West Flemish Pass Exploration Drilling Project - Project Description

Report Description

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Report

October 23, 2018

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Abbreviations

Accord Acts	*Canada-Newfoundland and Labrador Atlantic Accord Implementation Act* and the *Canada-Newfoundland and Labrador Atlantic Accord Implementation Newfoundland and Labrador Act*
ADW	Approval to Drill a Well
ASP	Association of Seafood Producers
BHA	Bottom Hole Assembly
BOP	BOP Blow-out Preventer
CBD EBSA	Convention on Biological Diversity Ecologically and Biologically Significant Area
CEAA 2012	*Canadian Environmental Assessment Act, 2012*
CEA Agency	Canadian Environmental Assessment Agency
C-NLOPB	Canada-Newfoundland and Labrador Offshore Petroleum Board (“the Board”)
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
DFO	Fisheries and Oceans Canada
DND	Department of National Defence
EA	Environmental Assessment
EBSA	Ecologically and Biologically Significant Area
ECCC	Environment and Climate Change Canada
EEM	Environmental Effects Monitoring
EEZ	Exclusive Economic Zone
EIS	Environmental Impact Statement
EL	Exploration Licence
FFAW-Unifor	Fisheries, Food and Allied Workers
FPSO	Floating, production, storage and offloading
FSC	Food, Social and Ceremonial
GEAC	Groundfish Enterprise Allocation Council
GHGs	Greenhouse Gases
HSE&A	Health, Safety, Environment & Assurance
IBA	Important Bird Area
ISO	International Organization for Standardization
km	kilometre
KMKNO	Kwilmu’kw Maw-klusuaqn Negotiation Office
LCA	Lobster Closure Area
LISA	Labrador Inuit Settlement Area
MARPOL	International Convention for the Prevention of Pollution from Ships
MBS	Migratory Bird Sanctuary
MCPEI	Mi’kmaq Confederacy of Prince Edward Island

m	metre
MBS	Migratory Birds Sanctuaries
MMS	Mi'gmawei Mawiomi Secretariat
MODU	Mobile Offshore Drilling Unit
MPA	Marine Protected Area
MTI	Mi'gmawe'l Tplu'tagnn Inc.
NAFO	Northwest Atlantic Fisheries Organization
NEB	National Energy Board
NL	Newfoundland and Labrador
nm	Nautical Mile
NO_X	Nitrogen Oxides
NGO	Non-governmental Organization
NRCAN	Natural Resources Canada
OA	Operations Authorization
OCI	Ocean Choice International
OWTG	Offshore Waste Treatment Guidelines
PL	Production Licence
PM	Particulate Matter
The Project	West Flemish Pass Exploration Drilling Project
ROV	Remotely Operated Vehicle
SARA	*Canadian Species at Risk Act*
SBA	*Significant Benthic Area*
SBM	Synthetic-based Drilling Mud
SDL	Significant Discovery Licence
SEA	Strategic Environmental Assessment
SO_2	Sulfur Dioxide
UTM	Universal Transverse Mercator
UXO	Unexploded Ordnance
VC	Valued Component
VME	Vulnerable Marine Ecosystem
VSP	Vertical Seismic Profile
WBM	Water-based Drilling Mud
WNNB	Wolastoqey Nation of New Brunswick

1.0 INTRODUCTION

Chevron is a leading global integrated energy company, involved in every facet of the energy industry. Chevron is committed to responsibly developing Canada's energy resources, and as a partner of choice with local communities and Indigenous Peoples. Our company's foundation is built on our values, which distinguish us and guide our actions to deliver results. We conduct our business in a socially and environmentally responsible manner, respecting the law and universal human rights to benefit the communities where we work. We place the highest priority on the health and safety of our workforce and protection of our assets, communities and the environment. We deliver world-class performance with a focus on preventing high-consequence incidents.

Chevron Operational Excellence Management System (OEMS) and Chevron Way

Operational Excellence (OE) puts into actions our Chevron Way value of protecting people and the environment and helps us achieve Chevron's vision to be the global energy company most admired for its people, partnership and performance. Our Operational Excellence Management System (OEMS) is the framework we use to systematically manage workforce safety and health, process safety, reliability and integrity, environment, efficiency, security, and stakeholders in order to meet our OE objectives:

- Eliminate fatalities, serious injuries and illnesses
- Eliminate high-consequence process safety incidents and operate with industry-leading reliability
- Assess and manage significant environmental risks
- Use energy and resources efficiently
- Prevent high-consequence security and cybersecurity incidents
- Address OE business risks through stakeholder engagement and issues management

Since 1938, Chevron Canada Limited (Chevron) has been exploring for, developing, producing and marketing crude oil, natural gas and natural gas liquids. Headquartered in Calgary, Alberta, Chevron Canada has interests in oil sands projects and liquids-rich shale gas acreage in Alberta; exploration, development and production projects offshore Newfoundland and Labrador; a proposed liquefied natural gas (LNG) project and shale acreage in British Columbia; and exploration and discovered resource interests in the Beaufort Sea region of the Northwest Territories.

Chevron has been exploring for new sources of energy offshore Atlantic Canada for more than 40 years. In 1979, the company discovered the Hibernia Field and since then it has operated or participated in over 50 exploration wells, including three deep-water exploration wells. Chevron Canada holds a 26.9 percent non-operated working interest in the Hibernia Field that comprises two key reservoirs, Hibernia and Ben Nevis Avalon (BNA); a 29.6 percent non-operated working interest in the Hebron Field; and a 1 percent interest in the Terra Nova Project.

1.1 Project Context and Objectives

Chevron has a 35 percent-owned and operated interest in EL 1138, in the Flemish Pass Basin, comprising 237,000 net acres (959 sq km). EL 1138 is located approximately 375 km northeast of St. John's, NL, in water depths ranging from 400 to 2,200 m. Additionally, Chevron Canada has a 40 percent non-operated working interest in EL 1125 and EL 1126.

Chevron proposes to conduct an exploration drilling program on Exploration Licence (EL) 1138 in the Flemish Pass area (the West Flemish Pass Exploration Drilling Project; the Project). The Project may involve drilling up to eight exploration and delineation / appraisal wells over the term of the EL (2021 to 2030), with an initial well proposed to be drilled in 2021 pending regulatory approval.

Under the *Canadian Environmental Assessment Act, 2012* (CEAA 2012), offshore exploration drilling, under certain circumstances, is a designated activity and requires a Project Description to initiate a process to determine whether an environmental assessment (EA) is required. The Project Description also assists regulatory agencies, Indigenous organizations, and stakeholders in identifying potential interests in the Project for consideration during Project planning and the EA review process, as required.

1.2 Proponent Information

All communications regarding the environmental assessment for the proposed Project should be directed to the following contacts:

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1.3 Regulatory Context

1.3.1 Accord Acts

Petroleum activities in the Newfoundland and Labrador (NL) offshore area are regulated by the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB; the Board), a joint federal-provincial agency reporting to the federal and provincial Ministers of Natural Resources. In 1986, the Government of Canada and the Province of Newfoundland and Labrador signed the Canada-Newfoundland and Labrador Offshore Petroleum Resource Accord to promote social and economic benefits associated with petroleum exploitation. The federal and provincial governments established mirror legislation to implement the Accord. The federal *Canada-Newfoundland and Labrador Atlantic Accord Implementation Act* and the provincial *Canada-Newfoundland and Labrador Atlantic Accord Implementation Newfoundland and Labrador Act* are collectively referred to as the Accord Acts.

Under the Accord Acts, the C-NLOPB issues licences for offshore exploration and development and is responsible for the management and conservation of offshore petroleum resources, and protection of the environment, as well as the health and safety of offshore workers, while enhancing employment and industrial benefits for Newfoundland and Labrador residents and Canadians.

Offshore petroleum activities and the C-NLOPB's decision-making processes are governed by a variety of legislation, regulations, guidelines, and memoranda of understanding. Exploration drilling programs require an Operations Authorization (OA) under the Accord Acts. Prior to issuing an OA, the C-NLOPB requires the following to be submitted:

- An Environmental Assessment Report
- A Canada-Newfoundland and Labrador Benefits Plan
- A Safety Plan
- An Environmental Protection Plan (including a waste management plan)
- Emergency Response and Spill Contingency Plans
- Appropriate financial security
- Appropriate certificates of fitness for the equipment proposed for use in the activities

For each well in the drilling program, a separate Approval to Drill a Well (ADW) is required. This authorization process involves specific details about the drilling program and well design. There are several regulations under the Accord Acts that govern specific exploration or development activities. There are also various guidelines, some of which have been jointly developed with the Canada-Nova Scotia Offshore Petroleum Board (C-NSOPB) and National Energy Board (NEB), which are intended to address environmental, health, safety, and economic aspects of offshore petroleum exploration and development activities. Of particular relevance to the EA of this Project are:

- the Drilling and Production Guidelines (C-NLOPB and C-NSOPB 2017)
- the Offshore Waste Treatment Guidelines (OWTG) (NEB et al. 2010)
- the Offshore Chemical Selection Guidelines for Drilling and Production Activities on Frontier Lands (NEB et al. 2009)

1.3.2 Environmental Assessment

Offshore exploration drilling, under certain circumstances, is a designated physical activity subject to the requirements of the CEAA 2012. Section 10 of the Regulations Designating Physical Activities under CEAA 2012 includes:

> *The drilling, testing and abandonment of offshore exploratory wells in the first drilling program in an area set out in one or more exploration licences issued in accordance with the Canada-Newfoundland Atlantic Accord Implementation Act or the Canada-Nova Scotia Petroleum Resources Accord Implementation Act.*

The Project will constitute the first drilling, testing, and abandonment of offshore exploratory wells within the EL issued to Chevron by the C-NLOPB. Following submission of this Project Description document, the Canadian Environmental Assessment Agency (CEA Agency) will conduct a screening process and determine the requirement for an EA under CEAA 2012. Should a federal EA process be required under CEAA 2012, it is expected that an Environmental Impact Statement (EIS) will be required and that the EIS will also satisfy the C-NLOPB requirements for an EA as part of the OA review process under the Accord Acts. Should a federal EA process not be required under CEAA 2012, Chevron will still prepare an EA Report to satisfy C-NLOPB requirements as part of the OA review process.

1.3.3 Other Regulatory Requirements and Interests

As defined by the Accord Acts, the Newfoundland and Labrador offshore area regulated by the C-NLOPB includes the greater of lands within Canada's 200 nautical mile (nm) Exclusive Economic Zone (EEZ) or to the edge of the continental margin. CEAA 2012 defines federal lands as those lands that include the continental shelf of Canada. Therefore, the Project will be carried out on federal lands under the jurisdiction of the C-NLOPB.

There is no federal funding involved in this Project.

In addition to the OA and ADW from the C-NLOPB pursuant to the Accord Acts, and EA approval under CEAA 2012 (if required), the Project is subject to various federal legislative and regulatory requirements, including:

- *Canada Shipping Act*
- *Canadian Environmental Protection Act, 1999*
- *Fisheries Act*
- *Migratory Birds Convention Act, 1994*
- *Species at Risk Act* (SARA)
- *Navigation Protection Act*

Within offshore Newfoundland and Labrador, different authorities hold jurisdiction over commercial fishing activities that occur either within or outside Canada's Exclusive Economic Zone (EEZ). The Government of Canada hold jurisdiction over management of fisheries for sedentary and non-sedentary species up to the 200 nm limit, and for sedentary species (e.g., snow crab) to the extent of Canada's defined Continental

Shelf. Outside of the EEZ, Northwest Fisheries Organization (NAFO) holds jurisdiction over fisheries management for several species and has the authority to designate legally protected areas such as coral closures.

A Migratory Bird Handling Permit will likely be required from Environment and Climate Change Canada (ECCC) to permit the salvage of stranded birds on offshore vessels during the Project.

A provincial EA under the *Environmental Protection Act* is not anticipated to be required based on the proposed Project scope. Chevron will not be constructing onshore facilities as part of the Project. No provincial or municipal permits are currently anticipated to be required for the Project, including for the onshore supply base services that will be sourced from an existing facility. There are two offshore supply bases on the east coast of the Island of Newfoundland, which have been providing support to offshore oil and gas activity in the Newfoundland offshore since the early 1990s. These are third-party facilities that have the necessary permits and approvals to undertake activities related to offshore oil and gas projects. No additional modifications or changes to the existing third-party supply base will be required for the purpose of supporting this Project. As a result of the forgoing, the supply base and associated activities are not considered to be within the scope of the Project assessment.

2.0 PROJECT DESCRIPTION

The following sections present an overview of the proposed Project including: the location; components and activities, schedule, potential accidental events, associated environmental planning and management considerations. Activities associated with the Project are: drilling within EL 1138, possible appraisal (delineation) drilling in the event of a hydrocarbon discovery within the EL, VSP, well testing, eventual well decommissioning and abandonment (or suspension) procedures, and associated supply and service activities. Chevron Canada is committed to collaborating with Indigenous peoples of Canada and communities to build long term trusting and mutually beneficial relationships based on the principles of inclusion, transparency, respect and accountability.

2.1 Project Location

Chevron proposes to drill up to eight exploration wells on EL 1138 during the term of the EL. The EL is located in the Flemish Pass area. It is approximately 375 km northeast of St. John's, Newfoundland, Canada; the nearest community is Flatrock (approximately 370 km), on the Avalon Peninsula. The nearest "residences" to the Project would be the *SeaRose* floating, production, storage and offloading (FPSO) vessel at Husky's White Rose oil development field, approximately 130 km from EL 1138. Water depths in the EL range from approximately 400 to 2,200 m. Specific well sites are not yet known but drilling operations will be conducted within the defined boundaries of EL 1138.

A Project Area has been proposed that encompasses the EL and incorporates an approximate 20 km buffer. The EIS would define study area boundaries that will extend beyond the Project Area based on potential environmental interactions with routine and unplanned Project activities and in recognition of potential cumulative environmental effects. Project Area coordinates are provided in Table 1; the Project Area is shown on Figure 1.

Table 1 Project Area Coordinates

Label	X_UTM NAD 83, Zone 22	Y_UTM NAD 83, Zone 22	X_deg	Y_deg
A	805009.6153	5390072	46° 51' 48.156" W	N48° 35' 21.655"
B	809057.4088	5312548	46° 51' 54.621" W	N47° 53' 30.259"
C	733017.1165	5309106	47° 52' 57.174" W	N47° 53' 34.585"
D	730288.8723	5373550	47° 53' 2.643" W	N48° 28' 22.328"
E	739197.9915	5381353	47° 45' 33.296" W	N48° 32' 22.667"
F	753957.5124	5382022	47° 33' 33.256" W	N48° 32' 23.437"
G	753699.4323	5387538	47° 33' 33.716" W	N48° 35' 22.141"

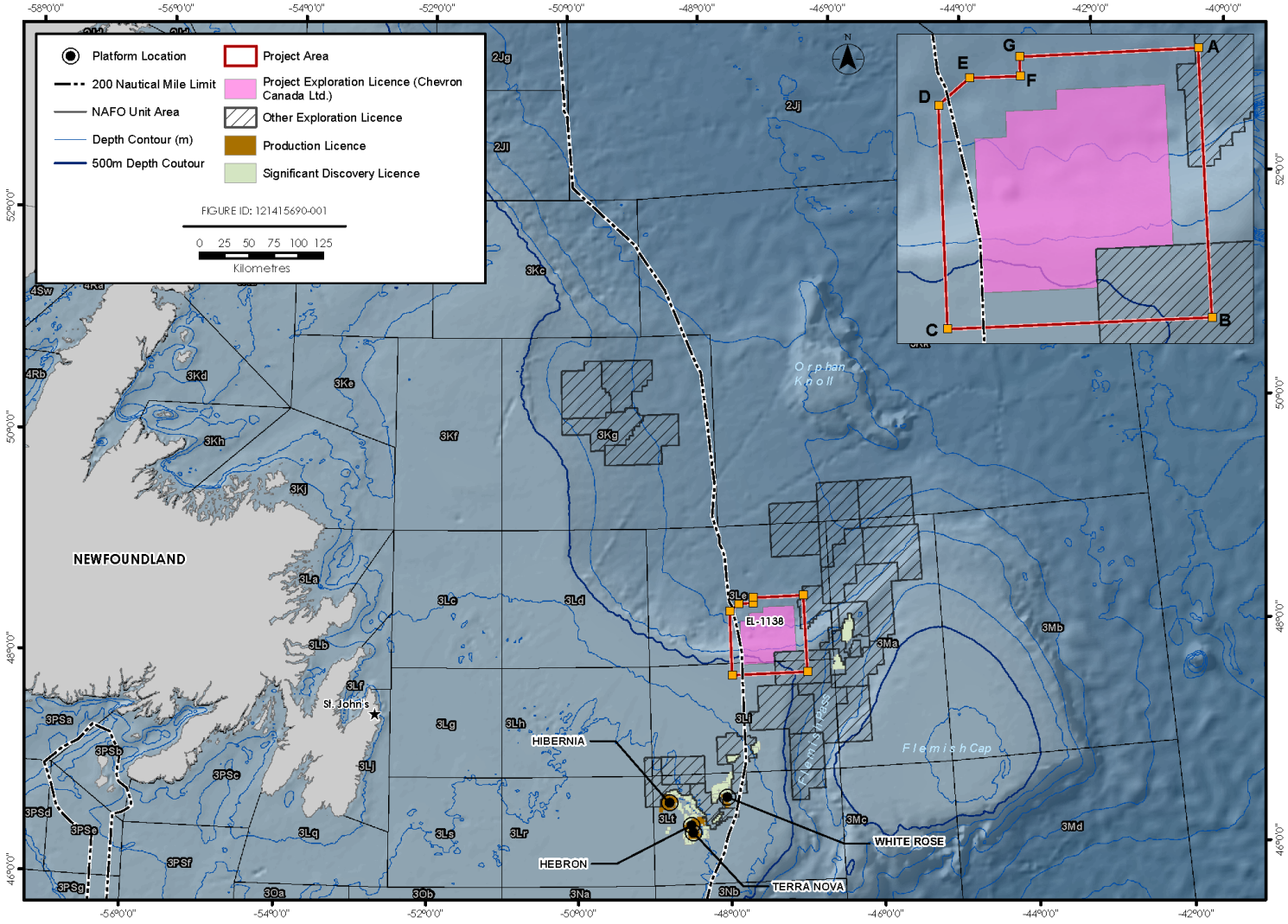


Figure 1 Project Area

No wells have been drilled in EL 1138 (or the Project Area). A number of wells have been drilled to the east of the Project Area, primarily in the vicinity of Equinor Canada's Bay du Nord licence. There are no zoning designations that apply to the Project Area. The Project will not take place on lands that have been subject to a regional study as described in Sections 73-77 of CEAA 2012; however, the Project Area does fall within the study area for the Eastern Newfoundland Strategic Environmental Assessment (SEA) completed by the C-NLOPB in August 2014 (AMEC 2014).

2.2 Project Components and Activities

Project components include the following:

- Drilling
- Vertical seismic profiling (VSP)
- Well evaluation and testing
- Well abandonment
- Supply and servicing

Since geohazard surveys are regulated by the C-NLOPB we are planning to submit an application for those activities to the C-NLOPB. Geohazard surveys and are a planning tool used by exploration engineers to understand the conditions at the seabed and locate potential unstable conditions and hazardous features that could compromise potential future activities or installations. A geohazard survey is typically conducted three to four months in advance of drilling to gather information that will be used to design the Project. As such, a geohazard survey is required to support site selection and engineering and is not inherently part of designated Project (i.e., drilling). Under the C-NLOPB's regulatory requirements, a geohazard survey is required prior to issuance of an Approval to Drill a Well. The C-NLOPB requires an environmental assessment of each geohazard survey that is completed under their EA process. Chevron will submit a separate environmental assessment for its geohazard surveys as an explicit element required by the C-NLOPB authorization process.

Once a specific wellsite has been determined and prior to drilling, the wellsite location is surveyed, generally using an ROV to inspect the seabed for sensitive habitat (e.g., habitat-forming corals). This survey is distinct from the geohazard survey noted above and is included in the EA as part of the Project scope.

