

EXXONMOBIL CANADA LTD. EASTERN NEWFOUNDLAND OFFSHORE EXPLORATION DRILLING PROGRAM, 2018-2030

Project Description Summary

Pursuant to the Requirements of the *Canadian Environmental Assessment Act* (2012)

FINAL REPORT

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1 INTRODUCTION

Project Name: ExxonMobil Canada Ltd. Eastern Newfoundland Offshore Exploration Drilling Program, 2018-2030

ExxonMobil Canada Ltd. (ExxonMobil) and its co-venturers are planning to conduct a program of petroleum exploration drilling and associated activities in the eastern portion of the Canada-Newfoundland and Labrador (NL) Offshore Area over the period 2018 to 2030 (hereinafter also referred to as the Project). The proposed Project requires review under the *Canadian Environmental Assessment Act* (CEAA 2012).

This document comprises a *Project Description Summary* under *CEAA 2012*. It has been prepared and submitted by ExxonMobil (as Proponent) for review by the Canadian Environmental Assessment Agency and other relevant departments, agencies, organizations and the public to help inform a governmental decision regarding whether a federal environmental assessment (EA) of the Project is required. Additional information and further detail is provided in the accompanying *Project Description* document itself.

1.1 Project Overview and Background

Exxon Mobil Corporation (which includes ExxonMobil Canada Ltd. and ExxonMobil Canada Properties) is actively evaluating potential oil and gas resources off the east coast of the Island of Newfoundland, on both its existing and possible future land holdings in this region.

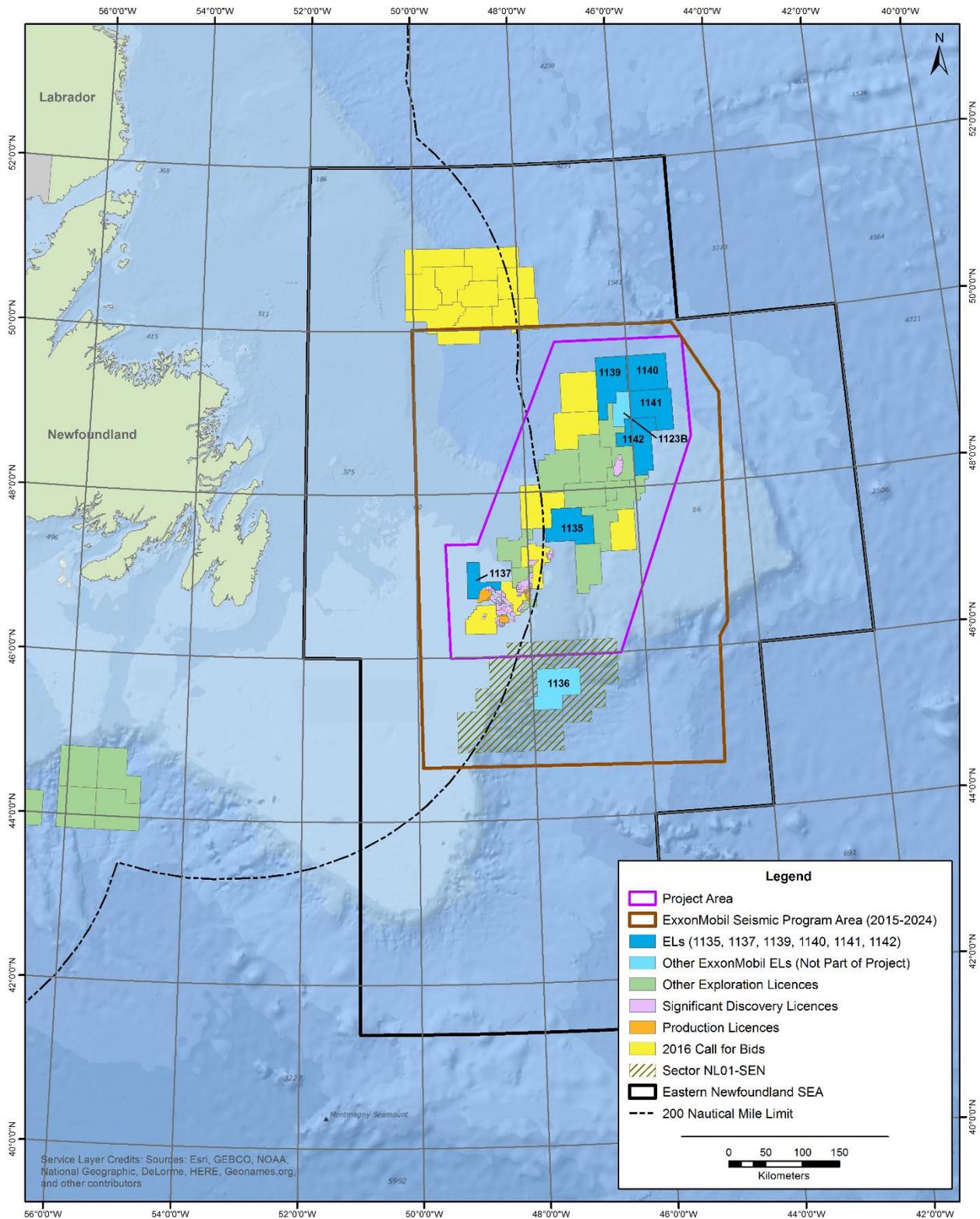
The proposed Project Area (Figure 1.1) covers a number of Exploration Licences (ELs) in the Flemish Pass and Jeanne d'Arc regions for which ExxonMobil is currently the Operator (ELs 1135 and 1137) or is a co-venturer (ELs 1139, 1140, 1141 and 1142) which have not yet been subject to exploration drilling activity to date. The Project Area also includes any ELs that ExxonMobil may acquire through the C-NLOPB's 2016 Calls for Bids (NL16-CFB01, NL16-CFB02), which close in early November 2016.

The purpose of this Project is to drill prospective oil and gas targets identified from the interpretation of existing well logs and 2D and 3D seismic survey data, in order to help determine the potential presence of hydrocarbons at these locations. Planned Project components and activities will include exploration drilling, possible delineation drilling in the case of a hydrocarbon discovery, wellsite seabed surveys, vertical seismic profiling (VSP), well testing, eventual well abandonment procedures, and associated logistical and supply and service activities.

1.2 Proponent Information

ExxonMobil Canada Ltd. and its Canadian affiliates, which include ExxonMobil Canada Properties, are actively involved in on-going operations and petroleum exploration on Canada's East Coast, with interests that include Production Licences (PLs), Significant Discovery Licences (SDLs) and ELs in the Jeanne d'Arc, Flemish Pass, and Carson / Salar basins offshore eastern Newfoundland. ExxonMobil Canada Properties is a leading developer and operator of oil and gas in the region, including lead owner of Hibernia Management and Development Company Ltd. (HMDC) the operator of the Hibernia Project, the operator of the Hebron Project as well as a co-venturer in the Terra Nova Project.

Figure 1.1 ExxonMobil Canada Ltd. Eastern Newfoundland Offshore Exploration Drilling Program, 2018-2030: Project Area and its Relationship to Eastern Newfoundland SEA Study Area



ExxonMobil conducts its business in a responsible and ethical manner that protects the safety and health of employees, others involved in its operations, its customers and the public. Furthermore, it is committed to conducting its business in a manner that is compatible with the balanced environmental and economic needs of the communities in which it operates. This commitment requires compliance with all applicable laws and regulations, facilities that are designed and operated to a high standard, and the systematic identification and management of safety, security, health, and environmental risks.

ExxonMobil has a variety of environmental policies, plans and procedures in place that pertain to its activities, including associated environmental management systems and other processes to ensure the effective and efficient implementation and monitoring of these. This includes general policies, principles and corporate systems that relate to its overall operations worldwide, and/or which relate to its activities in a particular jurisdiction or operating environment or on a project-specific basis.

The principal ExxonMobil contacts concerning this Project and its EA review are as follows:

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1.3 Regulatory Context

The proposed Project requires review pursuant to the requirements of *CEAA (2012)*, as it has been determined to constitute a “designated project” under the associated *Regulations Designating Physical Activities*. These *Regulations* specify that “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 and Labrador Atlantic Accord Implementation Act* or the *Canada-Nova Scotia Offshore Petroleum Resources Accord Implementation Act*” are a designated project under *CEAA 2012*. Moreover, the proposed Project involves environmental components, issues and requirements that fall within areas of federal jurisdiction. This includes, for example, the fact that Project activities are planned to take place within an offshore marine environment, which, as federal waters, are considered “federal lands” under *CEAA (2012)*. The Project also has the potential to affect environmental components such as fish and fish habitat, marine / migratory birds, and marine mammals and sea turtles that fall under federal jurisdiction, and a number of associated permits, authorizations and/or compliance may be required. No federal funding has been or will be requested or received by ExxonMobil from any federal authority to support this Project.

The Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) is responsible, on behalf of the Governments of Canada and Newfoundland and Labrador, for petroleum resource management in the Canada – NL Offshore Area. The *Canada-Newfoundland and Labrador Atlantic Accord Implementation Newfoundland and Labrador Act* and the *Canada-Newfoundland and Labrador Atlantic Accord Implementation Act* (the *Accord Acts*), administered by the C-NLOPB, provide for joint management of the Canada – NL Offshore Area and govern all oil and gas activities in the region. The Board's responsibilities under the *Accord Acts* include: the issuance and administration of petroleum and exploration and development rights; administration of statutory requirements regulating offshore exploration, development and production; and approval of Canada-NL benefits and development plans. The Board's regulatory role also includes the issuance of a number of authorizations and approvals related to offshore oil and gas exploration and development activities in this area. In addition to any EA requirements under CEAA 2012, the C-NLOPB also requires that project-specific EAs be completed in relation to certain types of petroleum activities in the Canada-NL Offshore Area. It is anticipated that any required EA review for this Project under CEAA 2012 will therefore involve C-NLOPB participation, and that any Environmental Impact Statement (EIS) completed under CEAA 2012 will also address the C-NLOPB's EA requirements.

A number of other federal and provincial government departments and agencies also may have regulatory responsibilities, information and advice and/or other interests regarding the proposed Project and its environmental setting and potential effects, pursuant to their associated legislation and mandates. Other legislation and associated regulations that are or may be relevant to the Project and its EA therefore include the:

- The *Accord Acts* and associated *Regulations* and *Guidelines* (as discussed above);
- *Fisheries Act*;
- *Canadian Environmental Protection Act*;
- *Oceans Act*;
- *Navigation Protection Act*;
- *Canada Shipping Act*;
- *Migratory Birds Convention Act*; and the
- *Species at Risk Act* (Canada) and *Endangered Species Act* (NL).

