responding to an oil spill of any size; and ○ Well Control Emergency Response Plan – describes contingency equipment, procedures and agreements in advance of an event to facilitate a prompt and immediate response, including detailed plans for mobilization and deployment of a capping stack and other containment equipment to the well site. • Use of highly training and competent personnel with appropriate certifications. • Complete shallow hazard survey and assessment in order to position wells away from potential hazards. 	<p>socioeconomic conditions of Indigenous peoples.</p> <ul style="list-style-type: none"> • Post-spill sampling and supporting information program for harvested foods.

²¹ Drilling fluids are used to maintain well pressure and provide the primary barrier against well flow. If a permeable formation is exposed, loss of this primary barrier could result in the flow of formation fluid into the wellbore, which is referred to as a “kick” (Equinor, 2017).

²² The blowout preventer is attached to the wellhead and is designed and equipped to provide redundant control systems and components to seal and secure the well. The blowout preventer is designed with multiple barriers to flow and allows the well to be shut in, the influx to be safely circulated out of the wellbore and hydrostatic overbalance to be re-established (Equinor, 2017).



Valued Component	Mitigation	Follow-up
	<ul style="list-style-type: none">• Establish special shallow gas procedures during drilling of riserless sections.• Conduct audits and assurance processes for drilling contractor and tangible equipment ordered.• Ensure that the blowout preventer is enabled with autoshear and deadman features as well as have remote operated vehicles with intervention equipment to manually function the blowout preventer.• Maintain riser margin or ensure other mitigation for two barriers prior to disconnect.• Measures to prevent loss of MODU stability include:<ul style="list-style-type: none">○ ensuring ballast control and positioning system is continuously manned;○ conducting a marine safety inspection during MODU acceptance process;○ conducting ballast control procedures and computerize daily stability calculations;○ conducting ballast control drills and test MODU alarms;○ conducting regular maintenance and inspections in order to test and check equipment;○ ensuring adequate safety equipment and lifeboats to accommodate all personnel onboard;○ conducting a weak point analysis to detect potential system failure above the blowout preventer;○ having in place an emergency disconnect protocol to shut-down in well and allow the MODU to move;○ conducting a MODU audit and inspections;○ conducting a mooring analysis (single or multi line failure); and○ conducting weather forecasting.• Measures to prevent vessel collision include:<ul style="list-style-type: none">○ selecting appropriate dynamically positioned class for support vessels and MODU;○ monitoring the safety zone by the MODU and standby support vessels;○ establishing MODU and support vessel specific operating criteria;○ establishing marine contractor selection process; and○ ensuring vessels are in compliance with applicable legislation and regulations (e.g., <i>Canada Shipping Act, Collision Regulations, Environmental Response Arrangements</i>	

Valued Component	Mitigation	Follow-up
	<p><i>Regulations</i>, MARPOL and have been inspected by Transport Canada and approved for operations by the C-NLOPB before beginning any project related work.</p> <ul style="list-style-type: none"> • Measures to prevent dropped objects include: <ul style="list-style-type: none"> ○ establishing a riser management system; and ○ conducting a riser analysis including Vortex Induced Vibration, drive off/drift off and transit analyses. • Ensure full Tier 2 or 3 oil spill response capability within the Canada exclusive economic zone and on the outer Canadian continental shelf (outside the exclusive economic zone). • Develop an Oil Spill Response Plan which would outline measures and activities that could be implemented in the event of a spill, including: <ul style="list-style-type: none"> ○ surveillance and monitoring (e.g., on the water and in-air resources and satellite tracking) to obtain information on the extent, trajectory, and behaviour of a spill, and also to determine the effectiveness of tactical response activities; ○ mechanical containment and recovery, including the use of booms, skimmers and oleophilic material to contain and recover spilled oil; ○ chemical dispersion to break the oil into smaller droplets and promote degradation; ○ in-situ burning to quickly reduce the volume of oil; ○ natural degradation; ○ shoreline protection and clean-up measures, including the use of booms or barriers, use of shoreline clean-up teams and shore treatment (e.g., low pressure flushing, mechanical recovery, manual cleaning, soil washing, plowing, etc.); ○ oiled wildlife response and measures to attempt to deter fauna from affected areas; ○ long-term remediation, including sample collection and analysis, to ensure that any potential post-spill effects have been identified and characterized, and a program established until the receiving environment has been restored to an appropriate and acceptable condition; ○ issue a Navigational Warning to provide timely notice of fisheries closure areas; and ○ implementation of a compensation program for economic damages to fish harvesters resulting from project-related spills, escape of debris or dropped objects left in place. 	
Effects of the Environment on the	<ul style="list-style-type: none"> • Engineering design of MODU used would adhere to national and international standards, which consider physical environmental criteria (e.g., temperature, wind, snow, waves, ice 	The proponent did not identify any follow-up in relation to potential

Valued Component	Mitigation	Follow-up
Project (Section 7.2)	<p>loading, drainage), as well as the life of the expected design (i.e., choosing materials with sufficient durability and corrosion resistance).</p> <ul style="list-style-type: none"> • Obtain a Certificate of Fitness from an independent, third-party certifying authority prior to the onset of drilling. The certifying authority may only issue a certificate of fitness in accordance with the <i>Newfoundland Offshore Certificate of Fitness Regulations</i> where it has verified that the installation is fit for purpose, can function as intended and can remain in compliance with those regulations without compromising safety and polluting at the drill site or in the region in which the particular installation is to be operated. In addition, modifications or repairs to an installation that affect its strength, stability, integrity, operability, safety or regulatory compliance would require review and acceptance by the certifying authority to ensure the continued validity of the certificate. • Ensure the drilling installation and vessels are equipped with proper obstruction lighting, navigation lighting and foghorns and maintain these in working condition. • Ensure communication systems are in place and functioning properly. • Monitor icing conditions on vessels, helicopter and drilling installations. • Conduct physical environment data observations, weather forecasting and reporting in accordance with the <i>Offshore Physical Environmental Guidelines</i>. • Develop and implement an Ice Management Plan, which would be comprised of: detection, monitoring and assessment, and physical management (e.g., towing or deflecting icebergs; breaking up sea ice). The plan would be submitted to the C-NLOPB as part of the Operation Authorization. 	effects of the environment on the Project.
Cumulative Environmental Effects (Section 7.3)	<ul style="list-style-type: none"> • Proposed mitigation measures that apply for fish and fish habitat, marine mammals and sea turtles, migratory birds, special areas, commercial fisheries, accidents and malfunctions, and effects of the environment on the Project (above) would also apply to cumulative effects. 	<ul style="list-style-type: none"> • Proposed follow-up programs that apply for fish and fish habitat, marine mammals and sea turtles, migratory birds, special areas, commercial fisheries, accidents and malfunctions, and effects of the environment on the Project (above) would also apply to cumulative effects.

Appendix C: Summary of Indigenous Concerns

The table below provides a summary of concerns raised by Indigenous groups as well as the proponent’s and Agency’s responses. Most of these concerns were raised during comment periods and other opportunities for input that occurred during the EA. However, the Indigenous groups have been and are being consulted on several offshore exploratory drilling project EAs, and these projects have similar key components, activities, and related potential effects. Although this table is not intended to be a cumulative collection of all concerns raised across all these different projects, there is a significant amount of overlap, and in certain cases comments submitted on other proposed offshore exploratory drilling projects may have been used to identify and characterize concerns which clearly apply across all of these types of projects in the eastern Newfoundland and Labrador offshore area.

Source	Subject	Comment or Concern	Summary of Proponent’s Responses	Agency Response
Fish and Fish Habitat				
Innu de Ekuanitshit KMKNO Qalipu First Nation	Effects on American Eel	<p>Concern related to potential changes to habitat quality (e.g., due to noise from drilling or seismic), food availability and quality, and migration patterns. This species has particular cultural importance for Indigenous communities.</p> <p>The proponent should provide justification to support the assertion that it is unlikely that American Eels pass through the project area. Additional information on avoidance and mitigation measures for the American Eel is required.</p>	<p>The proponent recognized that American Eel may migrate through the shallow waters in the project area; however, the main threats to this species are largely in freshwater systems. Seismic activities, including those that would be carried out as part of the Project, could result in localized stress and mortality of larval stages at sea but there is no indication that the larval densities at sea that may encounter these activities would result in effects on the population.</p> <p>The proponent stated that general mitigation measures for fish and fish habitat would avoid or reduce potential adverse effects on American Eel.</p>	<p>The Agency requested additional information from the proponent regarding the potential effects of the Project on American Eel and relevant mitigation measures. This information has been incorporated into its analysis.</p> <p>The Agency has identified key mitigation measures and proposed EA conditions for fish and fish habitat and marine mammals and sea turtles, which would mitigate effects on American Eel. These are described in Sections 6.1.3, 6.2.3 and Appendix A, and include selecting chemicals to be used in accordance with the <i>Offshore Chemical Selection</i></p>

Source	Subject	Comment or Concern	Summary of Proponent's Responses	Agency Response
				<i>Guidelines</i> and ensuring that all discharges from a drilling installation meet the <i>Offshore Waste Treatment Guidelines</i> .
Elsipogtog First Nation Innu de Ekuanitshit KMKNO Mi'kmaq Confederacy of Prince Edward Island (Lennox Island First Nation and Abegweit First Nation) MFN MMS MTI Innu Nation Millbrook First Nation	Effects on Atlantic Salmon	Concern about potential impacts of the Project on migrating salmon populations and the Aboriginal right to fish this species. Effects may include those related to project-related sound, increased shipping, and accidents and malfunctions. The proponent should consider the precautionary principle in its assessment owing to the declining status of populations, including several being designated as endangered, the lack of data on migration routes and overwintering locations, the high rates of at-sea mortality, climate change and the lack of information on specific effects of offshore drilling on this species. Appropriate mitigation and accommodation measures should be outlined. Recommended that no activities take place between January-August so as not to interact with Atlantic Salmon.	The proponent considered additional information related to migration and behaviour of Atlantic Salmon and incorporated this into its analysis. It stated that the project area is not likely used by Atlantic Salmon as overwintering habitat or as a major feeding area; however, it acknowledged that there are data gaps regarding migratory routes and may support research in collaboration with other operators. Any discharges would be treated in accordance with the <i>Offshore Waste Treatment Guidelines</i> and/or other relevant regulations and guidelines, as applicable, and the proponent would follow the <i>Statement of Canadian Practice with Respect to the Mitigation of Geophysical Sound in the Marine Environment</i> during geophysical surveys. Taking into account the mitigation measures, the proponent predicted that the residual effects of the Project on fish, including Atlantic Salmon, would be negligible to low in magnitude and would not likely be significant.	The Agency requested additional information from the proponent related to potential presence of Atlantic Salmon in the project area and their migratory routes and behaviours. The Agency also considered additional information which was supplied by Indigenous groups, and which was given to the proponent to consider. This information has been incorporated into the Agency's analysis. DFO reviewed applicable information and confirmed that there is uncertainty regarding the at-sea migration patterns and habitat use of this species. It advised that it is possible that some salmon overwinter in the Jeanne d'Arc Basin/Flemish Pass region and that salmon are likely to be present at some times of the year as they migrate through to and from home rivers but this is not known to be a significant



Source	Subject	Comment or Concern	Summary of Proponent's Responses	Agency Response
NunatuKavut Community Council Qalipu First Nation WNNB Woodstock First Nation				<p>migration route or overwintering area.</p> <p>The Agency acknowledges the proponent's commitments to pursuing ongoing research related to Atlantic Salmon migration and behaviour at sea.</p> <p>The Agency is of the view that a complete ban on activities between January and August would be impractical and unnecessary. DFO has advised that potential effects of the Project on Atlantic Salmon are expected to be negligible to low and spatially and temporally limited.</p> <p>The Agency has identified key mitigation measures and proposed EA conditions for fish and fish habitat and marine mammals and sea turtles, which would mitigate effects on Atlantic Salmon. These are described in Sections 6.1.3, 6.2.3 and Appendix A, and include selecting chemicals to be used in accordance with the <i>Offshore Chemical Selection Guidelines</i> and ensuring that all discharges from a drilling</p>