2.2.1 Drilling

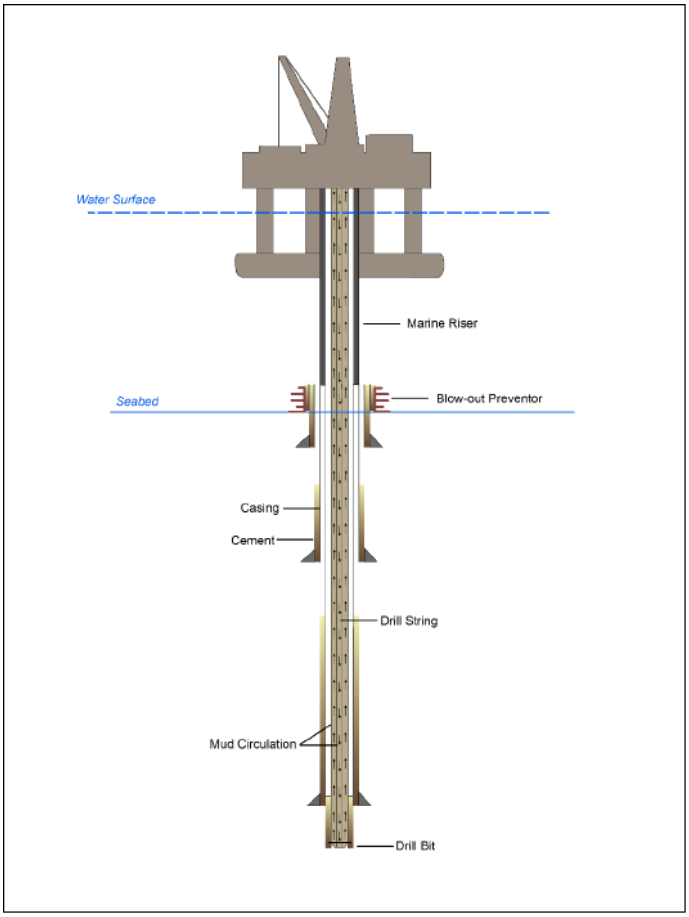
The Project may include drilling up to eight wells (over a ten-year period from 2021-2030) using either a semi-submersible rig or a drillship, referred to generically as a mobile offshore drilling unit (MODU) (Figure 2). A drillship is typically used in relatively deep waters (either on anchor or using dynamic positioning systems at greater depths) or in areas where increased mobility is required due to ice or other factors and operational risks. A drillship would either be moored in position over the drilling site or, as is more likely for this drilling program, maintained on station by dynamic positioning (DP). A semi-submersible rig is typically used at moderate depths, such as on the Grand Banks, and anchored in place.

Rig intake activities will include a rigorous inspection and certification before an OA will be issued by the C-NLOPB. Wellbore construction will typically begin with the spud of the well into the seabed and running

and setting conductor and surface casing followed by cementing. During this process, drilling is typically done with a water-based mud system (WBM) where drill cuttings, drilling mud, and cement returns from casing cementing will be circulated to the seabed surrounding the wellhead. More information on the management of drilling waste is provided in Section 2.3.3. An unplanned or planned side-track (i.e., drilling perpendicular from an original wellbore) may be drilled to meet the Project objectives.

The blow out preventer (BOP), a piece of safety equipment which prevents hydrocarbons from escaping the wellbore into the environment, will then be run on marine riser, landed and latched onto the wellhead with the riser being connected to the drilling rig (Figure 3). The riser will serve as the main conduit for remaining drilling activities at depth. Drilling will then resume in a closed loop drilling mud circulation system. The mud is pumped down the drilling string where it is used to cool and lubricate the bit and to transport cuttings and formation gas back to the rig for geological evaluation. The mud is then processed on the drilling rig and then recirculated back into the well. Drilling parameters including mud volumes will be closely monitored.

Figure 2 Illustration of Drill Ship (front) and Semi-submersible (back)



Source: Chevron 2018
Note: For illustration purposes only and not to scale. Additional casing strings may be necessary depending on the approved well design

Figure 3 Schematic of a Floating Rig While Drilling in a Closed Loop Circulating System

Chevron proposes to commence drilling in Q2 2021, pending regulatory approval. Depending on the results of the initial well, up to eight wells may be drilled over the term of the EL. It is anticipated that it will take approximately 180 days to drill each well.

2.2.2 Vertical Seismic Profiling

Vertical seismic profiling (VSP) is conducted to obtain accurate “time to depth ties” following the drilling of each well to its target depth (where hydrocarbon reservoirs are predicted to be located). It allows the correlation of seismic data (which is recorded in time measurements) to well depth (recorded in metres (m)). VSP operations involve deploying an acoustic sound source from the drilling or support vessel, while receivers are positioned at different levels within the drilled hole to measure the travel time.

Typically, between three and six sound sources are used, with a volume of 150 to 250 cubic inches each, although there could be up to 12 sound sources in a larger array. These sound sources are generally positioned at 5 to 10 m water depth. VSP operations typically take approximately one to three days to complete for each well. Specific details of the VSP program will depend on the geological target and the objectives of the VSP operation.

2.2.3 Well Evaluation and Testing

Well evaluation and testing help to determine the viability of a prospect and commercial potential of the reservoir and is required if hydrocarbons are discovered during an exploration drilling program. Well flow testing involves flowing the well fluids through temporary test equipment located on the drilling vessel and requires flaring of gases or other hydrocarbons that come to surface for safe disposal.

There are typically three levels of well evaluation for hydrocarbons. The first occurs while drilling in real time where data is collected both from downhole electronic tools in the bottom hole assembly (BHA) and from mud logging data collected from the mud returns from the well. Formation data is transmitted to the surface from the downhole tools while drilling and a separate evaluation of drill cuttings samples and gas entrained in the drilling mud are evaluated for hydrocarbon show. Both datasets are presented in real time logs to be monitored and evaluated at the rig site and data transmitted via satellite system to shore base.

The second level of evaluation usually occurs upon favorable data observed while drilling and when the targeted formation(s) have been fully drilled. Additional logs and formation pressures may be run on dedicated tool runs either on drill pipe or wireline that collect advanced datasets to evaluate a potential hydrocarbon reservoir.

The third level of evaluation to fully evaluate a reservoir and its potential for oil production is the well test. A well test involves the rigging up of temporary production facilities on the drilling rig to allow the well to flow in a steady state and controlled manner to surface to obtain a dynamic dataset. Samples of oil are collected to fulfill requirements of a significant discovery. The oil produced throughout this period is usually directed to a flare boom and burned (flared) with a safe and efficient burner system that limits emissions and the risk of spillage to the sea. The amount of time flaring in a well test operation will be kept to a minimum but will need to be of sufficient time to collect necessary datasets. It is anticipated that two rig-days of flaring will be sufficient for a well test. There are emerging downhole technologies that may have the potential to substitute the requirements of the surface well test.

A well test may not occur right after the drilling phase but may be scheduled at a later date depending on rig schedule, anticipated sea states, and weather conditions. In the event of a delayed well test, the well will be secured with required barriers in place and suspended prior to moving the drilling rig off location.

Well testing will be subject to Chevron's well test assurance process, which is designed to promote safe and efficient well test operations.

2.2.4 Well Abandonment

Upon acceptable evaluation of the well for hydrocarbons and upon C-NLOPB approval, the well will be permanently abandoned. An abandonment program will be executed using a configuration of cement and permanent mechanical bridge plugs. As a minimum, the C-NLOPB drilling and production guidelines related to abandonment will be adhered to. If Chevron abandonment criteria is more stringent, Chevron standard operating procedures will prevail. Once the well is abandoned, the last stage in the process is to remove the wellhead from the seabed depending on regulatory requirements. If determined that the wellhead needs to be removed, the preferred method is the mechanical cutter that can cut the wellhead below the seabed and then be retrieved to surface. If a mechanical cutter cannot be used, an explosive charge may be used to sever the wellhead from the sea bed.

2.2.5 Supply and Servicing

Supply vessels and helicopters are used to transport personnel, equipment and materials to and from the MODU during an offshore drilling initiative according to work schedules and rotations, workforce numbers, distances and other factors. Supply vessels typically make regular trips to the drilling unit throughout a drilling program, and a dedicated stand-by vessel will attend to the rig.

The wellsite will be located offshore in a remote location more than 300 km from the port of St. John's, Newfoundland. As with all offshore projects in this region, logistics and service requirements for a drilling rig can be challenging especially during seasons of heavy weather, fog, arctic ice and sea states. The primary land base for offshore operations will be St. John's for supply vessels and helicopter support. In the event of arctic ice impeding entrance to the harbor, a secondary base at Bay Bulls harbor (approximately a 15-minute drive from St. John's) will be used. If there are heavy ice conditions near the coast and both ports are not accessible, the ice-free harbor at Marystown in Fortune Bay can be utilized, however it is several hours away. While the rig is on location, a dedicated stand-by vessel will be stationed near the rig for emergencies and for secondary storage of well tubulars and drilling mud if required. A second vessel will be servicing the rig by transporting equipment and people (in the event helicopters cannot fly) to and from the rig. It is anticipated that 2 to 3 sailings per week will be required but more is possible if a rig crew change is required. Similar to the drilling rig, supply vessels will need certification and approval in order to work in Newfoundland waters.

Helicopter support will be from St. John's and will be the primary method to transport personnel to and from the rig. If helicopters cannot fly because of poor visibility from fog or from high winds, consideration will be given to transport by vessel depending on the long-term weather forecast and the urgency to get people to the rig. Emergency response, safety procedures and protocol will be in place for transport of personnel offshore. Figure 4 illustrates the potential transit routes for Project vessels.

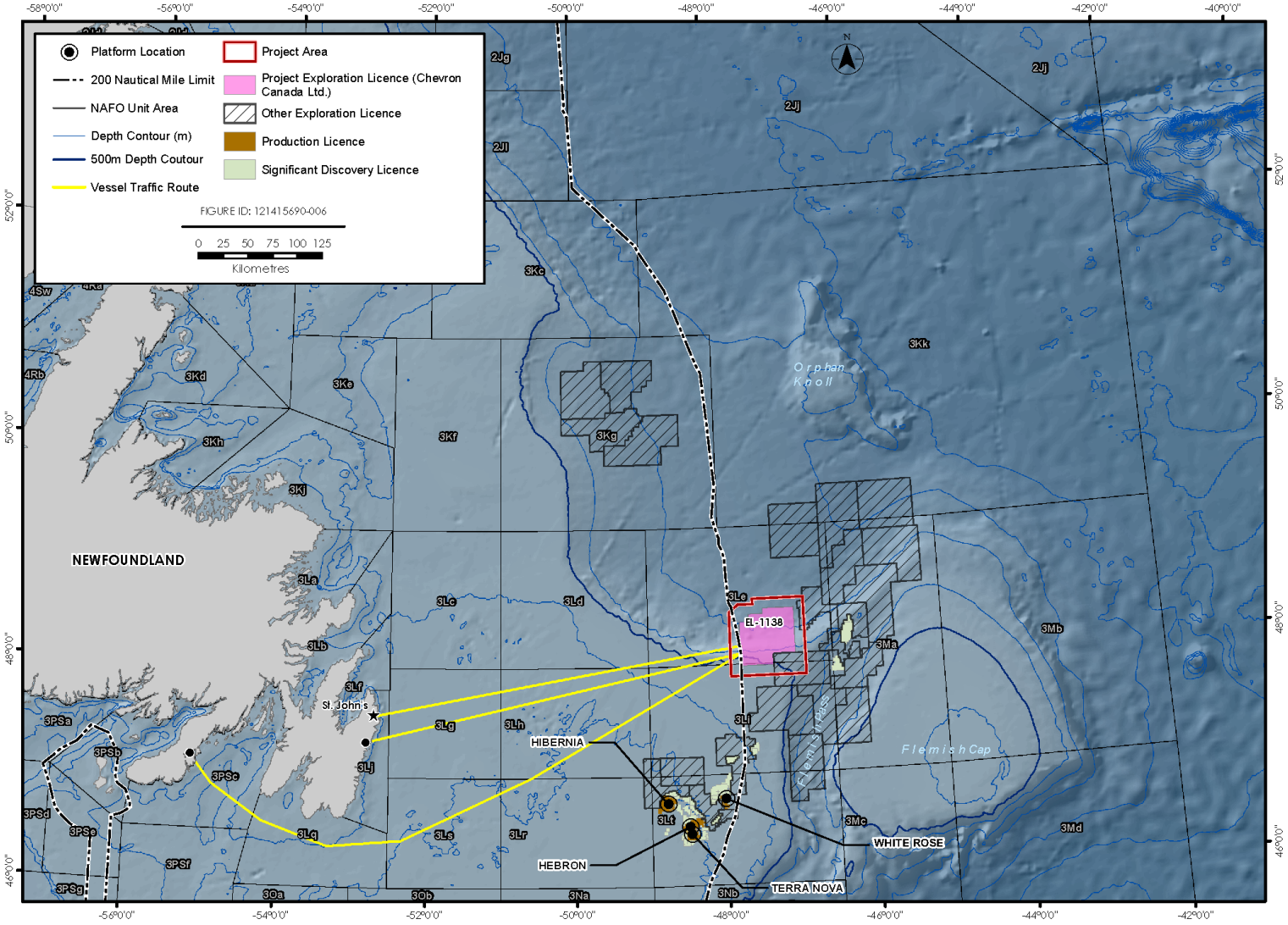


Figure 4 **Potential Vessel Transit Routes**

2.3 Emissions, Discharges, and Waste Management

Efforts will be made to reduce waste emissions and discharges generated during the Project. Waste generated will be managed and disposed according to regulatory requirements and applicable guidelines. Offshore waste discharges will be managed in compliance with the International Convention for the Prevention of Pollution from Ships (MARPOL) and/or the OWTG, as applicable. Wastes brought to shore for disposal will be managed in accordance with the Newfoundland and Labrador Waste Management Strategy and other applicable regulatory requirements (including municipal by-laws). A Waste Management Plan will be prepared as part of the OA application process with the C-NLOPB prior to drilling operations. The following subsections provide a general description of typical wastes to be generated over the course of Project activities and how these wastes will be managed.

2.3.1 Atmospheric Emissions

Atmospheric emissions expected to be associated with Project activities are primarily related to the combustion of marine fuel by the drilling vessel and PSVs. Emissions are also associated with short-term flaring during well testing, if testing is performed. These emissions will include carbon monoxide (CO), carbon dioxide (CO_2), sulphur dioxide (SO_2), nitrogen oxides (NOx), and particulate matter (PM). Chevron will comply with the provincial Air Pollution Control Regulations, Ambient Air Quality Objectives under the *Canadian Environmental Protection Act*, regulations under MARPOL, and the intent of the Global Gas Flaring Reduction Partnership (which seeks to increase the use of associated natural gas and thus reduce flaring and venting).

With respect to greenhouse gas (GHG) emissions, it is estimated that there could be approximately 348 tonnes of carbon dioxide equivalent (CO2e) emissions associated with operational drilling, vessel traffic, and helicopter traffic per day or approximately 62,566 tonnes CO2e over the drilling program, assuming a 180-day drilling program per well drilled. Assuming that there could be between zero to three wells drilled per year over the term of the EL, annual GHG emissions resulting from the Project could range from 0 to approximately 187,700 tonnes CO2e per year. These emissions represent approximately 0 to 1.7% of the total reported provincial GHG emissions for 2016 (704,000,000 tonnes CO2e) and approximately 0 to 0.02% of the 2016 national emissions (704,000,000 tonnes CO2e) (ECCC 2018). Further, during well testing events, an additional 26,000 t CO2e may result from the combustion of produced oil and the flaring of produced gas over the life of the project (based on four wells tested over the life of the project and each test lasts 12 hours).

Artificial light emissions associated with the Project include navigation and deck lighting from the MODU and PSVs. Artificial lighting will be reduced to the extent that it does not affect worker and vessel safety. In the event of flaring during well testing, there will be temporary (e.g., up to two or three days) light and thermal emissions associated with the flare. Atmospheric sound will be generated by the MODU, PSVs, and helicopter traffic. However, there is limited predicted interaction with human receptors given the distance of the MODU offshore and that the PSVs and helicopter will operate out of existing port and airport facilities. The sound generated by Project traffic will be comparable to existing vessel and helicopter traffic. Underwater sound is discussed in Section 2.3.2.

2.3.2 Underwater Sound

Underwater sound is generated by the MODU and supply vessels, as well as during VSP operations. The level of underwater sound generated is influenced by the type of drilling vessel (e.g., semi-submersible versus drillship) and method of positioning on station (e.g., use of thrusters for dynamic positioning versus anchoring). The propagation of underwater sound with distance from a source is influenced by water column and seabed characteristics. Underwater sound associated with the MODU is continuous during a drilling program. Underwater sound generated during VSP operations is impulsive, with higher sound level pulses occurring over of a much shorter duration (up to approximately three days, depending on the VSP method selected).

2.3.3 Drilling Waste

Drilling muds are fluids which lubricate and cool the drill bit and hole, circulate cuttings and carry them back to the surface, and help to maintain appropriate hydrostatic pressure in the well to overbalance formation pressure, providing the primary barrier for well control (BOP forms part of the secondary barrier). Several types of drilling muds will be used, WBMs primarily being used for the riserless sections of a well. Synthetic-based drilling muds (SBMs) are generally used once the riser has been installed, and WBMs can also be used in certain applications. The primary component of WBMs is seawater, with other additives including bentonite (clay), barite, and potassium chloride. Other approved chemicals are also added as required to achieve and control the required mud properties.

The initial (i.e., surface) sections are normally drilled riserless with WBM, with mud and cuttings returned to the seabed where they will accumulate near the wellhead. The discharge of WBM cuttings at the seabed, while drilling the first two-hole sections, is accepted as industry standard practice and is consistent with the OWTG. Spent and excess WBM may be discharged from the drilling vessel without treatment as per the OWTG. The deeper (lower hole) sections of the wells will likely be drilled with SBM. The marine riser located between the BOP and the drilling vessel acts as a conduit for the return of drilling mud and cuttings back to the drilling vessel for treatment prior to disposal to the seabed in accordance with the OWTG.

On the drilling vessel, the drilled cuttings and drilling mud are separated and cleaned using solids control equipment. The mud returns carrying the drilled cuttings initially pass through a shale shaker, where most of the mud is separated from the cuttings. Where SBM is used, cuttings from the shale shaker pass through a cuttings dryer, which removes SBM from cuttings. Residual synthetics-on-cuttings discharged to the marine environment is treated in accordance with the OWTG prior to discharge. Monitoring of the residual base mud-on-cuttings levels is carried out during well sections involving use of SBM. After recovery and treatment of drill muds, the drill cuttings are discharged from the drilling vessel at the well site. No surplus SBM is discharged to the sea; spent SBM that cannot be reused during drilling is brought to shore for disposal in an approved licensed facility.

Drilling cement is pumped into the casing / wellbore annuli after the casing is installed. Prior to installation of the marine riser and BOP, excess cement is discharged on the seabed surrounding the wellhead. Cement returned to the drilling unit will be transported back to shore and disposed of at an appropriate facility. During commissioning and testing of a cement unit, small volumes of cement may be discharged into the sea.

2.3.4 Liquid Discharges

Liquid wastes generated from the MODU and/or the supply vessels may include:

- Produced water
- Bilge and deck drainage water
- Ballast water
- Grey / black water (sewage)
- Cooling water
- Well treatment fluids
- Fire control testing water
- BOP fluid

The OWTG specifies allowable chemical properties for offshore disposal to the marine environment and associated reporting requirements, including in some cases, required sampling and analysis prior to ocean discharge. Where discharges occur offshore, the points of discharge will be below the water surface. Liquid discharges that do not meet OWTG performance targets for ocean disposal are transported back to shore for disposal at an approved licensed disposal facility.

2.3.5 Hazardous and Non-Hazardous Solid Wastes

Hazardous and non-hazardous solid wastes will also be generated by Project activities. Nonhazardous wastes may include domestic waste, scrap metal, recyclables, and other miscellaneous non-hazardous wastes. Hazardous wastes (including waste dangerous goods) could include oily waste (filters, rags, waste oil), waste chemicals and containers, batteries, and biomedical waste. Food wastes and domestic sewage will be macerated in accordance with the OWTG and MARPOL prior to discharge at sea (below the water surface). Other solid waste generated offshore will be transported to shore for appropriate treatment and/or disposal in accordance with applicable regulations and municipal by-laws.

Chevron will retain a third-party licensed waste management contractor to manage and dispose of wastes transported onshore. Hazardous wastes will be stored in dedicated and appropriate waste receptacles and then disposed of at approved facilities in compliance with applicable regulations and approvals.

