BHP Canada Exploration Drilling Project (2019-2028)

May 9, 2019

BHP CANADA EXPLORATION DRILLING PROJECT (2019-2028)

Environmental Assessment Project Description

Pursuant to the Requirements of the Canadian Environmental Assessment Act, 2012

Submitted by:

BHP Petroleum (New Ventures) Corporation
1500 Post Oak Boulevard
Houston, Texas
USA, 77056

Prepared with the assistance of:

Wood Environment & Infrastructure Solutions
A Division of Wood Canada Ltd.
133 Crosbie Rd. PO Box 13216
St. John's, Newfoundland and Labrador
Canada, A1B 4A5

Wood Project No.TA1970002

May 2019

Contents

List of Tables

List of Figures

List of Appendices

List of Acronyms and Abbreviations

Accord Acts	*Canada-Newfoundland and Labrador Atlantic Accord Implementation Act* and the *Canada-Newfoundland and Labrador Atlantic Accord Implementation Newfoundland and Labrador Act*
µm	Micrometre
ACSS	Atlantic Canada Shorebird Survey
ADW	Approval to Drill a Well
AUV	Autonomous Underwater Vehicle
bar-m	Bar per metre
BHP	A world-leading resources company in minerals and oil and gas, with operations primarily in the Americas and Australia.
BML	Below mud line
BOP	Blow-out Preventer
CAC	Criteria air contaminants
CAPP	Canadian Association of Petroleum Producers
CEA Agency	Canadian Environmental Assessment Agency
CEAA 2012	*Canadian Environmental Assessment Act*, 2012
CEO	Chief executive officer
CIS	Canadian Ice Service
cm	Centimetre
C-NLOPB	Canada-Newfoundland and Labrador Offshore Petroleum Board (“the Board”)
CO	Carbon monoxide
CO_2	Carbon dioxide
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
Cubic Inch	1 cubic inch = 16.39 cubic centimetres
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
EBSA	Ecologically and Biologically Significant Area
ECCC	Environment and Climate Change Canada
ECSAS	Eastern Canadian Seabirds at Sea
EEM	Environmental Effects Monitoring
EEZ	Exclusive Economic Zone
EIS	Environmental Impact Statement
EL	Exploration Licence
ELT	Executive Leadership Team
EMCP	ExxonMobil Canada Properties
EPP	Environmental Protection Plan
FCA	Fisheries closure area

FFAW-Unifor	Fisheries, Food and Allied Workers
FLO	Fisheries Liaison Officer
FPSO	Floating Production Storage and Offloading
FSC	Food, social, or ceremonial
ft	Foot (1ft = 0.3048 m)
g	Gram
GHGs	Greenhouse Gases
ha	Hectare (1 ha = 10,000 m^2)
hr	Hour
HSE&A	Health, Safety, Environment & Assurance
HSEC	Health, Safety, Environment and Community
IBAs	Important Bird Areas
IMS	Integrated Management System
in	Inch (1 in = 2.54 cm)
ISO	International Organization for Standardization
km	Kilometre
LWD	Logging/testing while drilling
m	Metre
MARPOL	International Convention for the Prevention of Pollution from Ships
MPA	Marine protected area
MTD	Mass transport deposits
NAFO	Northwest Atlantic Fisheries Organization
NGL	Natural gas liquids
NL ESA	Newfoundland and Labrador Endangered Species Act
NL	Newfoundland and Labrador
nm	nautical mile
NOX	Nitrogen oxides
NOIA	Newfoundland & Labrador Oil & Gas Industries Association
NPRI	National Pollutant Release Inventory
NRA	NAFO Regulatory Area
NRCan	Natural Resources Canada
OA	Operations Authorization
OBIS	Ocean Biogeographic Information System
OCSG	Offshore Chemical Selection Guidelines
OL	Operating Licence
OWTG	Offshore Waste Treatment Guidelines
Pa	Pascal
psi	pounds per square inch (1 psi = 6894.76 Pa)

RAA	Risk Assessment and Assurance
RMA	Representative Marine Area
ROV	Remotely Operated Vehicle
RV	Research Vessel
s	Second
SARA	Canadian Species at Risk Act
SBM	Synthetic-based Drilling Mud
SEA	Strategic Environmental Assessment
Sox	Sulphur oxides
t	Tonne (1 tonne = 1,000,000 g)
TSP	Total suspended particulates
UK	United Kingdom
UNGA	United Nations General Assembly
UTM	Universal Transverse Mercator
UXO	Unexploded Ordinance
VC	Valued Component
VME	Vulnerable marine ecosystem
VOC	Volatile organic compound
VSP	Vertical Seismic Profile
WBM	Water-based Drilling Mud

1.0 Introduction

BHP is submitting this Project Description under the CEAA 2012 Regulations for Environmental Assessments. However BHP is aware of the planned Regional Assessment of Offshore Oil and Gas Exploratory Drilling East of Newfoundland and Labrador pursuant to CEAA 2012 which is intended to eliminate the need for a specific Project Description which will streamline the process. BHP is fully supportive of the Regional Assessment and is very willing to consider transitioning our application to fall under the Regional Assessment once approved.

BHP is planning to conduct petroleum exploration drilling and related activities in the Eastern Newfoundland offshore region of the Canada-Newfoundland and Labrador Offshore Area over the period of 2019-2028 (the maximum nine-year period which includes a three-year extension option will not extend beyond 2028) hereinafter, also referred to as the Project. The proposed Project Area (Figure 1.1) includes two Exploration Licences (ELs) in the Orphan Basin, with BHP as the operator and sole shareholder. Exploratory drilling previously occurred within the proposed Project Area under separate ELs (LGL Limited 2005) by another operator. The Project will include exploration drilling within these ELs, possible appraisal (delineation) drilling in the event of a hydrocarbon discovery, vertical seismic profiling (VSP), well testing, eventual well decommissioning, and abandonment (or suspension) procedures, and associated supply and service activities.

The Project may be subject to a review pursuant to the requirements of the *Canadian Environmental Assessment Act*, 2012 (*CEAA* 2012), as it may constitute a “designated project” under the associated Regulations Designating Physical Activities. This is a Project Description document has been submitted to initiate determination of whether an environmental assessment (EA) is required.

1.1 Overview of the Project

In Eastern Canada, BHP’s current offshore interests include two existing ELs in the Orphan Basin Area (EL 1157 and EL 1158) that were issued by the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB, or the Board) effective January 15, 2019. Currently, BHP is the sole interest holder in EL 1157 and EL 1158 (Figure 1.1).

BHP proposes an exploration drilling program in EL 1157 and EL 1158 to explore the potential presence of hydrocarbons in prospective oil and gas targets. The Project will involve drilling up to 20 wells in total (with between one and ten wells on either, or both, ELs). The specific number, location and type (exploration or appraisal) of these wells will be determined as Project planning activities continue, based on available geophysical survey data, information from previously drilled wells and other applicable information. The Project may also include associated VSP surveys, well testing and eventual decommissioning and abandonment or suspension activities, and associated supply and service activities required to support drilling activities. Any Project-related onshore support activities are expected to take place at existing onshore supply facilities that are owned and operated by third-party contractors, have been previously approved under applicable regulatory processes, and which provide services to multiple offshore operators. Drilling operations could begin as early as 2021 pending the receipt of required regulatory and corporate approvals, the availability of suitable drilling units, the identification of appropriate drilling targets, and other technical, logistical and commercial considerations.

Offshore exploratory wells in the first drilling program on either of the ELs that comprise the proposed Project Area are a designated project and require the submission of a Project Description under *CEAA* 2012.

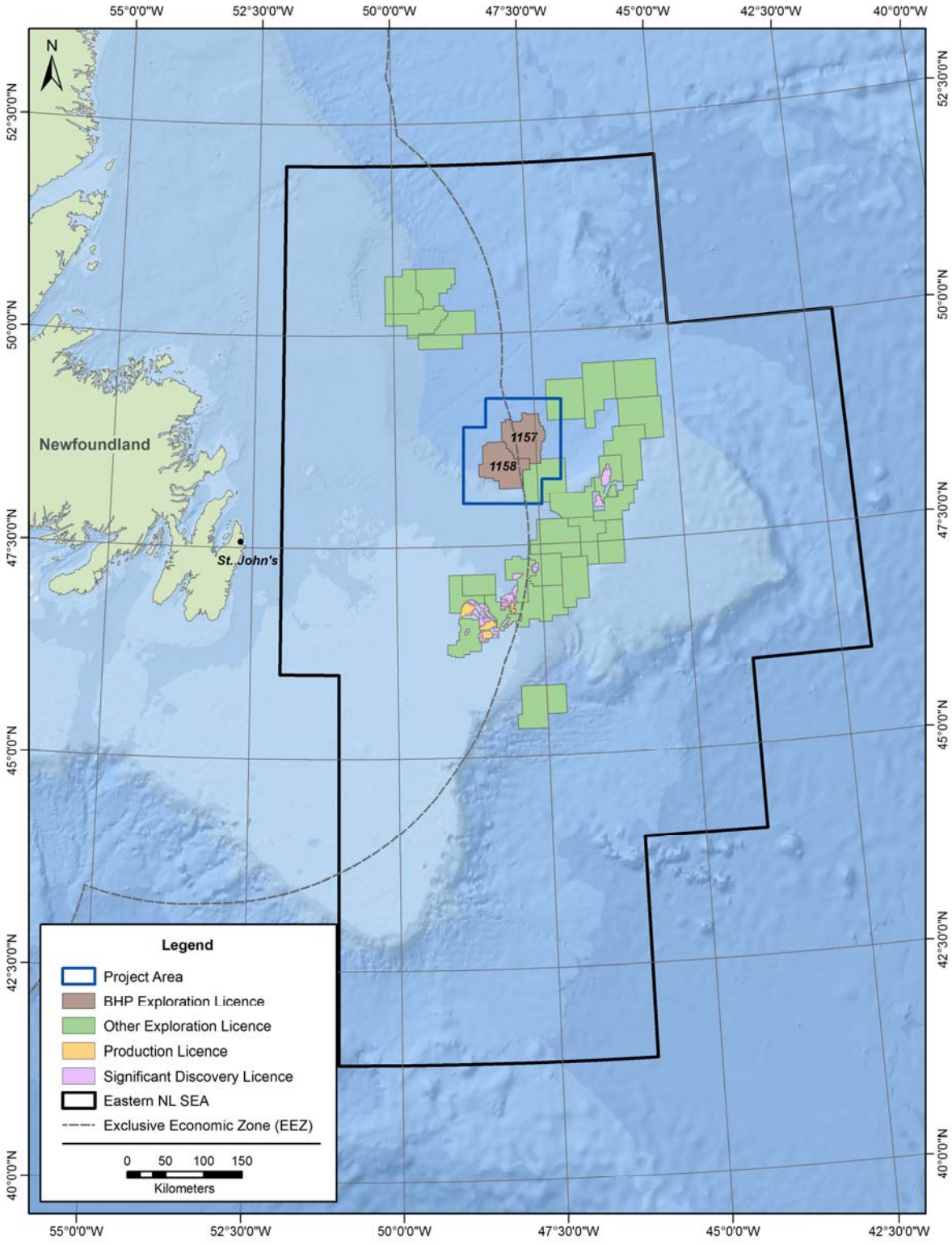


Figure 1.1: BHP Canada Exploration Drilling Project Licence Area

1.2 Proponent Information

Name of Corporate Body: BHP Petroleum (New Ventures) Corporation
1500 Post Oak Boulevard
Houston, Texas, USA
77056

1.2.1 Corporate Overview

BHP (hereinafter, also referred to as the Operator) is a world-leading resources company in minerals and oil and gas, with operations primarily in the Americas and Australia. Global headquarters for BHP are in Melbourne, Australia with offices around the globe.

BHP's Petroleum unit offers crude oil, hydrocarbons, and liquefied natural gas exploration and production services. BHP has a unique perspective on the extraordinary potential of natural resources to provide the essential building blocks of progress. BHP's purpose is to create long-term shareholder value through the discovery, acquisition, development and marketing of natural resources. Our strategy is to own and operate large, long-life, low-cost, expandable, upstream assets diversified by commodity, geography and market.

1.2.2 Offshore Experience

BHP's Petroleum unit comprises conventional oil and gas operations, and includes exploration, development and production activities. BHP has a high-quality resource base concentrated in the United States and Australia with core production operations consisting of conventional assets located in the US Gulf of Mexico, Australia and Trinidad and Tobago (Table 1.1). BHP produces crude oil and condensate, gas and natural gas liquids (NGLs) that are sold on the international spot market or delivered domestically under contracts with varying terms, depending on the location of the asset.

Table 1.1: BHP Operated Offshore Oil and Gas Assets

Location	Asset (BHP Equity)
Gulf of Mexico	Shenzi (44%) A standalone tension leg platform that produces oil and gas. Operating in >1200 m (>4000 ft) water depths.
Gulf of Mexico	Neptune (35%) A permanently moored tension leg platform that produces oil and gas. Operating in >1200 m (>4000 ft) water depths, with drill centers >1800 m (>6000 ft).
Trinidad and Tobago	Greater Angostura (45%) An integrated oil and gas processing platform.
Australia	Stybarrow Venture (50%) A Floating Production Storage and Offloading (FPSO) facility producing oil and gas from the Stybarrow and Eskdale fields.
Australia	Pyrenees Venture (40–71.43%) An FPSO facility producing oil and gas.
Australia	Macedon (71.43%) A domestic gas development with a stand-alone gas plant. First production achieved in August 2013.
Australia	Minerva (90%) An offshore gas field and plant producing gas and condensate.

BHP also has interests in offshore oil and gas assets managed by other operators. These are located in Africa as well as the Gulf of Mexico and Australia (Table 1.2).

Table 1.2: Non-BHP Operated Offshore Oil and Gas Assets

Location	Asset (BHP Equity)
Gulf of Mexico	Mad Dog (23.9%) A permanently moored integrated truss spar facility producing oil and gas.
Gulf of Mexico	Genesis (4.95%) A floating cylindrical hull (spar) producing oil and gas.
Gulf of Mexico	Atlantis (44%) A permanently moored semi-submersible platform that produces oil and gas.
Africa	ROD Integrated Development (38%) Development and production of six oilfields located onshore in the Berkine Basin, Algeria.
Australia	North West Shelf (8.3–16.7%) Supplies oil and gas to Australian and international markets.
Australia	Bass Strait (50%) 20 producing oil and gas fields with 23 offshore structures.