Source	Subject	Comment or Concern	Summary of Proponent's Responses	Agency Response
				installation meet the <i>Offshore Waste Treatment Guidelines</i> .
<p>Elsipogtog First Nation</p> <p>KMKNO</p> <p>MFN</p> <p>Première Nation de Nutashkuan</p> <p>WNNB</p> <p>Woodstock First Nation</p>	<p>Atlantic Salmon - follow-up and monitoring</p>	<p>Given the lack of data on Atlantic Salmon in the project area and their migration, as well as uncertainty with respect to impact predictions, it is recommended that follow-up monitoring for the potential presence of Atlantic Salmon in the project area be implemented.</p> <p>The proponent should provide funding for tracking studies of Atlantic Salmon (e.g., using satellite pop-up tags) to be completed before any exploration activities take place. Installation of acoustic receivers on the drilling installations should be considered. Potential research collaborations should consider that key concerns and research priorities would differ amongst Indigenous communities.</p> <p>Given the proposed work by the Atlantic Salmon Federation, it would be prudent to maximize resources and efforts and collaborate with them to collect biological samples (e.g., Atlantic salmon</p>	<p>The proponent acknowledged that there are data gaps regarding Atlantic Salmon migration. The proponent provides funding to the ESRF, in collaboration with other operators, and the data gap related to the migratory routes of Atlantic Salmon has already been presented to the ESRF as a new research priority. Equinor has purchased and provided the Atlantic Salmon Federation with 18 salmon tags to use in their salmon tagging program in Greenland. The proponent also noted that Husky Energy has placed Acoustic receivers for tagged salmon on its SeaRose production facility on the Grand Banks.</p> <p>The proponent stated that the Atlantic Salmon Federation is conducting a salmon tagging program of kelt in Greenland. The purpose of the tagging is to provide additional information regarding the migratory routes of adult salmon from Greenland to the coastal waters of Canada. The data from the Atlantic Salmon Federation program will add to the migration dataset and the results will become available on their website.</p>	<p>The Agency requested additional information from the proponent related to the potential presence of Atlantic Salmon in the project area and their migratory routes and behaviours. This information has been incorporated into its analysis.</p> <p>The Agency notes that, to address knowledge gaps regarding Atlantic Salmon migration identified during this and other EAs of exploration projects in offshore Newfoundland and Labrador, in May 2019 the ESRF issued a call for proposals for environmental and social studies related to Atlantic Salmon.</p>

Source	Subject	Comment or Concern	Summary of Proponent's Responses	Agency Response
		scales and fin tissue, phytoplankton, zooplankton) from all their tagged individuals/sampling locations to build upon the previous work of Soto et al. (2018) to better understand feeding and resource use. This information cannot be provided by telemetry studies.		
Elsipogtog First Nation Innu Nation MFN Millbrook First Nation MTI NunatuKavut Community Council Qalipu First Nation	Atlantic Salmon - Indigenous Knowledge	Indigenous knowledge about Atlantic Salmon populations has not been factored into management planning and EAs.	The proponent engaged Indigenous groups over the course of the EA through face-to-face meetings, phone calls, emails and reports. In April 2018, the proponent participated in workshops organized by the Agency with Indigenous groups. Proponents organized additional workshops in October 2018 to solicit discussion and feedback on offshore exploration drilling projects from Indigenous groups. The proponent considered Indigenous knowledge and updated data and analysis on population declines of Atlantic Salmon. The proponent stated that it would continue its engagement efforts throughout the life of the Project.	The Agency required the proponent to provide additional information and analysis on the effects of the Project on Atlantic Salmon, including considering additional references, submissions and other information from Indigenous groups and the dialogue that occurred at engagement meetings and workshops with these groups. This information has been incorporated into the Agency's analysis. The Agency notes that, to address knowledge gaps regarding Atlantic Salmon migration identified during this and other EAs of exploration projects in offshore Newfoundland and Labrador, in May 2019 the ESRF issued a call for proposals for

Source	Subject	Comment or Concern	Summary of Proponent's Responses	Agency Response
				environmental and social studies related to Atlantic Salmon. The Agency also considered Indigenous Knowledge presented in its analysis.
KMKNO MFN	Primary and secondary productivity of marine ecosystems	Concern related to potential effects of the Project on primary and secondary productivity of marine ecosystems, including on zooplankton and forage fish such as capelin. The proponent should provide additional information on these effects and how they may affect marine ecosystems and food sources.	<p>The proponent considered the effects of the Project on zooplankton and forage fish such as capelin. It provided additional information regarding these effects in response to concerns raised by Indigenous groups. This information has been incorporated into its analysis.</p> <p>The proponent predicted that there may be adverse effects on fish and fish habitat, including primary and secondary producers such as zooplankton and capelin but that with the implementation of mitigation measures, routine project effects would be low magnitude, short- to long-term, localized within the project area and reversible and project effects from accidental events would be negligible to high magnitude, short- to long-term, within the regional study area and reversible. The proponent predicted the residual environmental effects on fish and fish habitat would not be significant.</p>	<p>The Agency requested additional information from the proponent related to the potential effects of the Project on primary and secondary productivity of water bodies, including on zooplankton and forage fish such as capelin. This information has been incorporated into its analysis.</p> <p>The Agency has identified key mitigation measures and proposed EA conditions related to fish and fish habitat. These are described in Section 6.1.3 and Appendix A and include selecting chemicals to be used in accordance with the <i>Offshore Chemical Selection Guidelines</i>, transporting spent or excess synthetic-based mud that cannot be re-used during drilling operations to shore for disposal at an approved facility, and ensuring that all discharges from a drilling installation meet the</p>

Source	Subject	Comment or Concern	Summary of Proponent's Responses	Agency Response
				<i>Offshore Waste Treatment Guidelines.</i>
KMKNO MFN Qalipu First Nation	Effects on corals and sponges	<p>It is unclear how the proponent would avoid or mitigate harm to corals and sponges where they are observed in proximity to a proposed well site.</p> <p>Recommend pre-drill surveys leading to avoidance as key mitigation. Seabed investigation should be conducted via underwater video system (not via drop camera/video system) at each well site and mooring location and not only in areas where coral gardens or sponge grounds are known or likely to be present.</p>	<p>The proponent proposed to prepare a Seabed Investigation Plan for each proposed well site prior to the start of drilling and submit these plans to DFO and the C-NLOPB for review and approval prior to implementing the seabed investigation. The plan would contain site-specific information, including:</p> <ul style="list-style-type: none"> • coral and sponge species specific to offshore Newfoundland and Labrador area and information on species that may be present in the planned well site location, if known; • proposed survey methods for hard coral, soft coral and sponges; • proposed survey area(s); and • mapping requirements. <p>The proponent would then prepare a summary report for review and approval by DFO and the C-NLOPB prior to drilling, which could include:</p> <ul style="list-style-type: none"> • results of survey(s); • predicted areas of sedimentation by drill cuttings deposition; • predicted areas of sedimentation by bottom contact of subsea equipment; 	<p>The Agency requested additional information from the proponent related to pre-drill seabed investigation plans. This information has been incorporated into its analysis.</p> <p>The Agency has identified key mitigation measures, follow-up requirements and proposed EA conditions that would require the proponent to prepare a pre-drill seabed investigation for each well site and submit to DFO and the C-NLOPB for review prior to implementing the survey. The survey would include use of a remotely-operated vehicle to collect high-definition visual data to confirm the presence or absence of sensitive environmental features, including aggregations of habitat-forming corals or sponges, around well sites and anchor/mooring locations.</p> <p>If aggregations of habitat-forming corals, sponges or other environmentally sensitive features are identified, the proponent would be required to relocate the well</p>



Source	Subject	Comment or Concern	Summary of Proponent's Responses	Agency Response
			<ul style="list-style-type: none"> • physical disturbance predicted by bottom contact of subsea equipment; • need and type of mitigation measures based on study conclusions; and • potential requirements for monitoring. <p>A number of factors would be considered in determining if and what mitigation measures may be required, which include but are not limited to:</p> <ul style="list-style-type: none"> • area(s) of reef-building coral; • percentage of living reef-building coral; • number of living soft corals per a defined area; • condition (health) of hard and soft corals; • percentage of sponge coverage; • predicted degree of sedimentation; and • predicted degree of bottom contact. <p>In most circumstances, the standard mitigation measure to avoid or minimize potential effects on sensitive benthic habitat would be relocating the planned well site or other subsea location such as an anchor location away from the identified feature(s) to meet the minimum setback identified in the C-NLOPB guidance.</p>	<p>or redirect cuttings discharges, if technically feasible. No drilling would occur before a decision is made by the C-NLOPB and DFO that mitigation and monitoring are appropriate. If it were determined that it would not be technically feasible to relocate the well or redirect cuttings discharges, the proponent would be required to conduct a comprehensive assessment of the potentially-affected benthic habitat in consultation with DFO prior to drilling to determine the potential for serious harm or alteration of coral and sponge aggregations and related options for mitigation to reduce any identified risk</p> <p>For the first well on each exploration licence, and for any well where drilling is undertaken in an area determined by pre-drill seabed investigations to be sensitive benthic habitat, the proponent would also be required to conduct follow-up to verify drill waste deposition modelling predictions.</p> <p>Results of pre-drill seabed investigations and follow-up</p>

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			<p>The seabed investigation would utilize a drop camera / video system to investigate the potential presence of sensitive benthic organisms or habitats in the immediate area of the well site, including the wellhead location and any anchor / transponder locations.</p>	<p>monitoring would be provided to Indigenous groups and posted online for public access.</p>
<p>MFN MTI NunatuKavut Community Council</p>	<p>Routine discharges</p>	<p>Concerned about impacts of routine discharges to the environment.</p> <p>Recommend that the proponent undertakes follow-up monitoring to detect the accumulation of any contaminants in marine organisms.</p> <p>Proponent should be required to use least harmful drilling fluid regardless of cost.</p>	<p>The proponent noted that potential effects of drilling wastes and other marine discharges could include chemical toxicity, bioaccumulation, increase in suspended particles and seabed disturbance. To mitigate these potential effects, the proponent would select and screen chemicals in accordance with the <i>Offshore Chemical Selection Guidelines</i> and would treat any operational discharge, including drilling fluids, prior to release in accordance with the <i>Offshore Waste Treatment Guidelines</i>. Information regarding chemical selection and waste management would also be provided to the C-NLOPB for review and approval. Seabed investigation surveys would also be conducted prior to drilling (as described above). The proponent committed to monitoring the implementation of the mitigation measures, including submitting monthly compliance reports to the C-NLOPB, which would include</p>	<p>The Agency requested additional information from the proponent related to drilling wastes and other marine discharges, including their potential effects on the marine environment. This information has been incorporated into its analysis.</p> <p>The Agency has identified key mitigation measures and proposed EA conditions that would mitigate the effects of drilling wastes and marine discharges on the marine environment. These are described in Section 6.1.3 and Appendix A. The proponent would be required to:</p> <ul style="list-style-type: none"> select chemicals in accordance with the <i>Offshore Chemical Selection Guidelines</i> and use lower toxicity drilling muds and biodegradable and environmentally friendly



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			information on volumes of liquid wastes discharged.	<p>additives within muds and cements where feasible;</p> <ul style="list-style-type: none">• ensure that all discharges meet the <i>Offshore Waste Treatment Guidelines</i>;• transport spent or excess synthetic-based mud that cannot be re-used during drilling operations to shore for disposal at an approved facility; and• ensure that all discharges from supply vessels meet or exceed the standards established in the MARPOL. <p>The proponent would be required to monitor the concentration of synthetic-based mud on drill cuttings to verify compliance with the performance target specified in the <i>Offshore Waste Treatment Guidelines</i>.</p>
KMKNO	Drill waste dispersion modelling	The proponent should verify and validate the drill cuttings dispersion modelling predictions. Such a follow-up program should not, as the proponent proposes, be dependent on specific circumstances. The monitoring program should be conducted via seabed video and/or	<p>The proponent proposed follow-up measures to verify its impact predictions and determine the effectiveness of mitigation measure in protecting sensitive benthic habitat, including:</p> <ul style="list-style-type: none">• conducting specific follow-up monitoring if drilling is undertaken in an area where the pre-drill seabed	<p>The Agency requested additional information from the proponent related to their pre-drill seabed investigations and the subsequent mitigation and follow-up measures. This information has been incorporated into its analysis.</p>