Given the nature, scope and location of the proposed Project, which will occur in the marine environment offshore eastern Newfoundland and will not involve the development and use of any new on-land or near shore infrastructure, it is not anticipated that provincial environmental regulatory (including EA) requirements will be triggered for this Project. This will be confirmed through discussions with relevant provincial government departments and agencies as Project planning and regulatory reviews progress.

ExxonMobil and its co-venturers have varying participating interests in a number of ELs within the Project Area, for which ExxonMobil is currently the Operator of ELs 1135 and 1137 and others for which it is a co-venturer with other Operators (ELs 1139, 1140, 1141 and 1142). As a result, and given the inherent commonalities between the planned exploration activities by each of these Operators, ExxonMobil and Statoil Canada Ltd. are exploring potential opportunities for collaboration in completing the required EA(s) for their planned exploration drilling programs. Therefore, and although separate Project Descriptions have been submitted by ExxonMobil and Statoil to initiate the EA review process under CEAA 2012, the companies are interested in continuing to discuss and explore opportunities for such coordination with the Canadian Environmental Assessment Agency and other relevant federal authorities.

2 PROJECT DESCRIPTION

The following sections provide a summary description of the proposed Project, including its planned location, equipment, activities and schedule, as well as various associated environmental planning and management considerations.

2.1 Project Area and Its Location

The proposed Project will take place in a marine area offshore eastern Newfoundland, the western edge of which is located over 250 km east of St. John's NL. The Project Area itself (Figure 2.1, Table 2.1) covers an area of approximately 100,820 km² and encompasses various, recently awarded ELs and possible future ELs in the Flemish Pass and Jeanne d'Arc regions where ExxonMobil may conduct exploration drilling activities between 2018 and 2030 (Table 2.2). This includes ELs 1135 and 1137, where ExxonMobil has a sole or majority share and is therefore the Operator. In addition, the Project Area also encompasses Licences for which ExxonMobil is a co-venturer (namely, ELs 1139, 1140, 1141 and 1142), where, should a change in licensing ownership or operatorship occur on either of these ELs, it may become Operator. The Project Area also accounts for the possible acquisition of additional ELs as a result of the current (2016) Calls for Bids issued by the C-NLOPB (NL16-CFB01, NL16-CFB02), which close in early November 2016. Should the proposed Project require an EA under CEAA (2012), and in the event that ExxonMobil bids on and acquires additional ELs through the 2016 Calls for Bids, it is proposed that these new ELs may be included in the scope of the potential EA. Should it be determined that a federal EA is required, additional information on the specific ELs comprising the Project will be provided to the Agency prior to submission of the associated EIS.

Although the overall Project Area has been defined as a single polygon encompassing each of the ELs and Call for Bids Areas in question (Figure 2.1), all drilling operations carried out as part of this Project will be conducted within the defined boundaries of ELs themselves. Current Project plans would involve drilling between one and possibly up to five wells on some ELs, up to a maximum of 35 wells, with the specific number, location and type (exploration or delineation) of these wells being determined and refined as Project planning activities continue based on existing and new seismic survey data and information from previously drilled wells. The Project Area also includes a 20 km buffer area surrounding those licences to accommodate the location and extent of ancillary activities that are often carried out in support of drilling activities (such as wellsite surveys).

Table 2.1 Project Area Corner Coordinates

Point	Easting	Northing	Latitude	Longitude
A	762440	5525202	49° 49' 18.334" N	47° 21' 4.077" W
B	935562	5533101	49° 47' 31.003" N	44° 56' 47.837" W
C	948190	5398059	48° 34' 29.722" N	44° 55' 20.940" W
D	853605	5103218	45° 59' 28.446" N	46° 26' 2.107" W
E	622584	5094695	45° 59' 41.500" N	49° 25' 1.294" W
F	615122	5248990	47° 23' 3.192" N	49° 28' 29.132" W
G	658314	5249404	47° 22' 44.044" N	48° 54' 9.763" W
UTM Coordinates in NAD83 UTM Zone 22N.				

Table 2.2 Exploration Licences and ExxonMobil's Participating Interests

Exploration Licence *	Owners	Participating Interest (%)	Effective Date *	Expiry Date * (Periods 1 and 2, respectively)	Previous Drilling Activity
1135	ExxonMobil Canada Ltd.	40	January 15, 2015	January 15, 2021 January 15, 2024	No exploration drilling to date under this EL
	Suncor Energy Offshore Exploration Partnership	30			
	Statoil Canada Newfoundland Partnership	30			
1137	ExxonMobil Canada Ltd.	100	January 15, 2015	January 15, 2021 January 15, 2024	No exploration drilling to date under this EL
1139	Statoil Canada Ltd.	40	January 15, 2016	January 15, 2022 January 15, 2025	No exploration drilling to date under this EL
	ExxonMobil Canada Ltd.	35			
	BG International Limited	25			
1140	Statoil Canada Ltd.	34	January 15, 2016	January 15, 2022 January 15, 2025	No exploration drilling to date under this EL
	ExxonMobil Canada Ltd.	33			
	BP Canada Energy Group ULC	33			
1141	Statoil Canada Ltd.	34	January 15, 2016	January 15, 2022 January 15, 2025	No exploration drilling to date under this EL
	ExxonMobil Canada Ltd.	33			
	BP Canada Energy Group ULC	33			
1142	Statoil Canada Ltd.	34	January 15, 2016	January 15, 2022 January 15, 2025	No exploration drilling to date under this EL
	BP Canada Energy Group ULC	33			
	ExxonMobil Canada Ltd.	33			

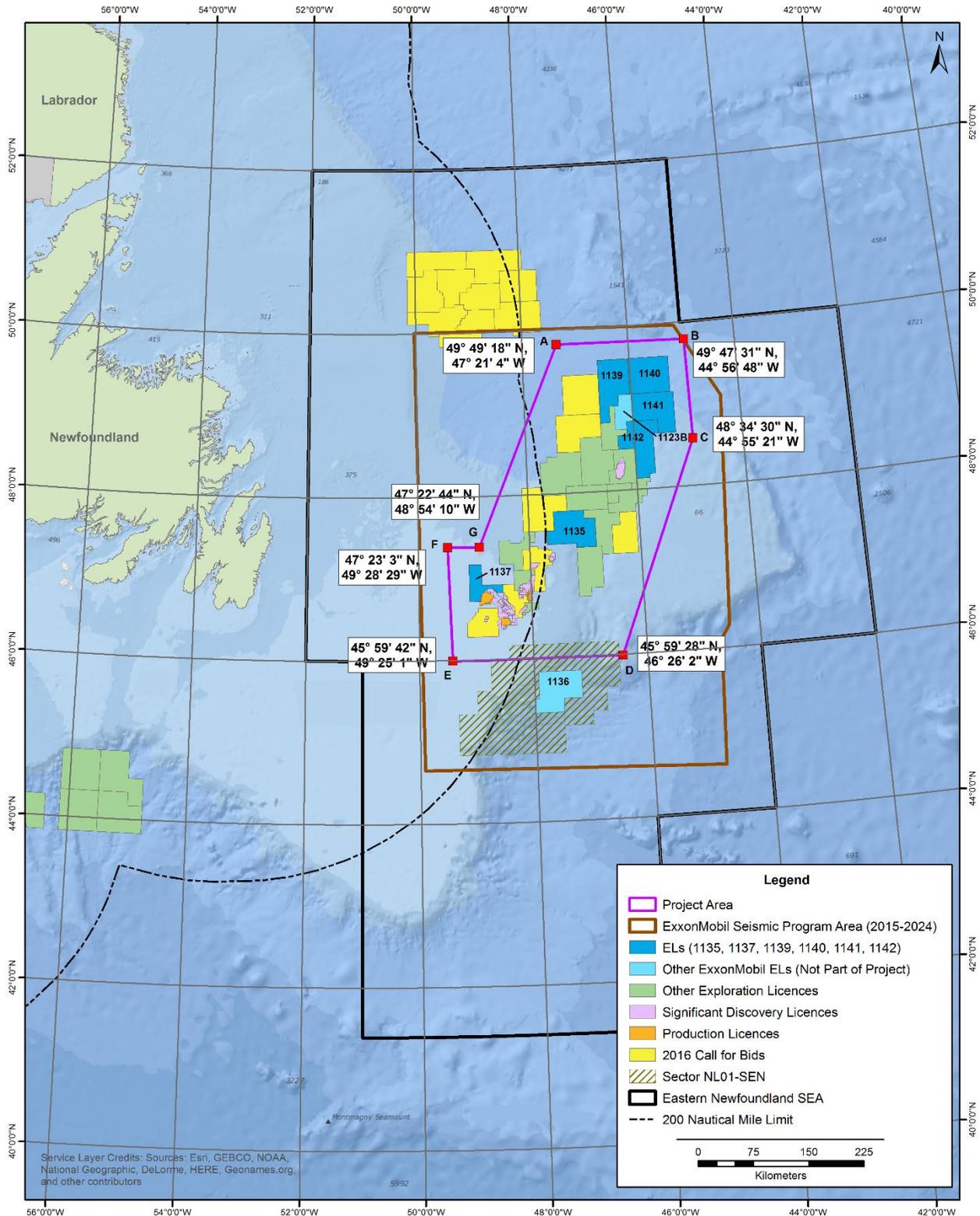
* ELs have the maximum nine year (9) term consisting of two consecutive periods referred to as Period I and Period II. The interest owner is required to drill or spud and diligently pursue one exploratory well on or before the expiry date of period I as a condition precedent to obtaining tenure to period II. Failure to drill or spud a well will result in reversion to Crown reserve of the licence, and forfeiture of the security deposit or any balance thereof. If the licence requirement is fulfilled, the interest owner is entitled to obtain tenure to period II.

As also illustrated in Figure 2.1, the Project Area is located entirely within the Study Area for the “Eastern Newfoundland Strategic Environmental Assessment (SEA)” completed by the C-NLOPB in August 2014 (Amec 2014)¹ and the recent Eastern Newfoundland Geophysical, Geochemical, Environmental and Geotechnical Program (2015-2024) completed by ExxonMobil (Amec 2015)².

¹ Amec Environment and Infrastructure. (2014). Eastern Newfoundland Strategic Environmental Assessment (SEA). Prepared for the Canada-Newfoundland and Labrador Offshore Petroleum Board (August 2014).