Exploration

BHP's Petroleum exploration strategy is to focus on material opportunities, at high working interest, with a bias for liquids and operatorship. Recent exploration activities for 2016 through 2018 are included below:

Table 1.3: BHP Petroleum Exploration Activities 2016 - 2018

Well	Location	Target	BHP equity	Spud date	Water depth	Total well depth
LeClerc-1	Trinidad & Tobago Block 5	Oil	65% (BHP Operator)	21 May 2016	1,800m	5,771m
LeClerc-ST1	Trinidad & Tobago Block 5	Oil	65% (BHP Operator)	6 July 2016	1,800m	6,973m
Caicos-1	US Gulf of Mexico GC564	Oil	100% (BHP Operator)	21 June 2016	1,288m	9,198m
Burrokeet-1	Trinidad & Tobago Block 23a	Oil	70% (BHP Operator)	8 August 2016	1,923m	3,337m
Burokeet-2	Trinidad & Tobago Block 23a	Oil	70% (BHP Operator)	18 August 2016	1,923m	7,348m
Wildling-1	US Gulf of Mexico GC520	Oil	100% (BHP Operator)	8 January 2017	1,230m	5,950m
Wildling-2	US Gulf of Mexico GC520	Oil	100% (BHP Operator)	15 April 2017	1,267m	10,205m
Wildling-2 ST01	US Gulf of Mexico GC520	Oil	100% (BHP Operator)	11 August 2017	1,267m	10,177m
Scimitar-1	US Gulf of Mexico GC392	Oil	65% (BHP Operator)	1 October 2017	1,289m	9,836m
Scimitar-1 ST01	US Gulf of Mexico GC392	Oil	85% (BHP Operator)	23 January 2018	1,289m	8,246m
Samurai-2	US Gulf of Mexico GC432	Oil	50% (Murphy Operator)	16 April 2018	1,088m	9,777m
Victoria-1	Trinidad & Tobago Block 5	Gas	65% (BHP Operator)	12 June 2018	1,828m	2,545m
Samurai-2 ST01	US Gulf of Mexico GC476	Oil	50% (Murphy Operator)	25 August 2018	1,088m	10,088m
Bongos-1	Trinidad & Tobago Block 14	Gas	70% (BHP Operator)	20 July 2018	1,909m	2,469m
Bongos-2	Trinidad & Tobago Block 14	Gas	70% (BHP Operator)	22 July 2018	1,910m	5,151m
Conception - 1	Trinidad & Tobago Block 5	Gas	65% (BHP Operator)	30 September 2018	1,721m	3,506m

1.2.3 Health, Safety, Environment, and Community

Sustainability is one of the core values set out in the BHP Charter (Section 1.2.4). To BHP, sustainability means putting health and safety first, being environmentally responsible and supporting communities. The wellbeing of BHP's people, the community, and the environment is considered in everything that it does.

BHP's highest priority is the safety of all those impacted by its operations, including BHP employees, contractors, and the communities in which it operates. BHP achieves nothing if it does not do it safely.

Recognizing that BHP's operations can impact the health of its people, BHP sets clear requirements to manage and protect the health and wellbeing of its workforce, now and into the future. BHP looks to create a culture of care and trusted relationships with its people through strong leadership and open communication.

BHP aims to minimize the environmental impacts from its activities and work in partnership with others to support environmental resilience.

BHP seeks to build good relationships with its stakeholders based on mutual respect, open and ongoing communications and transparency over its activities. BHP supports the development of diversified and resilient local economies that contribute to improved quality of life beyond the life of BHP's operations.

Our Requirements are the standards that give effect to the mandatory requirements arising from the BHP Operating Model as approved by the Executive Leadership Team (ELT). Our Requirements describe the mandatory minimum performance requirements and accountabilities for Group-wide HSEC-related performance requirements, business obligations, processes, functions, and activities across BHP. More Information about BHP's Our Requirements is provided in Section 1.2.5.

1.2.4 Our Charter

BHP

Our Charter

We are BHP, a leading global resources company.

Our Purpose

Our purpose is to create long-term shareholder value through the discovery, acquisition, development and marketing of natural resources.

Our Strategy

Our strategy is to own and operate large, long-life, low-cost, expandable, upstream assets diversified by commodity, geography and market.

Our Values

Sustainability
Putting health and safety first, being environmentally responsible and supporting our communities.

Integrity
Doing what is right and doing what we say we will do.

Respect
Embracing openness, trust, teamwork, diversity and relationships that are mutually beneficial.

Performance
Achieving superior business results by stretching our capabilities.

Simplicity
Focusing our efforts on the things that matter most.

Accountability
Defining and accepting responsibility and delivering on our commitments.

We are successful when:

Our people start each day with a sense of purpose and end the day with a sense of accomplishment.

Our teams are inclusive and diverse.

Our communities, customers and suppliers value their relationships with us.

Our asset portfolio is world-class and sustainably developed.

Our operational discipline and financial strength enables our future growth.

Our shareholders receive a superior return on their investment.

<Original signed by>

Andrew Mackenzie
Chief Executive Officer

May 2017

1.2.5 BHP Our Requirements

Our Requirements for Aviation	Provides the framework for aviation relating to safety expectations, technical requirements, and a common set of critical controls.
Our Requirements for Business Conduct	Our Requirements for Business Conduct support Our Charter and the Code of Business Conduct, and sets out what we all need to do to meet our ethical and legal obligations.
Our Requirements for Communications, Community and External Engagement	Provides the framework for engaging with our stakeholders in a consistent way including government, media, employees, equity analysts, investors and host communities, and is essential to build, protect and enhance our reputation, licence to operate and meet regulatory requirements.
Our Requirements for Risk Management	Provides the framework for risk management relating to climate change and material health, safety, environmental, and community risks.
Our Requirements for Environment and Climate Change	Provides the framework for demonstrating our environmental responsibility by minimizing impacts and contributing to enduring environmental benefits.
Our Requirements for Health	Provides the framework for Health relating to protecting our employees and contractors' health from workplace exposures.
Our Requirements for Health, Safety, Environment and Community Event and Investigation Management	Provides the framework for reporting events, conducting quality investigations and sharing and applying investigation lessons, to eliminate repeat events in our business and close identified gaps in our Health, Safety, Environment and Community (HSEC) framework.
Our Requirements for Health, Safety, Environment and Community Reporting	Provides the framework for reporting, relating to identification and reporting data, that reflects our impact on the supporting workforce and environment.
Our Requirements for Information Governance and Controlled Documents	Provides the framework for Effectively managing records and information.
Our Requirements for Internal Audit	Provides the framework for Internal audits managed by Risk Assessment and Assurance (RAA) to give assurance to the Board, CEO and Executive Leadership Team on the effectiveness of our governance, risk management, and internal control environment.
Our Requirements for Safety	Provides the framework for keeping our people safe.
Our Requirements for Security and Emergency Management	Provides the framework for crisis and emergency management planning.
Our Requirements for Supply	Provides the framework for managing goods and services throughout a project lifecycle.

1.2.6 Key Contacts

BHP intends to establish a local office in St. John's in 2019. The principal BHP contacts concerning this Project and its EA review are as follows:

Regional Manager:

Drew Carlock
Manager Geoscience Canada Licence
BHP
1500 Post Oak Boulevard, Houston, Texas, USA, 77056
Email. Drew.Carlock@BHP.com

Primary Contact for Environmental Assessment Process:

Collette Horner
Regulatory Lead, Eastern Canada
BHP
St. John's, NL Canada
Email: Collette.Horner@BHP.com

1.3 Regulatory Requirements and Processes

The proposed Project will require a number of approvals and authorizations under applicable regulatory processes, as summarized below. No federal financial support will be sought for the Project.

1.3.1 Environmental Assessment

Within the Canada – Newfoundland and Labrador (NL) Offshore Area, any proposed oil and gas exploration activities may be subject to EA review pursuant to the requirements of *CEAA 2012* and associated Regulations. The *CEAA* 2012 EA focuses on potential adverse effects on areas of federal jurisdiction linked to any federal decisions about a project. The *CEAA* 2012 associated Regulations Designating Physical Activities identify physical activities that constitute "designated projects" that may require a federal EA. These Regulations specify oil and gas activities that are subject to federal EA review, including (Section 10):

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.

The Minister of Environment and Climate Change may require an EA where there is potential for environmental effects on areas of federal jurisdiction (e.g., fish and fish habitat, migratory birds, transportation, federal lands, national defence, health, Indigenous Peoples, federal funding), or public concerns about effects. Where the federal EA process applies to a proposed project, the review commences with submission of a Project Description document by the proponent. Upon receipt of an adequate Project Description, the Canadian Environmental Assessment Agency (CEA Agency) has a 45-day timeline (including a 20-day public comment period) to determine whether a federal EA will be required. During this initial review, government examines whether the project may potentially result in adverse environmental effects on areas of federal jurisdiction or as a result of an associated federal decision.

This proposed Project includes potential effects on areas of federal jurisdiction especially planned activities within the offshore marine environment in areas considered "federal lands" under *CEAA 2012*. The Act defines "federal lands" as including *"...(i) the internal waters of Canada, in any area of the sea not within a province, (ii) the territorial sea of Canada, in any area of the sea not within a province, (iii) the exclusive economic zone of Canada, and (iv) the continental shelf of Canada...".* Project activities also have potential to affect areas of federal jurisdiction including management of fish and fish habitat, marine and migratory birds, marine mammals, and sea turtles. Various relevant permits, authorizations and/or compliance may be required under the federal *Fisheries Act*, *Migratory Birds Convention Act*, *Species at Risk Act* and possibly other legislation.

In the NL Offshore Area, petroleum exploration and development activities are regulated by the C-NLOPB (more information is provided below). It is anticipated that the C-NLOPB will be engaged in any offshore EA under *CEAA 2012*. In addition, as part of the required authorizations under Section 138(1)b of the *Canada-Newfoundland and Labrador Atlantic Accord Implementation Act* and Section 134(1)b of the *Canada-Newfoundland and Labrador Atlantic Accord Implementation Newfoundland and Labrador Act*, the C-NLOPB also requires project-specific EAs in relation to certain types of petroleum activities in the Canada-NL Offshore Area, in addition to EA requirements under *CEAA 2012.* Under the C-NLOPB's EA review process, the proponent is typically required to complete an EA Report in compliance with a project-specific Scoping Document issued by the C-NLOPB, with input from provincial and federal government agencies and non-governmental organizations. Any Environmental Impact Statements (EISs) completed under *CEAA 2012* will also address the C-NLOPB's EA requirements.

The proposed Project will occur in the marine environment more than 300 km off eastern Newfoundland and will not include development of any new, or BHP-owned or operated, on-land or near shore assets. Thus, it is not anticipated that the Project will encompass any provincial environmental regulatory interests. It is not expected that the NL *Environmental Protection Act* (Part X) will apply to the EA review or that approval will be required under other provincial or municipal permits or authorizations. This will be confirmed through consultation with regulators and discussions with provincial government departments and agencies as Project planning and the EA process proceeds.

1.3.2 The Accord Acts

The C-NLOPB, which was created through the Atlantic Accord (*Accord Acts*), is responsible (on behalf of the Governments of Canada and Newfoundland and Labrador) for petroleum resource management in the NL Offshore Area. The Offshore Area is defined in the Accord Acts as those lands within Canada's 200 nautical mile Exclusive Economic Zone (EEZ) or to the edge of the continental margin, whichever is greater. The proposed Project Area includes marine areas (lands) located beyond Canada's EEZ on the outer continental shelf (Figure 1.1).

Under the *Accord Acts*, the C-NLOPB's responsibilities include: issuing and administering petroleum and exploration and development rights; administration of statutory requirements regulating offshore exploration, development, and production; and approving Canada-NL benefits and development plans.

1.3.2.1 Land Tenure and Licensing

The C-NLOPB is responsible for administering a scheduled land tenure system for petroleum exploration rights in the Canada-NL Offshore Area (C-NLOPB 2019). The process commences with nomination of "sectors" followed by an established timeframe and an eventual call for nomination of parcels for lands within an identified sector. A Call for Bids is issued for specific land parcels and successful bidders are issued rights to specific ELs. A Call for Bids may also be issued as a result of nominations for lands not offered within a scheduled cycle. Typically, the rights-holder explores a licence area and in the case of a discovery, will be issued a Significant Discovery Licence to conduct further delineation in anticipation of finding commercially viable resources that may eventually lead to issuance of a Production Licence.

For the type of proposed offshore exploration activities provided in this Project Description, the C-NLOPB confers:

- The right to explore for, and the exclusive right to drill and test for, petroleum within an EL;
- The exclusive right to develop those portions of the offshore area with in the EL to produce petroleum; and
- The exclusive right, subject to compliance with the other provisions of the Accord Acts, to obtain a Production Licence in the EL.

Exclusive rights to an EL hold a maximum nine-year term in two consecutive time periods. The rights owner is required to drill or spud and diligently pursue at least one exploratory well on or before the expiry date of Period I as a condition of obtaining rights to Period II. Period 1 may be extended with the filing of a drilling deposit.

1.3.2.2 Authorization and Approvals

The C-NLOPB's responsibilities also include issuing regulatory authorizations and approvals pertaining to offshore oil and gas exploration and development projects and activities in the Canada-NL Offshore Area. Issuance of the rights to an EL is not an authorization to carry out physical exploration activities within the EL. For example, exploration well drilling requires project-specific set of regulatory approvals and authorizations. During the approval process, the proponent must provide detailed information on planned exploration activities and demonstrate the ability to undertake the work in keeping with applicable requirements and standards for safety and environmental protection. For example, prior to conducting any oil and gas activity, the proponent must obtain an Operating Licence (OL), which is a prerequisite for oil and gas fieldwork in the Canada-NL Offshore Area. Various authorizations and approvals are also required for specific activities that may include applying for and obtaining an Operations Authorization (OA) from the C-NLOPB. In keeping with the *Accord Acts* and Section 6 to 9 of the *Newfoundland Offshore Petroleum Drilling and Production Regulations*, prior to the issuance of an OA the following information must be submitted and approved by C-NLOPB:

- EA Report (completed under *CEAA* 2012, as applicable, or under the *Accord Acts*, as above);
- Canada-Newfoundland and Labrador Exploration Benefits Plan;
- Safety Plan;
- Transport Canada Letter of Compliance for the drilling installation;
- Environmental Protection Plan (EPP);
- Emergency Response and Spill Contingency Plans;
- Appropriate Financial Security;
- Certificate of Fitness for the proposed equipment/facilities to be used to carry out drilling activities; and
- Declaration of Fitness.

The C-NLOPB may also require approval of various documents, plans as specified by relevant legislation or regulations, or approval of specific activities conducted under an earlier authorization. For example, an Approval to Drill a Well (ADW) is required for operations involving drilling within or below the marine environment. A wellsite-geohazard seabed survey must be completed prior to issuance of an ADW. A separate ADW is required for each well within proposed drilling programs, including provision and review of specific details about the drilling program and well design. An ADW includes operation of a well including well termination (e.g., suspension, abandonment or completion). In addition, other approvals, notifications or records are required to conduct activities such as well testing, suspension, abandonment, completion or termination, or to alter the condition of a well.

The C-NLOPB's mandate also includes administering provisions of the *Accord Acts* that refer to industrial and employment benefits resulting from the exploration and development of oil and gas resources in the Canada-NL Offshore Area. This includes creation and optimization of benefits for Canada in general and specifically the Province of Newfoundland and Labrador. The *Accord Acts* require that before any work or activity is authorized, a Canada-Newfoundland and Labrador Benefits Plan must be submitted to, and approved by, the Board. This Plan identifies and describes measures regarding employment of residents of Newfoundland and Labrador and Canadians. It also includes providing full and fair opportunities for manufacturers, consultants, contractors, and service companies in the province, and within Canada, to participate on a competitive basis for supply of goods and services. BHP is committed to creating and optimizing opportunities and benefits for Newfoundland and Labrador and Canadian workers and companies as part of its activities and operations in the Canada-NL Offshore Area, and to carrying out its business in full compliance with relevant *Canada-Newfoundland and Labrador Benefits Plan Guidelines* and other applicable requirements. To ensure implementation of employment and economic opportunities, BHP will develop and implement a Canada-Newfoundland and Labrador Benefits Plan, including opportunities for underrepresented groups (e.g., women, Indigenous, visible minorities, and persons with disabilities) applicable to this exploration drilling project.