2.4 Project Schedule

Chevron proposes to commence exploration drilling with an initial well in 2021 pending regulatory approval to proceed. Up to eight exploration wells could be drilled over the term of the EL (2021 to 2030) contingent on the drilling results of the initial well. Drilling activities will not be continuous and will be in part determined by rig availability and previous wells' results. It is anticipated that each well will take approximately 180 days to drill.

Chevron's preference is to conduct drilling between May and September, although the EIS (if required under CEAA 2012) will assume year-round drilling. VSP operations will take approximately one to three days per well and well testing, where required, would occur over a one to three-month period. Well abandonment will likely be conducted following drilling and/or well flow testing. Wells may be designed for suspension and re-entry but this will be determined through further prospect evaluation.

2.5 Potential Accidental Events

Chevron uses a systematic process to identify and manage potential risks and unplanned events that could occur during its global activities. Chevron has an integrated Corporate Operational Excellence (OE) Risk Management process that has been designed to identify and address the health, environment, safety, and asset risks to facilities and activities. The process is designed to prevent high-consequence incidents and impacts by systematically assessing risk across OE focus areas, identifying the safeguards that need to be in place, and ensuring that those safeguards function as intended. Risk profiles are developed for activities to systematically summarize potential high-consequence and/or high-risk scenarios related to workforce health and safety, public health and safety, environmental effects, stakeholders, and security. Each Business Unit within Chevron develops a risk profile on identified scenarios, for example loss of integrity due to corrosion and structural failure, well control events, potential subsurface integrity issues, flaring due to abnormal operating conditions, and external events such as extreme weather or collision. Each risk profile is required to include safeguards, results of safeguard verifications, and risk reduction recommendations, and is updated on an annual basis.

Multiple preventative and response barriers are put in place to manage risk, both in terms of the incident arising in the first place, and to mitigate and respond to incidents to manage potential consequences. Potential accidental events that could occur during exploration drilling and potentially result in a release to the environment, include vessel collision, dropped objects, loss of well control (e.g., blowout), and spills and releases from MODU or supply vessels.

Chevron will conduct predictive spill modelling to help assess the risk of adverse environmental effects that might occur as a result of potential accidental events associated with the Project. Oil spill modelling will include water depth and metocean conditions within the proposed drilling area, which would affect the behaviour of a subsea spill scenario. In general, because hydrocarbons released from a subsea spill in deep water would remain in the water column longer as it rose to the surface, the hydrocarbon would be subject to more mixing, dissolution and natural dispersion than a subsea release in shallow water. A deep-water release would, therefore, be more likely to be transported by subsea currents and subject to spreading over a larger area than a shallow water release.

The EIS (if required under CEAA 2012) will also provide an overview of Chevron's overall oil spill preparedness and response capability which will include a range of specific response measures such as offshore containment and recovery, chemical dispersant use, in situ burning, shoreline protection and oiled wildlife response.

3.0 ENVIRONMENTAL SETTING

This section describes the existing biophysical and human environments that overlap and may interact with the proposed Project. The biophysical environment includes geology and topography of the Project area, climate, oceanography, air quality, fish and fish habitat, marine birds, marine mammals, and special areas. The human environment includes commercial and Indigenous fisheries, Indigenous Communities and other human components and activities which characterize the proposed Project Area.

3.1 Physical Environment

3.1.1 Geology and Topography

The geology of the Eastern Newfoundland offshore area is complex and dynamic, as the current bedrock and surficial characteristics of the area have been shaped by various natural and human factors and processes over time (AMEC 2014). The eastern continental shelf was formed by extension during the breakup of Pangea and the opening of the Atlantic Ocean during the Late Triassic to Mid-Cretaceous and is underlain by pre-rift basement rocks (Fader et al. 1989). A combination of rifting and salt tectonics in the area created a series of Mesozoic rift basins. The main sedimentary basins in the area include the Orphan, Flemish Pass, Jeanne d'Arc, and Carson basins (Fader et al. 1989). The primary reservoirs are located in the shallow marine and fluvial sandstones deposited during the Late Jurassic and Early Cretaceous periods of the Mesozoic Era. The Late Jurassic Egret member of the Rankin Formation is a world-class source rock that is recognized as the primary source of the oil and gas discovered in the Jeanne d'Arc Basin, which is the only basin off eastern Newfoundland containing presently developed producing oil fields. This rock type has also proven to be widespread in the Flemish Pass Basin (G and G Exploration Consulting Ltd. 2003).

The surficial geology of the region is highly variable, but generally in deeper water, such as the slope of the Flemish Pass, the seabed generally consists of Holocene silty mud. On parts of the floor of the Flemish Pass, winnowed sands are present (Murillo et al 2016a). The coarser-grained sediments are found through the center and western side of the Flemish Pass while the finer-grained sediments are concentrated predominately on the eastern side of the Pass, including the terrace (Marshall et al. 2014). Quaternary sediments in the Flemish Pass include turbidite sands and muds and proglacial muds derived from the Grand Banks of Newfoundland, ice-rafted and proglacial plume deposits transported southward in the Labrador Current, and debris-flow deposits. These have been described as follows by Piper and Campbell (2005). In the northern Flemish Pass, deposits up to 120 m thick have been recognized and are interpreted as debris-flow deposits that are thought to be derived from sediment failures that have left scarps both on the southeast side of Sackville Spur and on the north-west side of the Flemish Cap. Sediments recovered from this area are generally lean silt to lean clay and are considered to be consolidated. The western slopes of the Flemish Pass are comprised mainly of muds with some coarse-grained ice-rafted detritus. Interbedded sandy turbidites are most abundant between 2 and 3.5 m below sea floor. On the floor of the central part of the Flemish Pass, successions of silty muds with ice-rafted detritus, thin sand and mud turbidites overlie thick bedded sand turbidites. On the eastern slopes of the Flemish Pass, sediment consists primarily of mud with sparse ice-rafted detritus.

3.1.2 Climate

The Project area experiences weather conditions typical of a marine climate, including reduced visibilities, low cloud heights, and large amounts of precipitation (LGL 2011a). Prevailing winds are from the west to northwest in winter and from the south and west in summer with extreme wind gusts greater than 100 knots (51 m/s) (AMEC 2014). The surrounding waters have a moderating effect on temperature and air temperatures are coolest in February and warmest in July. In the Flemish Cap area and surrounding region, most precipitation events are in the form of rain or, in the winter, snow, while other precipitation types, such as mixed rain and snow, freezing rain, and hail, occur far less frequently. Rain occurs most frequently in October and November while snowfall is at its peak in January and February. Freezing rain and drizzle are relatively infrequent, occurring less than one percent of the time in any given month. There is a year-round potential for thunderstorms and hail, with the highest frequency of occurrence in July (AMEC 2014).

3.1.3 Ocean Currents

Circulation in the Project area off the coast of Newfoundland and Labrador is dominated the Labrador Current and the North Atlantic Current (Colbourne and Foote 2000, in LGL 2011a). The main current in the Project Area is the Labrador Current which consists of two streams; an inshore branch which transports sub-polar water to lower latitudes along the Continental Shelf of Eastern Canada and an offshore branch that flows along the outer edge of the Grand Banks.

The offshore branch flows over the upper Continental Slope at depth, and through the relatively deep Flemish Pass. Near the Project Area, near the Flemish Pass, the Labrador Current bifurcates, with the main branch flowing southwards as slope water current and the side branch flows clock-wise around the Flemish Cap. The cores of the currents are located at an average depth of 100 m. Sea surface temperatures generally average about 3.4°C in February to 12.8°C to 16°C in the August / September period (AMEC 2014). Within the Project Area, and in surrounding areas, the largest seas are typically found farthest offshore, usually during the winter season between the months of December and January.

3.1.4 Air Quality

Air Quality within the Project Area, and in surrounding areas, is good, with occasional exposure to exhaust products from supply vessels, other marine traffic, helicopters, and existing offshore oil production facilities in the Jeanne d'Arc Basin (Hibernia, Terra Nova, White Rose, and Hebron). The area also receives long-range contaminants from the Northeast Seaboard and industrial midwest of the United States (ExxonMobil Canada Properties 2011, in Husky 2012).

3.2 Biological Environment

3.2.1 Fish, Fish Habitat, and Aquatic Species

The eastern Newfoundland offshore area is a highly-productive ecosystem and there are many species of fish, marine mammals, sea turtles, and marine birds that occur, or could potentially occur, in the Project Area. Some of these species are listed as species at risk under SARA and / or are identified as species of conservation interest by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

Table 2 provides a listing of identified species at risk and species of conservation concern that are known or considered likely to occur off eastern Newfoundland, indicating their current designations under applicable legislation and by COSEWIC. Comprehensive and up to date information on the protection and current designations of these species at risk and associated Recovery Strategies, Action Plans and Management Plans (including identified and designated critical habitat) is available from the relevant sources and will be used in any required EIS for this Project. Critical habitat for northern and spotted wolffish has been proposed (DFO 2018). As the proposed critical habitat does not extend beyond the 200 nm limit, there is no overlap with EL 1138 (which does not extend into the EEZ). There is some overlap of spotted wolffish critical habitat with in the extreme southwestern edge of the Project Area where it extends into the EEZ.

Table 2 Species of Conservation Interest with Potential to Occur in the Project Area and Surrounding Areas

Species		Federal		Provincial
Common Name	**Scientific Name**	**SARA Status (Schedule 1)**	**COSEWIC Designation**	
Marine Fish				
Atlantic wolffish	*Anarhichas lupus*	Special Concern	Special Concern	
Northern wolffish	*Anarhichas denticulatus*	Threatened	Threatened	
Spotted wolffish	*Anarhichas minor*	Threatened	Threatened	
American eel	*Anguilla rostrata*		Threatened	Vulnerable
Basking shark	*Cetorhinus maximus*		Special Concern	
Atlantic cod (Newfoundland and Labrador population)	*Gadus morhua*		Endangered	
Cusk	*Brosme brosme*		Endangered	
Porbeagle	*Lamna nasus*		Endangered	
Shortfin mako	*Isurus oxyrinchus*		Threatened	
White shark	*Carcharodon carcharias*	Endangered	Endangered	
Roughhead grenadier	*Macrourus berglax*		Special Concern	
Roundnose grenadier	*Coryphaenoides rupestris*		Endangered	
White hake (Atlantic and Northern Gulf of St. Lawrence population)	*Urophycis tenuis*		Threatened	
American plaice (Newfoundland and Labrador population)	*Hippoglossoides platessoides*		Threatened	
Smooth skate (Funk Island Deep Population)	*Malacoraja senta*		Endangered	
Thorny skate	*Amblyraja radiata*		Special Concern	

Table 2 Species of Conservation Interest with Potential to Occur in the Project Area and Surrounding Areas

Species		Federal		Provincial
Common Name	**Scientific Name**	**SARA Status (Schedule 1)**	**COSEWIC Designation**	
Winter Skate (Eastern Scotian Shelf – Newfoundland)	*Leucoraja ocellata*		Endangered	
Atlantic salmon (South Newfoundland; Quebec Eastern Shore; Quebec Western Shore; Anticosti Island; Inner St. Lawrence; Gaspe-Southern Gulf of St. Lawrence; Eastern Cape Breton; Nova Scotia Southern Upland; Outer Bay of Fundy; Inner Bay of Fundy populations)	*Salmo salar*	Endangered (Inner Bay of Fundy population)	Endangered (Inner Bay of Fundy, Anticosti Island, Eastern Cape Breton, Nova Scotia Southern Upland, Outer Bay of Fundy populations); Threatened (South Newfoundland population); Special Concern (Quebec Eastern Shore, Quebec Western Shore, Inner St. Lawrence, Gaspe-Southern Gulf of St. Lawrence populations)	
Atlantic bluefin tuna	*Thunnus thynnus*		Endangered	
Acadian redfish (Atlantic population)	*Sebastes fasciatus*		Threatened	
Deepwater redfish (Northern Population)	*Sebastes mentella*			
Spiny dogfish	*Squalus acanthias*		Special Concern	
Marine Birds				
Ivory Gull	*Pagophila eburnea*	Endangered	Endangered	Endangered
Red-necked Phalarope	*Phalaropus lobatus*		Special Concern	
Marine Mammals				
Blue whale - Atlantic population	*Balaenoptera musculus*		Endangered	Endangered
Fin whale - Atlantic Population	*Balaenoptera physalus*		Special Concern	Special Concern

Table 2 Species of Conservation Interest with Potential to Occur in the Project Area and Surrounding Areas

Species		Federal		Provincial
Common Name	**Scientific Name**	**SARA Status (Schedule 1)**	**COSEWIC Designation**	
Northern bottlenose whale - Davis Strait, Baffin Bay, Labrador Sea populations; Scotian Shelf population	*Hyperoodon ampullatus*	Endangered (Scotian Shelf population)	Special Concern (Davis Strait, Baffin Bay, Labrador Sea population); Endangered (Scotian Shelf population)	
Sowerby's beaked whale	*Mesoplodon bidens*	Special Concern	Special Concern	
Killer whale (Northwest Atlantic / Eastern Arctic population)	*Orcinus orca*		Special Concern	
Harbour porpoise (Northwest Atlantic population)	*Phocoena phocoena*	Endangered	Endangered	
Sea Turtles				
Leatherback sea turtle	*Dermochelys coriacea*	Endangered	Endangered	
Loggerhead sea turtle	*Caretta caretta*		Endangered	
Source: Adapted from Nexen Energy ULC 2017				

The Project Area and surrounding waters are known to be inhabited by a variety of marine biota, within which the presence, abundance and distribution of specific fish species varies considerably. Within this marine environment, which includes parts of the Flemish Cap and adjacent slope and deep-water habitats, a variety of fish species and assemblages occur with "shallow water" groups (e.g., yellowtail flounder, Atlantic cod, redfish and skates) giving way to "slope" assemblages (e.g., Greenland halibut, roughhead grenadier, wolffish) and finally to "deep slope-abyssal assemblages" (e.g., lanternfish, grenadiers, blue hake, dogfish). Within such depth zones, habitat complexity can also be a determining factor of species presence and prevalence.

The Flemish Cap is predominantly covered in sand and silty-sand with areas of gravel, becoming increasingly covered in silty-sand along the slopes (200 to 500 m). In deeper areas (500 to 2,000 m) of the Flemish Cap and Pass, the substrate is increasingly silty-clay or mud at greater depths (Murillo et al 2012; 2016a). The highest diversity of benthic species on the Flemish Cap was observed between 500 and 1,000 m depths with corals and sponges as the most dominant trawl captured taxa followed by echinoderms, arthropods, and molluscs (Vàsquez et al 2013; Murillo et al 2016a). Epifaunal communities of the Flemish Pass were characterized by Beazley and Kenchington (2015) who identified 527 species from 400 to 1,400 m depths. Sponges and cnidarians represented the highest number of taxa followed by arthropods, echinoderms, and molluscs.

The Flemish Cap has a relatively high coral richness compared to other parts of the Project Area and surrounding marine environments, likely because of the diversity of habitat types and depth gradients in comparison to other areas (Murillo et al 2011, 2016a). Coral biomass is mainly distributed along the slopes of the Flemish Pass and Flemish Cap with fewer observations on the adjacent Grand Bank Shelf and on top of the Flemish Cap (Murillo et al 2011). Several dozen species of sponges have also been observed in and adjacent to the proposed Project Area (Murillo et al 2012, 2016b; Beazley et al 2013; Knudby et al 2013; Beazley and Kenchington 2015). Of the identified species, many have wide depth ranges of 100 to 1,500 m indicating they can occupy slope and shelf areas in the region. Figure 5 illustrates known coral and sponge areas and Significant Benthic Areas (SBAs); the Orphan Knoll seamount is depicted in the special areas figure.

The waters off eastern Newfoundland support a diverse assemblage of marine fauna that includes some 20 marine mammals and several sea turtle species, many of which are considered to be at risk or otherwise of special conservation concern. The existing and available information indicates that marine mammal (cetacean) species that are known or considered likely to occur within the Eastern Newfoundland Offshore Area include mysticetes (baleen whales), odontocetes (toothed whales and porpoises) and pinnipeds (seals). Several sea turtle species. have also been observed. These differ considerably in their likelihood of presence and habitat types that they utilize and the times at which they occur in or pass through the region. Key feeding grounds such as the Grand Banks are of importance to marine mammals and turtles, and several Ecologically and Biologically Significant Areas (EBSAs) have been identified due in part to their known importance to a number of marine mammal species (Templeman 2007). Given that a number of these species have been designated as species at risk under Canadian legislation or are otherwise considered to be of conservation concern, they are typically a key consideration in the EA review process for projects and activities off eastern Newfoundland.

3.2.2 Marine Birds

A variety of seabirds and other marine-associated birds occur within the Project Area and in adjacent marine and coastal regions. Important habitats for breeding, feeding, migration and other seabird activities have been identified at locations along the coastline of eastern Newfoundland, within and well outside of the proposed Project Area.

As key components and indicators of ecosystem health, seabirds are often considered to be of high intrinsic ecological importance. They are also of socioeconomic importance in Newfoundland and Labrador both in terms of tourism and as a food source. A diverse assemblage of seabirds, including gannets, phalaropes, large gulls, kittiwakes, terns, alcids (auks), jaegers and skuas, fulmars, petrels and shearwaters, can be found in the marine waters off eastern Newfoundland at all times of year (AMEC 2014). The nutrient-rich Grand Banks and Flemish Cap regions off eastern Newfoundland, for example, serve as a major feeding area for dozens of marine bird species throughout the year, particularly during the summer months. Many seabird groups such as cormorants and terns tend to have a more coastal distribution and are, therefore, rarely observed this far offshore. Waterfowl occur in large numbers in marine habitats off eastern Newfoundland, especially during the winter months, but they prefer open water in coastal areas and are thus not likely to frequent the offshore environments that characterize the Project Area (AMEC 2014).

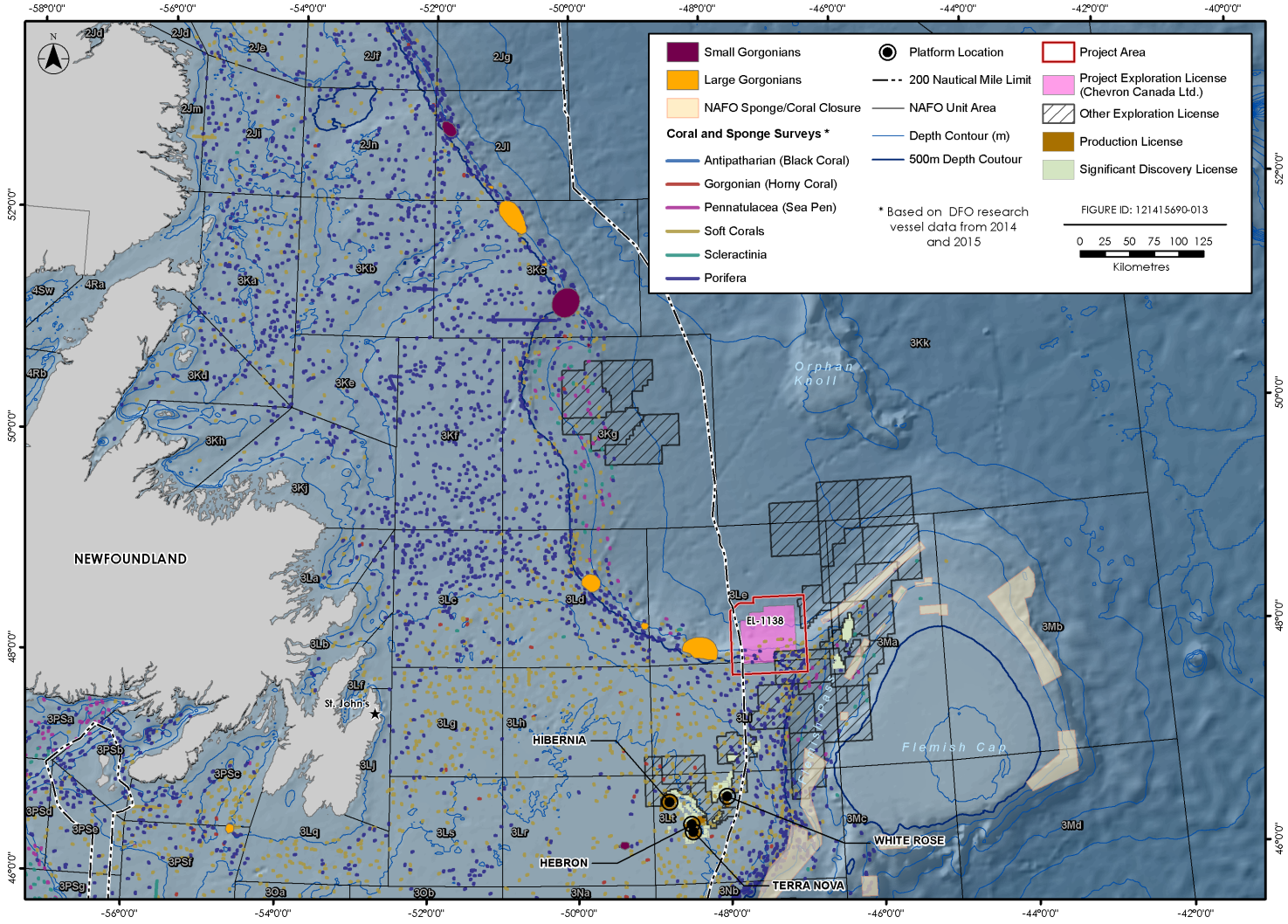


Figure 5 **Corals and Sponges in the Project Area and Regional Assessment Area Based on DFO Research Vessel Data / Records and Significant Benthic Areas**

The region also contains several designated Important Bird Areas (IBAs), which provide important habitat for nationally and/or globally significant numbers of birds and/or for avian species at risk, and there are various other sites of provincial and regional significance to birds. Although none of these areas or sites occurs within the Project Area itself, some of the bird species that make use of these designated habitats may spend time in the Project Area.