² Amec Foster Wheeler Environment and Infrastructure (2015). Eastern Newfoundland Offshore Geophysical, Geochemical, Environmental and Geotechnical Programs 2015-2024 – Environmental Assessment. Prepared for ExxonMobil Canada Ltd.

Figure 2.1 Project Area and Associated Licences and Call for Bids Areas



2.2 Project Timing and Schedule

The planned temporal scope of this Project, which covers a 12 year period from 2018 to 2030, has been defined so as to encompass the terms of the existing ELs identified previously (within which EA and other associated regulatory approvals must be obtained and drilling planned and commenced), as well as to allow for exploration drilling on any additional ELs that ExxonMobil may acquire through the current (2016) Calls for Bids by the C-NLOPB over that period, any possible approved extensions to these ELs, and the associated stages of well drilling, testing and abandonment as required.

Detailed logistical planning and drilling unit and services procurement processes for the Project will commence in 2016 and continue throughout the life of the Project. If a prospective wellsite is identified and pending the receipt of applicable regulatory and corporate approvals, exploration drilling could commence in EL 1135 in 2018 with an initial well. Upon completion evaluation of the first well and the analysis of its results, a potential second well location site will be determined, and it is currently anticipated that up to five wells (exploration and possibly delineation) may be drilled over the term of this EL.

Based on the phased planning and drilling approach outlined previously, the Project may also involve drilling from one, and potentially up to five wells on some of the other ELs defined previously. It is anticipated that each well will require approximately 80 days for drilling and testing, which will be followed by well abandonment. At times there may be multiple drilling units working in different areas simultaneously for reasons of efficiency and if synergistic opportunities arise through, for example, the presence and availability of suitable equipment working in the region. The planned exploration activities that comprise this Project will occur at various times of the year for each and all years of the proposed drilling program.

2.3 Project Components and Activities

The primary components and activities that will be associated with the proposed Project include the following:

- a) Drilling;
- b) VSP;
- c) Well Testing;
- d) Well Abandonment; and
- e) Logistics and Supply and Servicing

2.3.1 Drilling

As indicated previously, the scope of the Project may involve the drilling of up to 35 wells over its 12 year duration. Specific wellsite types and locations will be selected as Project planning and design activities move forward, based on existing and new seismic survey data and information derived from previously drilled wells in the region.

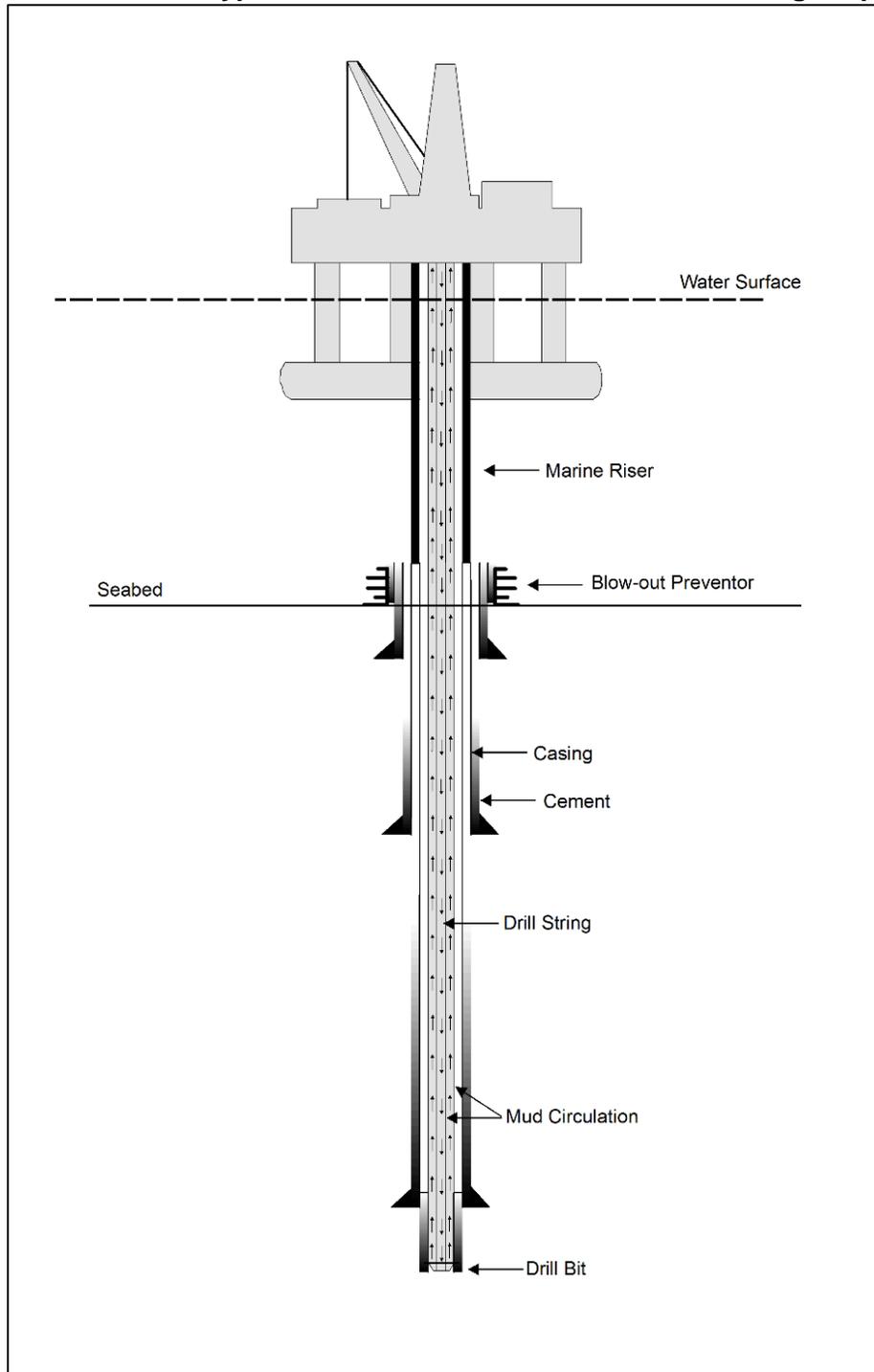
Prior to drilling at an identified wellsite location a wellsite seabed survey will be completed in order to complete a Shallow Drilling Hazard Assessment (SDHA). In all cases, seabed inspections of the drilling location and anchor locations will be completed using a remotely operated vehicle (ROV) to identify any potential hazards and/or environmentally sensitive habitats. ROV survey lines will be appropriately

spaced to provide a representative overview of the seafloor at the drilling location for these purposes. In preparation for drilling unit arrival at the drilling location, positioning transponders will be placed on the seabed and met ocean equipment (wave rider and current meters) will be deployed.

Figure 2.2 provides a generalized schematic of a typical well and summarizes the typical drilling sequence for the upper section of a well and associated well head, blow-out preventer (BOP), casing and riser installation for wells such as those being proposed as part of this Project.

A number of drilling unit options are being considered for this Project. Wells may be drilled using either a semi-submersible drilling unit or a harsh environment drillship, and it is again possible that at times there will be multiple drilling units involved in Project-related drilling activities in different parts of the Project Area simultaneously. Although not excluded, there is a very low potential that a jack-up drilling unit would be utilized on the Grand Banks due to the hard seabed and high energy environmental conditions. Any drilling unit proposed to be operated off Newfoundland and Labrador must first be evaluated and granted an Operations Authorization by the C-NLOPB.

Figure 2.2 Schematic of a Typical Offshore Well and Associated Drilling Sequence



1	Drill riserless large diameter hole using water based muds (WBMs) and return cuttings to seafloor
2	Drill pipe recovered and stored on drill deck to run casing
3	Run and cement casing, taking returns back to the seafloor
4	Run wellhead
5	Install BOP and riser
6	With installation of riser and BOP complete, continue drilling through casing with either water or synthetic based muds (SBMs), cuttings and mud returned to rig deck for processing and disposal

NOTE: For general illustration only, Drilling unit and well components not to scale

2.3.2 Vertical Seismic Profiling

In obtaining and interpreting the results of oil and gas exploration drilling activities, the correlation of time-based depth information from 3D seismic data to the actual drilling depth is critical. VSP enables the acquisition of time, depth, and velocity information for the formations in which drilling has been completed, with a number of techniques being available for acquiring VSP data in the marine environment. This typically involves placing receivers in the borehole and the deployment of a sound source at a predetermined depth, or placing a sound source on a vessel which then moves away while firing the seismic source at pre-determined distances from the borehole receiver. VSP acquisition surveys are typically short term activities of several days duration, with seismic source firing often limited to just a few hours.

2.3.3 Well Testing

During offshore exploration drilling programs, well formation logging is typically an ongoing process to identify the rock types encountered and to identify any possible zones where hydrocarbons are present. Mud logging, evaluation of drill cuttings and mud gases, are the primary well formation zone logging methods. Additional evaluation is accomplished by logging / testing while drilling (LWD) / wireline well logging techniques, which provide detailed rock formation and rock properties information. If there is sufficient indication of hydrocarbon presence, well flow testing may also be undertaken to sample and identify formation fluids and to measure flow rates. During this procedure, potential zones are isolated and samples are acquired, and if gas is present flaring is required. As part of this Project, flaring activities will be kept to a minimum, and will only be carried out if a drill stem test is required. The likely duration of flaring during a drill stem test is approximately one to two days.

2.3.4 Well Abandonment

Upon completion of any required test data acquisition and well evaluation the wells will be plugged and abandoned to prevent the escape of formation fluids to the marine environment. Well suspension and abandonment will be carried out as per ExxonMobil's standard internal procedures for same, as well as applicable industry practice and in compliance with relevant regulatory requirements. Well abandonment procedures will ensure that the well bore, and especially the hydrocarbon zones, will be isolated, after which the wellhead will be removed and the surface casing will be cut below the seafloor. As part of this procedure, casing details will be confirmed and a seabed debris survey will be completed by ROV. Equipment located on the seabed will be removed. In the event that planned, conventional well abandonment techniques are ineffective for a particular well, alternative approaches may be required and will be investigated and implemented in consultation with relevant regulatory authorities and in compliance with applicable authorizations. Wells will be monitored and inspected in accordance with applicable regulatory requirements at the time of abandonment.

2.3.5 Logistics and Supply and Servicing

It is expected that with a single drilling unit up to four vessels could be required to support the drilling program, including two to three Anchor Handling Tug Supply (AHTS) vessels or Platform Supply Vessels (PSVs) and one standby vessel, as well as two helicopters. An additional seabed survey vessel could also be used occasionally to complete short duration ROV inspections, environmental and/or geohazard surveys as required. During the ice management season the number of vessels required could increase.