Other associated Regulations under the *Accord Acts*, and other mechanisms, govern particular exploration or development activities, and various Guidelines are intended to address specific environmental, health, safety, and economic issues related to offshore petroleum exploration and production. Of particular relevance to this Project and its EA are the *Offshore Waste Treatment Guidelines*, *Offshore Chemical Selection Guidelines for Drilling and Production Activities on Frontier Lands*, *Environmental Protection Plan Guidelines*, *Drilling and Production Guidelines*, *Canada-NL Benefits Plan Guidelines*, and various others.

It is anticipated that any EIS that required for the Project under *CEAA 2012* will be carried out with the involvement of the C-NLOPB and will address the Board's EA requirements under the *Accord Acts*.

1.3.3 Other Regulatory Requirements and Interests

Various other federal and provincial government departments and agencies may, pursuant to their legislation and mandates, also have regulatory responsibilities, information, advice and other interests regarding the proposed Project and its environmental setting and potential effects. These include the following:

- Fisheries and Oceans Canada (DFO);

- Natural Resources Canada;
- Environment and Climate Change Canada;
- Transport Canada;
- Department of National Defence;
- Health Canada;
- Parks Canada;
- Indigenous Services Canada;
- NL Department of Municipal Affairs and Environment;
- NL Department of Fisheries and Land Resources; and
- NL Department of Natural Resources.

Legislation and associated regulations that are or may be relevant to the Project and its EA include 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*;
- *Species at Risk Act* (Canada) and
- *Endangered Species Act* (NL).

In planning and conducting its oil and gas exploration activities, BHP will comply with all relevant provincial and federal legislation, regulations and guidelines, as well as applicable international conventions and standards. As described in Section 1.0, BHP also has established its own comprehensive environmental policies, guidance and procedures for planning and conducting oil and gas exploration and development activities, and requires its contractors to adhere to these, as applicable.

1.4 Document Purpose and Organization

This Project Description under *CEAA 2012*, has been prepared and submitted by BHP (as the Proponent) for review by the CEA Agency and other relevant departments, agencies, organizations as well as the public to contribute to government decision-making regarding requirement for a federal EA review of the Project. It is also intended to assist other government departments and agencies, Indigenous groups, other stakeholders and the public to determine their potential interest in the Project and any applicable EA review.

The Project Description document includes:

Chapter 1, Introduction: Provides a general overview of the Project, identifies the Proponent, outlines the regulatory context for the Project and EA, and describes the purpose and organization of the document.

Chapter 2, Project Description: Presents an overview of the proposed Project, including location, equipment, activities and schedule, as well as various associated environmental planning and management considerations.

Chapter 3, Environmental Setting: Provides a summary description of the existing biophysical and socioeconomic environments that overlap and interact with the proposed Project. This includes components of the physical (geology, climate, oceanography, ice), biological (fish and fish habitat, marine and migratory birds, marine mammals and sea turtles), and human (fisheries and other activities) environments of the proposed Project Area and surrounding marine environment.

Chapter 4, Consultation and Engagement: Describes the engagement program and activities undertaken or planned in relation to the proposed Project, including discussions with relevant government regulators, Indigenous groups, stakeholders and other interested parties.

Chapter 5, Potential Project-Related Environmental Interactions: Provides an overview of potential environmental issues and interactions that may result from the proposed Project and a discussion of relevant items and considerations related to the scope of any EIS that may eventually be required.

This Project Description has been developed in accordance with, and contains the prescribed information identified in, the *Prescribed Information for the Description of a Designated Project Regulations under CEAA 2012* and associated guidance (see Appendix A).

2.0 Project Description

The following sections present an overview of the proposed exploration drilling Project. The section includes planned locations, schedule, key components and activities, potential emissions and their management, potential accidental events, and associated environmental planning and management considerations. This Project overview reflects the current stage of the planning and design of this multi-year offshore exploration program and will be subject to continued definition and refinement as the EA process moves forward. The Project will include exploration drilling within ELs 1157 and 1158, possible appraisal (delineation) drilling in the event of a hydrocarbon discovery within those ELs, vertical seismic profiling (VSP), well testing, eventual well decommissioning and abandonment (or suspension) procedures, and associated supply and service activities.

2.1 Project Location

The Project is located in offshore eastern Newfoundland in the Orphan Basin area within the recently awarded EL 1157 and EL 1158, of which BHP is currently the sole shareholder and operator. The Project Area (Figures 2.1 and 2.2) covers approximately 1,577,458 km^2, and the western boundary is more than 300 km east of St. John's NL, Canada. Water depths within EL 1157 and EL1158 range between 1,175 to 2,575 m (Table 2.1). Within these ELs, BHP may conduct exploration activities between 2019 and 2028. Current Project plans involve drilling a maximum of 20 exploration or appraisal wells (i.e., between one and ten wells in either, or both, ELs). Specific wellsite numbers, types and locations are being determined as Project planning activities continue. For the purposes of this Project Description, the Project Area also includes a 20 km buffer area surrounding the licence areas to (conservatively) accommodate the location and extent of supporting ancillary activities that may extend beyond the immediate boundaries of the ELs. These activities may include temporary presence and movement of the drilling rig(s), support vessels, and aircraft during mobilization and demobilization, as well as any required non-drilling activities (such as any planned walk-away VSP, see Section 2.3.2) that could conceivably extend outside the ELs. All drilling operations carried out as part of the scope of this Project will be conducted within the defined boundaries of the ELs.

The Project Area is located entirely or partially within the study area addressed in previous or ongoing strategic or other environmental assessments in the eastern Newfoundland offshore area including:

- Equinor Canada Ltd. (Statoil Canada Ltd.) Flemish Pass Exploration Drilling Project 2018-2028 (Statoil Canada Ltd 2017);
- ExxonMobil Canada Limited Eastern Newfoundland Offshore Exploration Drilling Project 2018-2030 (ExxonMobil Canada Properties [EMCP] 2017);

- ExxonMobil Canada Eastern Newfoundland Offshore Geophysical, Geochemical, Environmental and Geotechnical Programs 2015-2024 (Amec Foster Wheeler 2015);
- Chevron Orphan Basin Exploration Drilling Program Environmental Assessment (LGL Limited 2005);
- Chevron Northern Grand Banks Regional Seismic Program (LGL Limited 2011);
- C-NLOPB Eastern Newfoundland Strategic Environmental Assessment (SEA) (Amec 2014); and
- C-NLOPB Orphan Basin SEA (LGL Limited 2003).

The Project Area is also located within the proposed Study Area for the “Regional Assessment of Offshore Oil and Gas Exploratory Drilling East of Newfoundland and Labrador” that will focus on the effects of existing and anticipated offshore oil and gas exploration drilling (CEA Agency 2018).

The location and spatial extent of a Study Area for any required EIS for the BHP Project will be determined as part of the planning and design phase of that assessment. The Study Area will be defined based on consideration of the nature and extent of the various environmental components that may be affected by the Project and upon which the EIS is focused, as well as the potential geographic zone of influence of Project components and activities (both planned and potential accidental events) and their environmental interactions.

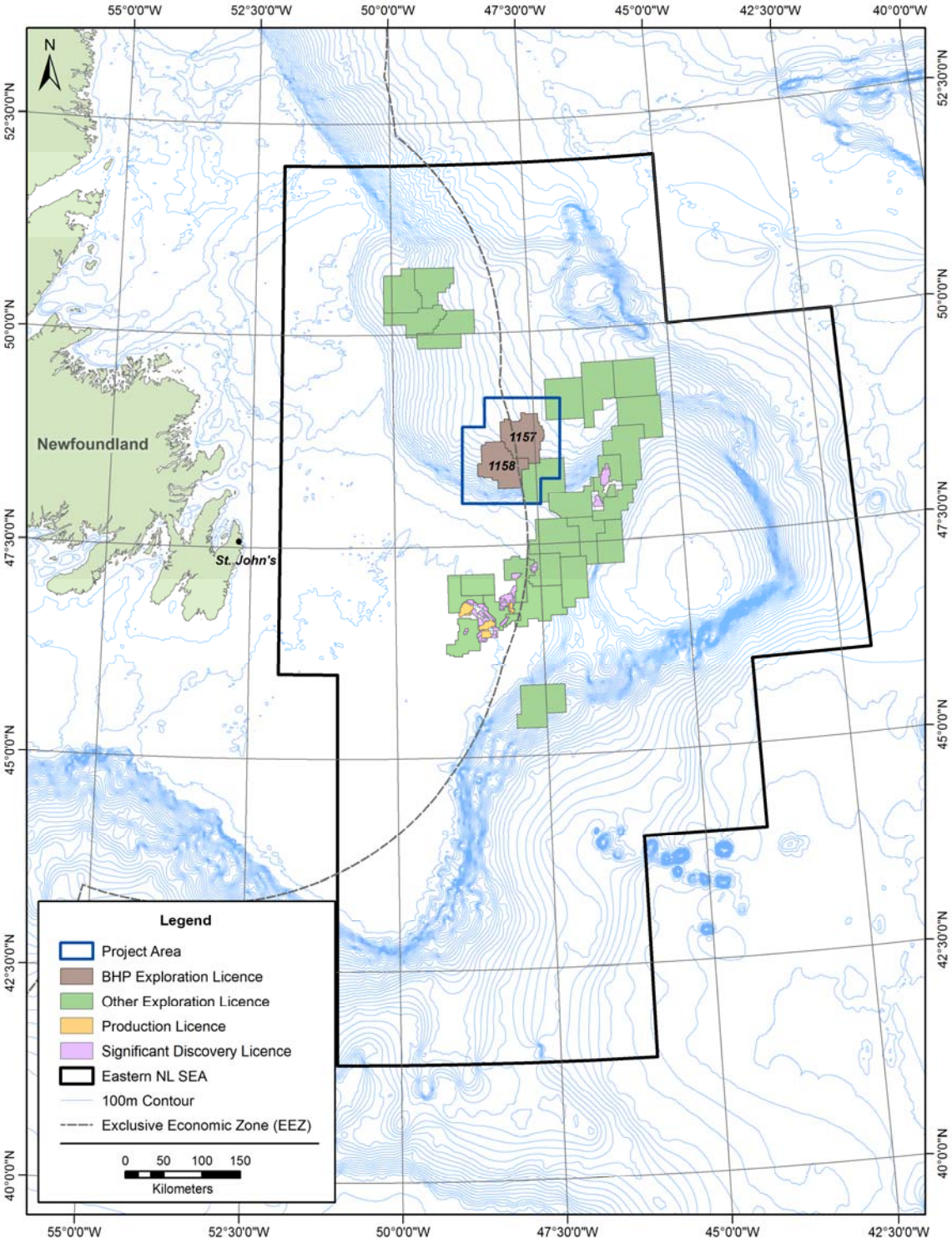


Figure 2.1: Exploration Licences and Associated Project Area

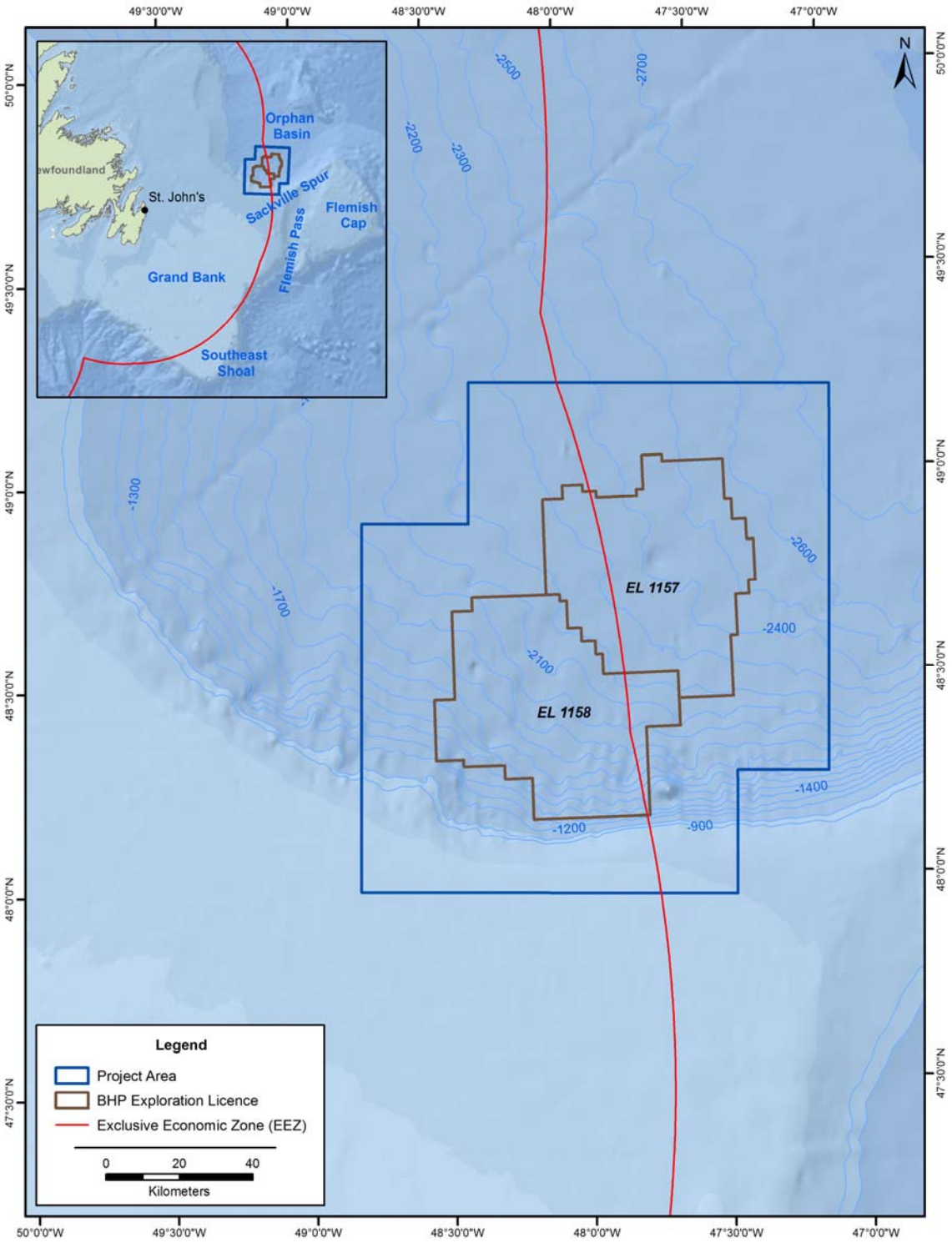


Figure 2.2: Exploration Licences and Associated Project Area (zoomed in version)

Table 2.1: Summary of BHP Canada Exploration Licences off Eastern Newfoundland

Exploration License	Approximate Distance from St. John's NL (km)	Licence Area (ha)	Approximate Water Depth (m)	
			Max	Min
EL 1157	366	269,799	2,575	2,150
EL 1158	324	273,579	2,265	1,175

Table 2.2: Project Area Corner Point Coordinates

ID	Longitude	Latitude	Easting	Northing
A	-47.0133	49.2067	790352	5458086
B	-47.0873	48.2562	790397	5352179
C	-47.4209	48.2672	765583	5352187
D	-47.4418	47.9651	765589	5318554
E	-48.8121	48.0014	663202	5318774
F	-48.7729	48.9048	663202	5419259
G	-48.3778	48.8965	692179	5419259
H	-48.3594	49.2454	692179	5458086

Note: Coordinates shown in NAD83 UTM Zone 22

2.2 Schedule

BHP proposes to commence exploration drilling with an initial well in 2021, pending applicable regulatory and corporate approvals, the identification of suitable drilling targets and other technical, logistical, and commercial considerations. Upon completion of these first well(s) and based on results, additional wellsite locations may be identified. It is currently anticipated that up to ten wells (exploration and possibly appraisal) may be drilled in each of the ELs, for a total of up to 20 wells being drilled during the term of the ELs (2019-2028). Exploration licenses issued by the C-NLOPB have a maximum nine-year term (consisting of two consecutive periods), when 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 of obtaining tenure to Period II. Period I is six (6) years commencing 15 January 2019 and Period II shall immediately follow Period I with an expiry date of 15 January 2028.