Source	Subject	Comment or Concern	Summary of Proponent's Responses	Agency Response
		benthic sampling to determine, among other things, infaunal recolonization rates following drilling.	<p>investigation and subsequent review by DFO and the C-NLOPB indicates that monitoring is required; and</p> <ul style="list-style-type: none">• when a planned well site is located within an identified fisheries closure area. <p>Follow-up monitoring program design would include post drilling seabed core samples to measure drill cuttings deposition and/or post drilling visual assessment using high-definition images/video.</p> <p>The need for and feasibility of a follow-up or monitoring program for drill cuttings deposits would be determined in consultation with DFO and the C-NLOPB.</p>	<p>The Agency identified follow-up requirements to ensure the effectiveness of mitigation measures and to verify the accuracy of predictions of effects on benthic species and habitats. These are described in Section 6.1.3 and Appendix A and include:</p> <ul style="list-style-type: none">• providing the results of pre-drill seabed investigations to DFO and the C-NLOPB prior to commencing drilling and to Indigenous groups after each well is suspended and/or abandoned. Results would also be posted online; and• for the first well on each exploration licence and for any well where drilling is undertaken in an area determined by pre-drill seabed investigations to be sensitive benthic habitat, measuring sediment deposition extent and thickness after drilling is complete and prior to departing the location to verify drill cuttings deposition modelling predictions. Results would be provided to Indigenous

Source	Subject	Comment or Concern	Summary of Proponent's Responses	Agency Response
				groups and posted online for public access.
Marine Mammals and Sea Turtles				
KMKNO MFN	Effects of vertical seismic profiling	<p>Concerns related to the effects of vertical seismic profiling surveys on marine mammals and sea turtles. The proponent should implement measures to minimize impacts on marine mammals and sea turtles during vertical seismic profiling. Observers able to identify sensitive or protected species should be posted on watch during surveys.</p> <p>In addition, given the likely presence of endangered or threatened marine mammal species (and possible presence of Right Whales), the proponent should be required to employ passive acoustic monitoring or equivalent technology before and throughout vertical seismic profiling surveys, during periods of low visibility when observers cannot effectively observe the entire safety zone (e.g., periods of fog, at night).</p>	<p>The proponent committed to follow the <i>Statement of Canadian Practice with Respect to the Mitigation of Geophysical Sound in the Marine Environment</i> during geophysical surveys, which would include:</p> <ul style="list-style-type: none"> using a trained Marine Mammal Observer (MMO) to continuously observe a pre-determined zone for 30 minutes prior to the start-up of the vertical seismic profile sound source array. If any marine mammal or sea turtle is observed within the pre-determined zone during this 30 minute monitoring period, the sound source array would not start; once the pre-determined zone is determined to be cleared of the observed marine mammal or sea turtle, starting the 30 minute monitoring period again. If any marine mammal or sea turtle (not just listed species) is observed within the pre-determined zone while the sound source is in operation, the sound source array would be shut-down; and 	<p>The Agency requested additional information from the proponent related to the potential effects of vertical seismic profiling surveys and associated mitigation measures and incorporated it into its analysis.</p> <p>The Agency has identified key mitigation measures and follow-up requirements and proposed EA conditions that would mitigate the potential effects of vertical seismic profiling on marine mammals and sea turtles. These measures are described in Section 6.2.3 (marine mammals and sea turtles) and Appendix A and include:</p> <ul style="list-style-type: none"> conducting vertical seismic profiling surveys in accordance with the <i>Statement of Canadian Practice with Respect to the Mitigation of Seismic Sound in</i>



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			<ul style="list-style-type: none"> ramping up the source array (i.e., gradually increasing geophysical source elements). <p>The proponent responded that vertical seismic profiling surveys are of short duration and that it would make every effort to not start a vertical seismic profiling survey during periods of limited visibility and therefore is currently not planning to make use of other monitoring measures such as passive acoustic monitoring.</p>	<p><i>the Marine Environment;</i></p> <ul style="list-style-type: none"> implementing cetacean detection technology, such as passive acoustic monitoring, concurrent with visual observations; shutting down the sound source upon observing or detecting any marine mammal or sea turtle within the 500 metre safety zone; developing a Marine Mammals and Sea Turtle Monitoring Plan; and verifying predicted underwater sound levels with field measurements during the first well per exploration licence. <p>The proponent would be required to provide monitoring and follow-up program results to Indigenous groups and post online for public access.</p>
KMKNO MFN	Potential effects from noise on whales	Concern related to the potential impacts on whales due to the energy and frequency of noise produced by the Project, including cumulative effects from other projects.	The proponent acknowledged that underwater sound from commercial fisheries, non-project vessel traffic and other offshore oil and gas activities could overlap with project-related sound and result in cumulative environmental effects. It stated that the project area represents a very	The Agency requested additional information from the proponent related to the potential effects of project-related noise on marine species and associated mitigation measures and incorporated it into its analysis.



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		<p>The proponent should conduct follow-up monitoring studies to evaluate the effects of noise on marine wildlife, with results of these shared with Indigenous groups.</p>	<p>small percentage of the range of marine mammal species and the effects of the Project and other exploratory drilling and related activities were predicted to be transient and temporary. Further, no critical habitat for marine mammal species at risk has been designated in or near the project area. In addition, production and exploration projects have established safety exclusion zones and would not occur in the same area at the same time, reducing the degree of overlap and interaction.</p> <p>The proponent committed to visual monitoring by trained observers to detect marine mammals and sea turtles within a safety zone during vertical seismic profiling and a ramp up of air guns prior to the start-up of operation of air source arrays to promote temporary avoidance of the area by mobile species.</p> <p>The proponent would submit an annual report of the marine mammal and sea turtle observational program to the C-NLOPB and DFO, including documentation of marine mammal and sea turtle sightings.</p>	<p>The Agency has identified key mitigation measures, follow-up requirements and proposed EA conditions that would mitigate the potential effects of sound on marine mammals and sea turtles. These are described in Section 6.2.3 and Appendix A and include:</p> <ul style="list-style-type: none">• conducting vertical seismic profiling surveys in accordance with the <i>Statement of Canadian Practice with Respect to the Mitigation of Seismic Sound in the Marine Environment</i>;• implementing cetacean detection technology, such as passive acoustic monitoring, concurrent with visual observations;• implementing a ramp up procedure;• shutting down the sound source upon observing or detecting any marine mammal or sea turtle within the 500 metre safety zone;• developing a Marine Mammals and Sea Turtle Monitoring Plan; and• verifying predicted underwater sound levels

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				<p>with field measurements during the first well per exploration licence.</p> <p>The proponent would be required to provide monitoring and follow-up program results to Indigenous groups and post online for public access.</p>
KMKNO	Vessel speeds	<p>Project-related vessels should be required to reduce speeds (10-knot limit) when not in existing shipping lanes and/or whenever a marine mammal or sea turtle is observed in the vicinity of the vessel. These speed limits should also be implemented when near a raft of seabirds, and vessels should be required to avoid approaching congregations of marine birds.</p>	<p>The proponent stated that the offshore Newfoundland area does not have prescribed speed limits or shipping lanes. Speed would be set based on environmental conditions (e.g., wind, waves), distances and other shipping traffic, and the proponent would follow operational best practices.</p> <p>The proponent committed to:</p> <ul style="list-style-type: none"> • maintain a steady vessel course and vessel speed whenever possible (vessel transit speeds would typically be between 10 to 12 knots and occasionally 13 to 14 knots); • use existing and common vessel and aircraft travel routes for vessels and helicopters where practical; and • report any vessel strikes involving marine mammals or sea turtles to DFO within 24 hours. 	<p>The Agency requested additional information from the proponent and incorporated it into its analysis.</p> <p>The Agency has identified key mitigation measures and proposed EA conditions that would mitigate the potential effects of vessels on marine mammals, sea turtles, and migratory birds. These are described in Section 6.2.3 and Appendix A. The proponent would be required, except during an emergency, to:</p> <ul style="list-style-type: none"> • limit supply vessels' movement to established shipping lanes where they are available (i.e., in approaches to harbours); and • when and where such speeds do not present a risk to safety of navigation, reduce supply vessel speed to seven knots

Source	Subject	Comment or Concern	Summary of Proponent's Responses	Agency Response
				(13 kilometres per hour) when a whale or sea turtle species at risk is observed or reported within 400 metres of the vessel.
Migratory Birds				
Innu de Ekuanitshit KMKNO MTI Qalipu First Nation	Effects on migratory birds	<p>The Project could have various impacts on marine and migratory birds, including effects from exposure to oil, disruption of migration patterns and behaviour, strandings and effects on habitats.</p> <p>Among other measures, the proponent should document the presence of hydrocarbons on the surface of the water and any subsequent impacts on seabirds following the drilling work. It is also important to document the presence and abundance of waterfowl species, eiders and Canada Geese in the work area.</p> <p>If injured avian Species at Risk are stranded on the drilling installation or on a vessel, every effort should be made to transport the bird to a wildlife rescue centre for rehabilitation.</p>	<p>The proponent provided additional information related to the Project's potential effects on migratory birds. The Project has the potential to affect migratory birds through multiple pathways but the proponent predicted that, with the implementation of mitigation measures, these effects would be low in magnitude, localized to within the local study area, reversible and overall not likely to be significant. The proponent committed to the following mitigation and follow-up measures:</p> <ul style="list-style-type: none"> • conduct routine searches for, and collection and release of, stranded birds on the platform and supply vessels in accordance with appropriate protocols and guidelines; • undertake regular searches of vessel decks and implement accepted protocols for the collection and release of any birds that become stranded and • implement by qualified and experienced personnel a live bird 	<p>The Agency requested additional information from the proponent related to the potential effects of the Project on migratory birds and incorporated it into its analysis. The Agency has identified key mitigation measures, follow-up requirements and proposed EA conditions related to migratory birds. These are described in Section 6.3.3 and Appendix A and include following appropriate procedures for safe capture and handling of stranded birds, conducting systematic daily monitoring for stranded birds, restricting flaring and conducting monitoring for marine birds from the drilling installation using a trained observer and following ECCC's protocol. The proponent would be required to provide monitoring and follow-up program results to</p>

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			<p>monitoring and observation program in accordance with ECCC's bird handling permit requirements and applicable regulatory guidance and requirements.</p> <p>Mitigation measures that apply to fish and fish habitat and marine mammals would also apply to migratory and marine birds.</p>	<p>Indigenous groups and post online for public access. Key mitigation measures identified by the Agency to reduce the effects on fish and fish habitat (Section 6.1) and marine mammals and sea turtles (Section .2) would also mitigate potential effects on migratory birds.</p>
<p>KMKNO MTI Nunatukavut Community Council</p>	<p>Flaring</p>	<p>The proponent should avoid flaring during periods when birds are more vulnerable (e.g., periods of fog, at night, etc.) and should implement additional mitigation measures to minimize the chance of episodic mass mortality at flares.</p> <p>Water-curtain barriers should be requirement around the flare during flaring.</p> <p>The proponent should be required to notify ECCC in advance of planned flaring to determine whether the flaring would occur during a period of migratory bird vulnerability.</p> <p>If an alternative to flaring is an option through which to capture similar data and the alternative poses less of an impact on the environment,</p>	<p>The proponent committed to notifying the C-NLOPB of plans to flare associated with formation flow testing. The C-NLOPB would then consult with ECCC to determine a safe timeline to reduce effects on migrating birds.</p> <p>The proponent also stated that water curtains would be deployed during flaring operations that may reduce the risk of injury or death of marine and migratory birds from direct exposure to the flare.</p> <p>The proponent stated that flaring would be kept to the minimum amount necessary to characterize the hydrocarbon accumulation. Formation flow tests with flaring would be carried out under the <i>Newfoundland Offshore Petroleum Drilling and Production Regulations</i>.</p>	<p>The Agency requested additional information from the proponent related to the requirements to flare and the potential effects of flaring on birds. This information has been incorporated into the Agency's analysis.</p> <p>The Agency has identified key mitigation measures, which are described in Section 6.3.3 and Appendix A, and proposed EA conditions including the requirement for the proponent to:</p> <ul style="list-style-type: none"> • restrict flaring to the minimum required to characterize a well's hydrocarbon potential and as necessary for the safety of the operation; • use a drill pipe conveyed test assembly where