Offshore supply vessels (OSVs) and helicopter services for the Project will likely be based in St. John's NL. These services will be procured from existing, established third party suppliers that service the offshore oil and gas sector, and will travel in an essentially straight line between a drill rig operating within an EL in the Project Area and an established port facility. It is anticipated that there will be two to three trips to and from the drilling units by the supply vessels per week during the course of the Project. In the case that two drilling units are operating at the same time, the number of offshore supply vessels would increase to between four to five and the number of trips to the onshore marine base would increase to four to five trips weekly.

All drilling units and vessels that are used for this Project will meet the operational and environmental capabilities needed for the associated exploration activities, including for implementing relevant environmental mitigations and safety and emergency response procedures, and will be compliant with applicable legislation and regulations.

2.4 Potential Environmental Emissions, Discharges and Associated Waste Management

The key potential environmental emissions and discharges associated with exploration drilling and associated activities in the marine environment include:

- a) *Atmospheric Emissions*: Including noise, light and other atmospheric emissions (exhaust) from the operation of the drilling unit and other vessels and equipment, as well as emissions from the storage and flaring of hydrocarbons associated with well testing (if and as required). The primary air emissions, including greenhouse gases (GHGs), that would result from these Project activities include: 1) Drill rig, vessel and aircraft traffic (carbon monoxide (CO), nitrogen oxides (NOX), total suspended particulates (TSP), volatile organic compounds (VOCs), GHGs; and 2) Power generation (CO, NOX, TSP, VOCs, sulphur dioxide, GHGs). During any formation flow well testing there could also be short periods of flaring and associated emissions of associated gases (CO, NOX, VOCs, TSP, GHGs). Assuming that it could take up to 80 days to drill a well, it is estimated that CO₂ equivalent emissions associated with operational drilling and associated vessel traffic could be in the range of 5,000 to 15,000 tonnes CO₂ per well. It is currently anticipated that the number of wells drilled in each year of the Project could range from zero to four wells, which would result in total CO₂ emissions ranging from 0 to up to 60,000 tonnes CO₂ annually. It should be noted that these are preliminary estimates only, and an estimate of, and analysis regarding, potential Project-related GHG emissions will be calculated and discussed as relevant and required in the EIS.
- b) *Underwater Noise*: Including the noise generated by the drilling unit and supply and standby vessels, as well as the sound energy from the source array for any associated VSP data collection;
- c) *Drilling Wastes*: Drilling muds are fluids which lubricate and cool the drill bit and hole, circulate cuttings and carry them back to the surface when the riser is in place, and help to maintain appropriate subsurface pressure in the well. These can be a water-based muds (WBMs) or synthetic-based muds (SBMs). The primary component of WBMs is seawater, with other additives (primarily bentonite (clay), barite and potassium chloride) and approved chemicals also added as required to control and achieve the required mud properties. The initial "riserless" sections of the well bore are generally drilled using WBMs in which case the mud and cuttings are returned to the seabed as permitted by, and in accordance with, the *Offshore Waste*

Treatment Guidelines. Once installed, the riser system serves as a conduit to bring mud and cuttings back to the drilling unit in a closed loop system. These deeper sections of the well bore are typically drilled using SBMs, which are returned to the drilling unit's deck via the riser and then separated and treated before disposal. The SBM itself is reused, and treated SBM cuttings are discharged to the marine environment as specified in the *Offshore Waste Treatment Guidelines*.

- d) *Liquid Discharges:* These can include storage displacement, bilge, ballast, cooling, gray and black and fire control systems test water, as well as treatment fluids, desalination brines and possibly other liquid materials. Allowable chemical properties for offshore disposal to the marine environment and associated reporting requirements are also specified in the *Offshore Waste Treatment Guidelines*.
- e) *Solid Wastes:* Domestic waste materials will be generated primarily by Project-related personnel housed at accommodations on-board the drilling unit and support vessels.

The key regulatory guidance pertaining to emissions and offshore discharges, disposal and treatment for these types of offshore activities is contained in the *Offshore Waste Treatment Guidelines*. Offshore waste discharges for this Project will also be managed in strict compliance with these Guidelines, as well as the International Convention for the Prevention of Pollution from Ships (MARPOL). ExxonMobil will also comply with applicable sections of these and other relevant regulations and guidelines as adopted in the Environmental Protection Plan (EPP) approved by the Chief Conservation Officer (CCO). A comprehensive Waste Management Plan similar to those used by the other Operators will also be developed and implemented for the Project.

ExxonMobil is committed to the establishment of safe and environmentally responsible procedures for the generation, storage, handling, transportation, treatment and disposal of all waste materials generated throughout the course of this Project. The Company will attempt to reduce, reuse and recycle liquid and solid waste and reduce liquid and atmospheric emissions. All onshore and offshore waste discharges will be managed and disposed of as per the Project's Environmental Management Plan, Offshore Chemical Management Plan and the Waste Management Plan. Waste products offloaded at the on-shore supply base(s) will be disposed of by licenced third-party waste disposal companies in accordance with relevant provincial and municipal regulations. Waste types and volumes will be documented as per relevant regulatory requirements.

An ExxonMobil Environmental Compliance Monitoring Plan (ECMP) will be prepared once the drilling unit(s) and OSVs have been selected, which is a key component of the Company's environmental management system. This Plan identifies waste streams, sampling, analysis and reporting requirements for regulated waste streams that are discharged to the marine environment and atmosphere resulting from the drilling activities, as well as those that are released to the sea and do not require compliance monitoring. Once generated, this document will be focused solely on the proposed exploration drilling program and intended to satisfy the requirements specified in subsections 9(i)(j) of the *Newfoundland Offshore Petroleum Drilling and Production Regulations*. The requirements outlined in the ECMP are generally aligned with the *Offshore Waste Treatment Guidelines*.

2.5 Potential Accidental Events and Their Prevention and Response

During an offshore oil and gas exploration program, an accidental event or malfunction is an unlikely occurrence, for which there are multiple barriers and safety systems in place. Environmental incidents which may be associated with offshore drilling programs include potential blowouts (subsea and surface), as well as other possible spills of hydrocarbons or other substances from the drilling unit and/or associated vessel activities, which may vary considerably in terms of their nature, scale, duration and potential environmental consequences.

Oil spill prevention is a key focus of ExxonMobil's plans and activities. Oil spill prevention, response and overall preparedness approaches for the Project are discussed generally in Section 5.1.2 of this document, and will be further developed and defined as the various regulatory review and approval processes move forward. The Operator will develop and implement a Project and site specific Oil Spill Reference and Oil Spill Response Plan (OSRP), which will be submitted to the C-NLOPB as part of the OA application process. ExxonMobil's Emergency Response Bridging Document clarifies the emergency response interface between ExxonMobil and drilling platform emergency response systems. Any and all such incidents will be managed in accordance with the C-NLOPB Incident Reporting and Investigation Guidelines. The ExxonMobil Incident Notification, Investigation and Reporting procedure will be followed for incident management on the drilling platform and support vessels. The Operator's SHE&S Advisor will be responsible for initial incident notification submission to the C-NLOPB. Environmental incident requirements and triggers are also outlined in the ExxonMobil ECMP.

As the fate and behaviour of accidental spills are dependent upon Project and site-specific characteristics, such as hydrocarbon volumes, types and properties, oceanographic conditions, as well as the size, location and timing of the spill, the EA reviews for individual proposed drilling programs may include a project-specific analysis of oil spill probabilities, as well as modelling studies of the likely fate and behaviour of possible oil spills. Any eventual EIS for this Project will describe and assess any such accidental events and malfunctions that could potentially occur, including the results of any 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.

Ice management is also a required activity that is part of normal offshore operations during the ice season offshore eastern Newfoundland (normally March to June). ExxonMobil conducts dedicated ice monitoring activities (including overflights and mapping) in relation to its activities off eastern Newfoundland, which commence early in the season and continue throughout that period. Should ice pose a threat to the drilling platform and/or other Project equipment, personnel or the environment, an emergency situation may be initiated in which case the established ice management process as documented in ExxonMobil's Ice Management Plan for Operations will be implemented. These include established procedures for iceberg towing and deflection, and if required, procedures for the safe disconnect and movement of the drilling unit while leaving the well in a safe condition.

3 ENVIRONMENTAL SETTING

The following sections provide a summary description of the existing biophysical and socioeconomic environments that overlap and may interact with the proposed Project.

3.1 Previous Environmental Assessments and Studies

Portions of the Canada-NL Offshore Area, including the proposed Project Area, have been subject to previous environmental studies that would be relevant to this Project and any EIS that may be required for it. Offshore oil and gas exploration and development activities have been occurring off Newfoundland and Labrador for several decades, and the environmental studies and analysis that have been carried out in relation to these projects and activities over that period provide important and valuable sources of information on the existing environmental setting in the region, as well as the potential environmental issues and interactions that may be associated with these activities.

Of particular relevance to this Project and its EA review, in 2014 the C-NLOPB completed an SEA for the Eastern Newfoundland Offshore Area (Amec 2014)³, which involved identifying, reviewing and presenting regional environmental baseline information (physical, biological and socioeconomic), 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. This SEA provides a key source of regional environmental information for the subsequent, project-specific EAs of individual proposed oil and gas exploration and development projects in this area, and will serve as such for any required EIS for this Project. It is ExxonMobil'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).

A large number of previous, project-specific EAs have also been completed or are in progress for proposed projects and activities off eastern Newfoundland, including parts of the proposed Project Area and in other adjacent regions. In addition, there have been numerous other environmental studies and surveys completed on relevant components of the existing biophysical and socioeconomic environments within and adjacent to the Project Area, which provide a useful and informative description and understanding of the existing environmental setting of the region. In ExxonMobil's opinion the existing and available information that is provided through these past EAs and other environmental studies in the region is considered to provide adequate and appropriate environmental baseline information for the Project Area for EA purposes, and so no additional and dedicated environmental field work is required or planned in relation to this Project and any EIS that may eventually be required for it. ExxonMobil again recognizes that should an EA be required under *CEAA* (2012), the scope of the Project and its EA will be set by the Canadian Environmental Assessment Agency.