3.2.3 Special Areas

A number of terrestrial, marine and coastal areas within and off eastern Newfoundland have been designated as protected under provincial, federal and/or other legislation and processes, or have been formally identified through relevant forums and processes as being otherwise special or sensitive due to their ecological, historical and/or socio-cultural characteristics and importance (Figure 6; Table 3). Given its location nearly 400 km offshore, the Project will not occur within, or otherwise interact directly with, the existing provincial or federal Parks, Ecological Reserves, Wildlife Reserves, Marine Protected Areas (MPAs), Migratory Birds Sanctuaries (MBS), IBAs, or other locations that have been designated as protected on or around the Island of Newfoundland (AMEC 2014). However, the Project Area does overlap with two EBSAs off Eastern Newfoundland: Northeast Shelf and Slope and Slopes of the Flemish Cap and Grand Bank (Figure 6).

Currently, there are no MPAs established within the vicinity of the Project Area. However, in December 2017, the Minister of Fisheries and Oceans and the Canadian Coast Guard announced the establishment of several marine refuges off the coasts of Nunavut and Newfoundland and Labrador. The Northeast Newfoundland Slope Closure is a marine refuge which overlaps with the Project Area (Figure 6). It has been established to contribute to long-term conservation of biodiversity by protecting corals and sponges from bottom contact fishing gear (Government of Canada 2017).

Outside of Canada's 200 nm EEZ, NAFO has identified vulnerable marine ecosystems (VMEs) that are regulated through their Conservation and Enforcement Measures, created to monitor and regulate bottom fishing activities by the member states of NAFO. These conservation and enforcement measures, such as carrying scientific observers on board to report encounters with VME indicator species, are specific for bottom fishing activities and does not include oil and gas activities (NAFO 2016).

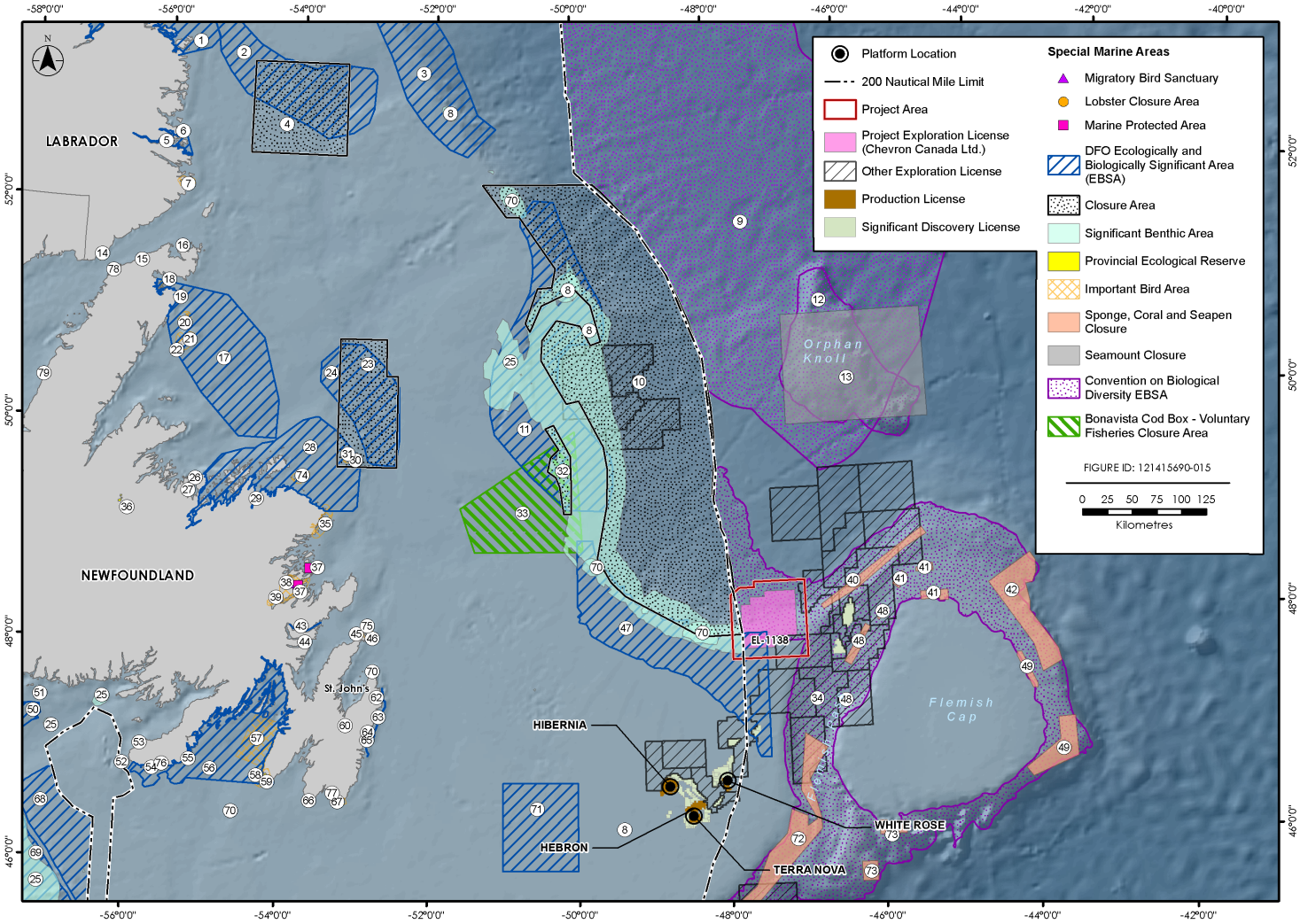


Figure 6 **Special Areas in the Eastern Newfoundland Offshore Area**

Table 3 Special Areas in the Eastern Newfoundland Offshore Area

Map Number	Name	Special Area Type	Jurisdiction
1	Hamilton Inlet	EBSA	Federal
2	Labrador Marginal Trough	EBSA	Federal
3	Labrador Slope	EBSA	Federal
4	Hawke Channel	Closure Area	National
5	Gilbert Bay	MPA	
6	Gilbert Bay	EBSA	Federal
7	St. Peter Bay	IBA	National
8	Small Gorgonian Significant Benthic Areas	SBA	Federal
9	Seabird Foraging Zone in the Southern Labrador Sea	CBD EBSA	
10	Northeast Newfoundland Slope-Tobin's Point 1	Closure Area	National
11	Orphan Spur	EBSA	Federal
12	Orphan Knoll	CBD EBSA	
13	Orphan Knoll	NAFO VME	International
14	Point Amour, Strait of Belle Isle	IBA	National
15	Watts Point Ecological Reserve	Ecological Reserve - Botanical	Provincial
16	Burnt Cape Ecological Reserve	Ecological Reserve - Botanical	Provincial
17	Grey Islands	EBSA	Federal
18	Hare Bay Islands Ecological Reserve	Ecological Reserve - Seabird	Provincial
19	Fischot Islands	IBA	National
20	Northern Groais Island	IBA	National
21	Bell Island South Coast	IBA	National
22	Ile aux Canes and Shepherd Island	MBS	
23	Funk Island Deep	Closure Area	National
24	Notre Dame Channel	EBSA	Federal
25	Sea Pen Significant Benthic Areas	SBA	Federal
26	Mouse Island	LCA	
27	Glover's Harbour	LCA	
28	Fogo Shelf	EBSA	Federal
29	Gander Bay	LCA	
30	Funk Island	IBA	National
31	Funk Island Ecological Reserve	Ecological Reserve - Seabird	Provincial
32	Tobin's Point 2	Closure Area	National
33	Bonivista Cod Box	Voluntary Fisheries Closures Area	-
34	Slopes of the Flemish Cap and Grand Bank	CBD EBSA	

Table 3 Special Areas in the Eastern Newfoundland Offshore Area

Map Number	Name	Special Area Type	Jurisdiction
35	Cape Freels Coastline and Cabot Island	IBA	National
36	West Brook Ecological Reserve	Ecological Reserve - Botanical	Provincial
37	Eastport	MPA	
38	Terra Nova	MBS	
39	Terra Nova National Park	IBA	National
40	Sackville Spur	NAFO VME	International
41	Northern Flemish Cap	NAFO VME	International
42	Northeast Flemish Cap	NAFO VME	International
43	Smith Sound	EBSA	Federal
44	Gooseberry Island	LCA	
45	Baccalieu Island	IBA	National
46	Baccalieu Island Ecological Reserve	Ecological Reserve - Seabird	Provincial
47	Northeast Shelf and Slope	EBSA	Federal
48	Northwest Flemish Cap	NAFO VME	International
49	Eastern Flemish Cap	NAFO VME	International
50	Burgeo Bank	EBSA	Federal
51	Penguin Island	LCA	
52	Green Island	IBA	National
53	Fortune Head Ecological Reserve	Ecological Reserve - Fossil	Provincial
54	Middle Lawn Island	IBA	National
55	Corbin Island	IBA	National
56	Placentia Bay Extension	EBSA	Federal
57	Placentia Bay	IBA	National
58	Cape St. Mary's	IBA	National
59	Cape St. Mary's Ecological Reserve	Ecological Reserve - Seabird	Provincial
60	Hawke Hill Ecological Reserve	Ecological Reserve - Botanical	Provincial
61	Cape St. Francis	IBA	National
62	Quidi Vidi Lake	IBA	National
63	Eastern Avalon	EBSA	Federal
64	Witless Bay Islands	IBA	National
65	Witless Bay Ecological Reserve	Ecological Reserve - Seabird	Provincial
66	The Cape Pine and St. Shotts Barren	IBA	National
67	Mistaken Point	IBA	National
68	St. Pierre Bank	EBSA	Federal

Table 3 Special Areas in the Eastern Newfoundland Offshore Area

Map Number	Name	Special Area Type	Jurisdiction
69	Laurentian Channel and Slope	EBSA	Federal
70	Large Gorgonian Significant Benthic Areas	SBA	Federal
71	Virgin Rocks	EBSA	Federal
72	Flemish Pass / Eastern Canyon	NAFO VME	International
73	Beothuk Knoll	NAFO VME	International
74	Wadham Islands and adjacent Marine Area	IBA	National
75	Grates Point	IBA	National
76	Lawn Bay Ecological Reserve	Ecological Reserve - Seabird	Provincial
77	Mistaken Point Ecological Reserve	Ecological Reserve - Fossil	Provincial
78	Sandy Cove Ecological Reserve	Ecological Reserve - Botanical	Provincial
79	Table Point Ecological Reserve	Ecological Reserve - Fossil	Provincial

CBD = Convention on Biological Diversity
EBSA = Ecologically and Biologically Significant Area
IBA = Important Bird Area
LCA = Lobster Closure Area
MBS = Migratory Bird Sanctuary
MPA = Marine Protected Area
NAFO = Northwest Atlantic Fisheries Organization
SBA = Significant Benthic Area
VME = Vulnerable Maine Ecosystem

3.2.4 Commercial and Indigenous Fisheries

Fisheries are an important component of the socio-economic environment of Newfoundland and Labrador and other parts of Canada, including the various communities and regions that extend along the coastline of eastern Newfoundland who participate in commercial fishing as a source of economic stimulus to the local economy. Commercial fisheries in this region are diverse, and involve a range of target species, use of various gear types, and occur at higher intensities at certain times of the year. The Project Area is in a region (Flemish Pass) where multiple fishers harvest for commercial purposes. EL 1138 is located within NAFO Subdivision 3L, where commercial fishing activity has historically been high in certain areas (Figure 7).

Commercial fisheries data for domestic harvesting are provided by Fisheries and Oceans Canada (DFO) Statistical Services in Ottawa, ON, including landings (weight and value) statistics and geospatial information illustrating the overall location and timing of fishing activity. The mapping information is provided by DFO as an aggregated data set which gives a general indication of fishing areas (by species, gear types and other pre-determined categories and data classes) for individual grid “cells” that are approximately 6 x 4 nautical miles (nm) in size. The DFO datasets record and report domestic and foreign fish harvests that are landed in Canada. Figure 5 indicates where commercial fish harvesting has generally taken place, based on the geospatial datasets provided by DFO. A large portion of fishing activity is located along the continental shelf and the shelf break. This is due to upwelling in the area, which provides a nutrient rich environment and productive habitat for fish species (LGL 2008). A portion of EL 1138 overlaps with the continental shelf and overlaps a small portion where commercial fishing activity has historically occurred.

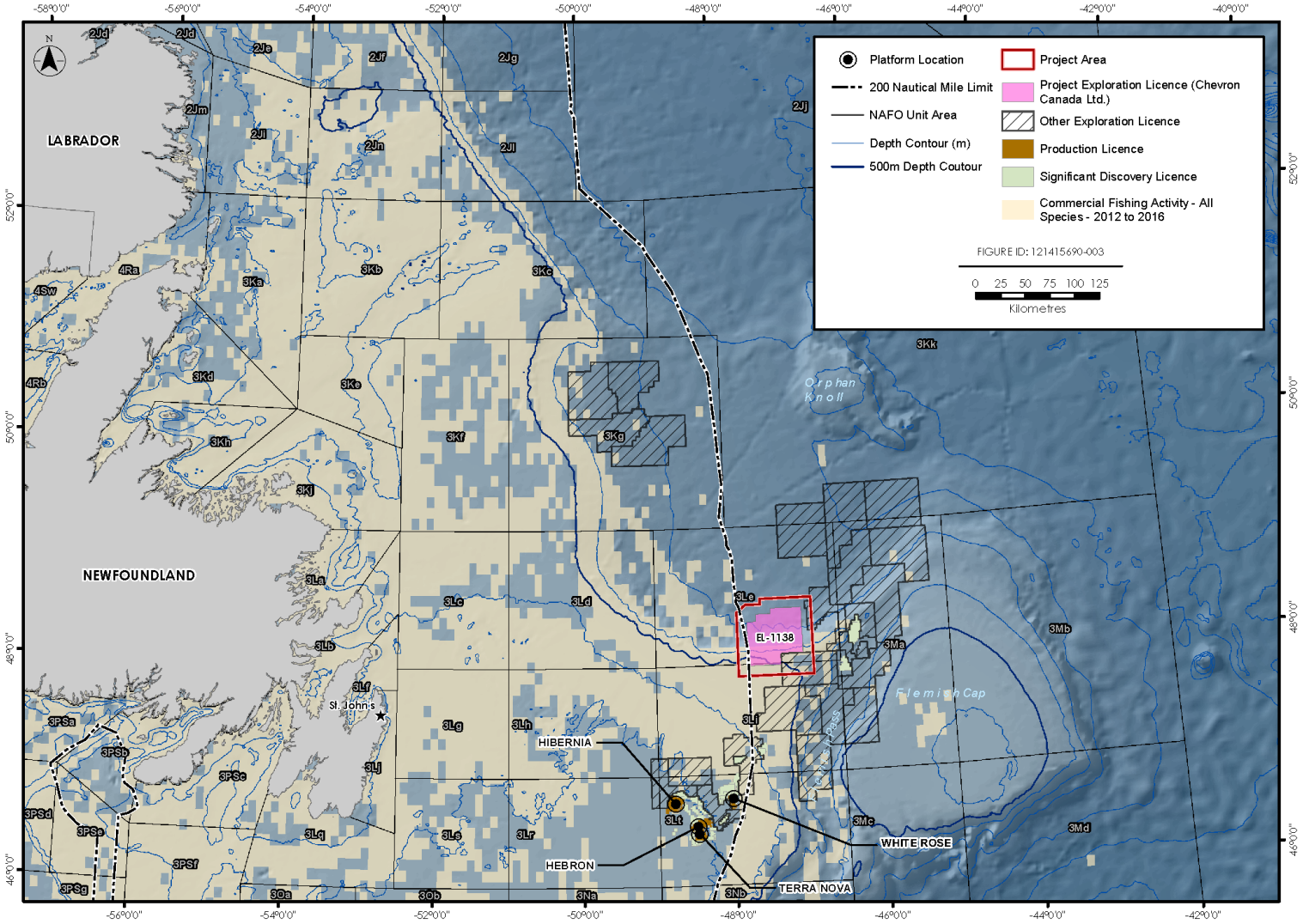


Figure 7 **Commercial Fishing Activity in the Project Area and Surrounding Areas**

Species that have been historically harvested for commercial purposes in eastern offshore Newfoundland and Labrador include snow crab, northern shrimp, Greenland halibut, Atlantic halibut, Atlantic cod, American plaice, redfish, and flounder (yellowtail and witch). Fisheries for pelagic species such as capelin and mackerel do occur in offshore Newfoundland and Labrador but are located closer to the coast and nearshore areas. Commercial fisheries for large pelagic species such as swordfish and tuna, and for invertebrates such as clams and scallops also occur, but on a smaller scale than those for crab, shrimp, and groundfish.

Several Indigenous groups have commercial communal fishing licences in the Project Area, and in surrounding areas. A summary of commercial communal fishing licences issued under the Aboriginal Communal Fishing Licences Regulations is provided in Table 4. There are no food, social, and ceremonial (FSC) fisheries in the Project Area, or in surrounding areas. The closest FSC fishery in Newfoundland and Labrador is a multi-species coastal fishery undertaken by Miawpukek First Nation in Conne River, over 500 km to the southwest of the Project Area (Nexen Energy ULC 2017).

Table 4 Commercial Communal Fishing Licences Issued to Newfoundland and Labrador Indigenous groups in the Project Area and Surrounding Areas

Group	Commercial Communal Fishing Activity
Nunatsiavut Government	The Nunatsiavut Government hold several commercial communal licences for groundfish, Greenland halibut, seal, scallop, snow crab, shrimp and Arctic char. Groundfish licences are held for NAFO Divisions 2GHJ, 3KL and Greenland halibut may be harvested in 2+3K and 3LMNO (Nexen Energy ULC 2017). Seal licences permit harvesting in Sealing Areas 4 through 33, Atlantic-wide. Scallop licences are issued for Scallop Area 1 off the coast of Northern Labrador, and snow crab licences are issued for Snow Crab Areas 1 and 2 and an Exploratory licence for NAFO 2H. Northern shrimp licences are held for Shrimp Areas 4 and 5. The Nunatsiavut Government also has a commercial communal Arctic char licence for the area from Cape Rouge to Cape Chidley in Northern Labrador.
Innu Nation	Innu Nation holds several commercial communal licences for groundfish, mackerel, capelin, shrimp, and halibut. Innu Nation hold licences for groundfish in NAFO 0, 2GHJ, 3KL, groundfish (mobile gear) in NAFO 2GHJ, 3KL, mackerel and capelin in Fishing Areas 1 to 11, and shrimp in Shrimp Area 4. Ueushuk Fisheries Limited hold a mid-shore groundfish licence for various areas for harvesting of a variety of species. Ueushuk Fisheries Ltd. also hold a shrimp licence for Shrimp Areas 6 and 7.
NunatuKavut Community Council	The NCC holds several commercial communal licences for groundfish, shrimp, snow crab, capelin, herring seal, scallops, and toad crab. NDC Fisheries (Nunacor) also holds several commercial communal licences and operates enterprises for groundfish in NAFO 2GHJ, 3KL, and 4RS, scallop in Scallop Areas 1 and 2, shrimp in Shrimp Area 6 as well as for whelk, northern shrimp, snow crab, capelin, herring and toad crab in southern Labrador. The NCC also holds two seal harvesting licences in Seal Fishing Areas 4 to 33 (Atlantic-wide).
Miawpukek First Nation (MFN)	The MFN holds several commercial communal licences for groundfish, capelin, herring, mackerel, snow crab, squid, swordfish, scallop, bluefin tuna and other tuna species, and seal. MFN has nine enterprises that permit access to NAFO 3KL, three tuna licences permitting access to 3LN, and one seal licence permitting access to Seal Fishing Areas 4-33 (Atlantic-wide). The First Nation also holds licences for sea cucumber and whelk in NAFO 3Ps. In addition, MFN holds tuna and swordfish licences for the Scotia-Fundy region.