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		then the alternative must be used.		<p>acceptable to the C-NLOPB;</p> <ul style="list-style-type: none"> • if formation testing with flaring is required, notify the C-NLOPB at least 30 days in advance of planned flaring to determine if flaring would occur during periods of migratory bird vulnerability (in consultation with ECCC) and to identify how to avoid adverse effects; and • operate a water-curtain barrier around the flare during flaring.
MTI	Helicopter traffic	Concern regarding potential effects of helicopter traffic on birds. The proponent should adhere to the minimum altitude and distance for helicopter flight to minimize disturbance to birds (e.g., altitude greater than 300 metres and lateral distance of greater than 2 kilometres from any active bird colony).	The proponent indicated that flights would use existing and established routes wherever possible. Known and observed bird colonies, large aggregations of avifauna, protected or sensitive areas and times would also be avoided wherever possible. Helicopter operations would avoid coastal seabird colonies during the nesting season as per the <i>Seabird Ecological Reserve Regulations, 2015</i> (i.e., by not taking off or landing in, and by flying at an altitude greater than 300 metres over seabird ecological reserves during sensitive times of year to avoid disturbance).	<p>The Agency requested additional information from the proponent related to helicopter operations and incorporated it into its analysis.</p> <p>The Agency has identified the following mitigation measure to mitigate effects of helicopters on bird colonies:</p> <ul style="list-style-type: none"> • restrict helicopter flying altitude to a minimum altitude of 300 metres (except during take-off and landing) from active bird colonies and to a lateral distance of 1000 metres from Cape St. Francis and Witless Bay Islands

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				Important Bird and Biodiversity Areas (unless there is an emergency situation).
KMKNO MTI Nunatakavut Community Council	Migratory birds - mitigation and monitoring	<p>The proponent should consider additional mitigation measures to minimize the attraction of birds to project infrastructure (e.g., light colour, intensity, amount, timing, etc.) and to deter birds from nesting on structures.</p> <p>The proponent should implement monitoring and should consider the use of acoustic and/or camera based monitoring to document bird sightings and interactions with the drilling installation and project vessels. The proponent should provide quantifiable targets (e.g., number of bird standings/deaths) which would be used to determine the effectiveness of mitigation measures and to serve as adaptive management thresholds.</p>	<p>The proponent stated that the use of artificial lighting will be minimized to the greatest extent possible and is expecting to contract its MODU and other support vessels and aircraft from suppliers that have operated in the region. The contractors and their equipment would be selected based on safety considerations and technical capabilities. Safety would be the primary consideration in determining the nature and amount of lighting utilized. Lighting is task specific by design and where safe and technically feasible some amount of reduced lighting may be considered.</p> <p>The proponent committed to implementing a bird monitoring and observation program that would include having a trained observer onboard to record marine bird sightings during operations. A report of the seabird monitoring program, together with any recommended changes, would be submitted to the C-NLOPB and Canadian Wildlife Services on a yearly basis.</p>	<p>The Agency requested additional information from the proponent related to mitigation measures and monitoring of effects of the Project on migratory birds. This information has been incorporated it into the Agency's analysis.</p> <p>The Agency has identified key mitigation measures, follow-up requirements and proposed EA conditions related to migratory birds. These are described in Section 6.3.3 and Appendix A. Key mitigation measures include following appropriate procedures for safe capture and handling of stranded birds and restricting of flaring. The proponent would also be require to implement a follow-up program, which would include systemic daily monitoring for stranded birds, and monitoring for marine birds from the drilling installation. The proponent would be required to document and report the</p>



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				<p>results of any monitoring carried out, including a discussion of whether mitigation measures were proven effective and if additional measures may be required and provide the monitoring and follow-up results to Indigenous groups.</p>
<p>Special Areas</p>				
<p>KMKNO</p>	<p>Impacts on special areas</p>	<p>Concern related to potential effects of the Project on special areas.</p> <p>To minimize potential impacts to sensitive benthic habitats and areas of high ecological or biological activity and significance, the location of special areas and predicted drill cuttings dispersion should be factored into well site selection.</p>	<p>The proponent proposed mitigation measures related to fish and fish habitat (e.g., pre-drill seabed investigations), marine mammals and sea turtles, and migratory birds that would also mitigate potential effects on special areas.</p> <p>The proponent proposed to conduct follow-up in relation to special areas if drilling were undertaken:</p> <ul style="list-style-type: none"> • within an identified fisheries closure area; and • where the results of the pre-drill seabed investigation and subsequent review by DFO and the C-NLOPB indicate that monitoring is required. 	<p>The Agency requested additional information from the proponent regarding potential effects of the Project on special areas. This information has been incorporated into its analysis.</p> <p>The Agency is of the view that key mitigation measures proposed for other valued components, including fish and fish habitat, marine mammals and sea turtles, and migratory birds, would mitigate potential effects on special areas. The Agency has identified a potential EA condition that would require the proponent to conduct follow-up monitoring when drilling in special areas, or adjacent to or near a special area, such that drill cuttings</p>



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				<p>dispersion modelling predicts that cuttings deposition could occur within the special area at level above the biological effects threshold. Monitoring would include:</p> <ul style="list-style-type: none">• measuring sediment deposition extent and thickness after drilling is complete and prior to departing the location to verify drill cuttings deposition modelling predictions;• survey of benthic fauna present after drilling has been concluded; and• reporting of results, including a comparison of modelling results to in situ results, to the C-NLOPB and DFO. <p>The proponent would be required to provide monitoring and follow-up program results to Indigenous groups and post online for public access.</p>
NunatuKavut Community Council	Shipping routes and special areas	The proponent should consider avoiding special areas and other potentially sensitive areas with supply vessels and plan routes to avoid these areas.	The proponent committed to use existing and common vessel travel routes for vessels where practical and will seek to maintain a steady course and vessel speed.	The Agency identified key mitigation measures and proposed EA conditions that would mitigate the potential effects of vessel traffic, including potential effects on special areas. These are



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				<p>described in Section 6.2.3, 6.4.3 and Appendix A. The proponent would be required to, except during an emergency:</p> <ul style="list-style-type: none"> • limit supply vessels movement to established shipping lanes where they are available (i.e., in approaches to harbours); and • ensure supply and other support vessels maintain a 300-metre buffer from Cape St. Francis and Witless Bay Islands Important Bird and Biodiversity Areas (unless there is an emergency situation).
Commercial Fisheries				
<p>Innu Nation KMKNO MFN Millbrook First Nation MMS MTI</p>	<p>Effects on commercial fisheries and communication with fishers</p>	<p>Concern related to potential impacts on commercial fisheries, including shrimp fishery.</p> <p>Indigenous groups requested the proponent develop a communication plan to inform fishers and to facilitate dialogue related to any project issues affecting the commercial fishery. The</p>	<p>The proponent predicted that, with the implementation of mitigation measures, the adverse environmental effects of routine project activities on commercial fisheries, including the shrimp fishery, would be negligible to low in magnitude, localized, short-term and reversible to irreversible (for well abandonment or suspension). The proponent predicted residual environmental effects of the Project on</p>	<p>The Agency requested additional information from the proponent and identified measures to mitigate effects on fishery resources and fishing activity. These are described in Section 6.6.3 and Appendix A.</p> <p>The Agency has identified key mitigation measures, including:</p>

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<p>NunatuKavut Community Council</p> <p>Qalipu First Nation</p>		<p>proponent should be required to accommodate any impacts to commercial fishery operations resulting from the Project, including from an accident or malfunction.</p> <p>As a follow-up program, the proponent should ensure that issues and concerns can be raised by Indigenous groups throughout the Project's life and fishers should be provided with monthly updates (at a minimum).</p>	<p>commercial fisheries would not be significant.</p> <p>The proponent committed to communicate on an ongoing basis with commercial fishers throughout the Project. The proponent will provide an annual update of planned activities to fishers and fish processors that will include timing of exploration activities and locations of planned wells.</p> <p>The proponent also committed to continued engagement with Indigenous groups and to develop an Indigenous Communities Fisheries Communication Plan. It will share its plans for monitoring and follow-up programs including communication related to the unlikely occurrence of accidents and malfunctions, with Indigenous groups in upcoming and ongoing engagement for discussion and input.</p> <p>CNOOC intends that the plan will be designed to be responsive throughout the life of the Project and believes it is important that the plan contain a mechanism that ensures adaptive management measures can be taken if required. During drilling operations, CNOOC proposes providing Indigenous groups with quarterly updates regarding Project activities.</p>	<ul style="list-style-type: none"> implement a Fisheries Communication Plan, including a procedure for determining the need for a Fisheries Liaison Officer and/or fisheries guide vessels during drilling installation movement. These measures would be developed in consultation with Indigenous groups and commercial fishers. <p>In addition, in all cases where spills, debris or other project-related activities cause damage to fishers, the C-NLOPB would expect the proponent to consider claims in a manner that meets the requirements of the <i>Canada-Newfoundland and Labrador Atlantic Accord Implementation Act</i> and the spirit of the <i>Compensation Guidelines Respecting Damages Related to Offshore Petroleum Activity</i>, and to act in good faith to resolve claims from fishers. If the proponent and a fisher were unable to resolve such a claim, the fisher could seek relief through a compensation claim to the</p>

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				C-NLOPB [if applicable] or through the court.
<p>Nunatsiavut Government</p> <p>NunatuKavut Community Council</p> <p>Qalipu First Nation</p> <p>Sipekne'katik First Nation</p>	Effects of drilling wastes on commercial fisheries	<p>Concern that drilling fluids, cuttings and accidental events may adversely affect breeding and/or feeding grounds of numerous marine species, which could result in impacts to commercial and food, social and ceremonial fisheries.</p>	<p>The proponent noted that due to the relatively non-toxic nature of water-based mud components, toxic effects to fish and benthic invertebrates would not be expected, and that synthetic-based mud cuttings and mud would be returned to the drilling installation for treatment before discharge.</p> <p>With proposed mitigations and the very localized nature and extent of the planned activities, the proponent does not expect a change in market perceptions of the quality of fish harvested near drilling locations and therefore, no expectation of any effect on price paid to harvesters as a result.</p> <p>The proponent stated that residual effects on fisheries because of drilling associated discharges are predicted to be negligible in magnitude, localized and within the project area, short to medium-term in duration and reversible.</p>	<p>The Agency requested additional information from the proponent and incorporated it into its analysis.</p> <p>The Agency has identified key mitigation measures and proposed EA conditions related to marine species. These are described in Section 6.1.3, 6.2.3, 6.3.3 and Appendix A. Key mitigation measures include ensuring that all discharges from the mobile offshore drilling unit meet the <i>Offshore Waste Treatment Guidelines</i>. The Agency has also identified key mitigation measures and proposed EA conditions related to accidents and malfunctions. These are described in Section 7.1 and Appendix A.</p>
<p>KMKNO</p> <p>MMS</p> <p>Sipekne'katik First Nation</p> <p>Nunatsiavut</p>	Compensation	<p>Indigenous fishers should be compensated for any impeded access to fishing activity and for damaged or lost fishing gear.</p> <p>Furthermore, in the event of a spill, the proponent must compensate for any loss of</p>	<p>The proponent committed to two types of compensation programs:</p> <p>1. Gear Damage or Loss Compensation Program</p> <p>This Program is intended to apply primarily to losses resulting from damage to physical fishing assets that might occur during planned</p>	<p>The Agency requested additional information from the proponent and identified measures to mitigate effects on fishery resources and fishing activity. These are described in Appendix A and Section 6.6.3 and include measures such as</p>