3.2 Physical Environment

The geology of the marine area off eastern Newfoundland is complex and dynamic, and the current bedrock and surficial characteristics of the Project Area and surrounding regions have been shaped by various natural and human factors and processes over time. The bathymetry of the Project Area and other regions off eastern Newfoundland includes a number of notable topographic highs, including the

³ Amec Environment and Infrastructure. (2014). Eastern Newfoundland Strategic Environmental Assessment (SEA). Prepared for the Canada-Newfoundland and Labrador Offshore Petroleum Board (August 2014).
NOTE: Also applies to all subsequent references to Amec (2014) in this Chapter

Central Ridge, Flemish Cap and Orphan Knoll. The western portion of the Project Area contains the Grand Banks, a region with average depths of about 75 m which extend to about 350 km east of St. John's to the 200 m depth contour and then a farther 50 km to the 1,000 m depth contour. The Flemish Pass has depths of almost 1,300 m. To the east, water depths rise again to the Flemish Cap with depths rising back up about 130 m. To the south, the Southeast Shoal and Virgin Rocks have water depths of about 25 to 50 m. This area lies about 75 to 125 km west of the Tail of the Banks. Numerous canyons run down off the continental slope into the Newfoundland Basin and deep ocean where depths range from 2,000 to 4,000 m. The Grand Banks extend north to the Northeast Newfoundland Shelf, with depths generally of 200 to 300 m. To the northeast of the shelf, the Orphan Basin has water depths ranging from about 1,200 m at the edge of the continental shelf to as deep as 3,500 m (Amec 2014).

Existing and available climatological information for sites within and around the Project Area indicate that the prevailing winds over this region are from the west to northwest in winter and from the southwest in summer. Extreme wind gusts greater than 100 knots (51 m/s) have been measured in winter and in association with tropical and post-tropical weather systems (based on available climatology MSC50 data created by Oceanweather, see Amec 2014). Air temperatures are coolest in January or February and warmest from July through September for all areas. Rain or drizzle can occur at any time of year throughout the area and is most likely to occur with southerly or southwesterly winds. Snow and freezing rain are possible any time from October through May, and snow can accompany winds of any direction. In general, visibility is the most favourable in fall and winter and most frequently restricted in summer and spring (Amec 2014).

Water circulation in the region, which includes the continental shelf waters off Eastern Canada, is dominated by a generally southward flow of the cold Labrador Current and its two streams: 1) an inshore branch that flows along the coast on the continental shelf, and 2) an offshore branch that flows along the outer edge of the Grand Banks. Average sea surface temperatures generally range from about 0°C to 7°C in February and from about 10°C to 16°C in summer, whereas near-bottom sea temperatures generally range from 8°C to 13°C on average year-round (Amec 2014). The proposed Project Area is, like the rest of the marine environment off eastern Newfoundland, subject to seasonal intrusions of sea ice and icebergs, as well as vessel icing during particular meteorological conditions. Sea ice and iceberg conditions may vary each year and by location, dependent upon fluctuation winter conditions over and seasonal wind patterns. The iceberg season traditionally lasts from January through August with occasional sightings as late as October (Amec 2014).

3.3 Biological Environment

Marine ecosystems are comprised of biological and physical elements that interact to form complex and variable patterns across a seascape. The Project Area and surrounding marine environments are known to be inhabited by a variety of marine biota, within which the presence, abundance and distribution of particular species varies considerably based on habitat characteristics (both abiotic and biotic) and variability across this rather large and diverse marine environment.

The Eastern Newfoundland SEA (Amec 2014) provides a detailed overview of marine fish and fish habitat that are known or likely to occur within the overall Project Area and surrounding environments, including relevant habitats, plankton, benthos, deep-water corals, and fish. Deep-sea corals, sea pens, and sponges are often of particular environmental interest due to the habitat-forming capacity aspects of these benthic invertebrates and their relative sensitivity to anthropogenic stressors. Existing and available information on identified high-density areas and protection zones for corals, seamounts, and

sponges in this region indicates that portions of the overall Project Area will overlap with several of the identified protection zones and high density areas for these species. There are several associated fisheries closure zones within and adjacent to the Project Area (Figure 3.1).

A range of other existing information sources and datasets related to fish and fish habitats (including benthos) within the Project Area are available for use in any future EIS.

A variety of bird species also occur within the Project Area and in adjacent marine and coastal regions, including seabirds and other avifauna that inhabit the region at particular or extended periods for breeding, feeding, migration and other activities. Important habitats for birds have also been identified at locations along the coastline of eastern Newfoundland, well outside of the proposed Project Area. A variety of existing information sources are available related to the characteristics, presence and distribution of marine / migratory birds within and around the proposed Project Area. The Eastern Newfoundland SEA (Amec 2014), for example, includes a detailed overview of the presence, life histories, and spatial and temporal distributions of marine avifauna within and around the region. Other existing and available sources such as the current Eastern Canadian Seabirds at Sea (ECSAS) dataset, other available literature and datasets, and marine birds sightings data collected by ExxonMobil and other operators working in the area which provide additional information and insights on key species, times and locations for use in the EIS should one be required.

The waters off eastern Newfoundland support a diverse assemblage of marine fauna that also includes more than 20 marine mammals and several sea turtle species, many of which are considered to be at risk or otherwise of special conservation concern. The Eastern Newfoundland SEA (Amec 2014) summarizes the distribution and abundance of marine mammals and sea turtles in the region, and describes these species' relevant life history characteristics. The existing and available information indicates that marine mammal (cetacean) species that are known or considered likely to occur within the area include a number of mysticetes (baleen whales), odontocetes (toothed whales and porpoises) and pinnipeds (seals), and several sea turtle species have also been observed. These differ considerably in their likelihood of presence and in the particular locations 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 particular 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 (Amec 2014).

A number of onland, 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. The planned marine exploration activities that comprise this Project will not occur within, or otherwise interact directly with, any of the existing provincial or federal Parks, Ecological Reserves, Wildlife Reserves, Marine Protected Areas, Migratory Birds Sanctuaries, Important Bird Areas (IBAs) or other locations that have been designated as protected on or around the Island of Newfoundland (Amec 2014). The Project Area does, however, overlap with a number of identified special or sensitive areas in the offshore environment (Fishery Closure Areas and EBSAs, see Figure 3.2), for which there are no associated prohibitions of marine activities such as that being proposed as part of this Project.

Figure 3.1 Identified High Density and Potential Areas for Corals, Seamounts and Sponges

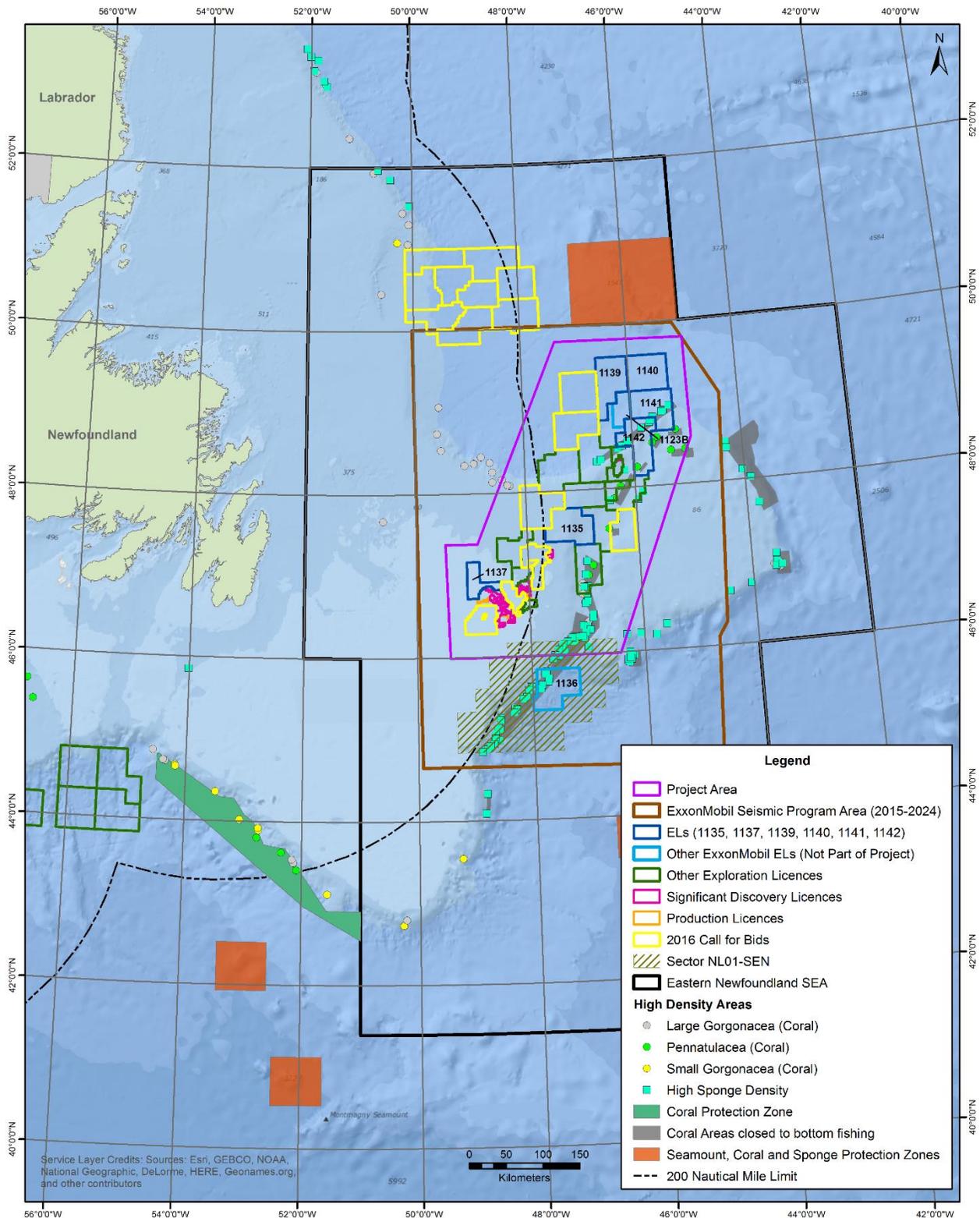
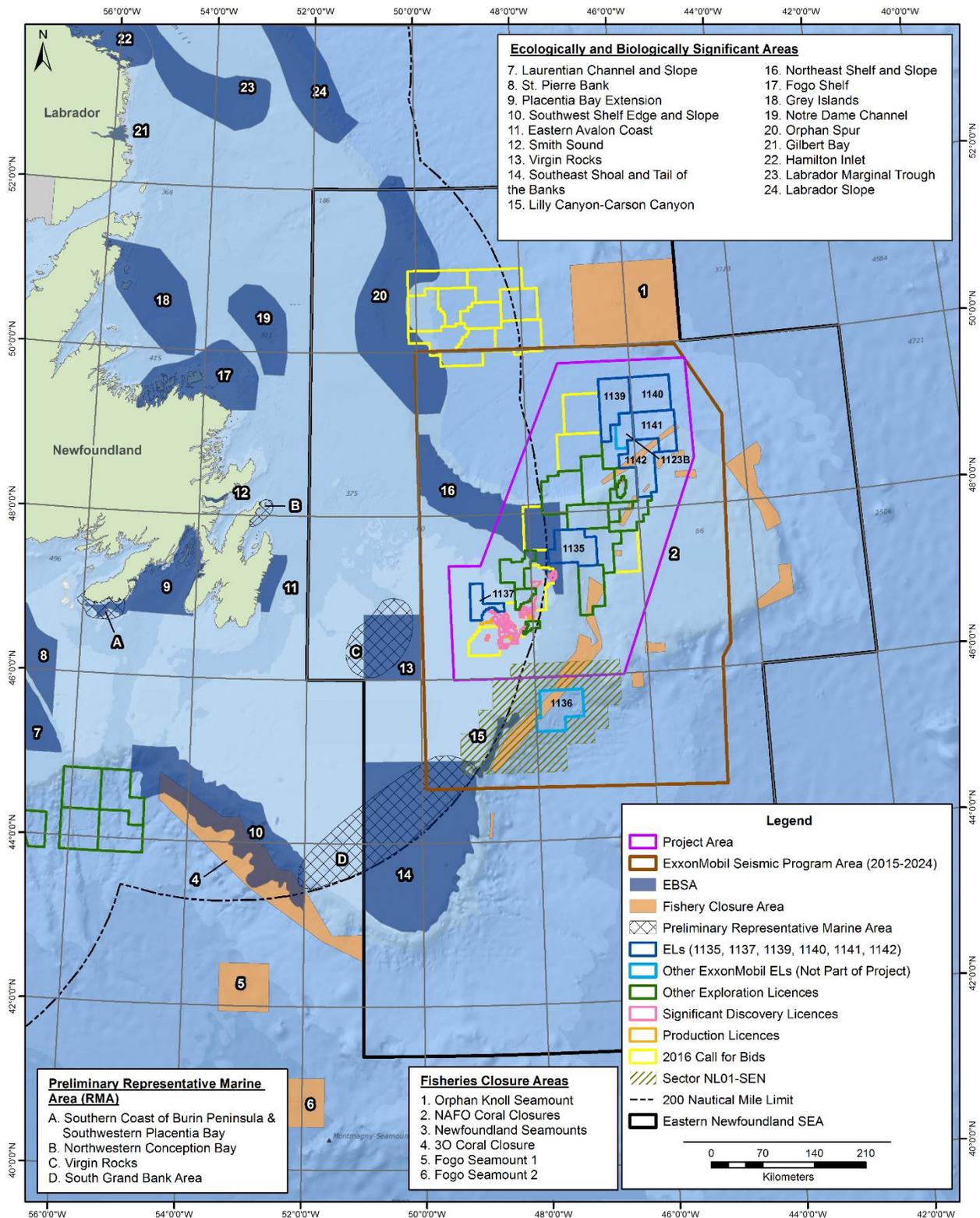