Table 4 Commercial Communal Fishing Licences Issued to Newfoundland and Labrador Indigenous groups in the Project Area and Surrounding Areas

Group	Commercial Communal Fishing Activity
Qalipu Mi'kmaq First Nation Band (QMFNB)	The Qalipu hold several commercial communal licences for lobster, snow crab, mackerel, herring, squid, scallops, capelin, whelk, shrimp, eel, smelt and bait. Lobster fishing licences are for LFA 4B, 13A, and 13B and snow crab licences are for Snow Crab Areas 4, 12, 12C, 12E and 12F. MAMKA also holds several commercial communal licences for snow crab, herring, capelin, lobster, and bait. MAMKA also holds a commercial communal scallop licence.
Mi'kmaq Alsumk Mowimsikik Koqoey Association (formed by MFN and QMFNB under DFO's Aboriginal and Aquatic Resources Management Program)	One enterprise with a groundfish licence permitting access to NAFO Subdivisions 3KL.
Source: Adapted from Nexen Energy ULC 2017	

3.2.5 Indigenous Communities

Newfoundland and Labrador has five Indigenous communities and/or governing bodies; three in Labrador (Nunatsiavut Government, Innu Nation, and Nunatukavut Community Council) and two on the Island of Newfoundland (Miawpukek First Nation; Qalipu Mi'kmaq First Nation). EL 1138 is approximately 590 km to the nearest reserve (Miawpukek) (Figure 8).

The Nunatsiavut Government is comprised of five Inuit Community Governments (representing Nain, Hopedale, Postville, Makkovik and Rigolet) (Nunatsiavut Government 2017)). Some Inuit are resident in other communities in Labrador (Happy Valley-Goose Bay, North West River, and Mud Lake). The Labrador Inuit Land Claims Agreement delineates an established Labrador Inuit Settlement Area (LISA, approximately 72,500 km² of land in northern Labrador and 48,690 km² of the Labrador Sea) and sets out the details of land ownership, resource-sharing, and self-government within the LISA (Nalcor Energy 2011). EL 1138 is approximately 860 km to the LISA (874 km to The Zone) (Figure 8).

There are approximately 2,200 Innu of Labrador and they are formally represented by Innu Nation. Most Labrador Innu live in Natuashish (Mushuau Innu First Nation) and Sheshatshiu (Sheshatshiu Innu First Nation) located in Sheshatshiu), while small numbers also reside in Happy Valley-Goose Bay (Nalcor Energy 2011). The Labrador Innu claim Aboriginal rights and title to much of Labrador. The Tshash Petapen / New Dawn Agreement was signed on November 18, 2011; negotiations are ongoing between Innu Nation and the Governments of Newfoundland and Labrador and Canada (Newfoundland and Labrador Intergovernmental and Indigenous Affairs Secretariat 2017).

NunatuKavut is the territory of the Inuit of NunatuKavut, who reside primarily in southern (Cartwright to L'Anse au Clair), central (Upper Lake Melville area), and western Labrador (Nalcor Energy 2011). The approximately 6,000 Inuit of south and central Labrador are represented by the NunatuKavut Community Council (NunatuKavut Community Council 2013). Their asserted Inuit land claim covers most of Labrador; and, although it has not been accepted for negotiation by the federal or provincial governments, the provincial Labrador and Aboriginal Affairs Office has advocated for a decision from the Federal Government on the NunatuKavut Community Council land claim (Newfoundland and Labrador Intergovernmental and Indigenous Affairs Secretariat 2017). EL 1138 is approximately 640 km to the Nunatukavut Community Council primary claim area within Labrador (Figure 8).

The Miawpukek Mi'kamawey Mawi'omi First Nation Reserve is located on the south coast of the island of Newfoundland at the mouth of the Conne River (Miawpukek First Nation 2017). Miawpukek First Nation has a self-governing agreement (which is not a treaty or lands claims agreement within the meaning of sections 25 and 35 of the *Constitution Act, 1982*) that gives them the opportunity to govern their internal affairs and assume greater responsibility and control over decisions that affect their community (Indigenous and Northern Affairs Canada 2014).

The Qalipu Mi'kmaq First Nation are one of the largest First Nation groups in Canada, with approximately 24,000 members spread across many communities on the Island of Newfoundland (and abroad). Qalipu was established in 2011 as an *Indian Act* Band under the *Qalipu Mi'kmaq First Nation Act* (which is not a treaty or lands claims agreement within the meaning of sections 25 and 35 of the *Constitution Act, 1982*). There are no reserve lands; however, the Qalipu are made up of 66 traditional Mi'kmaq communities, spread out over nine Electoral Wards. The Qalipu central administrative office is in Corner Brook and there are three satellite offices located in Glenwood, Grand Falls-Windsor, and St. George's (Qalipu First Nation 2016).

For other similar EAs of projects in the eastern Newfoundland offshore region, the CEA Agency has identified Indigenous groups in New Brunswick (NB), Nova Scotia (NS), Prince Edward Island (PEI), and Quebec (QC) (CEA Agency 2017) that have the right to harvest Atlantic salmon for food, social and ceremonial purposes and/or harvest swordfish (*Xiphias gladius*) under commercial communal fishing licences in NAFO Areas 3, 4 and 5 (Table 5; Figure 9). While these Indigenous communities hold commercial communal licences for several species, the swordfish licence is the only licence which overlaps with the Project Area.

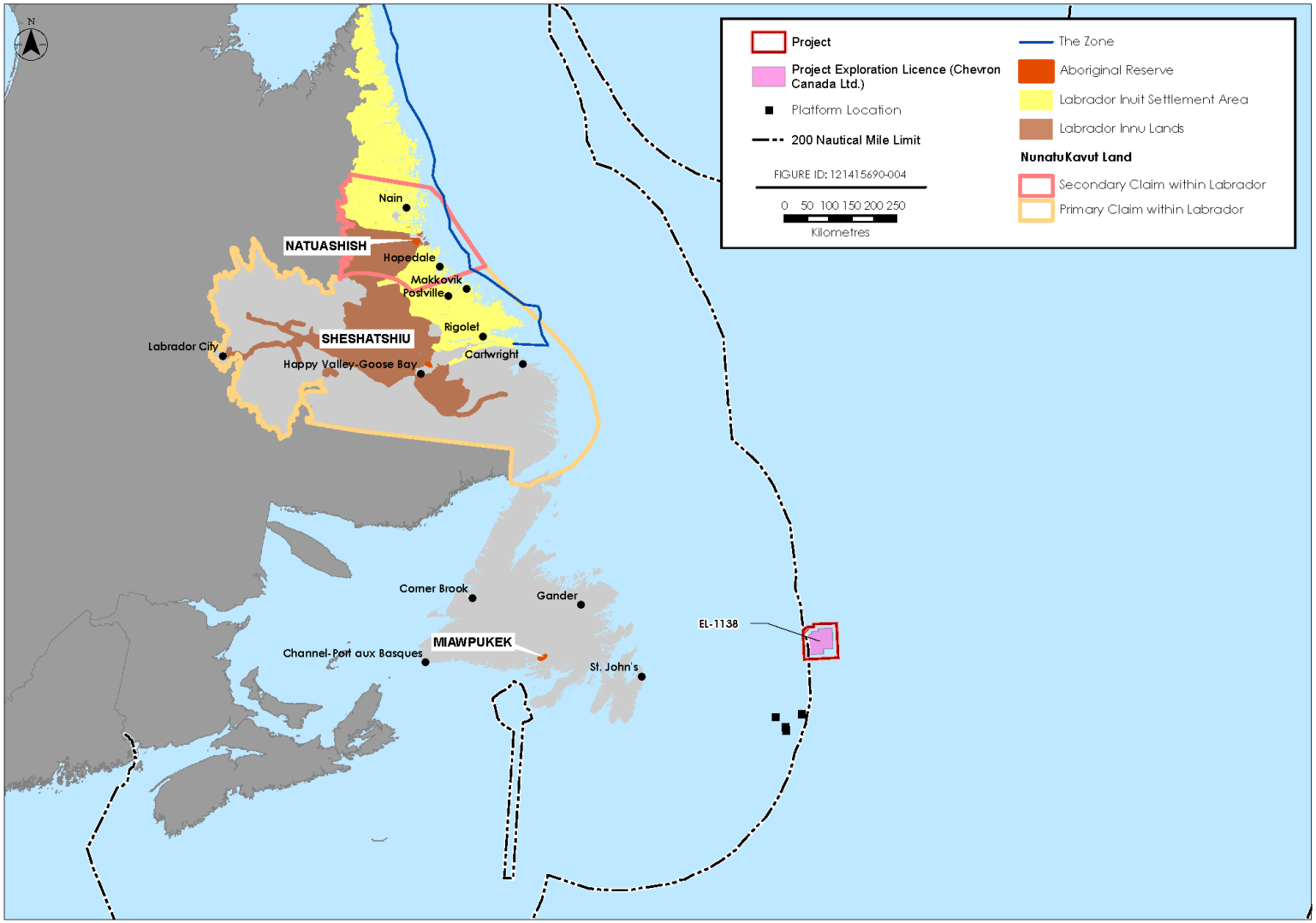


Figure 8 Indigenous Communities in Newfoundland and Labrador

Table 5 New Brunswick / Nova Scotia / Prince Edward Island / Quebec Indigenous Groups with Food, Social and Ceremonial (FSC) Fisheries and/or Commercial Communal Swordfish Licences

Group Name
New Brunswick
Elsipogtog First Nation
Mi'gmawe'l Tplu'taqnn Inc. (MTI), which represents the following Mi'kmaq First Nation groups: • Tjipõgtõtjg (Buctouche) First Nation • Natoaganeg (Eel Ground) First Nation • Ugpi'ganjig (Eel River Bar) First Nation • Esgenoôpetitj (Burnt Church) First Nation • Amlamgog (Fort Folly) First Nation • L'nui Menikuk (Indian Island) First Nation • Metepenagiag Mi'kmaq Nation • Oinpegitjoig (Pabineau) First Nation
Wolastoqey Nation of New Brunswick (WNNB), which coordinates consultation with the following five Maliseet First Nations: • Kingsclear First Nation • Madawaska Maliseet First Nation • Oromocto First Nation • Saint Mary's First Nation • Tobique First Nation
Woodstock First Nation
Peskotomuhkati Nation at Skutik (Passamaquoddy}
Nova Scotia
Kwilmu'kw Maw-klusuaqn Negotation Office (KMKNO), which represents the following 11 Mi'kmaq First Nations in Nova Scotia in consultation and engagement • Acadia First Nation • Annapolis Valley First Nation • Bear River First Nation • Eskasoni First Nation • Glooscap First Nation • Membertou First Nation • Potlotek First Nation • We'koqmaq First Nation • Paq'tnkek First Nation • Pictou Landing First Nation • Wagmatcook First Nation
Sipekne'katik First Nation
Millbrook First Nation
Prince Edward Island
• Mi'kmaq Confederacy of PEI (MCPEI), which represents the following Mi'kmaq First Nations in consultation: Abegweit First Nation • Lennox Island First Nation

Table 5 New Brunswick / Nova Scotia / Prince Edward Island / Quebec Indigenous Groups with Food, Social and Ceremonial (FSC) Fisheries and/or Commercial Communal Swordfish Licences

Group Name
Quebec
Conseil des Montagnais de Natashquan
Conseil des Innus de Ekuanitshit
Mi'gmawei Mawiomi Secretariat (MMS), which represents the following Mi'gmaq First Nation groups: • La Nation Micmac de Gespeg • Listuguj Mi'gmaq Government • Micmacs of Gesgapegiag

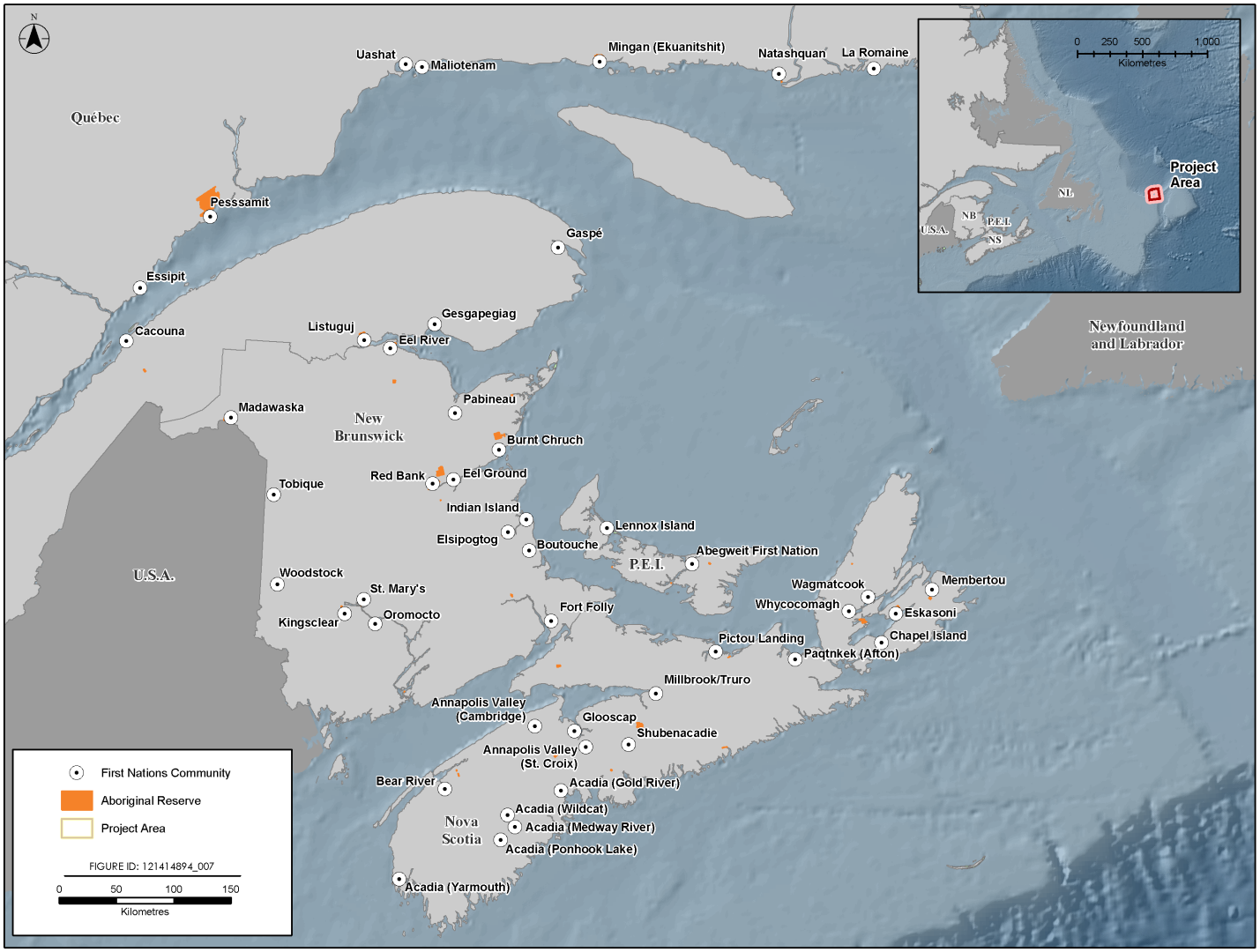


Figure 9 **Indigenous Communities in New Brunswick, Nova Scotia, Prince Edward Island, and Quebec**

3.2.6 Other Socio-economic Components and Activities

Other human activities also take place in parts of the Project Area and surrounding marine environment on either a year-round or seasonal basis. Offshore oil and gas production has been occurring off the coast of Newfoundland and Labrador for approximately 20 years, and exploration in the region has occurred for a much longer period. Various international oil and gas operators have held, and currently hold, interests in the Newfoundland and Labrador offshore area. In 2013, the C-NLOPB moved into a scheduled land tenure system which divides offshore Newfoundland and Labrador into eight regions. There are currently 28 ELs, 59 Significant Discovery Licences (SDLs), and 12 Production Licences (PLs) in offshore Newfoundland and Labrador (C-NLOPB 2018) (Figure 10).

International shipping lanes transit through the eastern Newfoundland offshore area, and there is potential for vessel traffic in the Project Area and in surrounding areas (Figure 11). The eastern region of Newfoundland has approximately 17 ports that are used for both domestic and international shipping activities. Of these, there are nine ports that are used for both domestic and international shipping, four that are used exclusively for international shipping, and four that are used exclusively for domestic shipping (AMEC 2014).

Marine research and scientific studies regularly occur in the Project Area, and in surrounding areas. DFO activities include annual multi-species trawl surveys to monitor fish populations, collection of data from buoys and moorings for DFO's Rapid Climate Change program study, and the Atlantic Zone Off-Shelf Monitoring Program.

Naval training exercises also occur in the general area, which involve both surface vessels and submarines. There are also known and potential unexploded ordnance (UXO) sites in the Atlantic Ocean, which include shipwrecks and submarines (Figure 12), as well as munitions dump sites off eastern Newfoundland (AMEC 2014). Marine cable networks (active and decommissioned) also cross through the region (Figure 13).