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		<p>productivity of species harvested by Indigenous communities.</p> <p>Commit to involving Indigenous communities in the development of the compensation program. If consultation is not required, confirm if there is another means by which the Indigenous community can be involved, including a Fishery Compensation Plan.</p>	<p>and routine operations and is not intended to address a major accidental event such as an oil spill that might affect nearshore areas. The Program would pertain mainly to fishing activities that occur within the offshore project area and near routes that Project-associated vessels take to transit between the project area and shore. The proponent would prepare a draft plan of the Program and would provide Indigenous groups with opportunities to review and provide comments on the planned Program before it is finalized</p> <p>The proponent would not intend to exclude harvesting equipment used by rights holders and any fishing gear, boats or other related equipment used within Indigenous food, social, ceremonial, moderate livelihood, as well as communal commercial fisheries affected by such occurrences, would be compensable under its terms.</p> <p>2. Operator Compensation Program</p> <p>The proponent would develop and implement a compensation program for any economic damages suffered by fish harvesters caused by any</p>	<p>implementing a Fisheries Communication Plan.</p> <p>In addition, in all cases where spills, debris or other project-related activities cause damage to fishers, the C-NLOPB would expect the proponent to consider claims in a manner that meets the requirements of the <i>Canada-Newfoundland and Labrador Atlantic Accord Implementation Act</i> and the spirit of the <i>Compensation Guidelines Respecting Damages Related to Offshore Petroleum Activity</i>, and to act in good faith to resolve claims from fishers. If the proponent and a fisher were unable to resolve such a claim, the fisher could seek relief through a compensation claim to the C-NLOPB [if applicable] or through the court.</p>



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			<p>unauthorized discharge, emission or escape of petroleum or the escape of debris. This program would serve as a means of mitigation for any residual economic effects on the fisheries that could not be prevented or fully mitigated by other measures.</p> <p>The loss to Indigenous groups of opportunities to hunt or fish, as well as loss of income, would be considered in the Program's development. To accomplish this, the proponent would consider differences between stakeholders and rights holders.</p> <p>The proponent would prepare a draft plan of the Operator Compensation Program and provide Indigenous groups with opportunities to review and provide comments on the planned Program before it is finalized.</p>	
<p>Current Use of Lands and Resources for Traditional Purposes and Potential Impacts on Aboriginal Rights</p>				
<p>Innu de Ekuanitshit KMKNO MTI MFN</p>	<p>Indigenous knowledge and effects assessment</p>	<p>Indigenous knowledge must be applied in conducting EAs to accurately determine the impacts to Aboriginal rights and to assist in the development of mitigation and monitoring. Indigenous knowledge can also contribute to providing an ecosystem</p>	<p>The proponent engaged Indigenous groups over the course of the EA through face-to-face meetings, phone calls, emails and reports. It also coordinated a two-day workshop for interested communities to discuss the Project, including potential impacts and mitigation measures, and</p>	<p>The Agency directed the proponent to engage Indigenous communities in the preparation of the EIS and consider Indigenous knowledge in the analysis.</p> <p>The Agency has considered comments received from Indigenous groups following</p>

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<p>NunatuKavut Community Council</p> <p>Première Nation de Nutashkuan</p>		<p>perspective in EAs and follow-up.</p> <p>More specifically, and in relation to this EA in particular, the proponent should explain the rationale for not undertaking specific studies on current use of lands and resources for traditional purposes, particularly given that Indigenous harvesting activities in the vicinity of shorelines could be impacted by an oil spill.</p>	<p>participated in workshops organized by the Agency with Indigenous groups.</p> <p>Regarding potential impacts to shorelines or nearshore environments, the proponent predicted that the probability of spilled oil making contact with shorelines would be low and if it did, only small portions of the released oil would actually reach shorelines (and the oil would likely be weathered, patchy and discontinuous. As a result, only a small portion of species and habitats would likely be affected and there would be little or no potential for biophysical effects to translate into any detectable decrease in the overall nature, intensity, distribution, quality or cultural value of traditional activities by Indigenous communities.</p>	<p>their reviews of the EIS and asked the proponent to provide additional information on a number of topics. Indigenous groups were provided an opportunity to review and comment on the additional information, as applicable. The Agency also consulted Indigenous groups through phone calls, emails, letters and in-person meetings. For example, the Agency organized four information sessions with Indigenous groups in October 2017, in which the proponent also participated.</p> <p>The Agency received a copy of the Indigenous Knowledge Study completed by MTI and considered the information presented in its analysis.</p>
<p>Elsipogtog First Nation</p>	<p>Effects on resources and harvesting within traditional territories</p>	<p>Request that Elsipogtog First Nation play a central role in the assessment of and decision-making respecting any development that has potential to impact fish, fish habitat, fisheries and management within their territory, including the Project.</p>	<p>The proponent engaged Elsipogtog First Nation in the development of its EIS and the proponent remains committed to continuing to engage with Indigenous groups. The proponent would develop, in consultation with Indigenous groups, an Indigenous Communities Fisheries Communication Plan and has committed to timely communication. Over the life of the Project,</p>	<p>The Agency integrated consultation and engagement activities with Elsipogtog First Nation into the EA. Elsipogtog First Nation was given the opportunity to review and submit comments on various documents and was also consulted through other methods, including phone calls, emails, letters and in-</p>

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			<p>engagement opportunities would continue through, among other things, project updates, safety and public awareness presentations, community events, regulatory processes and ongoing informal meetings with Indigenous groups. This would include updates to Indigenous groups about planned activities given potential for changes in operations. During drilling operations, the proponent proposed providing Indigenous groups with quarterly updates regarding project activities.</p>	<p>person meetings. Elsipogtog First Nation's input has been considered and incorporated into the Agency's analysis. The Agency has identified key mitigation measures which would ensure Elsipogtog First Nation continues to be appropriately involved, including through participation in the development of the Fisheries Communications Plan and Oil Spill Response Plan.</p>
<p>Accidents and Malfunctions</p>				
<p>Innu Nation KMKNO MFN Millbrook First Nation NunatuKavut Community Council Qalipu First Nation</p>	<p>Capping stack location and response times, use in deep water</p>	<p>Concerned about the amount of time required to mobilize and deploy a capping stack. Recommend a capping stack be located and maintained in the Atlantic region. Alternative transportation options, such as transporting the capping stack by air, should also be considered.</p> <p>Concern about the proposed use of a capping stack in deep water.</p>	<p>The proponent stated that while a capping stack system in eastern Canada or on a vessel could result in quick mobilization, the ability to modify the equipment for the specific incident would be limited and other activities would still be in progress prior to installation, including debris removal. Existing capping stack facilities are set up such that the equipment can be quickly modified and prepared for shipment based on the specific requirements of an incident. It is unlikely that having a capping stack system in eastern Canada would reduce the overall time to install a capping stack. The proponent also</p>	<p>The Agency requested additional information from the proponent related to capping stack locations and response times. This information was incorporated it into its analysis. The Agency relied on the C-NLOPB's expertise and advice in reviewing the proponent's analyses and proposed approach to spill response, including the proposed approach to capping stack mobilization and deployment, and the Agency notes that the C-NLOPB was</p>



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			<p>considered transporting the capping stack by air but stated that this may result in increased logistics associated with air travel could result in longer mobilization times. The proponent stated that their preferred mobilization method would be by vessel and would use air transport for its contingency capping stack.</p>	<p>satisfied with the information presented by the proponent.</p> <p>The Agency notes that the C-NLOPB's authorization of drilling activities is contingent on its confidence that the proponent have a satisfactory approach to risk management. The proponent would also be required to demonstrate their preparedness to appropriately respond in the event of an accident or malfunction, including preparation of detailed spill response plan and well capping and containment plan, which would include discussion of any potential options to reduce overall response timelines.</p> <p>The Agency has identified key mitigation measures that would ensure the proponent fulfil these commitments (refer to Section 7.1.3 and Appendix A), which include the requirement to prepare Spill Response Plan and well capping and containment plans, which would be submitted to the C-NLOPB for acceptance prior to drilling, and would establish well control strategies and</p>



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				measures, including the capping of a blowout.
KMKNO	Emergency response plan training and implementation	The proponent must take all reasonable measures to reduce the probability of an accidental event and ensure they are prepared to respond effectively if an event does occur. In addition to directed training and response exercises around emergency preparedness, experts should be engaged, prior to drilling program initiation, to provide training specific to operating in harsh weather environments (including specialized training for technical experts, decision-making factors and processes, and roles and responsibilities).	The proponent has a hazard identification and risk assessment process to identify hazards and potential incidents, develop preventative barriers and recovery measures, identify the necessary training and conduct response exercises to mitigate potential risk. The proponent also uses an emergency response management system with highly trained specialists and resources ready at all levels. The Project would employ a tiered system to categorize and respond to any type of incident (e.g., tier 1 response is within the capability of on-site resources, tier 2 is within the capability of regional resources and tier 3 requires both national and international resources). Determining the appropriate tiered response level and method for response to an incident will be dependent upon several factors including, but not limited to, the type of incident, location, size or volume of spill, time of year, weather, sea state and resource availability.	<p>The Agency requested additional information from the proponent and incorporated it into its analysis.</p> <p>The Agency has identified key mitigation measures, follow-up programs and proposed EA conditions for accidents and malfunctions. These are described in Section 7.1.3 and Appendix A. Key mitigation measures include preparing a Spill Response Plan, undertaking a spill impact mitigation assessment and undertaking all reasonable measures to prevent accidents and malfunctions and to effectively implement emergency response procedures and contingencies developed for the Project. The C-NLOPB has also advised the Agency that its authorization of drilling activities is contingent on its confidence that the proponent would be able to appropriately respond in the event of an accident or malfunction.</p> <p>In addition, the proponent would be required to, in in</p>

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				<p>consultation with the C-NLOPB, establish and enforce practices and limits for operating in all conditions that may be reasonably expected, including poor weather, high sea state, or sea ice or iceberg conditions.</p>
<p>KMKNO MFN MMS MTI Nunatsiavut Government</p>	<p>Indigenous involvement in emergency response planning</p>	<p>Indigenous groups should be involved in the development and implementation of the Oil Spill Response Plans and other emergency response and contingency plans, including emergency response and preparedness planning, exercises and training.</p> <p>The proponent should ensure that information about accidental events would be shared with Indigenous groups, including consultation in relation to the findings of the dispersion modelling and to the scope of emergency preparedness and response planning.</p>	<p>The proponent committed to sharing its final oil spill response plans with Indigenous groups for discussion and will consider input from these groups. The proponent will continue to engage with Indigenous communities throughout the life of the Project and will explore opportunities to provide education in oil spill response with interested Indigenous groups. This may take the form of training, workshops or exercises to more fully integrate these communities into the proponent's program.</p>	<p>The Agency requested additional information from the proponent on the details of the spill response plans and strategies and incorporated this information into its analysis.</p> <p>The Agency has identified key mitigation measures, follow-up programs and proposed EA conditions for accidents and malfunctions. These are described in Section 7.1.3 and Appendix A, and include the following:</p> <ul style="list-style-type: none"> • involve Indigenous groups in the development of the Oil Spill Response Plan and provide the approved versions to Indigenous groups; • include procedures to communicate with fishers in the event of an accident or malfunction in the Fisheries Communications Plan; and

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				<ul style="list-style-type: none"> develop procedures to communicate monitoring results to Indigenous groups.
<p>Innu de Ekuanitshit</p> <p>KMKNO</p> <p>MTI</p> <p>NunatuKavut Community Council</p>	Potential shoreline impacts	Concern related to discharges and spills reaching shore and any resulting potential impacts to commercial or food, social and ceremonial fisheries.	Regarding potential impacts to shorelines or nearshore environments, the proponent predicted that the probability of spilled oil making contact with shorelines would be low, and if it did, only small portions of the released oil would actually reach shorelines (and the oil would likely be weathered, patchy and discontinuous. As a result, only a small portion of species and habitats would likely be affected, and there would be little or no potential for biophysical effects to translate into any detectable decrease in the overall nature, intensity, distribution, quality or cultural value of traditional activities by Indigenous communities.	<p>The Agency requested additional information from the proponent related to the potential for a spill to reach shorelines and the potential effects of a spill on shorelines and nearshore environments (Section 7.1).</p> <p>The Agency notes that the probability of oil making contact with shorelines is relatively low. Mitigation measures proposed for accidents and malfunctions and commercial fishing (e.g., development of the Fisheries Communication Plan and compensation for any damages, including loss of food, social and ceremonial fisheries), would also mitigate potential effects on Indigenous commercial and food, social and ceremonial fisheries.</p>
<p>Innu de Ekuanitshit</p> <p>KMKNO</p>	Impact of a spill on species of importance to Indigenous groups	Concern regarding the potential effects of an accidental event or malfunction on species of importance to Indigenous communities (e.g., Atlantic	The proponent provided additional information about potential effects of a spill, including on species of importance to Indigenous groups such as Atlantic Salmon, swordfish and Bluefin Tuna.	The Agency requested additional information from the proponent regarding a spill's potential effects on various species, including Atlantic Salmon and Bluefin Tuna.