Figure 3.2 Environmentally Special and Sensitive Areas off Eastern Newfoundland



3.4 Socioeconomic Environment

Fisheries are an important component of the socioeconomic environment of Newfoundland and Labrador and other parts of Canada, including the various communities and regions that extend along the coastline of eastern Newfoundland. Commercial fisheries in this region are extensive and diverse, with the Project Area overlapping a number of Northwest Atlantic Fisheries Organization (NAFO) Divisions and Unit Areas, and thus, fishing activities that involve a range of species, gear types and other characteristics at various times of the year. There are also several regulatory jurisdictions that pertain to marine fish and fisheries within and around the Project Area, with the Government of Canada having jurisdiction over fish stocks and fishing activities within the 200 nautical mile limit (Exclusive Economic Zone, EEZ) and for benthic invertebrates (such as crab) across the entire continental shelf, while NAFO manages groundfish activities and other resources beyond that 200 mile limit.

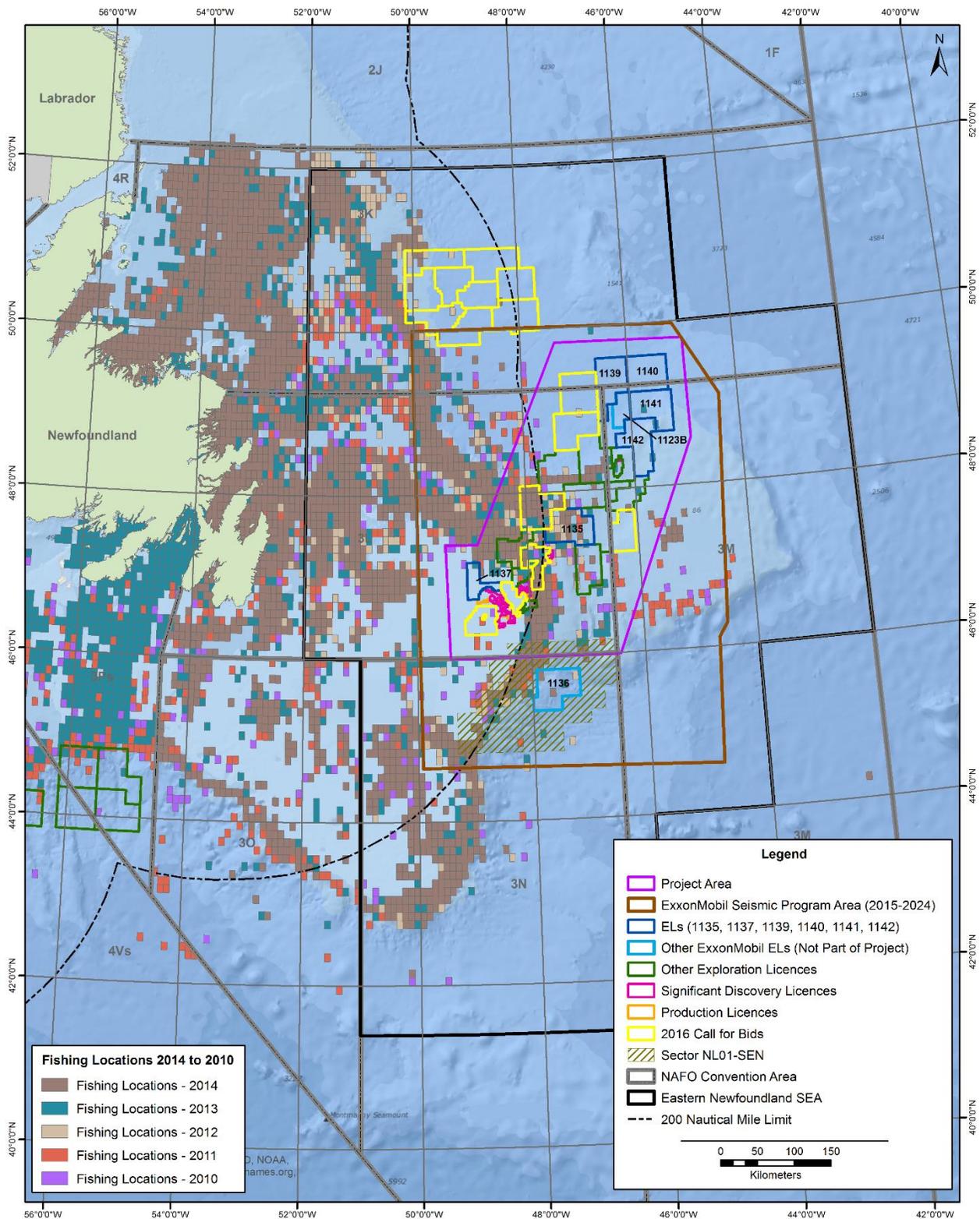
Commercial fisheries data are provided by Fisheries and Oceans Canada (DFO) Statistical Services in Ottawa, ON, including landings (weight and value) statistics and geospatial information illustrating the overall location and timing of fishing activity for fish landed in Canada (Figure 3.3). The available data indicate that key species that are fished in the region include snow crab, yellowtail flounder, turbot / Greenland halibut, redfish, Northern shrimp, American plaice, halibut and others. Fishing activity occurs year-round, but is concentrated primarily in the April-August period. A number of Aboriginal groups hold commercial fishing licences for NAFO Divisions that overlap with the Project Area, including licences that permit access to a variety of species and locations within NAFO 3KLMN (Figure 3.3). There are no known Aboriginal food, social, or ceremonial licences within the Project Area. The closest Aboriginal Reserve to the Project is Conne River, located on the south coast of Newfoundland several hundred kilometers west of the Project Area.

Various fisheries survey programs are also undertaken by government and/or industry, including DFO Multispecies Research Vessel (RV) Trawl Surveys, which comprise annual (spring and fall) standardized bottom-trawl surveys to collect information for managing and monitoring fish resources in the Newfoundland and Labrador Region. There is also an annual Industry - DFO Collaborative Post-season Trap Survey for snow crab in NAFO Divisions 2J3KLOPs4R, which is conducted using commercial and modified snow crab traps at established trap stations starting in late August or early September after the commercial snow crab season has ended.

A range of other human activities also take place on either a year-round or seasonal basis. General shipping traffic within and through the region includes marine tanker traffic and supply vessels associated with the existing offshore oil development and activities, as well as cargo ships, fishing vessel transits, and other vessel traffic. 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 as well as munitions dump sites, several of which occur within or near the Project Area (Amec 2014). A number of existing marine cable networks also cross through or near the Project Area.

The area off eastern Newfoundland is subject to considerable oil and gas exploration activity, including geophysical surveys and drilling programs, with many thousands of kilometers of seismic survey data collected and several hundred wells having been drilled to date. Offshore oil production activities have also been occurring since the 1990s, including several producing oilfields (Hibernia, Terra Nova, White Rose) and another (Hebron) that is currently under development. These offshore oil and gas exploration and development activities include a variety of ancillary and supporting activities as well.

Figure 3.3 Commercial Fisheries Locations, All Species (2010-2014)



4 CONSULTATION AND ENGAGEMENT

Consultation and engagement are often considered to be the cornerstone of the EA process, and are a key component of ExxonMobil's approach to the planning and implementation of its exploration programs and other business activities. A number of associated initiatives have been undertaken, are in progress, or are being planned in relation to the proposed Project, including discussions with relevant government departments and agencies, Aboriginal groups, stakeholder organizations and interested members of the public.