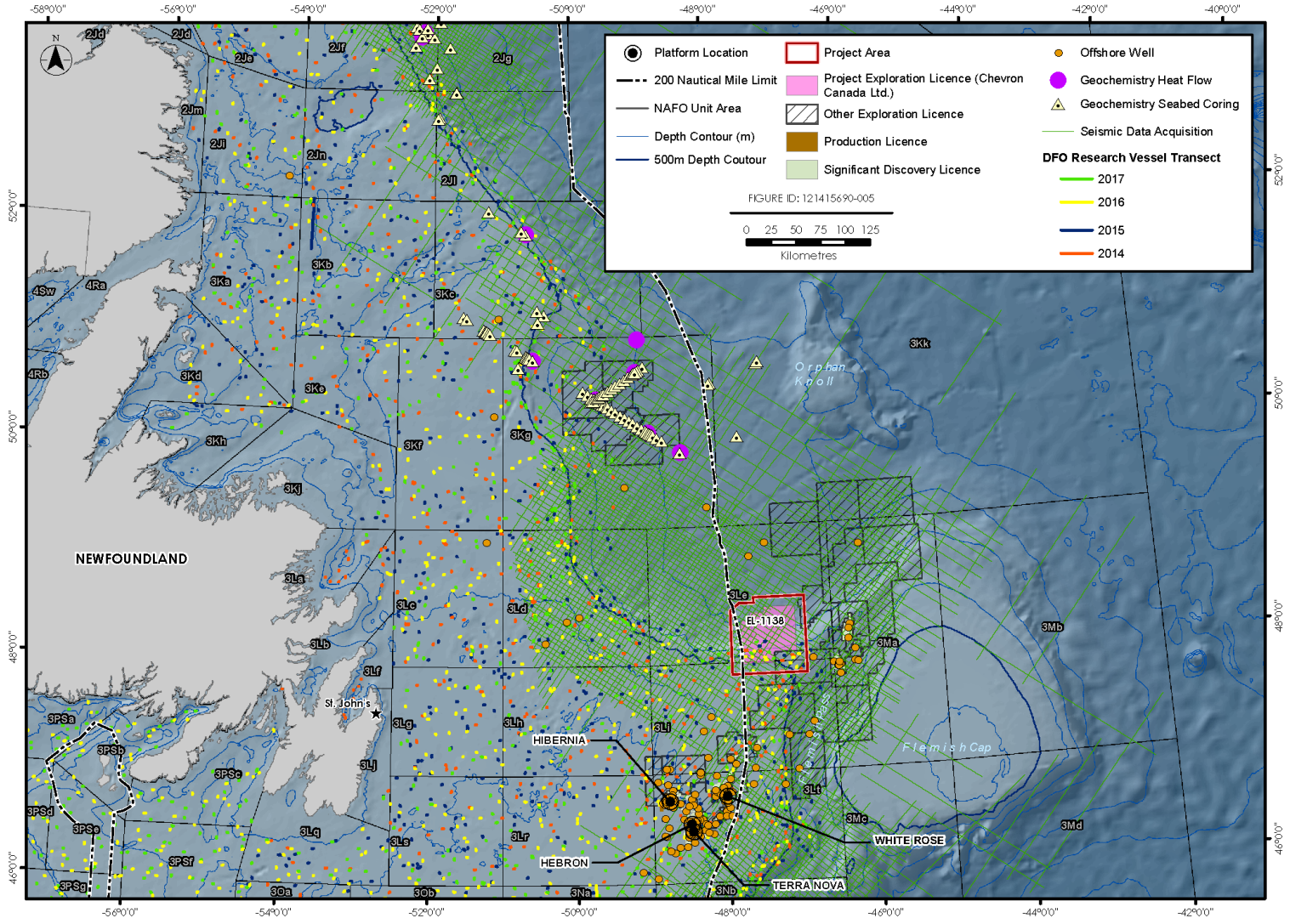


Figure 10 Other Socio-economic Components and Activities in Eastern Newfoundland Offshore Area

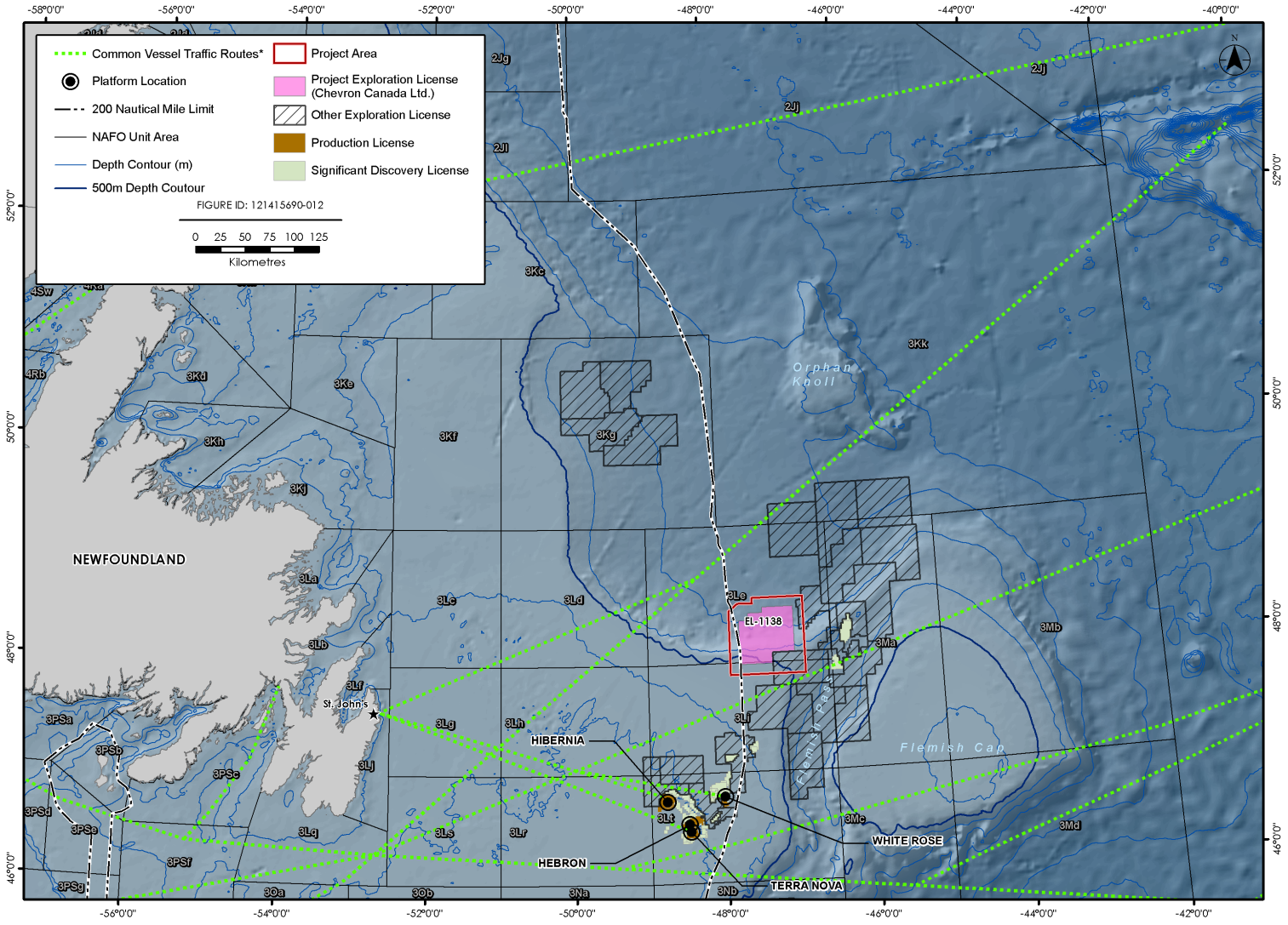


Figure 11 Common Vessel Traffic Routes in Offshore Newfoundland and Labrador

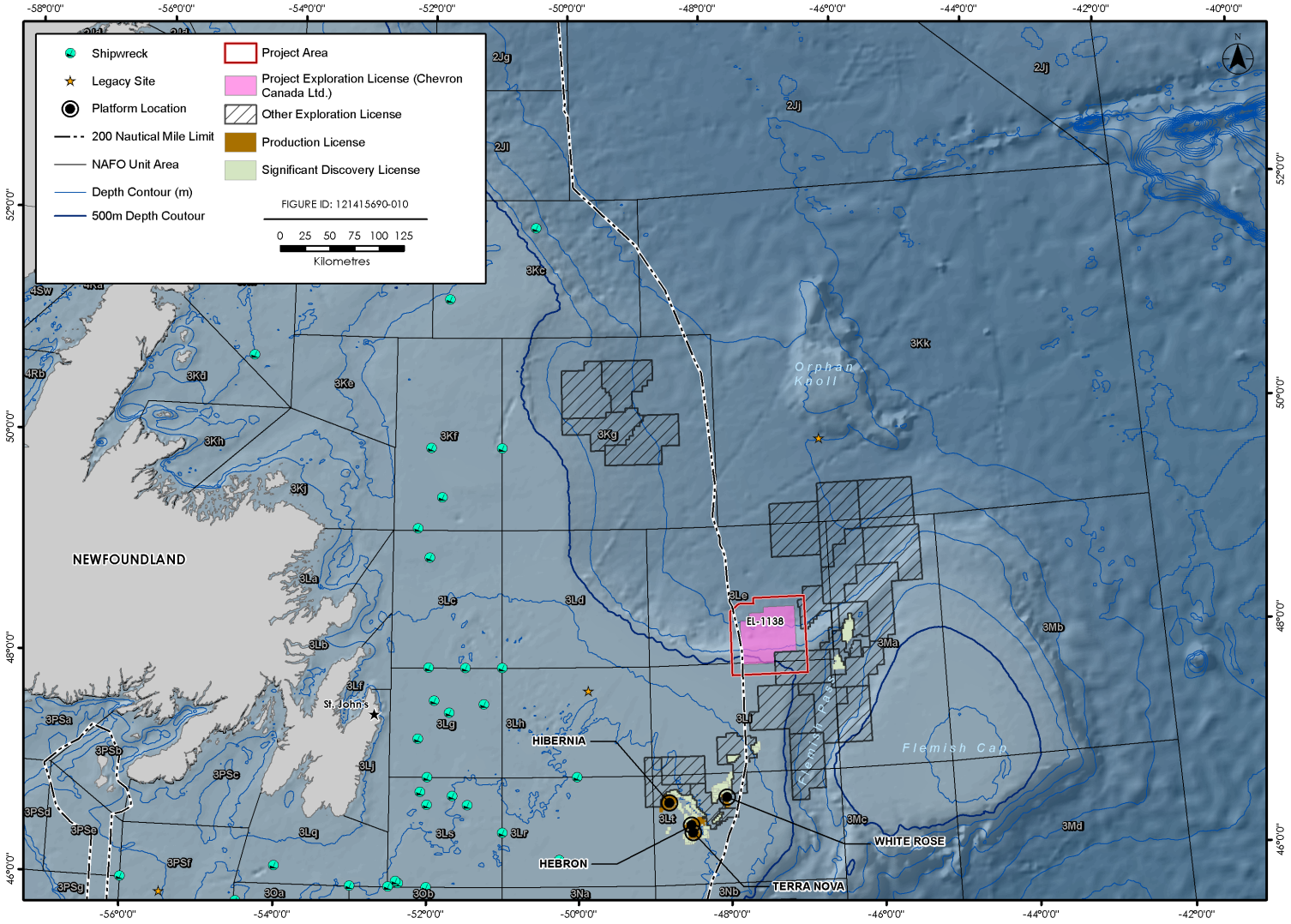


Figure 12 Shipwrecks and Legacy Sites in Offshore Newfoundland and Labrador

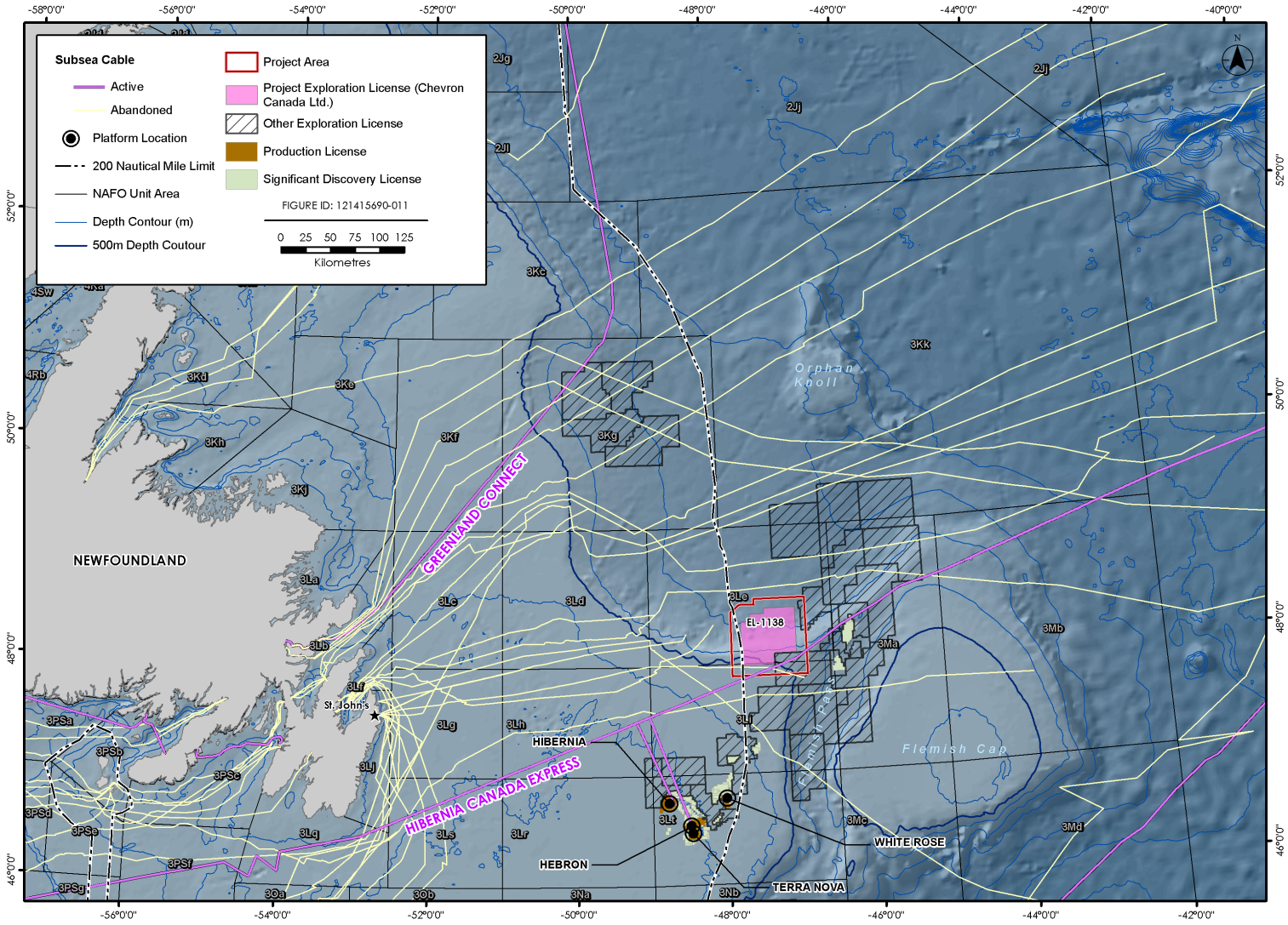


Figure 13 Subsea Cables in Offshore Newfoundland and Labrador

3.3 Existing Environmental Studies

Environmental assessments have been completed for various exploration drilling, production drilling, and seismic survey projects for nearly three decades in the Canada-Newfoundland and Labrador Offshore Area. These assessments are important sources of information on the region's existing environmental setting, as well as the potential environmental issues and interactions that may be associated with Project activities. The primary studies that are cited in this Project Description to describe the existing environmental setting in the Project Area and surrounding areas, include project-specific EAs conducted for other projects with similar spatial boundaries. Of particular relevance is the SEA for the eastern Newfoundland offshore region (AMEC 2014), which involved identifying, reviewing and presenting regional environmental baseline information (physical, biological, and socio-economic), and completing a review and analysis of likely environmental issues and mitigation and planning approaches as input to future exploration licencing decisions by the C-NLOPB in this area.

It is Chevron's understanding that the Project will not take place on lands that have been subject to a regional study as described in Sections 73 to 77 of CEAA 2012. The Project is located within a proposed study area for a Regional Assessment of offshore oil and gas exploratory drilling east of Newfoundland and Labrador, in the Canada-Newfoundland and Labrador Offshore Area. This is the first Regional Assessment under CEAA 2012. A draft Agreement to conduct the Regional Assessment is currently being prepared by the CEA Agency, the C-NLOPB, NRCAN, and the Newfoundland and Labrador Department of Natural Resources.

It is anticipated that the reports listed below, and other relevant studies, will provide sufficient data to characterize the existing environment in the Project Area, and to assess the potential environmental effects associated with the Project.

Key relevant environmental studies for consideration include:

- Nexen Energy ULC's Flemish Pass Exploration Drilling Project (2018-2028) (Nexen Energy ULC 2018)
- Equinor Canada Ltd. (Statoil Canada Ltd.) Flemish Pass Exploration Drilling Project 2018-2028 (Equinor Canada 2017)
- ExxonMobil Canada Limited Eastern Newfoundland Offshore Exploration Drilling Project 2018-2030 (ExxonMobil Canada Limited 2017)
- Husky Energy Exploration Drilling Project 2018-2025 (Husky Energy 2018)
- BP Canada Energy Group ULC Newfoundland Orphan Basin Exploration Drilling Program, 2017-2026 (BP Canada Energy Group ULC 2018)
- Eastern Newfoundland SEA (AMEC 2014)
- Environmental Assessment East Canada CSEM Survey, 2014-2018 (LGL Limited 2014)
- Suncor Energy's Eastern Newfoundland Offshore Area 2D / 3D / 4D Seismic Program, 2014-2024 (Suncor Energy 2013)
- White Rose Extension Project Environmental Assessment (Husky 2012)
- Hebron Project Comprehensive Study Report (ExxonMobil Canada Properties 2011)
- Environmental Assessment of Chevron's North Grand Banks Regional Seismic Program, 2011-2017 (LGL 2011a)
- Environmental Assessment of Statoil's Geophysical Program for Jeanne d'Arc Basin and Central Ridge / Flemish Pass Basins, 2011-2019. (LGL 2011b).

- Environmental Assessment of Husky's Jeanne d'Arc Basin / Flemish Pass Regional Seismic Program, 2012-2020 (LGL 2011c)
- Environmental Assessment of StatoilHydro Canada Ltd. Exploration and Appraisal/Delineation Drilling Program for Offshore Newfoundland, 2008-2016 (LGL 2008)
- Husky Delineation/Exploration Program for Jeanne d'Arc Basin Area, 2008-2017, Environmental Assessment (LGL 2007)
- Husky White Rose Development Project: New Drill Centre Construction and Operations Program Environmental Assessment (LGL 2006)
- Orphan Basin SEA (LGL 2003a)
- Orphan Basin Exploration Drilling Program Environmental Assessment (LGL 2005)
- White Rose Oilfield Comprehensive Study (Husky Oil 2000)

4.0 CONSULTATION AND ENGAGEMENT

Chevron recognizes the importance of early and ongoing Indigenous and stakeholder engagement that continues over the life of the Project. Chevron believes that it is important to operate in Newfoundland and Labrador by building relationships with Indigenous groups and key stakeholders. Chevron Canada is committed to collaborating with Indigenous peoples of Canada and communities to build long term trusting and mutually beneficial relationships based on the principles of inclusion, transparency, respect and accountability.

4.1 Indigenous Engagement

Chevron recognizes the potential for the Project to affect Indigenous interests and acknowledges the importance of engaging Indigenous organizations to provide Project information and obtain feedback on potential issues and concerns.

There are several Indigenous organizations in Eastern Canada that hold commercial communal fishing licences for NAFO Divisions that overlap the Project Area, although it is currently not known if actual fishing under these licences takes place in the Project Area. There are no documented FSC licences within or near the Project Area. Species harvested for commercial or FSC purposes outside the Project Area may potentially interact with Project activities (planned or unplanned) during migration to traditional fishing grounds. There is also the potential for species at risk and/or of cultural importance to be present in the Project Area (e.g., Atlantic salmon). The list of Indigenous organizations that may have a potential interest in the Project includes groups and communities in Newfoundland and Labrador, Quebec, New Brunswick, Prince Edward Island, and Nova Scotia.

In recognition of this potential interest in the Project, Chevron emailed letters on October 3rd, 2018 to the following groups to introduce the Project and to inquire about potential interests and concerns as well as preferred method of engagement going forward.

Newfoundland and Labrador

- Labrador Inuit (Nunatsiavut Government)
- Labrador Innu (Innu Nation)
- NunatuKavut Community Council
- Qalipu Mi'kmaq First Nation Band
- Miawpukek Mi'kmamawey Mawi'omi (Miawpukek First Nation)

Quebec

- Mi'gmawei Mawiomi Secretariat (MMS), which represents the following Mi'gmaq First Nation groups:
  - Micmas of Gesgapegiag
  - La Nation Micmac de Gespeg
  - Listuguj Mi'gmaq Government
- Les Innus de Ekuanitshit
- Montagnais de Nutashkuan

New Brunswick

- Mi'gmawe'l Tplu'taqnn Inc. (MTI), which represents the following Mi'kmaq First Nation groups:
  - Fort Folly First Nation
  - Eel Ground First Nation
  - Pabineau First Nation
  - Esgenoôpetitj First Nation
  - Buctouche First Nation
  - Indian Island First Nation
  - Eel River Bar First Nation
  - Metepnagiag Mi'kmaq First Nation
- Elsipogtog First Nation
- Wolastoqey Nation of New Brunswick (WNNB), which coordinates consultation with the following five Maliseet First Nations (letters were sent to individual communities; follow up occurred with the WNNB):
  - Kingsclear First Nation
  - Madawaska Maliseet First Nation
  - Oromocto First Nation
  - St. Mary's First Nation
  - Tobique First Nation
- Woodstock First Nation
- Peskotomuhkati Nation at Skutik (Passamaquoddy)

Prince Edward Island

- Mi'kmaq Confederacy of PEI (MCPEI), which represents the following Mi'kmaq First Nations in consultation (letters were sent to individual communities; follow-up occurred with MCPEI):
  - Abegweit First Nation
  - Lennox Island First Nation

Nova Scotia

- Kwilmu'kw Maw-klusuaqn Negotation Office (KMKNO), which represents the following 11 Mi'kmaq First Nations in Nova Scotia in consultation and engagement (letters were sent to individual communities; follow-up occurred with the KMKNO):
  - Acadia First Nation
  - Annapolis Valley First Nation
  - Bear River First Nation
  - Eskasoni First Nation
  - Glooscap First Nation
  - Membertou First Nation
  - Paqtnkek Mi'kmaw Nation
  - Pictou Landing First Nation
  - Potlotek First Nation
  - Wagmatcook First Nation
  - We'koqmaq First Nation

- Sipekne'katik First Nation
- Millbrook First Nation

Chevron recognizes that some of these groups may prefer to participate through the Crown consultation process or may not have an interest in the Project. Ongoing engagement will include confirmation of appropriate organization and/or community contacts and methods for future engagement, learning more about how these groups may potentially be affected by Project activities, providing Project planning updates, and listening and responding to questions and concerns raised by Indigenous groups in a timely manner. Feedback obtained during engagement will be incorporated into Project planning as applicable and appropriate. The EIS (if required under CEAA 2012) will document concerns and priorities raised and demonstrate how these have influenced Project planning and/or been addressed in the EIS.