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. Drilling activities may not be continuous and will be determined, in part, by rig availability and previous wells' results. There may at times be up to two drilling units working in different parts of the Project Area simultaneously. It is expected that each well will require approximately 75 to 115 days for drilling and testing, which will be followed by well decommissioning and abandonment or suspension. Wells designed for suspension and re-entry will be determined through further prospect evaluation. VSP operations are estimated to take approximately one to three days per well and well testing, where required, would occur over a one-to-three week period.

2.3 Key Components and Activities

The objective of the proposed project is to explore prospective oil and gas targets to determine the potential presence of hydrocarbons within the ELs currently held by BHP in offshore eastern Newfoundland. Key components and activities of the Project include exploration drilling, possible appraisal (delineation) drilling, VSP's, well testing, eventual well decommissioning and abandonment, or suspension procedures, and associated supply and service activities.

Exploration and appraisal wells are drilled to confirm the presence, or delineate the extent, of oil and gas resources at particular locations. This determines whether areas of interest, identified from previous geophysical surveys and other information, contain oil and gas resources. Depending on the results of these wells, an operator may then drill appraisal

wells into different parts of the identified hydrocarbon accumulation to confirm its size and the characteristics of the hydrocarbons found.

2.3.1 Drilling

The Project may involve the drilling of up to 20 wells (exploration or appraisal) within the two ELs that comprise the Project Area over its 9 year duration (2019-2028. Specific wellsite locations are not currently defined, and will be selected as Project planning and design activities move forward. Wells may be drilled using either a harsh environment semi-submersible drilling unit or a harsh environment drillship (Figure 2.3). The type of rig chosen is primarily based on the characteristics of the physical environment at the proposed drill site, particularly water depth, expected drilling depth and expected weather and ice conditions, and associated mobility requirements, as described below (CAPP 2006, cited in Amec 2014). Any drilling installation and associated planned activities will be subject to regulatory review, inspections, and certifications prior to issuance of an OA by the C-NLOPB. The drilling installation will be mobilized to the drilling location after permits, regulatory approvals, and authorizations have been obtained.

Semi-submersible drilling units are used in relatively deep waters, or in areas where weather and ice conditions, technical capabilities, and operational risks dictate. Floating on submerged pontoons, the rigs can be raised or lowered by adjusting the ballast in the pontoons. The deeper the pontoons are positioned beneath the surface the more stable the rig is against surface conditions. On site, semi-submersible units can be anchored to the sea bottom; or in deeper waters, computer-controlled thrusters and propellers can dynamically position the rig and keep it steady (Figure 2.3).

Figure 2.3: Typical Semisubmersible Drilling Unit (Left) and Drill Ship (Right) (Amec 2014)

Drill ships are the most mobile type of drilling installation and are also typically used in areas of relatively deep water. These ships carry complete drilling systems, are almost entirely self-contained, and can therefore operate at remote sites with limited support. Drill ships can be anchored to the bottom in shallower water depths, but most commonly use dynamic positioning systems to maintain position at the well site. Drill ships typically have a derrick near the centre of the vessel hull which contains and operates the drilling equipment, where a moon pool provides access from the deck surface through the centre of the ship to the water surface (Figure 2.3).

Prior to beginning drilling operations, the wellsite location is surveyed, using either an remotely operated vehicle (ROV) or an Autonomous Underwater Vehicle (AUV) to visually inspect the seabed for sensitive habitat (e.g., corals and sponges) and debris. An ROV is used for monitoring drilling operations on BHP operated wells. The ROV operations are typically conducted from the drilling rig, but could be conducted from a service vessel equipped with an ROV.

The offshore exploration well is then drilled in sections over a period of one to several months, where each section is gradually reduced in size (Figure 2.4). Once the sections are drilled, steel pipe or casing is installed and cemented into place to stabilize the well bore, isolate pressure / fluids and prevent drilling fluid losses:

1) Riserless Hole Sections: For the first two to three hole sections, there is no closed loop circulating system in place (no riser) so the drilling fluids and cuttings are circulated onto the seabed. The drilling fluid is used to cool the bit and transport the drilled cuttings to the seabed, and typically seawater and/or water-based drilling mud (WBM) is used during the drilling of these riserless hole sections. The riserless hole sections are comprised of the following activities:

    a) The largest hole section, approximately 1 m in diameter, is drilled to approximately 100 m BML (below mud line).

    b) The conductor casing and low pressure wellhead housing are installed on a landing string (a thick walled drill pipe for landing casing strings or equipment on the seabed). The conductor casing is cemented into place. Generally, the top of cement is brought to the mudline (seabed).

    c) Sometimes a second conductor hole section is drilled below the conductor casing but this is not usually required in this region.

    d) Next, the 660 mm surface hole section is drilled, generally to depths of 700 to 1,000 m BML.

    e) The surface casing and high pressure wellhead housing are installed on a landing string. The surface casing is cemented into place. Generally, the top of cement is brought to the mudline.

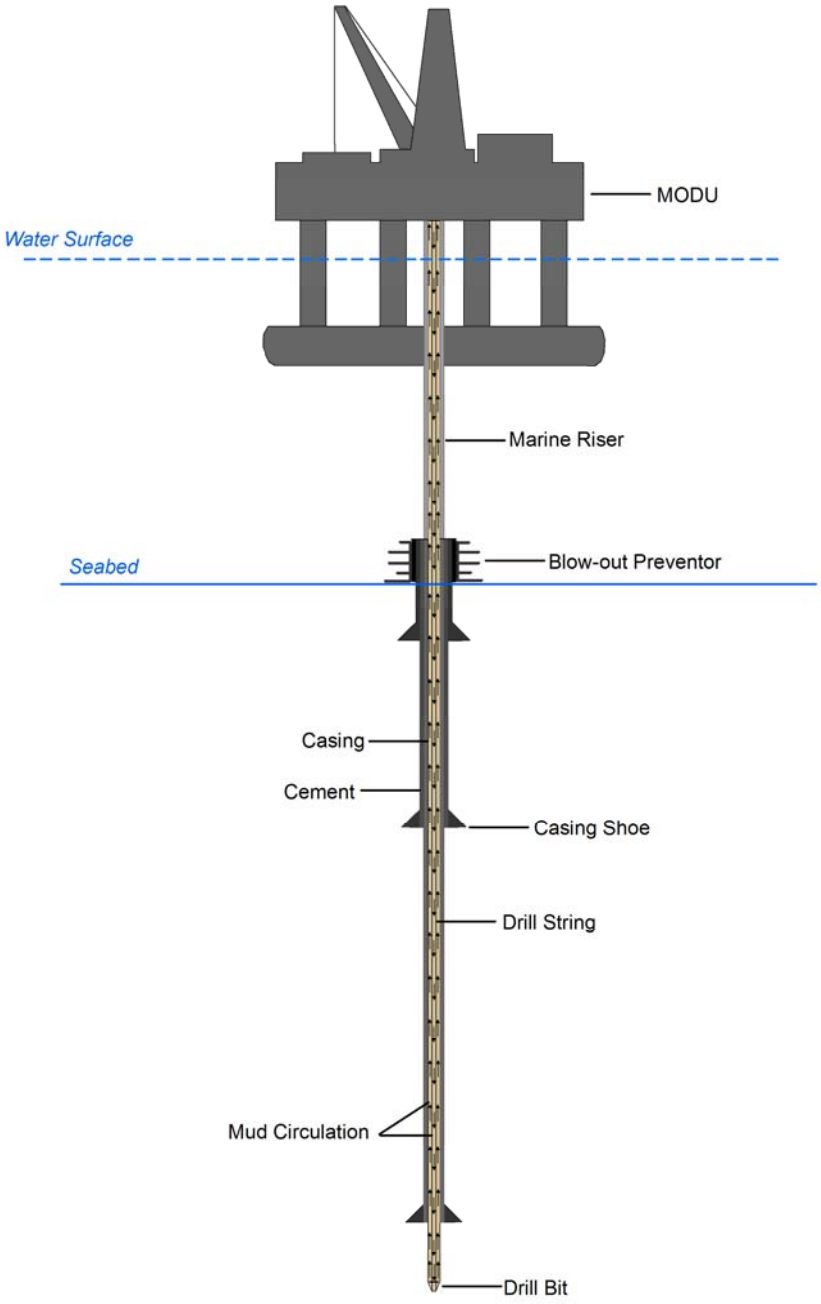
    f) The blowout preventer (BOP) is run on the marine riser pipe and is connected to the wellhead system, creating a conduit between the drilling unit and the well. The BOP comprises a system of high pressure valves that prevent water or hydrocarbons from escaping into the environment in the event of an emergency or equipment failure during drilling.

2) Riser Drilling: Once the riser is installed, the remainder of the hole sections may be drilled with WBM or synthetic-based mud (SBM). The riser creates a conduit for the circulation of drilling fluids down the drill string, through the bottomhole assembly / drill bit, back up the open hole / casing annulus to the riser annulus and back to the drilling unit. Drilled cuttings are also transported back up the annulus to the drilling unit for processing. At various intervals, depending on pore pressure, formation fracture gradient and presence of geohazards, intermediate casing strings or liners are installed and cemented in place. Drilled cuttings and drilling mud fluid use, treatment and eventual disposal, as permitted by, and in accordance with, the *Offshore Waste Treatment Guidelines,* are discussed further in Section 2.4.

Figure 2.4 provides a generalized schematic of a typical offshore well. For the planned exploration drilling activities being undertaken as part of this Project, there will be no excavated drill centers and no required underwater construction activities.

Throughout the duration of an offshore drilling program in the Canada-NL Offshore Area, other marine vessel traffic is restricted within a defined area surrounding the drill unit as a safety precaution. As specified in the Newfoundland Offshore Petroleum Drilling and Production Regulations, this safety zone is usually the greater of either the area within a 500 m radius of the drill unit or, if the unit is anchored, a zone 50 m from the anchor pattern, as per the requirements of the Collision Regulations under the *Canada Shipping Act* (2001). Notices to Mariners and other measures are also used to communicate the presence and nature of these drilling activities and associated safety zones to other vessels and marine operations in the area (see Chapter 5).

The proposed Project may include batch drilling activity, in which the riserless sections for multiple wellsites are initially and consecutively drilled, after which the drill rig returns to these sites to complete the remaining portion of the wells. The proposed Project will not include installation of excavated drill centres or underwater construction activities with the installation of seabed or near-seabed components limited to the wellhead, BOP and riser.



Note: For general illustration only, drilling unit and well components not to scale. (Additional intermediate casing strings/liners may be installed, depending on well-specific conditions and detailed well design). Diagram by Wood.

Figure 2.4: Conceptual Diagram of a Typical Offshore Exploration/Appraisal Well

2.3.2 Vertical Seismic Profiling

A VSP or “check-shot” survey is often undertaken following completion of drilling to obtain accurate time-to-depth ties to correlate seismic data to well depth. Profiling may include a zero offset VSP or a walk-away VSP. The zero offset VSP is undertaken by placing a string of receiver (geophones) down the well at pre-determined depths, with a seismic source (usually mid-sized airguns) suspended from the drilling unit (approximately 5-20 m). Walk-away VSP surveys may also be undertaken, which involve placing a sound source on a vessel which then moves away while firing the seismic source at pre-determined distances from the borehole receiver. The check-shots are recorded at multiple intervals down the well, and the resulting information assists in determining and confirming the depth of the drilled well and for reconciling drilling information with that obtained through seismic survey work. Between three and six seismic sound sources are typically used, with a volume of 150 to 250 cubic inches each. However, up to 12 sound sources may be used in a larger array. VSP surveys are typically short-term activities, usually lasting several days duration, with seismic source firing often limited to just a few hours.

2.3.3 Well Evaluation and Testing

Well formation logging, which is typically an ongoing process during exploration drilling programs, identifies rock types encountered and any possible zones where hydrocarbons are present. Mud logging and evaluation of drill cuttings and mud gases are the primary methods of well formation zone logging. Additional evaluation is accomplished by logging/testing, whereas logging/testing while drilling (LWD)/wireline well logging techniques provide detailed rock formation and rock properties information.

If significant hydrocarbons are indicated, during exploration drilling, well evaluation and testing may be conducted. To establish the viability and commercial potential of the prospect, a well flow test may be conducted to sample and identify formation fluids (which may contain hydrocarbons and/or water) and to measure produced flow rates. During this testing, produced fluid is flowed to the drilling unit, where hydrocarbons are separated from any produced water and samples are collected and analyzed. Produced hydrocarbons and produced water may be flared using high-efficiency burners to limit emissions and the risk of spillage to the sea.

In the case of a significant amount of produced water, it will be treated in accordance with the relevant regulatory requirements prior to ocean discharge. The duration of well testing is dependent upon various factors and typically occurs over several days, although the duration may be longer (e.g., 1-3 weeks) depending on the characteristics of the hydrocarbons and the type of analysis. Flaring activities are anticipated for short periods, if required as part of this Project. Section 2.4.1 provides a discussion of various atmospheric emissions that may be associated with the Project, including any required flaring activity.

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

2.3.4 Well Decommissioning and Abandonment or Suspension

Once drilling and any associated well testing is completed and approved by C-NLOPB, offshore wells are typically decommissioned and abandoned. These activities involve isolation of the well bore by placing cement plugs, potentially in combination with mechanical devices, at various depths. Consideration will be given to removing the wellhead from the seafloor if appropriate, mechanical cutters would be used in this instance.

Well decommissioning and suspension or abandonment for this Project will be carried out as per BHP’s Well Integrity Standard, as well as applicable industry practice and in compliance with relevant regulatory requirements. These activities will adhere to the requirements set out under the Newfoundland Offshore Petroleum Drilling and Production Regulations (or subsequent amended regulations). In the event that planned, conventional well abandonment techniques such as those described above 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. In some circumstances, the well may not be abandoned but suspended and re-entered for additional data acquisition and evaluation before final abandonment. The same cement plugging program would be implemented,

ensuring isolation of all hydrocarbon-bearing intervals. The casing/wellhead may be left in place for future use. Suspension and abandonment procedures are designed to isolate the well and prevent the release of wellbore fluids to the marine environment. Wells will be monitored and inspected in accordance with applicable regulatory requirements at the time of decommissioning and abandonment.

2.3.5 Supply and Servicing

Supply vessels and helicopters are used to transport personnel, equipment and materials to and from drilling rigs during offshore drilling programs. Supply vessels typically make regular trips to the drilling unit, and a dedicated stand-by vessel will attend to the rig throughout the drilling program. Personnel will be transported to and from the drilling rig by supply vessel or helicopter, according to work schedules and rotations, workforce numbers, distances and other factors.