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<p>MMS MTI Première Nation de Nutashkuan Sipekne'katik First Nation NunatuKavut Community Council</p>		<p>Salmon, Bluefin Tuna, swordfish).</p>	<p>With regard to Atlantic Salmon, modelled blowout scenarios predicted that the majority of affected areas would experience total hydrocarbon concentrations below levels shown to have behavioural or toxic effects on salmon. Waters with potential higher concentrations would likely be located towards the bottom of the water column and salmon are likely to avoid such concentrations.</p> <p>With regard to Bluefin Tuna and swordfish, the proponent recognized that exposure to certain hydrocarbons has been shown to affect fish, including eggs, larvae and juveniles. Due to the distance of the Project from tuna and swordfish spawning areas, Atlantic Bluefin Tuna and swordfish would not likely interact with spilled oil in their early life stages. Foraging adult Bluefin Tuna and swordfish would be most likely to come in contact with spilled oil; however, they have wide distributions and high migratory capabilities and would likely have limited interactions with a spill.</p> <p>The proponent committed to a variety of measures to prevent and respond to accidents and malfunctions (Section 16.1). The proponent predicted that, with appropriate mitigation, any residual effects of an accident or malfunction on fish, including Atlantic Salmon, would not likely result in a</p>	<p>The Agency notes that the C-NLOPB's authorization of drilling activities is contingent on its confidence that the proponent have a satisfactory approach to risk management. The proponent would also be required to demonstrate their preparedness to appropriately respond in the event of an accident or malfunction, including preparation of detailed spill response plans that meet the C-NLOPB's regulatory standards.</p> <p>Nonetheless, in taking a precautionary approach and also in considering the potential presence of species at risk, the Agency concludes that the potential effects of a worst-case accident or malfunction (i.e., unmitigated subsea blowout) on fish and fish habitat and marine mammals and sea turtles could be significant. By extension, and particularly considering potential effects on endangered or threatened populations of Atlantic Salmon and their recovery, as well as the context provided by Indigenous groups, the Agency has concluded that the</p>

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			<p>detectable decline in overall abundance, nor a change in the spatial and temporal distribution of fish populations in the regional study area. The proponent also stated that any biophysical effects from a spill would not likely translate into any detectable decrease in the overall nature, intensity, distribution, quality or cultural value of traditional activities by Indigenous communities.</p>	<p>potential effects of a worst-case accident or malfunction on the current use of lands and resources for traditional purposes and the health and socioeconomic conditions of Indigenous peoples could be significant. The Agency also recognizes that the probability of occurrence for a major event is very low and thus these effects are unlikely to occur. On this basis, the Agency concludes that the Project is not likely to cause significant adverse environmental effects as a result of accidents and malfunctions.</p>
<p>Innu de Ekuanitshit KMKNO MMS NunatuKavut Community Council</p>	<p>Potential contamination of resources and effects on current use and socioeconomic conditions and wellbeing of Indigenous communities</p>	<p>Concerns related to potential contamination of harvested species, including perceived contamination which could influence dietary changes if country foods were avoided. The potential psychosocial impacts of an oil spill should be assessed and the emergency response plan should include engagement with Indigenous groups and mitigation for the psychosocial stresses that may arise from a spill or blowout.</p>	<p>The proponent stated that: the probability of a blowout would be very low; released oil would likely move eastward; and response measures would likely reduce the duration and extent of the spill. The probability of contamination of resources harvested by Indigenous communities would be very low and an assessment of effects on the health of Indigenous peoples was not required. The proponent committed to sharing its final oil spill response plans with Indigenous groups for discussion and stated that it would consider input from</p>	<p>In response to this concern, the Agency requested additional information from the proponent related to the Project's potential effects on current use and health and socioeconomic conditions of Indigenous peoples, particularly in the even of a blowout (Sections 6.7 and 7.1). The Agency acknowledges that current use and health and socioeconomic conditions in Indigenous communities</p>



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			<p>those groups. The proponent also stated that it would continue to engage with Indigenous communities throughout the life of the Project and would explore opportunities to provide education in oil spill response with interested Indigenous groups. This could take the form of training, workshops or exercises.</p> <p>The proponent would develop and implement a compensation program for any economic damages suffered by fish harvesters caused by any unauthorized discharge, emission or escape of petroleum or the escape of debris. This program would serve as a means of mitigation for any residual economic effects on the fisheries that could not be prevented or fully mitigated by other measures.</p> <p>The loss to Indigenous groups of opportunities to hunt or fish, as well as loss of income, would be considered in the Program's development.</p>	<p>could be affected if project-related changes in the marine environment occur as a result of an accidental event or malfunction (e.g., cause decreased catch rates or a decrease in fish quality for human consumption).</p> <p>The Agency considers that mitigation measures identified for fish and fish habitat, accidents and malfunctions, commercial fishing (e.g., development of the Fisheries Communication Plan and compensation for any damages, including loss of food, social and ceremonial fisheries), would also mitigate potential effects on the current use and health and socioeconomic conditions of Indigenous peoples.</p> <p>Nonetheless, in taking a precautionary approach and also in considering the potential presence of species at risk, the Agency concludes that the potential effects of a worst-case accident or malfunction (i.e., unmitigated subsea blowout) on fish and fish habitat and marine mammals and sea turtles could be significant. By</p>



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				extension and particularly considering potential effects on endangered or threatened populations of Atlantic Salmon and their recovery, as well as the context provided by Indigenous groups, the Agency has concluded that the potential effects of a worst-case accident or malfunction on the current use of lands and resources for traditional purposes and the health and socioeconomic conditions of Indigenous peoples could be significant. The Agency also recognizes that the probability of occurrence for a major event is very low and thus these effects are unlikely to occur. On this basis, the Agency concludes that the Project is not likely to cause significant adverse environmental effects as a result of accidents and malfunctions.
Innu Nation KMKNO MFN	Effects of dispersants	Concern related to the potential effects of dispersants on fish. Request clarification on the differences between and the potential effects of subsea	The proponent provided information on dispersant application methods and on the potential benefits and drawbacks of their use. Compared to surface application, subsea dispersant injection generally results in lower concentrations of	The Agency requested additional information from the proponent on dispersants, including application methods and potential benefits and drawbacks. The Agency relied on the C-NLOPB's advice and input in reviewing this

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<p>Millbrook First Nation</p> <p>MMS</p> <p>NunatuKavut Community Council</p> <p>Qalipu First Nation</p>		<p>versus surface dispersant injection.</p> <p>Request that a net environmental benefit analysis be undertaken to help guide the development of the response methods and plans, including determining if dispersants should be used.</p> <p>Given that scientific understanding of dispersants and their effects on the environment is evolving, the analysis should reference, evaluate and integrate the most recently-available information and literature. The proponent should explore potential for Indigenous involvement in this process.</p>	<p>dispersed oil, reduces the amount of oil coming to the surface and reduces surface water, nearshore and shoreline exposure to floating oil and dissolved oil in the upper water column.</p> <p>As part of the C-NLOPB's approval process, the proponent would undertake a spill impact mitigation assessment (also known as a net environmental benefit analysis), which would evaluate benefits and risks of different response measures. Considering whether to use dispersants would be a key component of the spill impact mitigation assessment.</p> <p>Indigenous groups could be consulted during the drafting of the spill impact mitigation assessment report to see additional comment.</p>	<p>information, and this information has been incorporated into its analysis.</p> <p>The Agency has identified key mitigations and proposed EA conditions for accidents and malfunctions. These are described in Section 7.1.3 and Appendix A. Key mitigation measures include undertaking a spill impact mitigation assessment to consider all realistic and achievable spill response options and identify those techniques (including the possible use of dispersants) that would provide for the best opportunities to minimize environmental consequences and provide it to the C-NLOPB for review. Relevant federal government departments would provide advice to the C-NLOPB on the spill impact mitigation assessment through the ECCC Environmental Emergency Science Table. The spill impact mitigation assessment would be published on the internet for the information of Indigenous groups and the public.</p>

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KMKNO	Vessel routes and collision risks	<p>Concern regarding the potential for collisions between supply vessels and fishing vessels and other ocean users. The proponent should provide more detail to better understand the level of collision risk.</p> <p>To minimize the potential for interference with commercial fisheries, project vessel transit routes should be required to link up with existing and common traffic routes at the earliest practicable opportunity, even where this may result in moderately decreased efficiency.</p> <p>The proponent should clearly define speed limits applicable in different routes scenarios, supported by a map to the best of their knowledge.</p>	<p>The proponent considered the risk of vessel collisions. It stated that the possibility of a vessel-on-vessel collision would be considered a high consequence but low frequency event. Vessel traffic would be subject to various safeguards and contingencies (e.g., highly trained/competent personnel, safety meetings, inspections of equipment) and would be subject to applicable regulatory requirements (e.g., <i>Canada Shipping Act, Collision Regulations</i>).</p> <p>The proponent stated that the offshore Newfoundland area does not have prescribed speed limits or shipping lanes. Speed would be set based on environmental conditions (e.g., wind, waves), distances, destination and other shipping traffic, and the proponent would follow operational best practices. The vessels would transit in a straight-line approach to and from the port of St. John's to the drilling installations. Vessel transits are typically completed at speeds of between 10-12 knots and occasionally at best possible speed of 13-14 knots.</p>	<p>The Agency requested additional information from the proponent related to vessel traffic and the risks and potential effects of a collision. The Agency relied on advice and input from the C-NLOPB, Transport Canada and other federal authorities to review and determine the accuracy and reasonableness of the proponent's information and analyses. This information has been incorporated into the Agency's analysis.</p> <p>The Agency has identified key mitigations and proposed EA conditions that would address the risk and potential effects associated with a vessel collision. These are described in Section 6.2.3, Section 7.1.3 and Appendix A. Key mitigation measures include:</p> <ul style="list-style-type: none"> • prepare a plan for avoidance of collisions with vessels and other hazards and submit to the C-NLOPB for acceptance prior to drilling; • limit supply vessels movement to established shipping lanes where they are available (i.e., in



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				<p>approaches to harbours); and</p> <ul style="list-style-type: none"> when and where such speeds do not present a risk to safety of navigation, reduce supply vessel speed to seven knots (13 kilometres per hour) when a whale or sea turtle is observed or reported within 400 metres of the vessel.
Cumulative Effects				
<p>MTI Nunatsiavut Government</p>	<p>Atlantic Salmon - cumulative effects</p>	<p>The proponent must fully consider the cumulative effects of the Project on the marine environment, and in particular, Atlantic Salmon.</p> <p>To assess cumulative effects, the proponent should provide more detail and analysis that documents the population declines in Atlantic Salmon that have occurred within the traditional waters of Indigenous communities. Subsequently, the proponent should consider the impacts that climate change has had on the distribution of salmon and how the Project could potentially contribute and exacerbate an already</p>	<p>The proponent considered cumulative effects of the Project on Atlantic Salmon and provided information on potential factors that may be contributing to declines in Atlantic Salmon populations, including climate change. The proponent stated that the project area is not likely used by Atlantic Salmon as overwintering habitat or as a major feeding area. The proponent stated that offshore oil and gas projects have localized environmental effects and that exploration activities, such as those proposed as part of the Project, are short-term and within a relatively limited zone of influence, which would limit the potential for interactions between the effects of the Project on Atlantic Salmon and those other activities. The mitigation measures</p>	<p>The Agency requested additional information from the proponent regarding the Project's potential cumulative effects on Atlantic Salmon as well as consideration of the impacts that climate change may have had on the distribution of Atlantic Salmon and whether the Project could potentially contribute to or exacerbate and already declining population of salmon in the region.</p> <p>The Agency also requested that the proponent discuss the need for follow-up related to project-specific or cumulative effects on Atlantic salmon.</p> <p>The Agency is working with the Province of Newfoundland</p>