4.2 Stakeholder Engagement

Chevron employs a broad definition of stakeholders, to include fisheries organizations, environmental non-governmental organizations (NGOs), industry associations, government, and the interested public. Each of these groups is discussed below.

Chevron's stakeholder and community outreach objectives include providing transparent and factual information about its plans and activities and encouraging input from stakeholders. As an active member of the broader Atlantic Canada community, investing in local energy education and research initiatives and participating in association memberships, Chevron also has opportunities to develop and maintain positive working relationships with stakeholders.

4.2.1 Government and Regulatory Stakeholders

Regulatory stakeholders are typically engaged to confirm specific regulatory requirements/processes and/or data requests. Key regulatory stakeholders for the Project are listed below:

- C-NLOPB
- Government of Canada
  - CEA Agency
  - DFO
  - ECCC
  - Canadian Coast Guard
  - Natural Resources Canada (NRCan)
  - Department of National Defence (DND)
  - Transport Canada
- Government of Newfoundland and Labrador
  - Municipal Affairs and Environment
  - Fisheries and Land Resources
  - Natural Resources

As of September 21, 2018, Chevron has engaged the CEA Agency, C-NLOPB, DFO, and ECCC to introduce the Project and gain an improved understanding of the regulatory processes and mandates of each department. Chevron will continue to engage these organizations and other government departments and agencies during the EA process and subsequent regulatory approvals for the Project.

4.2.2 Fisheries Stakeholders

A key form of mitigation of potential effects of the Project on fisheries is early and ongoing consultation with the fishing industry. The location and timing of fishing activities are important to consider when identifying potential fisheries stakeholders and scheduling meetings. The following is a list of initial fisheries stakeholders engaged, or to be engaged, for the Project:

- One Ocean
- Fish, Food and Allied Workers-Unifor (FFAW-Unifor)
- Association of Seafood Producers (ASP)
- Ocean Choice International (OCI)
- Groundfish Enterprise Allocation Council (GEAC)
- Canadian Association of Prawn Producers (CAPP)

One Ocean, which acts as a liaison between the oil and gas and fishing industries, has developed a consultation protocol which provides guidance on consultation approach. Chevron will work with One Ocean and conduct engagement in accordance with the consultation protocol.

Chevron met with these One Ocean, OCI, and FFAW-Unifor the week of September 17, 2018, to introduce Chevron and proposed exploration plans. Key issues of concern raised by FFAW-Unifor, OCI, and One Ocean included the cumulative reduction of available fishing areas, timing of fisheries, and potential [re-]emerging fisheries. Chevron confirmed it is not currently planning on conducting seismic exploration (other than a short-term VSP survey at each well).

4.2.3 Other Public Stakeholder Groups

Other public stakeholders include industry associations and NGOs. Chevron will monitor activities and communications generated by these groups and participate in local industry events as appropriate including supplier information sessions, seminars, and conferences. In addition, Chevron will also include pertinent Project information on its external website www.Chevron.com/canada. Quarterly or semi-annual newsletters will be prepared and posted on the website.

4.3 Summary of Indigenous and Stakeholder Engagement to Date

Table 6 summarizes Chevron's engagement efforts as of October 19, 2018.

Table 6 Summary of Engagement to Date (as of October 19, 2018)

Organization	Date	Type of Engagement	Purpose	Comments / Concerns
Canadian Environmental Assessment Agency (CEA Agency)	August 24th, 2018	Email	Project introduction. Meeting request. Included map of lease area of interest.	Email response August 27th, 2018. Meeting set for September 21st, 2018.
Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB)	August 24th, 2018	Email	Project introduction. Meeting request. Included map of lease area of interest.	Email response August 24th, 2018. Meeting set for September 18th, 2018.
Fisheries and Oceans Canada (DFO)	August 24th, 2018	Email	Project introduction. Meeting request. Included map of lease area of interest.	Email response August 24, 2018. Meeting set for September 20th, 2018.
Environment and Climate Change Canada (ECCC)	August 24th, 2018	Email	Project introduction. Meeting request. Included map of lease area of interest.	Email response to Stantec on September 7, 2018. Meeting date set for September 18th, 2018.
Transport Canada	September 25th, 2018	Email	Project introduction. Request for comments, concerns, or questions regarding the project. Included map of lease area of interest.	No response.
National Defence and the Canadian Armed Forces	September 25th, 2018	Email	Project introduction. Request for comments, concerns, or questions regarding the project. Included map of lease area of interest.	Email response September 26, 2018.
Health Canada	August 31st, 2018	Email	Project introduction. Request for comments, concerns, or questions regarding the project. Included map of lease area of interest.	Email response on September 5, 2018 stating interest in EA review with focus on indigenous recreational/commercial fishing and accident/malfunctions potentially affecting harvesting.

Table 6 Summary of Engagement to Date (as of October 19, 2018)

Organization	Date	Type of Engagement	Purpose	Comments / Concerns
Natural Resources Canada (NRCan)	August 31st, 2018	Email	Project introduction. Request for comments, concerns, or questions regarding the project. Included map of lease area of interest.	Email response on September 7, 2018. Indicated that NRCan will review the Project Description once it is submitted to CEAA and will provide expertise as part of the EA process. NRCan does not have any environmental guidance documents to provide at this time.
Newfoundland and Labrador Department of Natural Resources	September 26th, 2018	Email	Project introduction. Request for comments, concerns, or questions regarding the project. Included map of lease area of interest.	Email response on September 27th, 2018 offering assistance, if needed.
One Ocean	August 24th, 2018	Email	Project introduction. Meeting request. Included map of lease area of interest.	Email response on August 24th, 2018. Meeting confirmed for September 17th, 2018.
FFAW-Unifor	August 24th, 2018	Email	Project introduction. Meeting request. Included map of lease area of interest.	Email response August 24th, 2018. Meeting confirmed for September 19th, 2018
Ocean Choice International (OCI)	August 24th, 2018	Email	Project introduction. Meeting request. Included map of lease area of interest.	Email response August 24th, 2018. Meeting confirmed for September 17th, 2018.
Association of Seafood Producers (ASP)	August 23rd, 2018	Email	Project introduction. Meeting request.	Email response August 23rd, 2018. Meeting confirmed for September 17, 2018.
Canadian Association of Prawn Producers (CAPP)	August 31st, 2018	Email	Project introduction. Request for comments, concerns, or questions regarding the project. Included map of lease area of interest.	No response.
Groundfish Enterprise Allocation Council (GEAC)	August 31st, 2018	Email	Project introduction. Request for comments, concerns, or questions regarding the project. Included map of lease area of interest.	No response.

Table 6 Summary of Engagement to Date (as of October 19, 2018)

Organization	Date	Type of Engagement	Purpose	Comments / Concerns
One Ocean, OCI	September 17th, 2018	Meeting	Project introduction with representatives from Chevron Canada and Stantec. Request for comments, information, concerns, or questions regarding the project.	Association of Seafood Producers unable to attend. Met with One Ocean and OCI. One Ocean offered to brief ASP on the meeting. Participants expressed need for improved communications and notifications based on previous experiences with other projects. Discussed available data sets, annual variability and distribution in fisheries, and emerging fisheries.
C-NLOPB	September 18th, 2018	Meeting	Project introduction with representatives from Chevron Canada and Stantec. Request for comments, information, concerns, or questions regarding the project.	Discussion on oil spill modelling expectations, ongoing Newfoundland Regional Environmental Assessment, rig intakes, and marine spatial planning.
Environment and Climate Change Canada (ECCC); Canadian Wildlife Service (CWS)	September 18th, 2018	Meeting	Project introduction with representatives from Chevron Canada and Stantec. Request for comments, information, concerns, or questions regarding the project.	Met ECCC and Canadian Wildlife Service (CWS). Discussion on lighting, bird strikes, flares, oil spill modelling, cumulative effects, and wind/metocean data sets.
FFAW-Unifor	September 19th, 2018	Meeting	Project introduction with representatives from Chevron Canada and Stantec. Request for comments, information, concerns, or questions regarding the project.	Discussed oil spill modelling and dispersants, inshore fisheries, communications, and advance notification of activities.
Fisheries and Oceans Canada (DFO)	September 20th, 2018	Meeting	Project introduction with representatives from Chevron Canada and Stantec. Request for comments, information, concerns, or questions regarding the project.	Discussed species at risk, species of special interest, critical habitat, salmon, sensitive benthic habitats, oil spill modelling, drill cuttings deposition modelling, and DFO data availability.
Canadian Environmental Assessment Agency (CEA Agency)	September 21st, 2018	Meeting	Project introduction with representatives from Chevron Canada and Stantec. Request for comments, information, concerns, or questions regarding the project.	Discussed CEA Agency's project management, regional assessment, submission of the draft and final Project Description, Indigenous consultation, oil spill modelling, underwater noise, and geohazard surveys.

Table 6 Summary of Engagement to Date (as of October 19, 2018)

Organization	Date	Type of Engagement	Purpose	Comments / Concerns
Newfoundland and Labrador Indigenous Groups				
Labrador Inuit (Nunatsiavut Government)	October 4th, 2018	Email	Project introduction, including map of lease area of interest	
Labrador Innu (Innu Nation)	October 4th, 2018	Email	Project introduction, including map of lease area of interest	
NunatuKavut Community Council	October 4th, 2018	Email	Project introduction, including map of lease area of interest	
Qalipu Mi’ kmaq First Nation Band	October 4th, 2018	Email	Project introduction, including map of lease area of interest	
Miawpukek Mi'kmamawey Mawi'omi (Miawpukek First Nation)	October 4th, 2018	Email	Project introduction, including map of lease area of interest	
Quebec Indigenous Groups				
Mi’gmawei Mawiomi Secretariat (MMS)	October 4th, 2018	Email	Project introduction, including map of lease area of interest	
Les Innus de Ekuanitshit	October 4th, 2018	Email	Project introduction, including map of lease area of interest	
Montagnais de Nutashkuan	October 4th, 2018	Email	Project introduction, including map of lease area of interest	

Table 6 Summary of Engagement to Date (as of October 19, 2018)

Organization	Date	Type of Engagement	Purpose	Comments / Concerns
New Brunswick				
Mi'gmawe'l Tplu'taqnn Inc. (MTI)	October 4th, 2018	Email	Project introduction, including map of lease area of interest	
Elsipogtog First Nation	October 4th, 2018	Email	Project introduction, including map of lease area of interest	
Wolastoqey Nation of New Brunswick (WNNB) • Oromocto First Nation • Madawaska Maliseet First Nation	October 4th, 2018	Email	Project introduction, including map of lease area of interest	• Email response, October 4, 2018 • Email response, October 15, 2018
Woodstock First Nation	October 4th, 2018	Email	Project introduction, including map of lease area of interest	
Peskotomuhkati Nation at Skutik (Passamaquoddy)	October 4th, 2018	Email	Project introduction, including map of lease area of interest	
Prince Edward Island				
Mi'kmaq Confederacy of PEI (MCPEI)	October 4th, 2018	Email	Project introduction, including map of lease area of interest	

Table 6 Summary of Engagement to Date (as of October 19, 2018)

Organization	Date	Type of Engagement	Purpose	Comments / Concerns
Nova Scotia				
Kwilmu'kw Maw-klusuaqn Negotation Office (KMKNO)	October 4th, 2018	Email	Project introduction, including map of lease area of interest	
Sipekne'katik First Nation	October 4th, 2018	Email	Project introduction, including map of lease area of interest	
Millbrook First Nation	October 4th, 2018	Email	Project introduction, including map of lease area of interest	

5.0 POTENTIAL PROJECT-RELATED CHANGES TO THE ENVIRONMENT AND SCOPING CONSIDERATIONS

The following sections provide an overview of some of the potential environmental issues and interactions that may result from the proposed Project, and a discussion of some relevant items and considerations related to the scope of an EIS that may eventually be required for it.

5.1 Routine Project Activities

Project activities have potential to result in changes to the environment. Potential routine Project activities that may result in changes to the environment include:

- Presence and operation of a drilling vessel (including lights and flare, underwater sound, and safety zone)
- VSP surveys (underwater sound)
- Discharges and emissions (e.g., drill muds and cuttings, liquid discharges, atmospheric emissions)
- Well abandonment
- PSV (underwater sound) and helicopter operations

Under CEAA 2012, the Project Description is required to describe potential changes to fish and fish habitat, aquatic species, and migratory birds that may be affected as a result of carrying out the Project. The Project Description must also provide information on the effects of potential environmental changes to federal or transboundary lands, and on Indigenous peoples.

Table 7 lists the potential environmental interactions with routine Project activities that may result in changes to the environmental components identified in CEAA 2012. These potential interactions would be assessed in more detail in the EIS if a federal EA process is required under CEAA 2012.

Table 7 Potential Environmental Interactions with Routine Project Activities

Environmental Component of Concern	Relevant Section of CEAA 2012	Potential Environmental Interactions
Fish, Fish Habitat, and Aquatic Species	5(1)(a)(i) 5(1)(a)(ii)	Routine Project activities have the potential to result in changes affecting fish, fish habitat, aquatic species as defined under SARA, marine mammals, and other aquatic species (including aquatic plants), due to the following interactions: • Aquatic species response to underwater sound emissions associated with supply vessel transit, drilling and VSP activities • Localized degradation and disturbance to the benthic environment (including benthic species) due to seabed disposal at drill site(s) (i.e., drill mud/cuttings, cement) including potential smothering and mortality of benthic organisms • Localized effects on marine water quality due to routine ocean discharges (e.g., waste water) from the drilling vessel and PSVs

Table 7 Potential Environmental Interactions with Routine Project Activities

Environmental Component of Concern	Relevant Section of CEAA 2012	Potential Environmental Interactions
		• Potential injury or mortality to marine mammal(s) from supply vessel collisions
Migratory Birds	5(1)(a)(iii)	Routine Project activities have the potential to result in changes affecting migratory birds, as defined under the *Migratory Birds Convention Act*, 1994, due to the following interactions: • Attraction of migratory birds to supply vessel and drilling vessel lighting (including flares) and discharges (e.g., food wastes) • Mortality or stranding of migratory birds on the drilling vessel or supply vessels
Project Activities Occurring on Federal Lands	5(1)(b)(i)	Routine Project activities may result in changes to the environment that would occur on federal waters as a result of the Project Area being located within Canada's EEZ and thus within federal waters under the jurisdiction of the Government of Canada. These potential effects occurring in federal waters are described within this table. In addition to components of the environment previously addressed above (e.g., effects on water quality, fish, fish habitat, aquatic species and migratory birds) there could also be effects on the atmospheric environment (e.g., air emissions, sound emissions).
Transboundary Issues	5(1)(b)(ii)	In addition to components of the environment previously addressed above (e.g., effects on water quality, fish, fish habitat, aquatic species and migratory birds) there could also be effects on the atmospheric environment (e.g., air, GHG, and noise emissions).
Health and Socio-Economic Conditions for Indigenous People	5(1)(c)(i)	Routine Project activities have the potential to result in the following changes to the environment that may affect Indigenous fishing activities, including those carried out under commercial communal licences in and around the Project Area, and associated potential effects to socio-economic conditions: • Establishment of a safety zone (fisheries exclusion zone) around the drilling vessel during drilling activities, as required by the C-NLOPB, and associated spatial and temporal restrictions on Indigenous fish harvesting activity • Fish species response to underwater sound emissions, including changes in behaviour and distribution of targeted species • The Project is also expected to have economic benefits, including economic and contracting opportunities. • Routine supply vessel operations outside of the safety zone will be consistent with existing offshore and nearshore shipping traffic in the region and are not anticipated to result in changes to the environment that would affect Indigenous fishing activities. • Routine Project activities are not expected to result in changes to the environment that would affect the health conditions of Indigenous peoples.

Table 7 Potential Environmental Interactions with Routine Project Activities

Environmental Component of Concern	Relevant Section of CEAA 2012	Potential Environmental Interactions
Health and Socio-Economic Conditions	5(2)(b)(i)	Routine Project activities have the potential to result in the following changes to the environment that may affect commercial fishing activities, including those carried out under commercial licences in and around the Project Area: • Establishment of a safety zone (fisheries exclusion zone) around the drilling vessel during drilling activities, as required by the C-NLOPB, and associated spatial and temporal restrictions on commercial fish harvesting activity • Fish species response to underwater sound emissions, and associated changes in behavior and distribution of commercial fish species • The Project is also expected to have economic benefits, including economic and contracting opportunities. • Routine supply vessel operations outside of the safety zone will be consistent with existing offshore and nearshore shipping traffic in the region and are not anticipated to result in changes to the environment that would affect commercial fishing activities. • Routine Project activities are not expected to result in changes to the environment that would affect health conditions.
Physical and Cultural Heritage or Resources of historical, Archaeological, Paleontological, or Architectural Significance	5(1)(c)(ii) 5(1)(c)(iv) 5(2)(b)(ii) 5(2)(b)(iii)	Routine Project activities are not anticipated to result in changes to the environment that would affect physical and cultural heritage areas or resources including shipwrecks that have been recorded in the Project Area. Information gathered during 3D seismic surveys previously conducted by others and pre-drill ROV site surveys in the Project Area will document the presence/absence of marine heritage resources on the seabed before seabed disturbance takes place. If concerns related to this matter are identified during Indigenous engagement for this Project, they will be considered in the EIS.
Current Use of Lands and Resources for Traditional Purposes by Indigenous People	5(1)(c)(iii)	Routine Project activities are not anticipated to result in changes to the environment that would have an effect on the current use of land and resources for traditional purposes by Indigenous peoples, other than commercial communal fisheries and associated socio-economic interactions (discussed above), given the Project Area's water depth and distance from shore. Routine supply vessel activities will be consistent with existing shipping traffic in the region and are not anticipated to result in changes to the environment that would have an effect on traditional Indigenous fisheries and resource use. Additional information regarding traditional Indigenous fisheries and traditional resource use will be gathered through Indigenous engagement, and concerns related to this matter identified during engagement will be considered in the EIS.

Table 7 Potential Environmental Interactions with Routine Project Activities

Environmental Component of Concern	Relevant Section of CEAA 2012	Potential Environmental Interactions
Other Changes to the Environment Directly Related or Necessarily Incidental to a Federal Authority's Exercise of a Power or Performance of Duty or Function in Support of the Project	5(2)(a) 5(1)(b)(i)	Routine Project activities authorized by the C-NLOPB have the potential to result in directly related or necessarily incidental changes to the atmospheric environment due to the release of air emissions

5.2 Non-Routine Project Activities

Environmental interactions can also occur from non-routine Project activities, such as accidental events and malfunctions (Table 8). These events include blowouts (uncontrolled release of hydrocarbons during drilling) and platform and vessel batch spills and releases (e.g., hydraulic fluid, drilling mud, diesel). Accidental releases, or "spills", have the potential to occur in the offshore (e.g., during drilling) or nearshore (e.g., during supply vessel transit) environment. Spill trajectory modelling will be conducted as part of the environmental assessment process to predict areas that could potentially be affected by a spill. Potential environmental interactions can occur within the spill trajectory or as a result of transitory species or their prey travelling through an affected area.