It is expected that offshore supply vessel and aircraft (helicopter) services for the Project will be based in St. John's NL. Existing facilities are expected to be utilized for these purposes, as well as for the supply and disposal of materials such as drilling fluids, for fueling and other supply, support and logistical functions. Aircraft support for the Project will be based at the St. John's International Airport. These shore-based facilities are owned and operated by third-party service providers, service multiple operators and their activities, and operate in accordance with relevant regulatory requirements and approvals. Port facilities are certified as compliant port facilities under the Marine Transportation Security Act. Third party services and support will be procured through a competitive bid process in accordance with the requirements of the *Accord Acts*. It is not expected that the Project will result in any BHP owned/operated or BHP-specific upgrades to any such facilities, nor the development and use of new infrastructure at these established shore base facilities.

It is anticipated that a single drilling unit operating at the site will require an average of two to three return transits per week by supply vessels during the course of the Project with one vessel on stand-by at all times. In the case that two drilling units are operating at the same time, the number of offshore supply vessels could increase to between four to five trips per week. It is estimated that there would be on average of one to three helicopter transits per day to transfer crew and supplies to the drilling unit, which would increase proportionally (i.e., two to six transits per day) if two rigs were used simultaneously. These services will be procured from existing third-party suppliers that service the offshore oil and gas sector. Supporting vessels involved in Project activities will travel within existing shipping lanes to reduce incremental marine disturbance. Support vessels will essentially follow a straight-line approach between a drill rig operating within an EL in the Project Area and an established port facility in Eastern Newfoundland, a practice which is common in the oil and gas industry that has been active in this region for several decades.

Figure 2.5 illustrates key supply and support vessel traffic routes related to existing oil production facilities off eastern Newfoundland, as well as a potential traffic route that may be used for this Project. This is provided for general information and illustrative purposes, recognizing that specific routes may vary at times based on the particular location of the active drilling unit(s), the shore-based facility being used, environmental conditions (including weather and ice), and other logistical factors. All drilling units and vessels used for this Project will meet operational and environmental requirements for associated exploration activities, including relevant environmental mitigations and safety and emergency response procedures. All vessels will be in compliance with applicable legislation and regulations and will be inspected by Transport Canada and approved for operation by the C-NLOPB before beginning any Project-related work. They will have appropriate oil spill/pollution prevention and emergency response plans, and each will be compliant with International Convention for the Prevention of Pollution from Ships (MARPOL).

Additional vessels may also be required to complete ROV visual inspections, or geophysical surveys and geotechnical sampling. These vessels would include, but not be limited to: ROV vessels, 2D or 3D seismic vessels, survey vessels (including AUVs) for the conduct of high-resolution geophysical acquisition, and geotechnical coring vessels. Seasonally, ice management vessels will also be required.

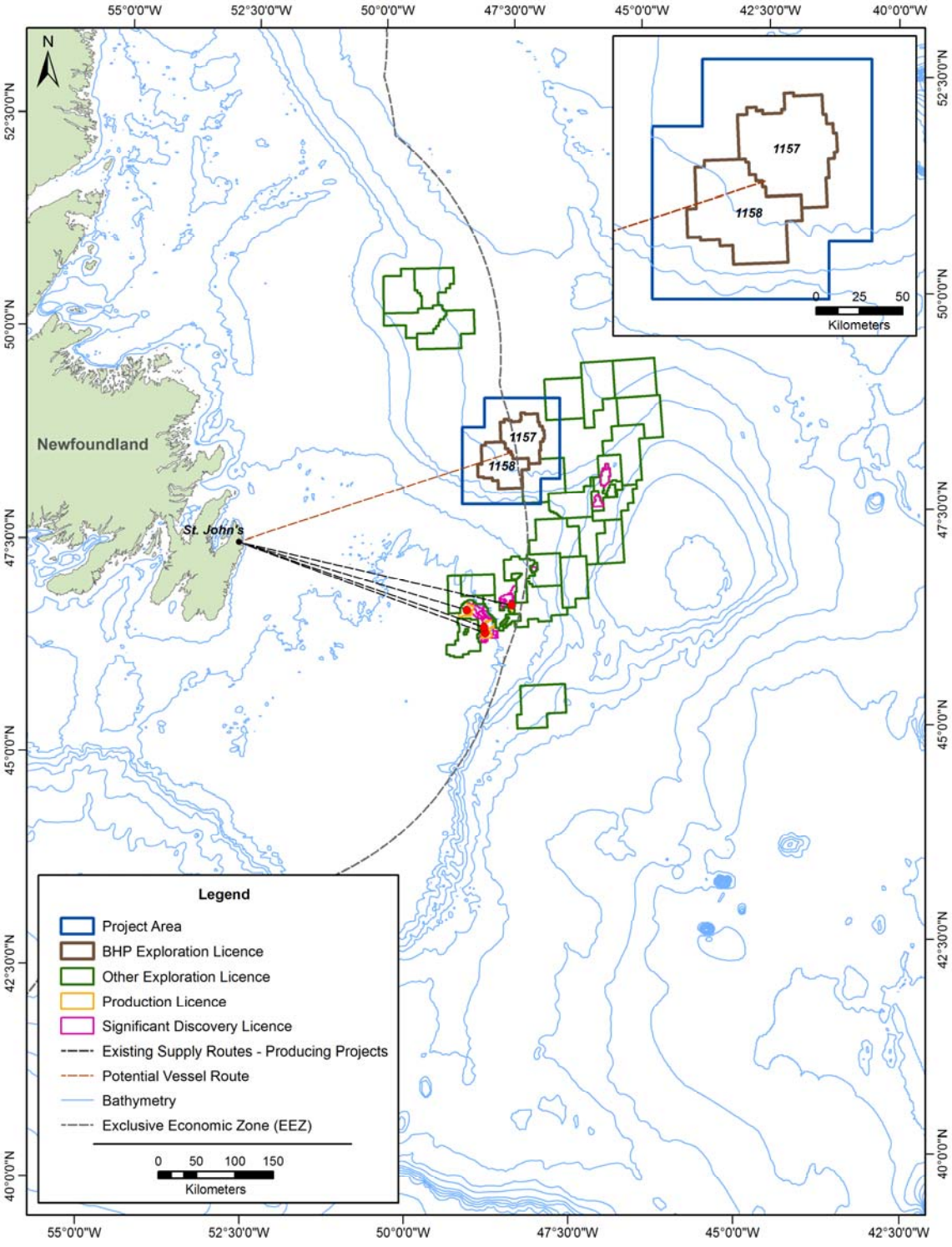


Figure 2.5: Existing and Potential Vessel Traffic Routes

2.4 Management of Potential Environmental Emissions

Potential emissions and discharges associated with offshore exploration drilling programs include noise, light and other atmospheric emissions (exhaust), liquid discharges, and other waste materials associated with the offshore drilling unit, support vessels and aircraft. Throughout the Project, efforts will be made to reduce waste emissions and generated discharges. Waste will be managed and disposed according to regulatory requirements and applicable guidelines. As part of the OA application process with the C-NLOPB, a Waste Management Plan will be prepared prior to drilling operations. The following sections provide an overview of potential environmental emissions, discharges and waste materials that may be associated with Project activities, with a description of how these will be managed.

2.4.1 Atmospheric Emissions

During Project activities, atmospheric emissions may include exhaust from drilling unit(s), support vessels and associated equipment (such as on-board power generators), as well as emissions from hydrocarbon storage and flaring associated with well testing, if conducted. The primary sources of air emissions, including greenhouse gases (GHGs), that would result from these Project activities would include:

- Drilling unit, vessel and aircraft traffic (carbon monoxide (CO), nitrogen oxides (NOX), total suspended particulates (TSP), volatile organic compounds (VOCs), GHGs); and
- Power generation (CO, NOX, TSP, VOCs, sulphur dioxide, GHGs).

Short periods of flaring and associated emissions of associated gases (CO, NOX, VOCs, TSP, GHGs) could occur if formation flow well testing is required. Air emissions will be in keeping with relevant regulatory requirements and standards, including the *Canadian Environmental Protection Act*, National Ambient Air Quality Objectives and the NL Air Pollution Control Regulations for specified criteria air contaminants, as well as relevant regulations under MARPOL.

A general estimate of potential GHG emissions that may be associated with well drilling for this type of project is provided for the purposes of this Project Description. Assuming that it could take 75-115 days to drill a well, including well testing activities, it is estimated that CO_2 equivalent emissions associated with active drilling (single unit) and related vessel traffic could be in the range of 16,000 to 32,000 tonnes of CO_2 per well. It is currently anticipated that the number of wells drilled annually for the Project could range from zero to three, which would result in total CO_2 equivalent emissions ranging from 0 to 96,000 tonnes annually. These are preliminary estimates only. Specific emission types and volumes will depend on a variety of factors, including drilling unit and support vessel types and classes, time of year, duration of active drilling, and other considerations. An estimate of, and analysis of, potential Project-related GHG emissions will be provided as relevant and required in the EIS.

Sound associated with offshore drilling programs include emissions from drilling and other activities on the drilling unit itself, as well as from supporting vessel and aircraft traffic. Light emissions from the drilling unit include artificial lighting as well light associated with any flaring required during well testing. Light is also generated by support vessels, which will be comparable to that from other ships of similar size. Efforts will be taken to minimize lighting, subject to crew and vessel safety.

2.4.2 Underwater Sound

Underwater sound is generated from offshore drilling activities, including drilling where sound is emitted directly into the benthic and marine environment. Sound is also generated by operation of supply and supporting vessels as well as the drilling unit including noise from dynamic positioning. These types of sound will occur throughout the exploration drilling program. Underwater sound also results from source arrays for any associated VSP data collection. Sound from VSP operations would be periodic and of short-term duration (up to several hours or days), with source array volumes ranging from 450-2,400 in^3 with operating pressures of approximately 2,000 psi, and peak-to-peak amplitude of 20 to 60 bar-m (Amec Foster Wheeler 2018). The propagation of any generated underwater sound is influenced by water column and seabed characteristics.

2.4.3 Drilling Fluids and Cuttings

Drilling muds are used to lubricate and cool drill bits and holes and to circulate cuttings and transport them to the surface. Drilling fluids also 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). Various types of drilling muds are used. WBMs, which are mainly seawater with other additives including bentonite (clay), barite, and potassium chloride, are primarily used for riserless sections of a well. SBMs are generally used once the riser has been installed, though WBMs are used in some applications. Other approved chemicals are also added as required to achieve and control the required mud properties (Neff 2000).

The initial “riserless” sections of a well bore are generally drilled using WBMs in which case mud and cuttings are returned to the seabed in accordance with the Offshore Waste Treatment Guidelines (OWTG). Once the well conductor and surface hole sections are completed and the riser and BOP are installed, the deeper sections of the well bore are typically drilled using SBMs, which are returned to the drilling unit via the riser. Once onboard, drilled (i.e., rock) cuttings are removed from the drilling mud in successive separation stages. The fluids are reconditioned and reused until the well is abandoned, when the spent SBM is returned to shore for disposal. SBM-associated drill cuttings may be discharged at the drill site, in accordance with the OWTG, provided they are appropriately treated prior to discharge.

2.4.4 Drilling Cement

Drilling cement is pumped into the casing/wellbore annuli following the casing installation. Prior to installation of the marine riser and BOP, any excess cement may be discharged on the seabed surrounding the wellhead. During commissioning, testing and cleaning of a cement unit, small volumes of cement may be discharged at sea. It is necessary to clean the cement unit after each operation to prevent cement from hardening in the mixing tanks and liners. Drilling cement would be discharged in accordance with the OWTG and Offshore Chemical Selection Guidelines (OCSG). In the unlikely event of difficulties being encountered during cement job execution it may be operationally necessary to circulate cement slurry out of the well. In this scenario the slurry would be discharged provided that it meets the applicable regulatory standards for ocean discharge.

2.4.5 Other Liquid and Solid Wastes

Liquid wastes generated by offshore drilling activities include storage displacement, bilge, ballast, cooling, gray and black water, and possibly other materials. The OWTG specifies allowable chemical properties for offshore disposal to the marine environment and associated reporting requirements. Liquid discharges that do not meet applicable standards for ocean disposal are transported back to shore for disposal at approved facilities. Domestic waste materials generated by personnel on-board drilling units and support vessels is collected in dedicated waste receptacles and disposed of on a regular basis, with materials being separated and recycled where possible. Food wastes will be disposed in compliance with MARPOL 73/78 Annex V (Food Waste Regulations). Solid wastes intended for disposal will be stored in dedicated waste containers, transported to shore and collected onshore by an approved waste contractor for transportation to an approved waste disposal facility. Hazardous waste materials that will or may be generated during Project activities, including spent and excess chemicals, chemical containers, spent absorbents and oily rags, batteries, and biomedical waste are stored in dedicated and appropriate waste receptacles for transportation to shore and eventual disposal at approved facilities.

Key regulatory guidance pertaining to offshore emissions, discharges and wastes, as well as disposal and treatment is provided in the OWTG. Offshore waste discharges for this Project will be managed in strict compliance with these Guidelines, as well as MARPOL. BHP is committed to establishing safe and environmentally responsible procedures for generation, storage, handling, transportation, treatment and disposal of all waste materials generated throughout the course of the Project. The Company will employ appropriate techniques 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 as per the Project’s EPP, Offshore Chemical Management Plan and the Waste Management Plan. Waste types and volumes will be documented as per relevant regulatory requirements.

2.5 Potential Accidental Events

During an offshore oil and gas exploration program, an accidental event or malfunction is a potential, though unlikely, occurrence. Given that there is some potential for such an event, multiple systems are established to prevent or, if required, to respond to such an incident and address the potential environmental effects. BHP uses a systematic approach to management of potential unplanned events through identification and assessment of hazards and risk, identification of mitigation and control measures, establishment of objectives, plans and performance standards, and development of BHP specific campaign and well risk assessments. Multiple preventative and response barriers are implemented to manage risk, to mitigate and respond to incidents, and manage any consequences. Accidental events that could potentially occur during an exploration drilling program and potentially result in a release to the environment, include spills and releases from drilling unit or supply vessels, vessel collision, dropped objects, loss of well control (e.g., blowout), and natural hazards.

Potential well control incidents and other possible hydrocarbons, or other substance spills from the drilling unit and/or associated vessel activities vary considerably in terms of their nature, scale, duration and potential environmental consequences. BHP will, through a third-party service provider, conduct predictive spill modelling to help assess the risk of adverse environmental effects that may occur as a result of potential accidental events associated with the Project. Water depth and met-ocean conditions that may affect the behavior of a subsea spill scenario will also be considered in the oil spill modelling. In general, hydrocarbons released from a subsea spill in deep water would remain in the water column longer as it rose to the surface, and therefore would be subject to more mixing, dissolution and natural dispersion than a subsea release in shallow water. A deepwater release may also be transported by subsea currents and subject to spreading over a larger area than a shallow water release (Spier et al. 2013).

Oil spill prevention is a key focus of BHP's plans and activities. Oil spill prevention, response and overall preparedness approaches for the Project will be further developed and defined as the various regulatory review and approval processes move forward. BHP will develop and implement a Project-specific Emergency Response Plan and Oil Spill Response Plan, both of which will be submitted to the C-NLOPB as part of the OA application process (Chapter 1).

During the annual ice season (including icebergs) in offshore eastern Newfoundland (typically between March to June), ice management is a required activity as part of normal offshore operations. Ice management process will be documented in BHP's Ice Management Plan for Operations and will be implemented should ice pose a threat to the drilling unit and/or other Project equipment, personnel or the environment. Ice management processes will 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.