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		<p>declining population of salmon in the region.</p> <p>It would also be important to implement well-planned monitoring programs to understand the cumulative effects of oil and gas activities on this species.</p>	<p>proposed would further reduce the potential for cumulative environmental effects of the Project on Atlantic Salmon and other marine species.</p> <p>The proponent indicated that it may support research in collaboration with other operators on Atlantic Salmon. The proponent provides funding to the ESRF, in collaboration with other operators, and the data gap related to the migratory routes of Atlantic Salmon has already been presented to the ESRF as a new research priority.</p> <p>Equinor has purchased and provided the Atlantic Salmon Federation with 18 salmon tags to use in their salmon tagging program in Greenland. The proponent also noted that Husky Energy has placed Acoustic receivers for tagged salmon on its SeaRose production facility on the Grand Banks.</p>	<p>and Labrador and the C-NLOPB on a regional approach for assessing the environmental effects of offshore exploratory drilling in the offshore area of eastern Newfoundland, which would aim to examine the effects of existing and anticipated offshore oil and gas exploratory drilling, including cumulative environmental effects.</p>
<p>Innu de Ekuanitshit</p> <p>Institut de développement durable des Premières Nations du Québec et du Labrador</p>	<p>Cumulative effects of offshore drilling</p>	<p>Concern regarding cumulative impacts of drilling fluid releases, other discharges and other effects, both from routine operations and accidental events, on fish, including swordfish, Atlantic Salmon, Bluefin Tuna and other species.</p>	<p>The proponent responded that offshore oil and gas projects have localized environmental effects, exploration activities are short-term and the Project would have a small footprint relative to the offshore area. The distances between the Project and other oil and gas activities would decrease the potential for interactions between the effects of multiple activities. These conditions would reduce the potential for individuals and populations to be affected through</p>	<p>The Agency requested additional information from the proponent related to cumulative effects of the Project on species of importance to Indigenous groups. This information has been incorporated into its analysis.</p> <p>The Agency is of the view that the mitigation, follow-up and monitoring proposed for the Project would contribute to the</p>

Source	Subject	Comment or Concern	Summary of Proponent's Responses	Agency Response
<p>KMKNO MFN MMS MTI Nunatsiavut Government NunatuKavut Community Council Première Nation de Nutashkuan</p>			<p>multiple interactions with the Project and other activities.</p> <p>The proponent proposed various mitigation and monitoring measures for project-specific effects that it stated would also be applicable to cumulative environmental effects.</p> <p>The proponent would adopt measures to prevent spills, including synthetic-based mud spills. However, should a spill occur, it stated that fish and mobile invertebrates would be capable of avoiding spilled muds and were not expected to be negatively affected.</p> <p>The proponent noted that due to the relatively non-toxic nature of water-based mud components, toxic effects to fish and benthic invertebrates would not be expected and that synthetic-based mud cuttings and mud would be returned to the drilling installation for treatment before discharge.</p> <p>The proponent predicted that the likelihood of effects on fish would be very low and therefore, no effects on the current or future use of Atlantic Salmon, swordfish and Atlantic Bluefin tuna by Indigenous peoples were predicted.</p>	<p>mitigation or monitoring of cumulative environmental effects.</p> <p>The Agency is working with the Province of Newfoundland and Labrador and the C-NLOPB on a regional approach for assessing the environmental effects of offshore exploratory drilling in the offshore area of eastern Newfoundland, which would aim to examine the effects of existing and anticipated offshore oil and gas exploratory drilling, including cumulative environmental effects.</p>
<p>MTI</p>	<p>Regional assessment</p>	<p>A regional EA or a more comprehensive cumulative effects assessment for the Project as well as other proposed and potentially</p>	<p>In advance of a Regional Assessment being completed, operators, including the proponent, are working together in conducting effects analyses (including for this Project), engaging Indigenous</p>	<p>The Agency is working with the Province of Newfoundland and Labrador and the C-NLOPB on a regional approach for assessing the</p>

Source	Subject	Comment or Concern	Summary of Proponent's Responses	Agency Response
		upcoming exploration and production projects must be conducted to provide a more accurate assessment of the potential magnitude of cumulative effects on migrating fish species, sea mammals and migratory birds.	groups and identifying research needs (e.g., migration and effects to Atlantic Salmon).	environmental effects of offshore exploratory drilling in the offshore area of eastern Newfoundland, which would aim to examine the effects of existing and anticipated offshore oil and gas exploratory drilling, including cumulative environmental effects.
Miscellaneous				
KMKNO MFN MTI Nunatsiavut Government NunatuKavut Community Council	Monitoring and follow-up	<p>Recommend that the proponent engages in additional follow-up monitoring, especially in relation to water quality, wildlife populations, fish tissue contamination and effects on species at risk and cumulative effects. Monitoring programs should include data collection that would improve the confidence level of assessing cumulative effects.</p> <p>The proponent should provide detailed information on how the Indigenous groups would participate in the development and implementation of monitoring and follow-up measures, including integrating traditional knowledge in these activities.</p>	<p>The proponent committed to various follow-up measures related to fish and fish habitat (Section 8.6), Marine Mammals and Sea Turtles (Section 10.6), Migratory Birds (Section 9.6) and Special Areas (Section 11.5).</p> <p>The proponent stated that they would continue their engagement efforts with Indigenous communities throughout the life of the Project. In particular, they committed to continue to share information about spill response, consider related concerns and issues, and share results and learning from response exercises with Indigenous groups, if requested. The Indigenous Communities Fisheries Communication Plan includes updates on the monitoring and follow-up programs.</p>	The Agency identified various follow-up programs and proposed EA conditions. These are described throughout Sections 6 and 7 and Appendix A. Results and information from follow-up and monitoring programs would be shared with Indigenous groups.

Source	Subject	Comment or Concern	Summary of Proponent's Responses	Agency Response
Nunatsiavut Government	Climate change/effects of the environment on the Project	The proponent should take into account changes to predicted weather and marine patterns due to climate change, particularly in regards to extreme weather events.	<p>As part of its EIS, the proponent considered climate change and potential changes in marine patterns.</p> <p>The engineering designs of drilling installations consider the physical and environmental conditions of the project area and the drilling installation would be verified to ensure it is fit for purpose and can function as intended in the environment in which it would operate.</p>	<p>The Agency agrees that climate change may lead to changes in predicted weather and marine patterns, including changes to the frequency and severity of extreme weather events. It has proposed EA conditions that take these potential changes into account, including requiring the proponent to monitor meteorological and oceanographic conditions over the lifetime of the Project to forecast and respond to severe conditions. In addition, the proponent would be required to establish and enforce practices and limits for operating in all conditions that may be reasonably expected, including poor weather or high sea state and ensure that the drilling installation has the ability to quickly disconnect the riser from the well in the event of extreme weather conditions. Finally, the proponent would be required to report annually to the C-NLOPB on whether there has been a need to modify operations based on extreme environmental conditions and on the efficacy of the practices</p>



Source	Subject	Comment or Concern	Summary of Proponent's Responses	Agency Response
				and limits established for operating in poor weather or high sea state. These measures are intended to be adaptive to potential changes to predicted weather and marine patterns due to climate change that could occur over the life of the Project.
Innu de Ekuanitshit MTI	Icebergs and emergency response measures	How would iceberg movement be monitored and potential collisions be avoided? Are there emergency evacuation and shut-down procedures to reduce some of the effects.	The proponent would each be required to submit an Ice Management Plan to the C-NLOPB for approval, which has the intent of preventing an emergency situation. The Ice Management Plan would include systems for ice detection, monitoring and assessment as well as physical management, including iceberg towing and deflection.	The Agency has identified key mitigation measures and proposed EA conditions to reduce the potential for iceberg collisions. These are described in Section 7.2.3 and Appendix A. Key mitigation measures include: <ul style="list-style-type: none">• in consultation with the C-NLOPB and ECCC, implement a physical environment monitoring program in accordance with the <i>Newfoundland Offshore Petroleum Drilling and Production Regulations</i> and meeting or exceeding the requirements of the <i>Offshore Physical Environmental Guidelines</i>;• in consultation with the C-NLOPB, establish and enforce practices and limits for operating all conditions that may be reasonably



Source	Subject	Comment or Concern	Summary of Proponent's Responses	Agency Response
				<p>expected, including poor weather, high sea state, or sea ice or iceberg conditions;</p> <ul style="list-style-type: none"> in consultation with the C-NLOPB and as part of the required Safety Plan, develop an Ice Management Plan including procedures for detection, surveillance, data collection, reporting, forecasting and avoidance or deflection; and in consultation with the C-NLOPB , implement measures to ensure the drilling installations have the ability to quickly disconnect the riser from the well in the event of an emergency or extreme weather conditions.
<p>MFN MMS NunatuKavut Community Council</p>	<p>Decommissioning – effects of abandoned wellheads</p>	<p>Concern regarding the potential risks and effects of abandoned wellheads, including potential effects on commercial fisheries and risks of accidents and malfunctions. The proponent must provide further justification for leaving wellheads in place.</p>	<p>The proponent indicated that locations of any wellheads left in place would be communicated to commercial fishers and other marine users as well as appropriate authorities through Notices to Mariners for inclusion on nautical charts.</p> <p>The proponent stated that the waters within and immediately adjacent to its exploration licences have very little domestic and foreign fishing mainly due to water depths. Also a portion of exploration licence 1150 is closed to</p>	<p>The Agency requested additional information from the proponent on their well abandonment strategies. This information has been incorporated into its analysis.</p> <p>The Agency also notes that the C-NLOPB has advised that, with respect to the risk for accidents and malfunctions, the integrity of abandoned wells would not be affected by where (or if) a wellhead is cut.</p>



Source	Subject	Comment or Concern	Summary of Proponent's Responses	Agency Response
			<p>bottom contact fishing due to a North Atlantic Fisheries Organization Vulnerable Marine Ecosystem closure area. It indicated that wellhead removal might be accomplished more quickly in shallower areas and that the amount of fishing bottom lost would be small.</p> <p>The proponent indicated that in deeper water and/or poor weather conditions, numerous challenges may prompt a company to avoid attempting to remove the wellhead using the drilling unit. It would instead leave the wellhead in place until some future date when a separately contracted vessel with more specialized cutting and removal equipment would be available.</p> <p>The proponent indicated that in the event that a wellhead is left in place and protrudes above the seafloor, it would provide the location and other relevant information to the Canadian Coast Guard, the Canadian Hydrographic Service (for the issuance of Navigational Warnings, Notices to Mariners and chart updates) and to regional Canadian fishing organizations and NAFO. The proponent would develop and implement a compensation program to address any claims for damage to fishing gear.</p>	<p>The Agency has identified key mitigation measures and proposed EA conditions related to well abandonment, including:</p> <ul style="list-style-type: none">• preparing a well abandonment plan, including a wellhead abandonment strategy, and submitting it to the C-NLOPB for acceptance at least 30 days prior to abandonment of each well. If an abandoned wellhead could interfere with commercial fishing, develop the strategy in consultation with commercial fishers and Indigenous groups;• ensure that details of abandoned wellheads, if left on the seafloor, are:<ul style="list-style-type: none">○ published in Notices to Mariners;○ provided in Notices to Shipping; and○ communicated to fishers;• provide information on the locations of any abandoned wellheads, left on the seafloor, to the Canadian Hydrographic Services for



Source	Subject	Comment or Concern	Summary of Proponent's Responses	Agency Response
				future nautical charts and planning.

Appendix D: Species at Risk and COSEWIC-listed Species that May be Found in the Eastern Newfoundland Offshore Area, Including the Project Area

The Agency has taken a conservative approach to identifying potential species at risk by including all species that were identified by the proponent in the EIS and additional species the Agency believes may occur in the eastern Newfoundland offshore based on other sources, including other EAs and input from federal authorities. The likelihood of a species occurring in the area and the time of year it may be present can vary greatly from one species to another.

Information has been updated in accordance with the Species at Risk Registry and reviewed by DFO and ECCC.