4.1 Regulatory Consultation

A number of provincial and federal government departments and agencies may have regulatory responsibilities or other mandates and interests related to the Project and its potential environmental effects. As part of the planning and preparation of this Project Description, ExxonMobil has met with a number of regulatory organizations (Canadian Environmental Assessment Agency, C-NLOPB) and plans to meet with or otherwise provide Project information to various others, including the:

- Ecosystem Management Branch, DFO;
- Environmental Protection Operations Directorate - Environment Canada;
- Healthy Environments and Consumer Safety Branch - Health Canada;
- Maritime Forces Atlantic Formation (MARLANT), Department of National Defence;
- Environmental Affairs and Aboriginal Consultation Unit - Transport Canada;
- Natural Resources Canada;
- Newfoundland and Labrador Department of Environment and Climate Change; and
- Newfoundland and Labrador Department of Natural Resources

In addition to their direct involvement in the EA review process, ExxonMobil will also continue to engage with relevant government departments and agencies as part of the planning and completion of any required EIS for the Project, as well as in any post-EA environmental permitting and overall environmental management initiatives during its eventual implementation.

4.2 Aboriginal Engagement

ExxonMobil is committed to ensuring that relevant Aboriginal groups are appropriately informed and engaged regarding the company's on-going and planned activities, particularly where these groups are known to reside and/or undertake activities in areas where the company is planning to carry out its operations.

A number of Aboriginal groups reside in Newfoundland and Labrador, and ExxonMobil is aware that fishing enterprises associated with several of these organizations undertake commercial fishing activity within NAFO Divisions that overlap parts of the Project Area. This includes fishing activity by the: 1) Labrador Inuit (Nunatsiavut Government), 2) Labrador Innu (Innu Nation), 3) NunatuKavut Community Council, 4) Conne River Mi'kmaw (Miawpukek First Nation), and 5) the Qalipu Mi'kmaq First Nation Band. ExxonMobil is not aware, however, that these (or any other) Aboriginal groups hold, claim or otherwise assert Aboriginal or Treaty rights within or near the proposed Project Area, pursuant to Section 35 of the *Canadian Constitution Act*, 1982. Rather, it is ExxonMobil's understanding that these organizations undertake fishing activity off eastern Newfoundland through commercial licences issued

by the federal government under the *Fisheries Act* and its associated *Aboriginal Communal Fisheries Licencing Regulation*, as well as other government policies and strategies that are designed to involve Aboriginal people and communities in commercial fisheries in Canada.

As part of its planned engagement with relevant commercial fishing interests in and near the proposed Project Area during the EA process, ExxonMobil will engage with each of the Aboriginal organizations that are known to be involved in the commercial fishery in the area. As part of the planning and preparation of this Project Description, the Company has contacted the following groups to provide information on the Project and to seek any initial input:

- Nunatsiavut Government;
- Innu Nation;
- NunatuKavut Community Council;
- Miawpukek First Nation;
- Qalipu Mi'kmaq First Nation Band; and the
- Mi'kmaq Alsumk Mowimsikik Koquey Association

This included writing to each Aboriginal group on June 15, 2016 to provide an initial notification of the proposed Project, and an opportunity for them to identify any questions or comments regarding the Project and its potential environmental effects for consideration in the EA, as well as inviting further information sharing and engagement as the EA review progresses. As of the time of finalization and submission of this Project Description, two of these groups had responded to ExxonMobil acknowledging receipt of this correspondence, confirming their respective fishing licences off Eastern Newfoundland, and identifying a specific contact for future engagement. No additional or specific environmental issues or concerns were raised by any group contacted to date

4.3 Stakeholder and Community Engagement

ExxonMobil regularly consults with applicable stakeholders through existing forums (such as the One Ocean initiative), and conducts additional and specific engagements with interested persons and groups if and as new activities, issues and requirements arise. During the preparation of this Project Description, ExxonMobil has met with and/or otherwise contacted the following stakeholder groups:

- Canadian Association of Petroleum Producers (CAPP);
- Newfoundland and Labrador Oil and Gas Industry Association (NOIA);
- Fish, Food and Allied Workers Union (FFAW-Unifor);
- One Ocean; and
- Ocean Choice International.

This included meetings with each of the three fisheries-related organizations referenced above, which involved providing a brief overview of the Project and subsequent discussion. Each organization indicated its overall familiarity with offshore oil and gas exploration programs such as those being proposed and with the relevant EA processes, as well as their intention to participate in and respond through the EA review for the Project. No additional or specific environmental issues or concerns were raised by any of the stakeholder groups contacted to date.

As part of its on-going and future Project planning, ExxonMobil will continue to meet or otherwise communicate with these and other key stakeholders, including other fishing industry representatives

(e.g., NAFO, Association of Seafood Processors, Torngat Fish Producers Co-operative Society Limited), communities, environmental organizations (e.g., Canadian Parks and Wilderness Society (CPAWS), Nature Newfoundland and Labrador, Atlantic Canada Chapter – Sierra Club Foundation) and others to provide Project details and to identify and discuss any information, questions or concerns that these stakeholders may have.

Should an EIS be required for the Project under *CEAA* 2012, ExxonMobil will design and implement a public and stakeholder consultation program that will provide various mechanisms and opportunities for persons and groups to receive and review information, as well as to provide information and perspectives related to the Project and its potential effects. The results of this consultation will be used to identify key issues and questions to be considered and addressed in the EIS, and thus, to appropriately focus the analysis. Identified questions and issues will be recorded at each interface, for consideration in Project planning and assessment, and for follow-up as appropriate.

5 POTENTIAL PROJECT-RELATED ENVIRONMENTAL INTERACTIONS

The implementation and conduct of the proposed offshore oil and gas exploration activities that comprise this Project have the potential to interact with, and result in associated changes to, a number of environmental components.

5.1 Planned Project Components and Activities

Some of the key components and activities, and potential environmental disturbances or interactions, that may be associated with the proposed Project and which would be particularly relevant to any environmental effects analysis include those listed below:

- a) The presence and movement of the drilling unit(s) and supporting vessels / aircraft and equipment;
- b) Drilling activities and the associated discharge and deposition of drill cuttings / fluids;
- c) Project-related noise into the atmospheric and marine environment (e.g., operation and movement of rigs / vessels, dynamic positioning (DP) systems, other equipment, VSP surveys, eventual wellhead removal);
- d) Air emissions (exhausts, well testing / flaring) and lighting on Project vessels and equipment;
- e) The generation of solid and liquid waste materials and their management; and
- f) Eventual well abandonment and rehabilitation activities.

Based on these elements, some potential environmental issues and interactions that may be associated with the proposed Project are identified below in Table 5.1.

Any potential environmental issues and interactions that may be associated with the proposed Project can be avoided or reduced through the use of good planning and sound operational practices and procedures, supported by standard mitigations that are well established and outlined in relevant regulatory procedures and guidelines. A summary of some of the standard mitigation measures that are often implemented in relation to offshore exploration drilling program off Newfoundland and Labrador is also provided in the Table below, for initial review and illustrative purposes.

These mitigations have been routinely and successfully applied to similar oil and gas exploration programs off Newfoundland and Labrador and elsewhere in previous years. These and/or other planning and management measures, in combination with ExxonMobil's own policies, principles and environmental management plans and procedures, will help to ensure that the Project is planned and completed in a manner that avoids or reduces potential environmental effects.

Table 5.1 Potential Environmental Interactions and Associated Mitigation

Potential Environmental Changes	Potential Mitigation Measures (For Illustration)
<ul style="list-style-type: none"> • Possible effects on water quality and the contamination, smothering or other alteration of marine habitats and benthic organisms due to physical disturbance of the substrate (and associated sedimentation), the discharge and deposition of drill 	<ul style="list-style-type: none"> • Avoidance of known important and sensitive species and areas / times where possible in the planning and conduct of oil and gas activities. • Minimizing the amount of associated vessel and aircraft traffic, the use of existing and common travel routes where possible and the avoidance of low-level aircraft operations wherever possible.

Potential Environmental Changes	Potential Mitigation Measures (For Illustration)
<p>cuttings and/or fluids, and other potential environmental emissions during planned activities.</p> <ul style="list-style-type: none"> • Possible temporary avoidance of areas by marine fish, birds, mammals and sea turtles due to underwater noise or other disturbances, which may alter their presence and abundance as well as disturbing movements / migration, feeding or other activities. • Possible attraction of marine fish, birds, mammals and sea turtles to drill rigs and vessels, with increased potential for injury, mortality, contamination or other interactions (e.g., collisions). • Potential effects on fisheries (landings and values) and other marine activities due to possible biophysical effects (including resource abundance, distribution or quality). • Interference with and possible reduced access to (safety zones) preferred fishing or other marine areas during Project activities in certain locations, with possible decreases in activity success, efficiency, value or enjoyment. • Potential damage to fishing gear, vessels of other equipment and infrastructure as a result of direct interactions with Project equipment, activities or environmental discharges. • Potential direct or indirect interactions with protected and sensitive areas in the marine environment, and associated impacts on their ecological integrity (ecological, aesthetic) and/or human use and value. 	<ul style="list-style-type: none"> • Minimizing environmental discharges and emissions from planned operations and activities, including compliance with relevant regulations and standards. • Pre-drilling surveys of the sea bed to assess the potential presence of sensitive benthic micro-habitats (such as corals). • Selection of non-toxic drilling fluids, including the use of WBMs wherever possible and technically feasible. • Treatment of operational discharges (such as sewage, deck drainage) prior to release in compliance with the <i>Offshore Waste Treatment Guidelines</i> and other applicable regulations and standards. • Installation and use of oil water separators to treat contained deck drainage, with collected oil stored and disposed of properly. • Minimizing the use of artificial lighting, where possible with due regard to safety and associated operational requirements. • Programs and protocols for the collection and release of marine birds that become stranded on offshore installations, including associated regulatory guidance and permit requirements. • Inspections of ship hulls, drilling units and equipment for alien invasive species and associated follow-up maintenance. Maximizing use of local vessels, drilling unit and equipment where possible. • Avoiding or minimizing flaring, and the use of high efficiency burners where flaring is required. • Appropriate handling, storage, transportation and on-shore disposal of solid and hazardous wastes. • Water contaminated with hydrocarbons generated during flow testing (within certain tolerances), can be atomized in the flare (using high efficiency burners) or shipped on-shore for disposal. • Selection and screening of chemicals under the <i>Offshore Chemical Selection Guidelines for Drilling and Production Activities on Frontier Lands</i>. • The use of mechanical procedures during well completion and abandonment activities where possible, including the proactive design of well structures to facilitate this. • Spill prevention plans and procedures, with associated and effective spill preparedness and response plans in place. • On-going information gathering and analysis regarding fishing areas and times and continued monitoring of fishing activity. • Establishment and communication of safety / no-fishing zones. • Active and continuous communications and coordination procedures. • Issuance of Notices to Mariners and other notifications / direct industry communications. • Educational and training initiatives for Project personnel. • Establishment, communication and implementation of a Fishing Gear Damage or Loss Compensation Program (as per the associated Guidelines).