3.0 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

Previous environmental studies in the Canada-NL Offshore Area are 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 associated environmental studies and analysis 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.

As described in Section 2.1 and above, portions of the Canada-Newfoundland and Labrador Offshore Area, including the proposed Project Area, have been subject to previous EAs and other environmental studies that would be relevant to this project and any EIS that may be required. This includes SEAs associated with the Eastern Newfoundland Offshore Area (Amec 2014) and the Orphan Basin Area (LGL Limited 2003) and the ongoing regional assessment (CEA Agency 2018). 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, and in adjacent regions. These

include the recent and on-going EAs available on the C-NLOPB's EA website (https://www.cnlopb.ca/assessments/) that provide a useful and informative description and understanding of the existing environmental setting of the region.

This section summarizes the existing biophysical and socioeconomic environments that overlap and may interact with the proposed Project. This includes relevant components of the physical (geology, climate, oceanography, ice), biological (fish and fish habitat, marine and migratory birds, marine mammals, and sea turtles), and socioeconomic (commercial fisheries, Indigenous communities, other human components, and activities) environments that characterize the proposed Project Area and surrounding marine environments.

3.2 Physical Environment

This section gives an overview of relevant aspects of the physical environment of the Project Area, including its geology, topography, bathymetry, climatology, oceanography, and ice conditions.

3.2.1 Geology

The marine geology off eastern Newfoundland is complex and dynamic. The surficial geology within the Project Area is shaped by both natural and human processes (Amec 2014). Located on the eastern Canadian continental shelf, this area was formed by the sea-floor spreading as the North Atlantic Ocean opened during the Late Triassic to Early Tertiary and is underlain by pre-rift basement rocks (Fader et al. 1989). Rifting, combined with salt tectonics in the area, created a complex series of Mesozoic rift basins that are separated by basement highs along the central to outer shelf. The resulting combination of stratigraphy, structure, and timing have been conducive to hydrocarbon generation and entrapment (Bell and Campbell 1990). The main sedimentary basins off eastern Newfoundland 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 presently the only basin with developed oil producing fields off eastern Newfoundland. This rock type has also proven to be widespread in the Flemish Pass Basin (G and G Exploration Consulting Ltd. 2003).

The main sedimentary basins in the Project Area include Orphan Basin, a perched slope basin (Fader et al. 1989). The surficial sediment of the area ranges from fine muds and clays to extremely coarse boulders and bedrock (LGL Limited 2011). Primary reservoirs are the shallow fluvial sandstones deposited during the Late Jurassic and Early Cretaceous periods of the Mesozoic Era in the East Orphan Basin and lower Tertiary basin floor fan sandstone reservoirs in the Western Orphan Basin. Quaternary deposits in the southern Orphan Basin include complex mass transport deposits (MTD) comprising both glaciogenic debris flow and blocky MTD. Evidence of past instability within the Orphan Basin includes thick, stacked MTDs on the basin floor and seabed failure scars on the continental slope (Campbell 2005). MTDs may be unstable in areas based on the presence of diapiric features and can provide weak layers for the development of seabed creep (Campbell 2005).

The most recent edition of the Seismic Hazard Map prepared by NRCan (2018a) indicates that the Project Area has been classified as having a low seismic hazard. According to the National Earthquake Database (NRCan 2018b) there have been no seismic events recorded within the boundaries of the Project Area during the 1985-2019 period (Piper et al. 2018). Within the Orphan Basin, slopes steeper than three degrees show widespread failure except where underlain by glacial till. There is geological evidence from the last 3 to 5 thousand years that failures in the Orphan Basin have resulted in earthquakes with magnitudes ranging from 5.6 to 7.6 (Amec 2014; Piper et al. 2018). Canada's eastern continental margin is tectonically passive and seismicity is relatively quiet throughout much of the region.

3.2.2 Bathymetry

The bathymetry of the Project Area and surrounding regions is generally well known (Figure 3.1). Water depths within EL 1157 and EL1158 range between 1,175 to 2,575 m. Within the Orphan Basin, water depths range from approximately 1,200 m at the edge of the continental shelf to as deep at 3,300 m south of the Orphan Knoll. The Orphan Knoll, which lies in water depths of around 2,000 m, is a bathymetric high in the centre of the Orphan Basin.

3.2.3 Climatology

Available climatological information for sites within and around the Project Area indicate that the prevailing winds over this region are westerly and northwesterly from October to March, while southwesterly and southerly winds are more frequent during the warmer months of May to September. While gale force winds (17.5 to 24.2 m/s) may occur throughout the year, storm force winds (24.7 to 32.4 m/s) are expected to occur in all months except July. Air temperatures in the Orphan Basin region are coldest in February and warmest in June. Most of the observed precipitation events in this region include rain or snow, while other precipitation types, such as mixed rain and snow, freezing rain, and hail, occur far less frequently. Rain events have the lowest monthly frequency in January and February, when the snow occurrence is most common. From May and November, maximum rain frequency occurs in October, and minimum snow frequency occurs from June to September. Freezing rain and drizzle, which are relatively infrequent occur less than one percent of the time in any month, and do not occur between June and October. Thunderstorms and hail have potential of occurring year-round with the highest frequency of occurrence occurring in the month of June (Amec 2014).

The occurrence of fog in the offshore area can result in low visibility though visibility in the Orphan Basin varies considerably throughout the year. Good or fair visibility conditions combined occur 81 percent of the time annually. Good visibility (greater than 10 km) is most frequent from September and October and least frequent in March and April. Visibility is poorest in the spring and summer (Amec 2014; C-Core 2017).

3.2.4 Oceanography

The cold Labrador Current, which dominates the general circulation of water off eastern Newfoundland, is divided into 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. The Labrador Current inshore branch tends to flow mainly in the Avalon Channel close to the coast of the Avalon Peninsula but may sometimes also spread farther out on the Grand Banks. The offshore branch flows primarily over the upper Continental Slope at 300-1,500 m water depths including the Orphan Basin, and through the relatively deep Flemish Pass (Amec 2014, LGL Limited 2003). For the Orphan Basin, the most severe sea states occur mainly between December and January when maximum significant wave heights of up to 15.9 m from the northwest can be expected, with an associated peak period of 15.8 s. Maximum expected significant wave height is lowest (6.3 m) in July, with an associated peak period of 10.8 s. Significant wave heights in excess of 6 m may occur during any month in the Orphan Basin, and mean annual significant wave height ranges from 3.0-3.2 m (Amec 2014; C-Core 2017).

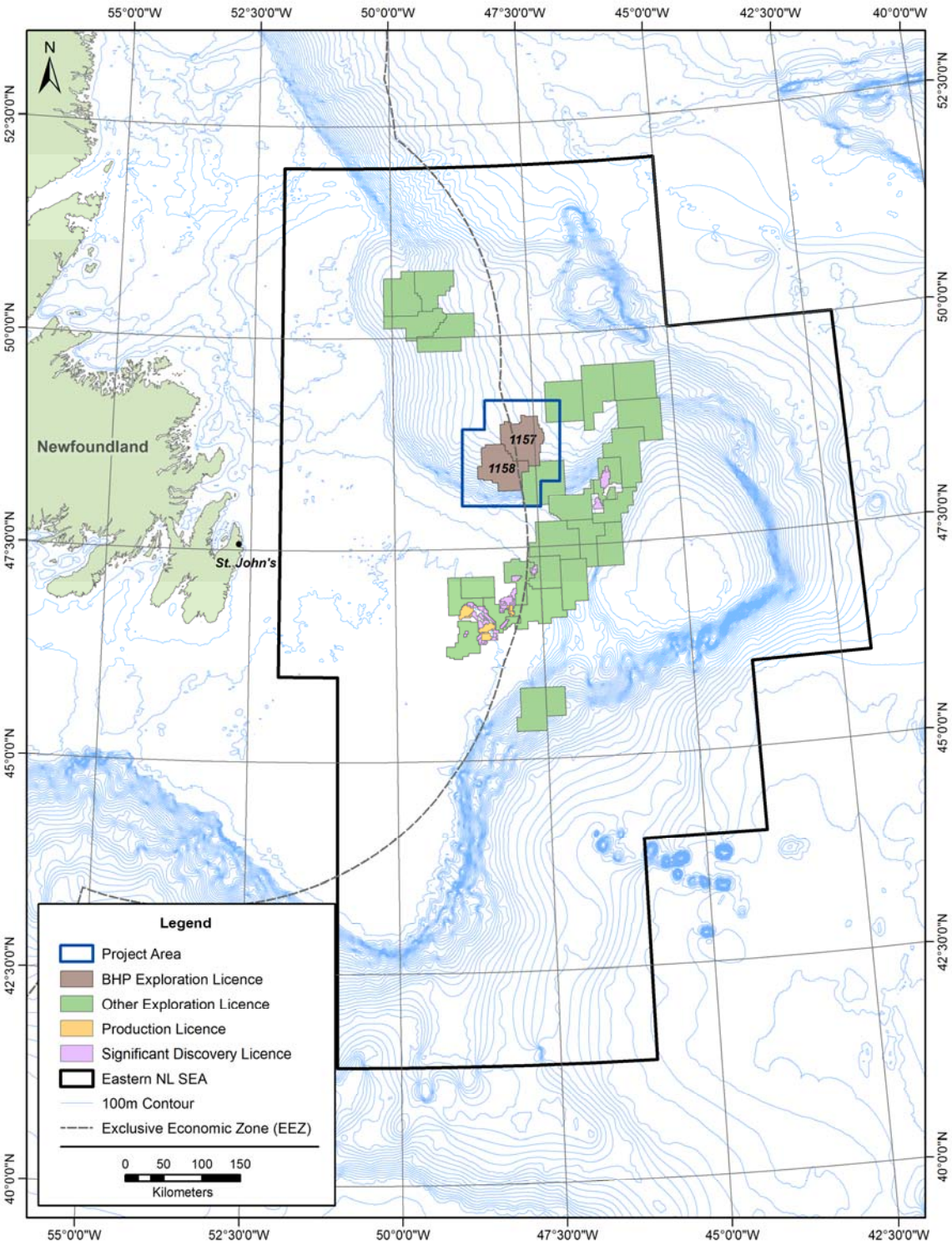


Figure 3.1: Regional Bathymetry

3.2.5 Ice Conditions

Offshore ice conditions may vary considerably each year and by location. 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. From December to February, light (icing rate <0.7 cm/hr) to moderate (icing rate 0.7-2.0 cm/hr) icing conditions are relatively more frequent (i.e., occurring approximately 30 percent of days) than other months. The frequency of heavy (icing rate 2.0-4.0 cm/hr) to extreme (icing rate >0.4 cm/hr) icing is low (<10 percent of days) for the Project Area (C-Core 2017). Available data indicates that thin first-year ice is the predominant ice type in the Orphan Basin from mid-February to late March with medium and thick first-year ice predominant in April (Amec 2014). Open water in the Project Area occurs in excess of 80 days from summer (June-August) to winter and is reduced to 55 to 85 days in spring (March-May) (C-Core 2017). Sea ice begins to retreat over the entire eastern Newfoundland offshore area by mid-April, and the Flemish Cap and Southern Grand Banks and adjacent areas are generally ice-free by the beginning of May (Canadian Ice Service [CIS] 2011; Amec 2014).

Icebergs are masses of fresh water ice that calve each year from the glaciers along West Greenland. Upon reaching the continental shelf off eastern Canada, their southerly transport is largely directed by Baffin and Labrador currents (C-Core 2017). The iceberg season in offshore eastern Newfoundland traditionally lasts from about January through August with occasional sightings into the Fall (September to November) (Amec 2014). The waters off Newfoundland and Labrador can be a high traffic area for many icebergs. The greatest numbers of icebergs have been observed in the Orphan Basin and northern Grand Banks, accounting for 72 percent of the total icebergs observed in the Eastern SEA area. Annual mean open-water iceberg areal density (frequency) for the Project Area ranged from 57-97 based on pooled aerial surveys and satellite data (C-Core 2017). These observations are mostly of small (100,000 t, 5-15 m height, 15-50 m length) to medium (750,000 t, 15-50 m height, 50-100 m length) sized icebergs and mainly occurs from February to July (Amec 2014).

3.2.6 Air Quality

The ambient air quality is considered to be virtually background levels due to the occasional sources of exhaust products that may compromise air quality in the area. Air quality in the Project Area and surrounding areas would have occasional and transient influence from exhaust products from exhaust products from marine traffic (including fishing vessels), aircraft, and other exploration activities. Long-range contaminants from the Northeast Seaboard and industrial Midwest of the United States may also influence the general region (EMCP 2011). The nearest non-transient emission sources to the Project Area would be the existing offshore oil production facilities in the Jeanne D'Arc Basin (Hibernia, Terra Nova, White Rose, and Hebron) that are located more than 100 km away. These operations are documented in the National Pollutant Release Inventory (NPRI) reporting program for criteria air contaminants (CAC). Reported Air emissions ranges (Amec Foster Wheeler 2018, Stantec Consulting 2018, Environment and Climate Change Canada [ECCC] 2018) for the White Rose, Terra Nova, and Hibernia Facilities in 2017 were as follows:

- Carbon monoxide: 505-1,740 tonnes/year
- Nitrogen dioxide: 1,113-2,782 tonnes/year
- Sulphur dioxide: 130-208 tonnes/year
- Total particulate matter: 130-204 tonnes/year
- Particulate matter (<10 µm): 130-204 tonnes/year
- Particulate matter (<2.5 µm): 130-204 tonnes/year
- Volatile organic compounds: 422-2,642 tonnes/year

3.3 Biological Environment

Marine ecosystems are comprised of biological and physical elements that interact to form complex and variable patterns across a seascape. Biological ecosystem elements span primary producers such as phytoplankton to consumers such as zooplankton, benthic invertebrates and fish (Amec 2014). The following sections present an overview of relevant

aspects of the biological environment of the area including fish and fish habitat, marine birds, and marine mammals and sea turtles, as well as identified Special Areas.

3.3.1 Marine Fish and Fish Habitat

Various available sources provide relevant information on marine fish and fish habitat in and around the Project Area and other areas of the marine environment off eastern Newfoundland. These include published and unpublished reports, available datasets and other sources, many of which were reviewed and summarized in the SEA completed for this area (Amec 2014). Available information describing the presence, distribution and abundance of fish and invertebrate species from recent DFO Research Vessel (RV) surveys that cover part of the Project Area, as well as Northwest Atlantic Fisheries Organization (NAFO) surveys and reports (e.g., Knudby et al. 2013; Nogueira et al. 2016, 2017; Murillo et al. 2016a), and other literature describe marine fish and habitat in other areas (often on a species-specific basis). Environmental surveys, predictive habitat modelling and other analysis related to the presence and distribution of corals, sea pens and sponges have also been completed and are reported in the available literature (e.g., Edinger et al. 2007a, 2007b; Wareham and Edinger 2007; Working Group on Ecosystem Approach Framework to Fisheries Management [WGEAFM] 2008; Gilkinson and Edinger (Eds.) 2009; DFO 2010; Murillo et al. 2011, 2012, 2016a, 2016b; NAFO 2011; Baker et al. 2012; Beazley et al. 2013; Knudby et al. 2013; Guijarro et al. 2016; Miles 2018; Gullage et al. 2017).