Species	Species at Risk Act Status (Schedule 1)	COSEWIC Assessment
Fish		
Acadian Redfish (<i>Sebastes fasciatus</i>) – Atlantic population	Not listed	Threatened
American Eel (<i>Anguilla rostrata</i>)	Not listed	Threatened
American Plaice (<i>Hippoglossoides platessoides</i>) – Newfoundland and Labrador population	Not listed	Threatened
Atlantic Bluefin Tuna (<i>Thunnus thynnus</i>) – Western Atlantic population	Not listed	Endangered
Atlantic Cod (<i>Gadus morhua</i>) - Newfoundland and Labrador population	Not listed	Endangered
Atlantic Salmon (<i>Salmo salar</i>) - Inner Bay of Fundy population	Endangered	Endangered
Atlantic Salmon (<i>Salmo salar</i>) - Outer Bay of Fundy population	Not listed	Endangered
Atlantic Salmon (<i>Salmo salar</i>) - Eastern Cape Breton population	Not listed	Endangered
Atlantic Salmon (<i>Salmo salar</i>) - Nova Scotia Southern Upland population	Not listed	Endangered
Atlantic Salmon (<i>Salmo salar</i>) - South Newfoundland population	Not listed	Threatened
Atlantic Salmon (<i>Salmo salar</i>) - Quebec Eastern North Shore population	Not listed	Special concern
Atlantic Salmon (<i>Salmo salar</i>) - Quebec Western North Shore population	Not listed	Special Concern

Species	Species at Risk Act Status (Schedule 1)	COSEWIC Assessment
Atlantic Salmon (<i>Salmo salar</i>) - Anticosti Island population	Not listed	Endangered
Atlantic Salmon (<i>Salmo salar</i>) - Inner St. Lawrence population	Not listed	Special concern
Atlantic Salmon (<i>Salmo salar</i>) - Gaspé-Southern Gulf of St. Lawrence population	Not listed	Special concern
Atlantic Wolffish (Striped Wolffish) (<i>Anarhichas lupus</i>)	Special concern	Special concern
Basking Shark (<i>Cetorhinus maximus</i>) – Northeast Atlantic population	Not listed	Special concern
Cusk (<i>Brosme brosme</i>)	Not listed	Endangered
Deepwater Redfish (<i>Sebastes mentalla</i>) – Northern population	Not listed	Threatened
Lumpfish (<i>Cyclopterus lumpus</i>)	Not listed	Threatened
Northern (Broadhead) Wolffish (<i>Anarhichas denticulatus</i>)	Threatened	Threatened
Porbeagle Shark (<i>Lamna nasus</i>)	Not listed	Endangered
Roundnose Grenadier (<i>Coryphaenoides rupestris</i>)	Not listed	Endangered
Shortfin Mako Shark (<i>Isurus oxyrinchus</i>) – Atlantic population	Not listed	Endangered
Smooth Skate (<i>Malacoraja senta</i>) - Funk Island Deep population	Not listed	Endangered
Spiny Dogfish (<i>Squalus acanthias</i>) - Atlantic population	Not listed	Special concern
Spotted Wolffish (<i>Anarhichas minor</i>)	Threatened	Threatened
Thorny Skate (<i>Amblyraja radiata</i>)	Not listed	Special concern
White Hake (<i>Urophycis tenuis</i>) – Atlantic and Northern Gulf of St. Lawrence population	Not listed	Threatened
White Shark (<i>Carcharodon carcharias</i>) – Atlantic population	Endangered	Endangered
Winter Skate (<i>Leucoraja ocellata</i>) – Eastern Scotian Shelf - Newfoundland population	Not listed	Endangered
Marine Mammals		
Atlantic Walrus (<i>Odobenus rosmarus rosmarus</i>) - Central/Low Arctic population	Not listed	Special concern
Beluga Whale (<i>Delphinapterus leuca</i>) – St. Lawrence Estuary population	Endangered	Endangered
Blue Whale (<i>Balaenoptera musculus</i>) – Atlantic population	Endangered	Endangered

Species	Species at Risk Act Status (Schedule 1)	COSEWIC Assessment
Bowhead Whale (<i>Balaena mysticetus</i>) – Eastern Canada-West Greenland population	Not listed	Special concern
Fin Whale (<i>Balaenoptera physalus</i>) – Atlantic population	Special concern	Special concern
Harbour Porpoise (<i>Phocoena phocoena</i>) - Northwest Atlantic population	Not listed	Special concern
Killer Whale (<i>Orcinus orca</i>) - Northwest Atlantic/Eastern Arctic population	Not listed	Special concern
North Atlantic Right Whale (<i>Eubalaena glacialis</i>)	Endangered	Endangered
Northern Bottlenose Whale (<i>Hyperoodon ampullatus</i>) - Scotian Shelf population	Endangered	Endangered
Northern Bottlenose Whale (<i>Hyperoodon ampullatus</i>) - Davis Strait-Baffin Bay-Labrador Sea population	Not listed	Special concern
Sei Whale (<i>Balaenoptera borealis</i>) – Atlantic population	Not listed	Endangered
Sowerby's Beaked Whale (<i>Mesoplodon bidens</i>)	Special concern	Special concern
Sea Turtles		
Leatherback Sea Turtle (<i>Dermochelys coriacea</i>) – Atlantic population	Endangered	Endangered
Loggerhead Sea Turtle (<i>Caretta caretta</i>)	Endangered	Endangered
Birds		
Bank Swallow (<i>Riparia riparia</i>)	Threatened	Threatened
Barrow's Goldeneye (<i>Bucephala islandica</i>)	Special concern	Special concern
Bobolink (<i>Dolichonyx oryzivorus</i>)	Threatened	Threatened
Buff-breasted Sandpiper (<i>Tryngites subruficollis</i>)	Special concern	Special concern
Common Nighthawk (<i>Chordeiles minor</i>)	Threatened	Threatened
Harlequin Duck (<i>Histrionicus histrionicus</i>)	Special concern	Special concern
Ivory Gull (<i>Pagophila eburnea</i>)	Endangered	Endangered
Olive-sided Flycatcher (<i>Contopus cooperi</i>)	Threatened	Special concern
Peregrine Falcon (<i>Falco peregrinus</i>)	Special concern	Not at risk



Species	Species at Risk Act Status (Schedule 1)	COSEWIC Assessment
Piping Plover (<i>Charadrius melodus melodus</i>)	Endangered	Endangered
Red Knot (<i>Calidris canutus rufa</i>) – Rufa subspecies	Endangered	Endangered
Red-necked Phalarope (<i>Phalaropus lobatus</i>)	Not listed	Special concern
Roseate Tern (<i>Sterna dougallii</i>)	Endangered	Endangered
Ross's Gull (<i>Rhodostethia rosea</i>)	Threatened	Threatened
Short-eared Owl (<i>Asio flammeus</i>)	Special concern	Special concern

Sources: CNOOC 2018; Equinor Canada Ltd. 2017; ExxonMobil Canada Ltd. 2017; BP 2018; Husky 2018; and proponents' information requirement responses, 2018-2019. Species listings updated as per Canada's Species at Risk Public Registry, accessible at: <https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html>.

Appendix E: Special Areas in the Regional Study Area and their Proximity to the Exploration Licences and Transit Routes

Special Area	Distance to Nearest Exploration Licence (kilometres)	Distance to Proposed Transit Route (kilometres)
Marine Protected Areas and Areas of Interest		
Eastport – Duck Island Marine Protected Area	508	149
Eastport – Round Island Marine Protected Area	515	140
Newfoundland and Labrador Shelves Ecologically and Biologically Significant Areas		
Sea Pens	58	19
Large Gorgonian Corals	87	Overlaps
Small Gorgonian Corals	221	113
Sponges	389	200
Canadian Ecologically or Biologically Sensitive Areas		
Northeast Slope	54	Overlaps
Virgin Rocks	265	69
Lilly Canyon-Carson Canyon	231	198
Southeast Shoal	370	297
Eastern Avalon	380	Overlaps
Southwest Slope	549	284
Placentia Bay	513	82
Smith Sound	469	79
Fogo Shelf	477	191
Grey Islands	579	283
Notre Dame Channel	458	233
Orphan Spur	251	172
Haddock Channel Sponges	558	200
St. Mary's Bay	490	69
Bonavista Bay	481	115
Baccalieu Island	376	10

Special Area	Distance to Nearest Exploration Licence (kilometres)	Distance to Proposed Transit Route (kilometres)
Marine Refuges		
Northeast Newfoundland Slope Closure	67	38
Funk Island Deep Closure	456	231
Division 30 Coral Closure	586	333
Gooseberry Island Lobster Area Closure	505	96
Gander Bay Lobster Area Closure	574	230
Canadian Fisheries Closure Areas		
Eastport Peninsula Lobster Management Area	494	136
Funk Island Deep Box	456	231
Lobster Area Closures		
Gander Bay	578	242
Gooseberry Island	504	97
Snow Crab Stewardship Exclusion Zones		
Crab Fishing Area 5A	429	126
Crab Fishing Area 6A	403	67
Crab Fishing Area 6B	391	23
Crab Fishing Area 6C	381	Overlaps
Crab Fishing Area 8A	410	70
Crab Fishing Area 8BX	140	50
Crab Fishing Area 9A	486	123
Crab Fishing Area Near Shore	330	Overlaps
Preliminary Representative Marine Areas		
Virgin Rocks	256	53
South Grand Bank Area	315	262
Northwestern Conception Bay	424	40
Migratory Bird Sanctuaries		
Terra Nova	507	132
Coastal National Parks and Historic Sites		

Special Area	Distance to Nearest Exploration Licence (kilometres)	Distance to Proposed Transit Route (kilometres)
Cape Spear Lighthouse National Historic Sites	423	Overlaps
Signal Hill National History Site	427	Overlaps
Ryan Premises National Historic Site	464	124
Castle Hill National Historic Site	528	101
Terra Nova National Park	507	132
Coastal Ecological Reserves		
Witless Bay	440	38
Baccalieu Island	435	63
Mistaken Point	484	108
Funk Island	504	246
Cape St. Mary's	553	140
Provincial Parks		
Chance Cove	468	90
The Dungeon	462	125
Bellevue Beach	507	78
Gooseberry Cove	540	117
Windmill Bight	511	199
Deadman's Bay	523	209
Provincial Historic Sites		
Cape Bonavista Lighthouse	463	129
Heart's Content Cable Station	478	60
United Nations Convention on Biological Diversity Ecologically and Biologically Significant Areas		
Southeast Shoal and Adjacent Areas on the Tail of the Grand Banks	327	287
Seabird Foraging Zone in the Southern Labrador Sea	200	202
Orphan Knoll	239	252
Slopes of the Flemish Cap and Grand Banks	Overlaps	Overlaps
NAFO Fisheries Closure Areas		
Tail of the Bank (1)	358	335

Special Area	Distance to Nearest Exploration Licence (kilometres)	Distance to Proposed Transit Route (kilometres)
Flemish Pass/Eastern Canyon (2)	15	6
Beothuk Knoll (3)	138	141
Eastern Flemish Cap (4)	162	209
Northeast Flemish Cap (5)	150	202
Sackville Spur (6)	59	65
Northern Flemish Cap (7)	89	135
Northern Flemish Cap (8)	111	150
Northern Flemish Cap (9)	88	125
Northwest Flemish Cap (10)	6	35
Northwest Flemish Cap (11)	Overlaps	21
Northwest Flemish Cap (12)	52	88
Beothuk Knoll (13)	97	109
3O Coral Closure	586	333
Orphan Knoll Seamount	248	248
Newfoundland Seamounts	359	360
Fogo Seamounts (1)	698	559
Fogo Seamounts (2)	785	335
Important Bird Areas		
Quidi Vidi Lake	426	Overlaps
Witless Bay Islands	435	31
Cape St. Francis	428	23
Baccalieu Island	432	59
Grates Point	438	62
Mistaken Point	476	106
The Cape Pine and St. Shotts Barren	506	119
Placentia Bay	518	91
Terra Nova National Park	503	129
Funk Island	498	240
Cape Freels Coastline and Cabot Island	497	173
Cape St. Mary's	543	130
Wadham Islands and Adjacent Marine Area	533	231



Special Area	Distance to Nearest Exploration Licence (kilometres)	Distance to Proposed Transit Route (kilometres)
United Nations Educational, Scientific and Cultural Organization World Heritage Sites		
Mistaken Point Ecological Reserve	483	110

Source: CNOOC 2018; proponent's information requirement responses