Potential Environmental Changes	Potential Mitigation Measures (For Illustration)
<ul style="list-style-type: none"> The creation of employment and business opportunities and associated economic benefits (direct, indirect and induced). 	

Table 5.2 links each of the potential environmental interactions that may be associated with planned Project components and activities to the various environmental components and issues that are specified under CEAA (2012).

Table 5.2 Environmental Components / Issues and Potential Environmental Interactions Relevant to CEAA (2012) – Planned Project Components and Activities

Environmental Component / Issue	Relevant Section(s) of CEAA (2012)	Potential Environmental Interactions / Changes (See Also Associated Mitigations Described Earlier)
Fish, Fish Habitat, and Aquatic Species	5(1)(a)(i) 5(1)(a)(ii)	<ul style="list-style-type: none"> Disturbances (noise, lights, others) associated with the drill rig and vessel movements, resulting in possible avoidance or attraction by marine biota (fish, mammals, turtles). Associated direct (injury or mortality) or indirect (alterations of key life history activities and requirements, such as migration, reproduction, communication, availability and quality of food sources) effects on marine biota Possible effects on water quality and the contamination, smothering or other alteration of marine habitats and benthic organisms due to physical disturbance of the substrate, the discharge and deposition of drill cuttings and/or fluids, or other solid and liquid wastes.
Migratory Birds	5(1)(a)(iii)	<ul style="list-style-type: none"> Attraction and disturbance / disorientation, potential injury or mortality Possible health effects due to contamination of individuals and/or their habitats Potential effects on prey species / food sources
Project Activities Occurring on Federal Lands	5(1)(b)(i)	<ul style="list-style-type: none"> The proposed Project Area includes marine areas (federal lands) that are located within Canada's 200 nautical mile EEZ on the outer continental shelf. Where planned Project components and activities occur on or near such federal lands, any resulting environmental effect described in this Project Description may affect existing environmental conditions on these lands.
Transboundary Issues	5(1)(b)(ii)	<ul style="list-style-type: none"> Planned and routine Project activities that take place within the area of Canada's jurisdiction are not anticipated to result in environmental emissions or other interactions that will extend to the environment

Environmental Component / Issue	Relevant Section(s) of CEAA (2012)	Potential Environmental Interactions / Changes (See Also Associated Mitigations Described Earlier)
		<p>outside Newfoundland and Labrador or outside the marine waters under the jurisdiction of Canada.</p> <ul style="list-style-type: none"> Project components and activities that occur within the area of Canada's jurisdiction may, however, affect environmental components (such as migratory fish, aquatic species, or birds and air and water quality) that extend and/or move both within and outside the areas under the jurisdiction of Canada.
Health and Socio-Economic Conditions for Aboriginal and Non-Aboriginal People	5(1)(c)(i) 5(2)(b)(i)	<ul style="list-style-type: none"> Potential effects on fisheries (landings and values) and other marine activities due to biophysical changes (resource availability, distributions, quality), access / interference, damage to equipment or other direct or indirect interactions. Potential interactions with protected or special marine areas and possible associated effects on their human use and value.
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)	<ul style="list-style-type: none"> No interactions or adverse effects are anticipated as a result of planned Project activities in this marine environment, which is located far offshore. (To be confirmed through pre-drilling well site surveys and associated mitigations).
Current Use of Lands and Resources for Traditional Purposes by Aboriginal Groups	5(1)(c)(iii)	<ul style="list-style-type: none"> No interactions or adverse effects are anticipated as a result of planned Project activities in this marine environment, which is located far offshore. Although a number of Aboriginal groups are known to undertake commercial fishing activity off eastern Newfoundland, ExxonMobil is not aware that these (or any other) Aboriginal groups hold, claim or otherwise assert Aboriginal or Treaty rights within or near the proposed Project Area. There are no documented food, social, or ceremonial licences within the Project Area.
Other Changes to the Environment Directly Related or Necessarily Incidental to a Federal Authority's Exercise of a Power or Performance of a Duty or Function in Support of the Project	5(2)(a)	<ul style="list-style-type: none"> None identified in addition to the potential environmental effects described above.

5.2 Unplanned Events

Environmental incidents that may be associated with offshore drilling programs include potential blowouts (subsea and surface), as well as other possible spills of hydrocarbons or other substances from the drilling unit and/or associated vessel activities, which may vary considerably in terms of their nature, scale, duration and potential environmental consequences.

An overview of ExxonMobil's policies, plans and systems related to oil spill prevention and response were provided earlier in Chapter 2. As indicated, oil spill prevention is a key focus of ExxonMobil's plans and activities and an integral component of all aspects of the planning and implementation of its offshore petroleum exploration and development activities. This includes the incorporation of multiple preventative barriers in Project design and execution, such as in well and casing design, BOP design and associated activation and control procedures, well control and detection processes, the definition of severe environmental operating conditions and associated contingency (including disconnect) procedures, and other relevant measures. In the very unlikely event of a spill, ExxonMobil's project and site-specific OSRP will detail the equipment and procedures that will be implemented to effectively respond to such an incident.

Table 5.3 links the various potential environmental interactions that may be associated with unplanned Project components and activities to the environmental components and issues that are specified under CEAA (2012).

Table 5.3 Environmental Components / Issues and Potential Environmental Interactions Relevant to CEAA (2012) – Unplanned Project Components and Activities

Environmental Component / Issue	Relevant Section(s) of CEAA (2012)	Potential Environmental Interactions / Changes (See Also Associated Mitigations Described Earlier)
Fish, Fish Habitat, and Aquatic Species	5(1)(a)(i) 5(1)(a)(ii)	<ul style="list-style-type: none"> Changes in the presence, abundance, distribution and/or health of marine fish / other aquatic species as a result of exposure to accidental spills (including injury or mortality through physical exposure, ingestion, or effects on prey and habitats / water quality).
Migratory Birds	5(1)(a)(iii)	<ul style="list-style-type: none"> Changes in the presence, abundance, distribution and/or health of marine birds as a result of exposure to accidental spills (including injury or mortality through physical exposure, ingestion, or effects on prey and important habitats).
Project Activities Occurring on Federal Lands	5(1)(b)(i)	<ul style="list-style-type: none"> The proposed Project Area includes marine areas (federal lands) that are located within Canada's 200 nautical mile EEZ on the outer continental shelf. Where Project components and activities and any associated unplanned events (such as an oil spill) occur on or near such federal lands, any associated environmental effects as described in this Project Description may affect existing environmental conditions on these lands.
Transboundary Issues	5(1)(b)(ii)	<ul style="list-style-type: none"> An accidental event could result in transboundary effects by extending outside an area of Canada's jurisdiction, as well as by affecting environmental components (such as migratory fish, aquatic species, or birds and air and water quality) that extend and/or move both within and outside the areas under the jurisdiction of Canada. No land masses are anticipated to be affected.

Environmental Component / Issue	Relevant Section(s) of CEAA (2012)	Potential Environmental Interactions / Changes (See Also Associated Mitigations Described Earlier)
		<ul style="list-style-type: none"> Oil spill modelling (previous studies and possible additional analyses) assesses the nature and geographic extent of any such accidental event and its potential effects.
Health and Socio-Economic Conditions for Aboriginal and Non-Aboriginal People	5(1)(c)(i) 5(2)(b)(i)	<ul style="list-style-type: none"> Potential effects of offshore oil spills on other marine activities (including fishing) equipment and resources and the resulting implications for users and their livelihoods and communities (resulting from loss of resources, taint / quality, loss of markets, gear damage). Potential interactions with protected or special marine areas and associated effects on their human use and value.
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)	<ul style="list-style-type: none"> No interactions or adverse effects are anticipated as a result of unplanned Project activities in this marine environment, which is located far offshore. Oil spill modelling (previous studies and possible additional analyses) assesses the nature and geographic extent of any such accidental event and its potential effects.
Current Use of Lands and Resources for Traditional Purposes by Aboriginal Groups	5(1)(c)(iii)	<ul style="list-style-type: none"> No interactions or adverse effects are anticipated as a result of unplanned Project activities in this marine environment, which is located far offshore. Although a number of Aboriginal groups are known to undertake commercial fishing activity off eastern Newfoundland, ExxonMobil is not aware that these (or any other) Aboriginal groups hold, claim or otherwise assert Aboriginal or Treaty rights within or near the proposed Project Area. There are no documented food, social, or ceremonial licences within the Project Area. Oil spill modelling (previous studies and possible additional analyses) assesses the nature and geographic extent of any such accidental event and its potential effects.
Other Changes to the Environment Directly Related or Necessarily Incidental to a Federal Authority's Exercise of a Power or Performance of a Duty or Function in Support of the Project	5(2)(a)	<ul style="list-style-type: none"> None identified in addition to the potential environmental effects described above

5.3 Environmental Assessment Scoping Considerations

The Project will involve the various components and activities described previously in Chapter 2, including the drilling of exploration and possibly delineation wells, wellsite seabed surveys, VSP surveys, well testing and eventual abandonment, and relevant supply and service activities. Existing shore-based support facilities operated by third party contractors will be used for the Project. It is therefore proposed that scope of the Project for EA purposes will comprise the planned offshore exploration activities within the Project Area itself, and will not include these ancillary support and supply facilities and activities nor any support vessel and aircraft transit to and from the Project Area from these supply bases. ExxonMobil again recognizes that should an EA be required under *CEAA* (2012), the scope of the Project and its EA will be set by the Canadian Environmental Assessment Agency.

Based on the initial information and analysis provided above, a preliminary list of potential Valued Components (VCs) upon which any eventual EIS will be focused is provided below:

- a) Fish and Fish Habitat (including Species at Risk);
- b) Marine / Migratory Birds (including Species at Risk);
- c) Marine Mammals and Sea Turtles (including Species at Risk);
- d) Commercial Fisheries and Other Ocean Users; and
- e) Protected and Special Areas.

ExxonMobil recognizes that the scope of any EIS that may be required under *CEAA* 2012, including the final selection of VCs upon which it will focus, will be based upon the results of the review processes described previously, including associated input from participating governmental, Aboriginal, stakeholder and public interests. and again will be set by the Canadian Environmental Assessment Agency.