The Orphan Basin fish habitat and benthos have been characterized by Carter et al. (1979) with a series of Van Veen sediment grabs and seabed photographs. The upper slope of the Orphan Basin (300-700 m) is dominated by gravel and sandy mud substrates, where polychaetes, bivalves and echinoderms were the dominant benthic invertebrates. Sponges, bryozoans, and brachipods are also found on cobbles and boulders in the area (Carter et al. 1979). The middle slope (700-2,000 m) is dominated by mud substrates with associated benthic communities comprised of cnidarians, polychaetes, echinoids, and brittlestars. The lower slope of the Orphan Basin (2,000-2,500 m) is covered by a mixture of mud, sandy mud, and gravels, and lowest depths sampled (2,500 m to over 3,000 m) were dominated by gravelly sandy mud, and muddy sand. Polychaetes, ophuroids, and molluscs were the primary observed species at depths greater than 2,000 m (Carter et al. 1979).

Structure-forming benthic invertebrate species also occur in the Orphan Basin and in surrounding areas, including corals, sponges, and sea pens (Amec 2014; Guijarro et al. 2016). See Figure 3.2 below. Corals identified in the southeastern Orphan Basin slope and the Orphan Knoll (northeast of the Project Area) include alcyonaceans (small and large gorgonians, soft corals), pennatulaceans (sea pens), scleractinians (stony corals), and antipatharians (black corals) (Wareham and Edinger 2007; Meredyk 2017). Demosponges and hexactinellid sponges have been observed on the Orphan Knoll and likely occur in the region (Meredyk 2017). These coral, sponge, and sea pen communities provide nurseries, areas of refuge, and spawning and breeding grounds for a variety of species, including commercially-important species (Wareham and Edinger 2007; WGEAFM 2008; Baillon et al. 2012; Baillon et al. 2014; FAO 2019; Meredyk 2017; Miles 2018).

The presence, abundance and distribution of specific fish species varies considerably based on habitat characteristics (both abiotic and biotic) and variability across the marine environment in the Project Area, which includes parts of the Orphan Basin slope and deepwater habitats. Within these areas and associated habitat types, a variety of fish species and assemblages occur with “slope” assemblages (e.g., Greenland halibut, roughhead grenadier, wolffish) and 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 (Amec 2014; Amec Foster Wheeler 2018; Stantec Consulting 2018). Fish species in the Orphan Basin have been observed in association with ROV surveys and baited camera studies at exploration drilling sites. Preliminary surveys indicated the presence of rabbit fish, blue hake, abyssal grenadier and rockling at the Great Barasway F-66 Drilling site at approximately 2,338 m depth (d’Entremont et al. 2008, Gates et al. 2008). Blue hake, grenadiers, rattails, rocklings, deepwater skate, cutthroat eel and deepwater arrowtooth eel have also been observed at the Lona O-55 well site at approximately 2,600 m during an ROV transect survey (Enachescu et al. 2010; Drover 2012 in LGL Limited 2013).

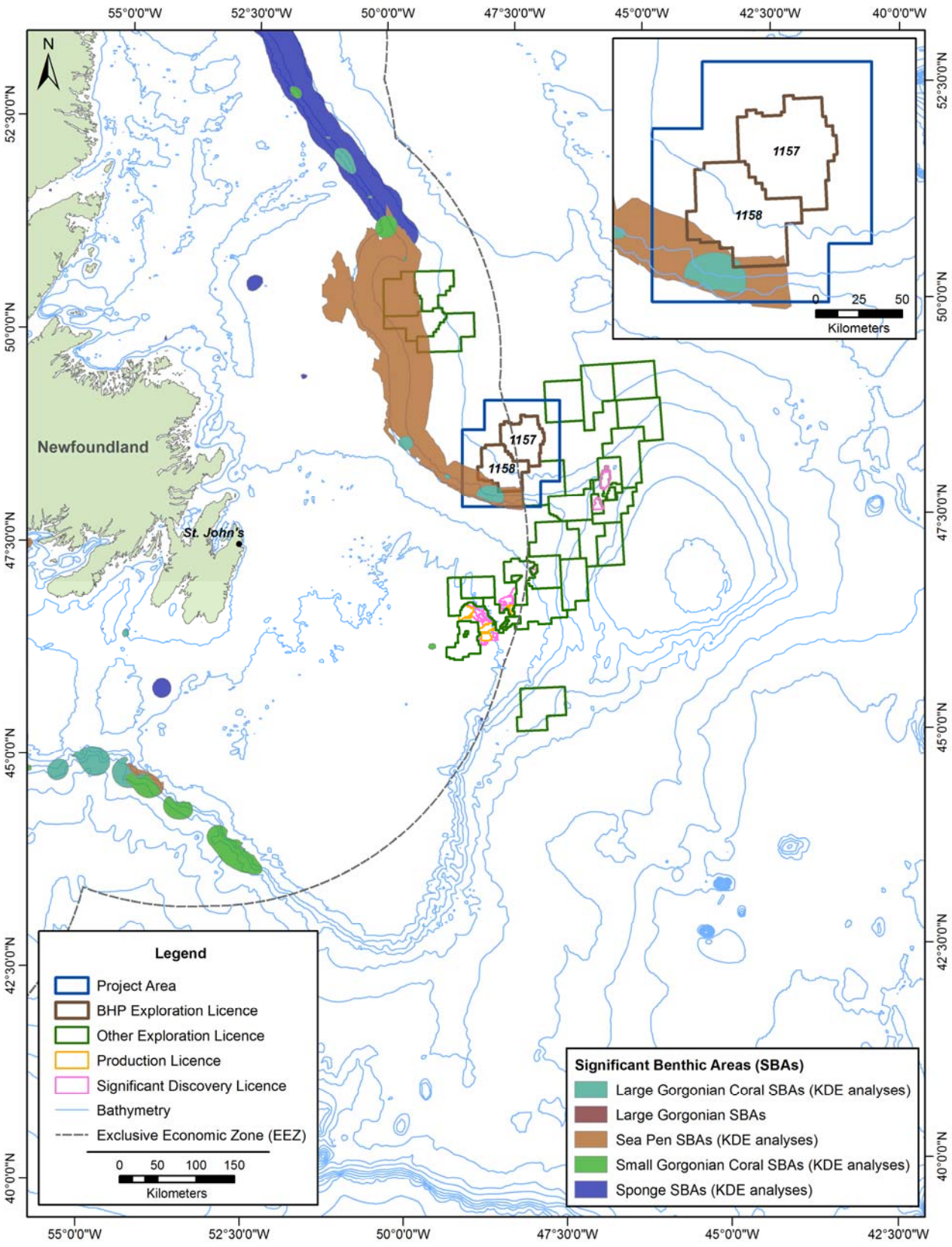


Figure 3.2: Significant Benthic Areas

3.3.2 Marine and Migratory Birds

A variety of existing information sources are available related to the characteristics, presence and distribution of marine or migratory birds within and around the proposed Project Area including the Eastern Newfoundland SEA (Amec 2014), the Eastern Canadian Seabirds at Sea (ECSAS) dataset, records from the Atlantic Canada Shorebird Survey (ACSS) and other available literature and datasets provide additional information and insights on key species, times and locations for use in the EIS should one be required.

Various avifauna species occur within the Project Area (Figure 3.3) and in adjacent marine and coastal regions, including seabirds and other marine-associated birds that inhabit the region at particular or extended periods for breeding, feeding, migration and other activities. A number of important habitats for birds have also been identified at locations along the coastline of eastern Newfoundland, well outside of the proposed Project Area.

Seabirds are often considered to be of high intrinsic ecological importance and indicators of ecosystem health (Amec 2014; Amec Foster Wheeler 2018; Stantec Consulting 2018). Further, they are of socioeconomic importance in Newfoundland and Labrador both in terms of tourism and as a food source. Seabirds are generally long-lived species with low fecundity, delayed recruitment and relatively low rates of population growth. A diverse assemblage of seabirds can be found in the marine waters off eastern Newfoundland at all times of year, including gannets, phalaropes, large gulls, kittiwakes, terns, alcids (auks), jaegers and skuas, fulmars, petrels and shearwaters (Amec 2014; Amec Foster Wheeler 2018; Stantec Consulting 2018). For example, the nutrient-rich Grand Banks and Flemish Cap regions off eastern Newfoundland, 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, are associated with coastal regions, 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; Amec Foster Wheeler 2018; Stantec Consulting 2018). In the Orphan Basin, seabird aggregations are low (1-10 birds/km^2) to moderately high (10-100 birds/km^2) from November to February, and moderately high from March to August with fewer occurrences in September to October (Fifield et al. 2009). In particular, Northern fulmars, storm-petrels and shearwaters are common on the southern edge of the Orphan Basin during the summer (Fifield et al. 2009).

The eastern coast of Newfoundland is also home to several major colonies supporting tens of millions of seabirds, which travel long distances offshore from their nest sites to forage for themselves and their chicks. 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 some of their time in the Project Area (Amec 2014; Fifield et al. 2009).

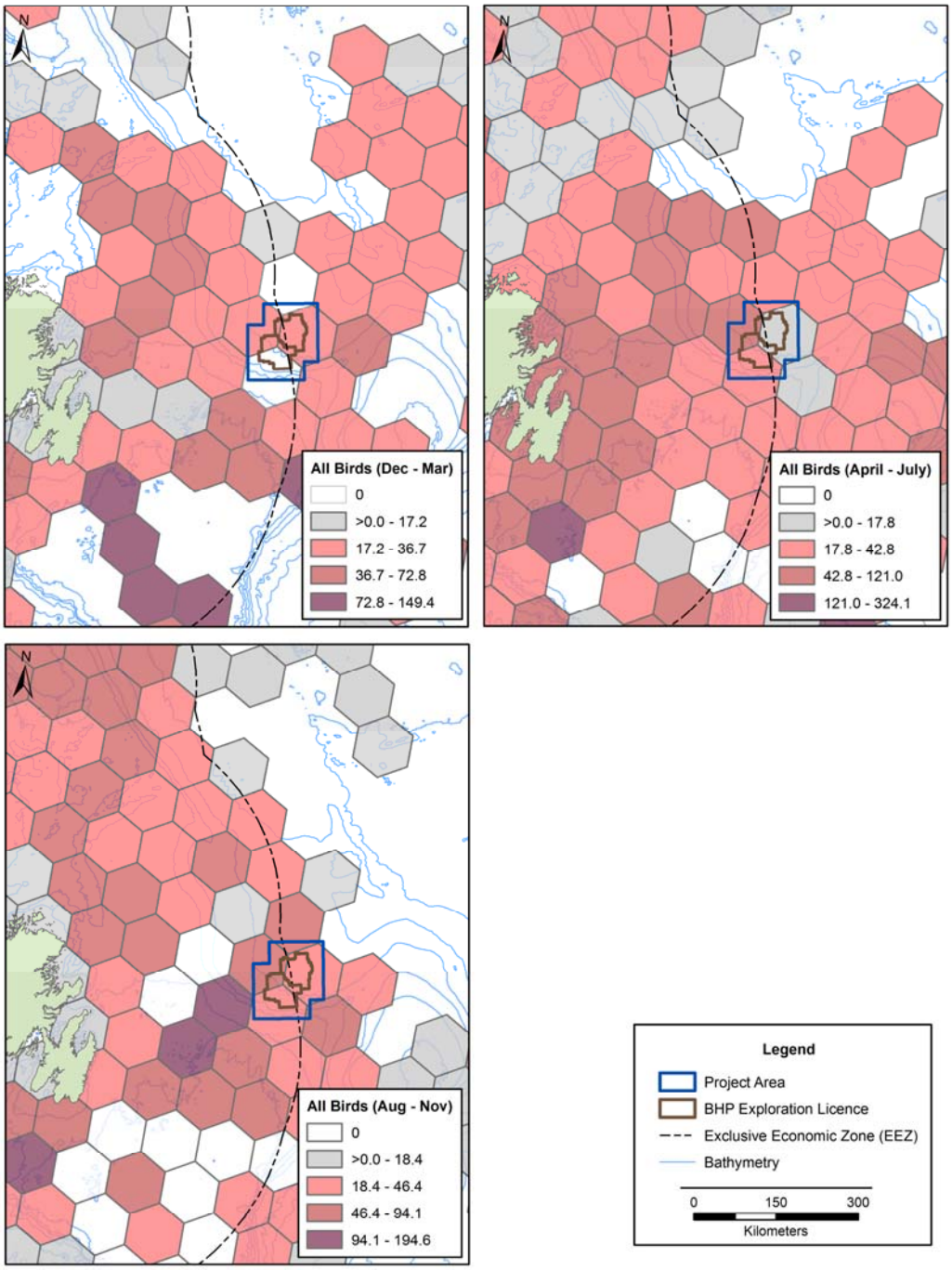


Figure 3.3: Seasonal Densities of Seabirds in the Project Area and Surrounding Region.

3.3.3 Marine Mammals and Sea Turtles

Available information on the characteristics, presence and spatial distribution of marine mammals and sea turtles in and around the proposed Project Area is summarized in the Eastern Newfoundland SEA (Amec 2014) and Orphan Basin SEA (LGL Limited 2003). Information includes, for example, the current DFO marine mammals sightings database, data from the Ocean Biogeographic Information System (OBIS) (which incorporates data from a variety of sources), other available literature and available (published) marine mammals sightings data collected by offshore petroleum operations working in the area (Figure 3.4 to Figure 3.6).

The waters off eastern Newfoundland support a variety 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 (Amec 2014; Amec Foster Wheeler 2018; Stantec Consulting 2018). 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 marine mammal (cetacean) species that are known or considered likely to occur within the Eastern Newfoundland Offshore Area, including in the Project Area and surrounding areas. This includes a number of baleen whales (mysticetes), toothed whales and porpoises (odontocetes) and seals (pinnipeds), and several sea turtle species that have been previously observed. These species differ considerably in the 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 Eastern Newfoundland Offshore Area. 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 (Templeman 2007; Wells et al. 2017). 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.