Table 8 Potential Environmental Interactions with Non-routine Project Activities

Environmental Component of Concern	Relevant Section of CEAA 2012	Potential Environmental Interactions
Fish, Fish Habitat, and Aquatic Species	5(1)(a)(i) 5(1)(a)(ii)	A spill during Project activities could potentially result in changes to fish, fish habitat, aquatic species as defined in SARA, marine mammals, and other aquatic species, including: • Reduced availability and quality of habitat • Degradation and reduction in marine water quality • Injury, mortality and/or reduced health for fish and other aquatic species
Migratory Birds	5(1)(a)(iii)	A spill during Project activities could potentially result in changes to migratory birds, as defined under the *Migratory Birds Convention Act*, 1994, including injury, mortality and/or reduced health for migratory bird species.

Table 8 Potential Environmental Interactions with Non-routine Project Activities

Environmental Component of Concern	Relevant Section of CEAA 2012	Potential Environmental Interactions
Project Activities Occurring on Federal Lands	5(1)(b)(i)	A spill during Project activities could potentially result in changes to the environment that would occur in federal waters as a result of the Project Area being located within Canada's EEZ and thus within federal waters under the jurisdiction of the Government of Canada. These potential effects occurring in federal waters are described within this table. Components of the environment not previously addressed above include potential effects on the atmospheric environment (e.g., air and noise emissions).
Transboundary Issues	5(1)(b)(ii)	A spill may result in transboundary effects outside of Newfoundland and Labrador or Canadian offshore areas. A spill may enter international waters, which fall outside the Canadian EEZ. Spill-related effects in international waters could include adverse effects to birds, fish, fish habitat, and commercial fisheries.
Health and Socio-Economic Conditions for Indigenous People	5(1)(c)(i)	A spill during Project activities could potentially result in the following changes to the environment that may affect Indigenous fisheries and associated socio-economic conditions: • Contamination-related closure of commercial fishing areas, and associated restrictions on commercial communal fish harvesting activity • Reduced catchability associated with damage to fishing gear (e.g., fouling) and changes in population health, behavior, and distribution of commercial fish species as a result of marine pollution • Changes in population size and health of individuals among commercial fish species, and associated loss of income through reduced catch value • A vessel collision with fishing gear could also potentially result in changes to the environment that may affect human health and safety for Indigenous peoples.
Health and Socio-Economic Conditions	5(2)(b)(i)	A spill during Project activities could potentially result in the following changes to the environment that affect fisheries: • Contamination-related closure of commercial fishing areas, and associated restrictions on commercial fish harvesting activity • Reduced catchability associated with damage to fishing gear (e.g., fouling) and changes in population health, behavior, and distribution of commercial fish species as a result of marine pollution • Changes in population size and health of individuals among commercial fish species, and associated loss of income through reduced catch value • A vessel collision with fishing gear could also potentially result in changes to the environment that may affect human health and safety.

Table 8 Potential Environmental Interactions with Non-routine Project Activities

Environmental Component of Concern	Relevant Section of CEAA 2012	Potential Environmental Interactions
Physical and Cultural Heritage or Resources of historical, Archaeological, Paleontological, or Architectural Significance	5(1)(c)(ii) 5(1)(c)(iv) 5(2)(b)(ii) 5(2)(b)(iii)	A spill during Project activities could potentially cause a change to the environment that may affect physical and cultural heritage area (including shipwrecks). However, given the location of the Project offshore, and the ROV survey prior to drilling, non-routine Project activities are not expected to result in changes to resources of historical, archeological, paleontological, or architectural significance.
Current Use of Lands and Resources for Traditional Purposes by Indigenous People	5(1)(c)(iii)	A spill during Project activities could potentially result in the following changes to the environment that may affect traditional Indigenous fisheries, including the Aboriginal and/or Treaty rights to fish, in the area: • Contamination-related closure of traditional fishing areas, and associated restrictions on traditional fish harvesting activity • Reduced catchability associated with damage to fishing gear (e.g., fouling) and changes in population size, behaviour, and distribution of targeted fish species as a result of marine pollution • Changes in population size and health of individuals among targeted fish species, and associated reduction in fishery for traditional use • These changes could potentially occur within the spill trajectory or as a result of migratory fish species transiting through the affected area.
Other Changes to the Environment Directly Related or Necessarily Incidental to a Federal Authority's Exercise of a Power or Performance of Duty or Function in Support of the Project	5(2)(a) 5(1)(b)(i)	A spill occurring as a result of Project activities authorized by the C-NLOPB could potentially result in temporary and localized changes to marine and atmospheric environment. These potential changes have been discussed above.

If a federal EA process is required under CEAA 2012, it will describe and assess such accidental events and malfunctions that could potentially occur, including the results of associated spill modelling conducted for the Project (if and as required) which will form an integrated part of the associated environmental effects analysis and the identification of appropriate mitigation. The EIS will also describe relevant accident prevention and emergency response plans and procedures.in the unlikely event that they should occur.

5.3 Scoping Considerations

If a federal EA process is required under CEAA 2012, the potential interactions of the Project will be evaluated in the EIS by considering individual biophysical and socio-economic components that could be affected by the Project, and resultant Project-related effects. The EIS for this Project will be planned and prepared in accordance with the requirements of CEAA 2012 and its associated Regulations, and in compliance with the EIS Guidelines that may be issued by the Agency. The EIS will provide the required information about the Project, its existing environmental setting, potential environmental effects, proposed mitigations, and associated residual environmental effects and proposed follow-up initiatives.

Although final direction on these matters would be provided in the EIS Guidelines, based on the interactions discussed in Tables 10 and 11 and recent EAs for similar exploration projects, the proposed valued components (VCs) to be assessed in an EIS (if required) will likely include:

- Marine Fish and Fish Habitat (including species at risk and species of conservation concern)
- Marine and Migratory Birds (including species at risk and species of conservation concern)
- Marine Mammals and Sea Turtles (including species at risk and species of conservation concern)
- Special Areas
- Commercial Fisheries and Other Ocean Users
- Indigenous Communities and Activities

The selection of proposed environmental components considers existing facilities in eastern Newfoundland will be used for supply, support, and logistical functions. The Project may involve each of the components and activities described previously in Chapter 2, including those associated with the drilling of exploration and possibly appraisal wells, VSP surveys, well testing and eventual decommissioning and abandonment or suspension, and relevant supply and service activities.

The Project will not require the development of new infrastructure or upgrades to existing facilities to support Project operations. Third-party service providers will be responsible for obtaining and/or maintaining applicable regulatory approvals to operate their facilities. Logistical support from supply vessels and helicopters is also well established for the offshore Newfoundland oil and gas industry but is proposed to be assessed as it travels from the onshore supply base to the MODU. It is proposed that the scope of the EIS will therefore be limited to offshore components should a federal EA process be required under CEAA 2012.

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APPENDIX A

Table of Concordance

Regulation Clause	Guideline Section	Regulation SOR 2012-148 Requirement	Guidance to Support Regulation Requirement	Project Description Section(s)
General Information				
1	1.2.1	The name of the project	Name of the designated project.	1.1
1	1.1	The nature of the project	Describe the nature of the designated Project, and proposed location (2–3 paragraphs; note that additional location details are to be provided in section 3).	1.1
1	1.1	The proposed location of the project	Proposed location of the project.	1.1, 2.1
2	1.2	The proponent's name and contact information and the name and contact information of their primary representative for the purpose of the description of the project.	Provide proponent contact information: (a) Name of the designated Project. (b) Name of the proponent. (c) Address of the proponent. (d) Chief Executive Officer or equivalent (include name, official title, email address and telephone number). (f) Principal contact person for purposes of the Project description (include name, official title, email address and telephone number).	1.2
3	1.3	A description of and the results of any consultations undertaken with any jurisdictions and other parties including Aboriginal peoples and the public.	Provide a list of any jurisdictions and other parties including Aboriginal groups and the public that were consulted during the preparation of the Project description. (A description of the result of any consultations undertaken is to be provided in sections 6 and 7).	4
4	1.4	The environmental assessment and regulatory requirements of other jurisdictions.	Provide information on whether the designated Project is subject to the environmental assessment and/or regulatory requirements of another jurisdiction(s).	1.3
4.1	1.5	A description of any environmental study that is being or has been conducted of the region where the project is to be carried out.	Provide information on whether the designated Project will be taking place in a region that has been the subject of a regional environmental study. Proponents are advised to contact the Agency during the preparation of the project description for information regarding any regional environmental studies that may be relevant.	3.3

Project Information

Regulation Clause	Guideline Section	Regulation SOR 2012-148 Requirement	Guidance to Support Regulation Requirement	Project Description Section(s)
5	2.1	A description of the Project's context and objectives.	Provide a general description of the project, including the context and objectives of the project. Indicate whether the designated project is a component of a larger project that is not listed in the *Regulations Designating Physical Activities.*	1.1
6	2.2	The provisions in the schedule to the *Regulations Designating Physical Activities* describing the project in whole or in part.	Indicate the provisions in the schedule to the *Regulations Designating Physical Activities* that describe the designated physical activities that are proposed to be carried out as part of the designated project.	1.3.2, 2.2
7	2.3.1	A description of the physical works that are related to the project including their purpose, size and capacity.	Provide a description of the components associated with the proposed project, including: Physical works associated with the designated project (e.g., large buildings, other structures, such as bridges, culverts, dams, marine transport facilities, mines, pipelines, power plants, railways, roads, and transmission lines) including their purpose, approximate dimensions, and capacity. Include existing structures or related activities that will form part of or are required to accommodate or support the designated project.	2.2
8	2.3.2	The anticipated production capacity of the project and a description of the production processes to be used, the associated infrastructure and any permanent or temporary structures.	Anticipated size or production capacity of the designated project, with reference to thresholds set out in the *Regulations Designating Physical Activities*, including a description of the production processes to be used, the associated infrastructure, and any permanent or temporary structures. The production capacity does not refer to the planned production capacity of a project but the maximum production capacity based on the project's design and operating conditions	2.2
	2.3.3		If the designated project or one component of the designated project is an expansion, describe the size and nature of the expansion with reference to the thresholds set out in the *Regulations Designating Physical Activities.*	Not Applicable

Regulation Clause	Guideline Section	Regulation SOR 2012-148 Requirement	Guidance to Support Regulation Requirement	Project Description Section(s)
9	2.3.4	A description of all activities to be performed in relation to the project.	A description of the physical activities that are incidental to the designated project. In determining such activities, the following criteria shall be taken into account: • nature of the proposed activities and whether they are subordinate or complementary to the designated project; • whether the activity is within the care and control of the proponent; • if the activity is to be undertaken by a third party, the nature of the relationship between the proponent and the third party and whether the proponent has the ability to "direct or influence" the carrying out of the activity; • whether the activity is solely for the benefit of the proponent or is available for other proponents as well; and • the federal and/or provincial regulatory requirements for the activity.	2.2
10	2.4	A description of any waste that is likely to be generated during any phase of the project and of a plan to manage that waste.	Provide a description of any waste likely to be generated during any phase of the designated project and plans to manage that waste, including the following: Sources of atmospheric contaminant emissions during the designated project phases (focusing on criteria air contaminants and greenhouse gases, or other non-criteria contaminants that are of potential concern) and location of emissions. Sources and location of liquid discharges. Types of wastes and plans for their disposal (e.g., landfill, licensed waste management facility, marine waters, or tailings containment facility).	2.3
11	2.5	A description of the anticipated phases of and the schedule for the Project's construction, operation, decommissioning, and abandonment.	Provide a description of the timeframe in which the development is to occur and the key project phases, including the following: Anticipated scheduling, duration and staging of key project phases, including preparation of the site, construction, operation, and decommissioning and abandonment. Main activities in each phase of the designated project that are expected to be required to carry out the proposed development (e.g., activities during site preparation or construction might include, but are not limited to, land clearing, excavating, grading, de-watering, directional drilling, dredging and disposal of dredged sediments, infilling, and installing structures).	2.2, 2.4

Regulation Clause	Guideline Section	Regulation SOR 2012-148 Requirement	Guidance to Support Regulation Requirement	Project Description Section(s)
Project Location				
12	3.0	A description of the Project's location, including:	A description of the designated project's location, including:	2.1
12(a)	3.1.1	Geographic coordinates;	Coordinates (i.e. longitude/latitude using international standard representation in degrees, minutes, seconds) for the centre of the facility or, for a linear project, provide the beginning and end points	2.1; Table 1
12(b)	3.1.2, 3.1.3	Site maps produced at an appropriate scale in order to determine the project's overall location and the spatial relationship of the project components;	Site map/plan(s) depicting location of the designated project components and activities. The map/plan(s) should be at an appropriate scale to help determine the relative size of the proposed components and activities.	2.1, Figures 1, 2, and 3
			Map(s) at an appropriate scale showing the location of the designated project components and activities relative to existing features, including but not limited to:	
			watercourses and waterbodies with names where they are known;	Figure 1
			linear and other transportation components (e.g., airports, ports, railways, roads, electrical power transmission lines and pipelines);	Figures 11 and 13
			other features of existing or past land use (e.g., archaeological sites, commercial development, houses, industrial facilities, residential areas and any waterborne structures);	Figure 6
			location of Aboriginal groups, settlement land (under a land claim agreement) and, if available, traditional territory;	Figures 8 and 9
			federal lands including, but not limited to National parks, National historic sites, and reserve lands;	Figures 6, 8, and 9
			nearby communities;	Figure 1
			permanent, seasonal or temporary residences;	Figures 1, 8, and 9
			fisheries and fishing areas (i.e., Aboriginal, commercial and recreational);	Figures 7 and Tables 4 and 5

Regulation Clause	Guideline Section	Regulation SOR 2012-148 Requirement	Guidance to Support Regulation Requirement	Project Description Section(s)
			environmentally sensitive areas (e.g., wetlands, and protected areas, including migratory bird sanctuary reserves, marine protected areas, National Wildlife areas, and priority ecosystems as defined by Environment Canada);	Figure 6 and Table 3
			provincial and international boundaries.	Figures 1 and 6
	3.1.4		Photographs of work locations to the extent possible.	N/A
12(c)	3.2	The legal description of land to be used for the project, including the title, deed or document and any authorization relating to a water lot;	To the extent that is known at this time, describe the ownership and zoning of land and water that may be affected by the project, including the following: zoning designations.	2.1
			legal description of land to be used (including information on subsurface rights) for the designated project, including the title, deed or document and any authorization relating to a water lot.	1.1, 2.1
12(d)	3.1.5	The project's proximity to: any permanent, seasonal or temporary residences;	Proximity of the designated project to: any permanent, seasonal or temporary residences;	2.1, 3.2.3, 3.2.5
12(e)	3.1.5	traditional territories as well as lands and resources currently used for traditional purposes by Aboriginal peoples;	traditional territories, settlement land (under a land claim agreement) as well as lands and resources currently used for traditional purposes by Aboriginal peoples; and	2.1, 3.2.5, Figures 8 and 96
12(f)	3.1.5	any federal lands.	any federal lands.	1.3.3, 2.1
	3.2.3		Any applicable land use, water use (including ground water), resource management or conservation plans applicable to or near the project site. Include information on whether such plans were subject to public consultation.	Not applicable
	3.2.4		Describe whether the designated project is going to require access to, use or occupation of, or the exploration, development and production of lands and resources currently used for traditional purposes by Aboriginal peoples.	3.3.2, 5.1
Federal Involvement				
13	4.1	A description of any financial support that federal authorities are, or may be, providing to the project.	Describe if there is any proposed or anticipated federal financial support that federal authorities are, or may be, providing to support the carrying out of the designated project.	1.3

Regulation Clause	Guideline Section	Regulation SOR 2012-148 Requirement	Guidance to Support Regulation Requirement	Project Description Section(s)
14	4.2	A description of any federal land that may be used for the purpose of carrying out the project.	Describe any federal lands that may be used for the purpose of carrying out the designated project. This is to include any information on any granting of interest in federal land (i.e., easement, right of way, or transfer of ownership).	2.1
15	4.3	A list of the permits, licences or other authorizations that may be required under any Act of Parliament to carry out the project.	Provide a list of any federal permits, licences or other authorizations that may be required to carry out the project.	1.3.3
Environmental Effects				
16	5.1	A description of the physical and biological setting.	A description of the physical and biological setting, including the physical and biological components in the area that may be adversely affected by the project (e.g., air, fish, terrain, vegetation, water, wildlife, including migratory birds, and known habitat use).	3.1, 3.2
17 (a)	5.2	A description of any changes that may be caused, as a result of carrying out the project, to fish as defined in section 2 of the *Fisheries Act* and fish habitat as defined in subsection 34(1) of that Act	A description of any changes that may be caused as a result of carrying out the designated project to: fish and fish habitat, as defined in the *Fisheries Act;* marine plants, as defined in the *Fisheries Act*;	5.1, 5.2
17(b)		aquatic species, as defined in subsection 2(1) of the Species at Risk Act		5.1, 5.2
17(c)	5.2	migratory birds, as defined in subsection 2(1) of the *Migratory Birds Convention Act, 1994*	migratory birds, as defined in the *Migratory Birds Convention Act*, *1994*	5.1, 5.2
18	5.3	A description of any changes to the environment that may occur, as a result of carrying out the project, on federal lands, in a province other than the province in which the project is proposed to be carried out or outside of Canada.	A description of any changes to the environment that may occur, as a result of carrying out the designated project, on federal lands, in a province other than the province in which the project is proposed to be carried out, or outside of Canada	5.1, 5.2

Regulation Clause	Guideline Section	Regulation SOR 2012-148 Requirement	Guidance to Support Regulation Requirement	Project Description Section(s)
19	5.4	Information on the effects on Aboriginal peoples of any changes to the environment that may be caused as a result of carrying out the project, including effects on health and socio-economic conditions, physical and cultural heritage, the current use of lands and resources for traditional purposes or on any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.	A description of the effects on Aboriginal peoples of any changes to the environment that may be caused as a result of carrying out the designated project, including effects on health and socio-economic conditions, physical and cultural heritage, the current use of lands and resources for traditional purposes, or any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.	5.1, 5.2
Proponent Engagement and Consultation with Aboriginal Groups				
	6.1		A list of Aboriginal groups that may be interested in, or potentially affected by, the designated project.	3.2.5, 4.1
	6.2		A description of the engagement or consultation activities carried out to date with Aboriginal groups, including:	4.1
	6.2		names of Aboriginal groups engaged or consulted to date with regard to the designated project;	4.1
	6.2		date(s) each Aboriginal group was engaged or consulted; and	4.1
	6.2		means of engagement or consultation (e.g., community meetings, mail or telephone).	4
	6.3		An overview of key comments and concerns expressed by Aboriginal groups identified or engaged to date, including any responses provided to these groups.	4.1, 4.3
	6.4		A consultation and information-gathering plan that outlines the ongoing and proposed Aboriginal engagement or consultation activities, the general schedule for these activities and the type of information to be collected (or, alternatively, an indication of why such engagement or consultation is not required).	4.1

Regulation Clause	Guideline Section	Regulation SOR 2012-148 Requirement	Guidance to Support Regulation Requirement	Project Description Section(s)
	6.4		The proponent is encouraged to provide background information on Aboriginal groups' potential or established Aboriginal or treaty rights. The proponent is also encouraged to provide information on the impact area of the designated project and how it overlaps with uses by Aboriginal groups that have potential or established Aboriginal or treaty rights.	3.2.5
Consultation with the Public and Other Parties (other than Aboriginal Consultation Included Above)				
	7.1		An overview of key comments and concerns expressed to date by stakeholders and any responses that have been provided.	4.3
	7.2		An overview of any ongoing or proposed stakeholder consultation activities.	4.2, 4.3
	7.3		A description of any consultations that have occurred with other jurisdictions that have environmental assessment or regulatory decisions to make with respect to the project.	4.2
Summary				
20	8.0	Summary of the information required under section 1 to 19	Proponents are to include as part of the project description an executive summary that summarizes the information identified in Sections 1 to 7 of [the] Guide. Under CEAA 2012, the Agency is required to consult the public on a summary of the project description that has to be posted on the Agency's Internet site in both of Canada's official languages as required under the *Official Languages Act*. As a result, in order to be in a position to initiate the screening phase in a timely manner, the executive summary is to be prepared and submitted to the Agency in both English and French.	Project Description Summary Document