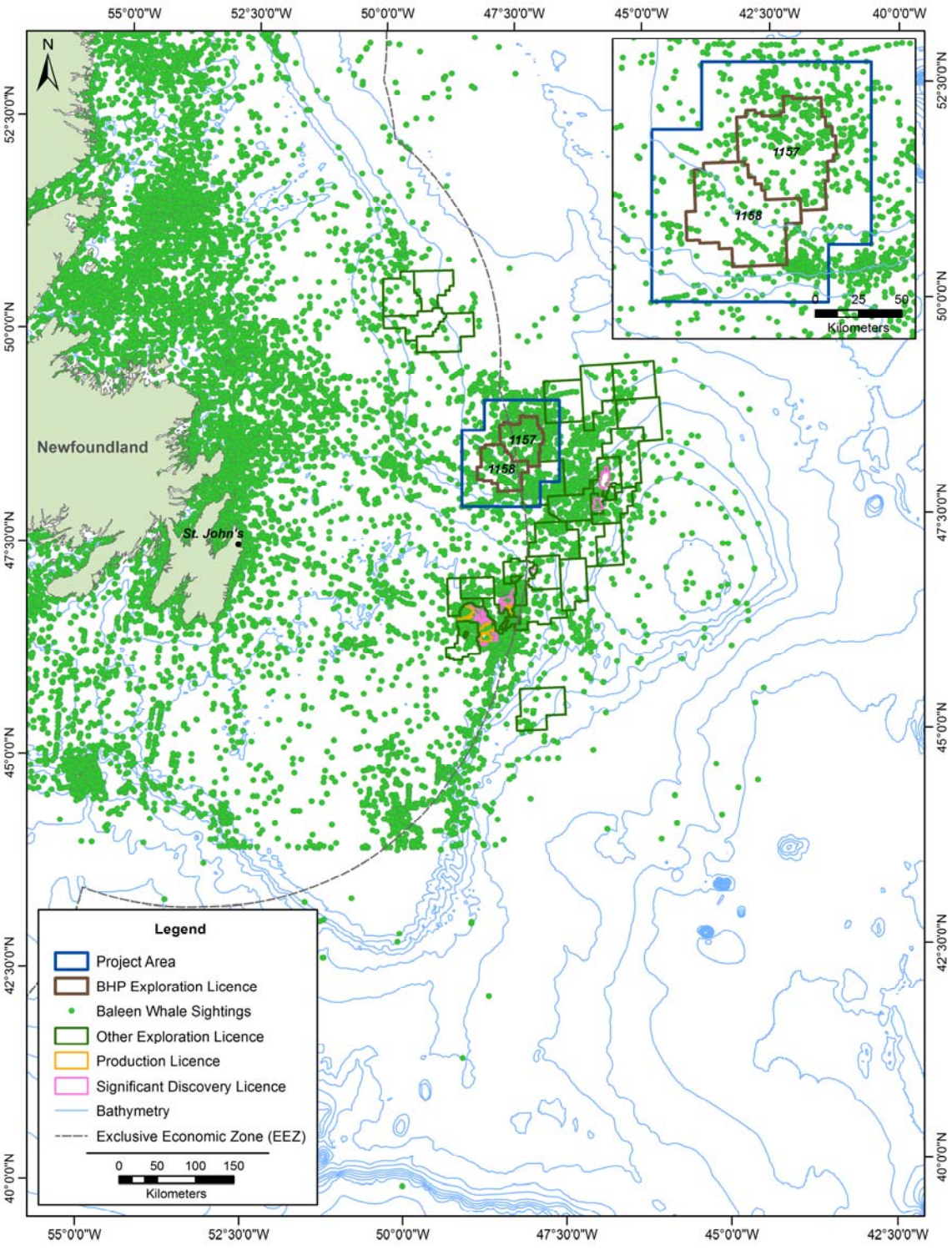


Figure 3.4: Baleen Whale Sightings (1915-2018) in the Project Area and Surrounding Region.

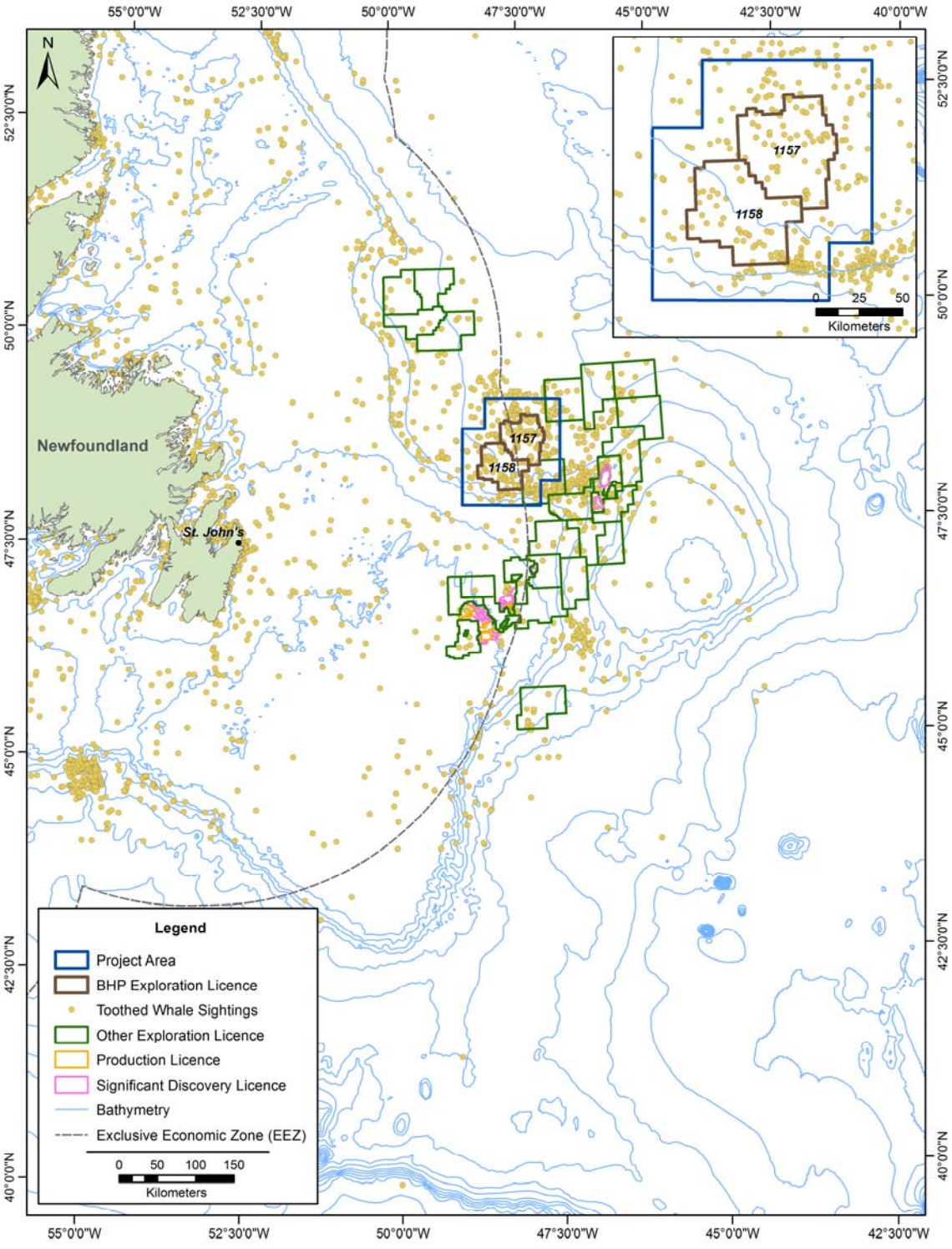


Figure 3.5: Toothed Whale Sightings (1915-2018) in the Project Area and Surrounding Region

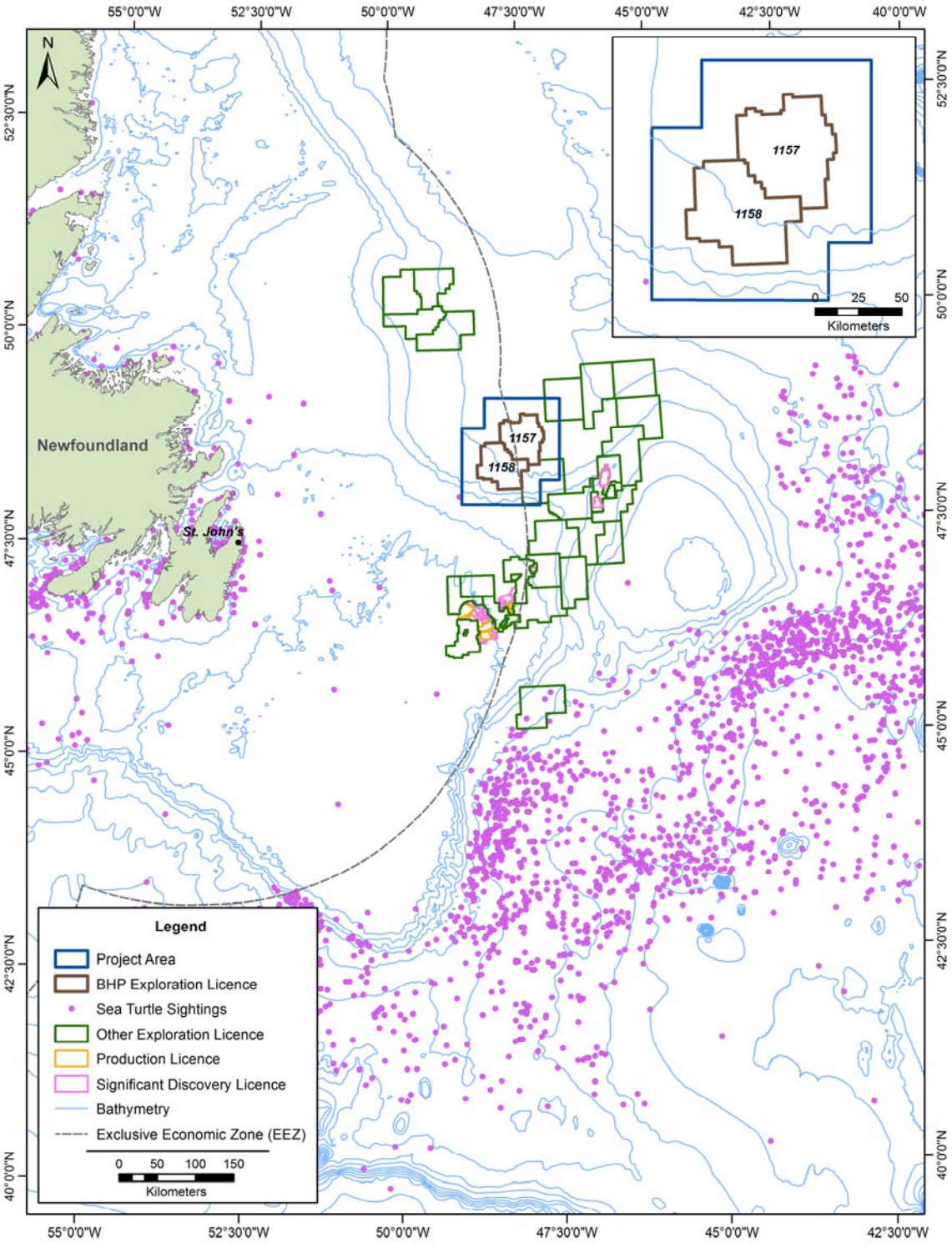


Figure 3.6: Sea Turtle Sightings (1915-2018) in the Project Area and Surrounding Region.

3.3.4 Species at Risk

Table 3.1 provides a listing of identified species at risk and species of conservation concern that are known or considered likely to occur off eastern Newfoundland but not necessarily in the Project Area and indicates their current designations under the Canadian *Species at Risk Act* (SARA), *Newfoundland and Labrador Endangered Species Act* (NL ESA) and by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). The SARA provides for the protection of species at the national level to prevent extinction and extirpation, facilitate the recovery of endangered and threatened species, and to promote the management of other species to prevent them from becoming at risk in the future. Designations under the SARA follow the recommendations and advice provided by COSEWIC. At the provincial level, the NL ESA provides protection for species, sub-species and populations considered to be endangered, threatened, or vulnerable within the province. Comprehensive and up to date information on the protection and current designations of these species at risk and any associated Recovery Strategies, Action Plans and Management Plans (including any identified and designated critical habitat) is available from the relevant sources and will be used in any required EIS for this Project). Critical habitat areas have been identified for northern wolffish and spotted wolffish off eastern Newfoundland and Labrador are shown in Figure 3.7 (SARA 2018).

Table 3.1: Species at Risk or Otherwise of Special Conservation Concern with Potential to Occur in the Project Area and the Surrounding Areas.

Species		Status / Designation [1,2]			Relevant Population (Where Applicable)
Common Name	Scientific Name	*NL ESA*	*SARA*	COSEWIC	
Fish					
Acadian redfish	*Sebastes fasciatus*			T	Atlantic (COSEWIC)
American eel	*Anguilla rostrata*	V		T	
American plaice	*Hippoglossoides platessoides*			T	NL (COSEWIC)
Atlantic bluefin tuna	*Thunnus thynnus*			E	
Atlantic cod	*Gadus morhua*			E	NL (COSEWIC)
Atlantic salmon	*Salmo salar*			T	South Newfoundland (COSEWIC)
				SC	Quebec Eastern North Shore (COSEWIC)
				SC	Quebec Western North Shore (COSEWIC)
				E	Anicosti Island (COSEWIC)
				SC	Inner St. Lawrence (COSEWIC)
				SC	Gaspe-Southern Gulf of St. Lawrence (COSEWIC)
				E	Eastern Cape Breton (COSEWIC)
				E	Nova Scotia Southern Upland (COSEWIC)
				E	Outer Bay of Fundy (COSEWIC)
			E	E	Inner Bay of Fundy (COSEWIC)
Atlantic wolffish	*Anarhichas lupus*		SC	SC	
Basking shark	*Cetorhinus maximus*			SC	Atlantic (COSEWIC)
Common lumpfish	*Cyclopterus lumpus*			T	Atlantic (COSEWIC)
Cusk	*Brosme brosme*			E	
Deepwater redfish	*Sebastes mentella*			T	Northern (COSEWIC)
Northern wolffish	*Anarhichas denticulatus*		T	T	

Species		Status / Designation [1,2]			Relevant Population (Where Applicable)
Common Name	Scientific Name	*NL ESA*	*SARA*	COSEWIC	
Porbeagle	*Lamna nasus*			E	
Roughhead grenadier	*Macrourus berglax*			SC	
Roundnose grenadier	*Coryphaenoides rupestris*			E	
Shortfin mako	*Isurus oxyrinchus*			SC	Atlantic (COSEWIC)
Smooth skate	*Malacoraja senta*			E	Funk Island Deep (COSEWIC)
Spiny dogfish	*Squalus acanthias*			SC	Atlantic (COSEWIC)
Spotted wolffish	*Anarhichas minor*		T	T	
Thorny skate	*Amblyraja radiata*			SC	Canada
White hake	*Urophycis tenuis*			T	Atlantic and Northern Gulf of St. Lawrence (COSEWIC)
White shark	*Carcharodon carcharias*		E	E	Atlantic (COSEWIC/SARA)
Winter skate	*Leucoraja ocellata*			E	Eastern Scotian Shelf – Newfoundland (COSEWIC)
Birds					
Ivory gull	*Pagophila eburnea*	E	E	E	
Ross's gull	*Rhodostethia rosea*		T	T	
Red-necked phalarope	*Phalaropus lobatus*			SC	
Marine Mammals					
Blue whale	*Balaenoptera musculus*		E	E	Atlantic (COSEWIC)
North Atlantic right whale	*Eubalaena glacialis*		E	E	
Bowhead whale	*Balaena mysticetus*			SC	Eastern Canada-West Greenland (COSEWIC)
Fin whale	*Balaenoptera physalus*		SC	SC	Atlantic (COSEWIC)
Northern bottlenose whale	*Hyperoodon ampullatus*		E	E, SC	Scotian Shelf, Davis Strait-Baffin Bay-Labrador Sea (COSEWIC)
Sowerby's beaked whale	*Mesoplodon bidens*		SC	SC	
Killer whale	*Orcinus orca*			SC	Northwest Atlantic-Eastern Arctic (COSEWIC)
Harbour porpoise	*Phocoena phocoena*		T	SC	Northwest Atlantic (COSEWIC)
Sea Turtles					
Leatherback sea turtle	*Dermochelys coriacea*		E	E	Atlantic (COSEWIC)
Loggerhead sea turtle	*Caretta caretta*		E	E	

[1] Not at Risk (NR), Least Concern (LC), Vulnerable (V), Near Threatened (NT), Special Concern (SC), Threatened (T), Endangered (E), Critically Endangered (CE)

[2] Multiple designations refer to multiple populations or sub-populations

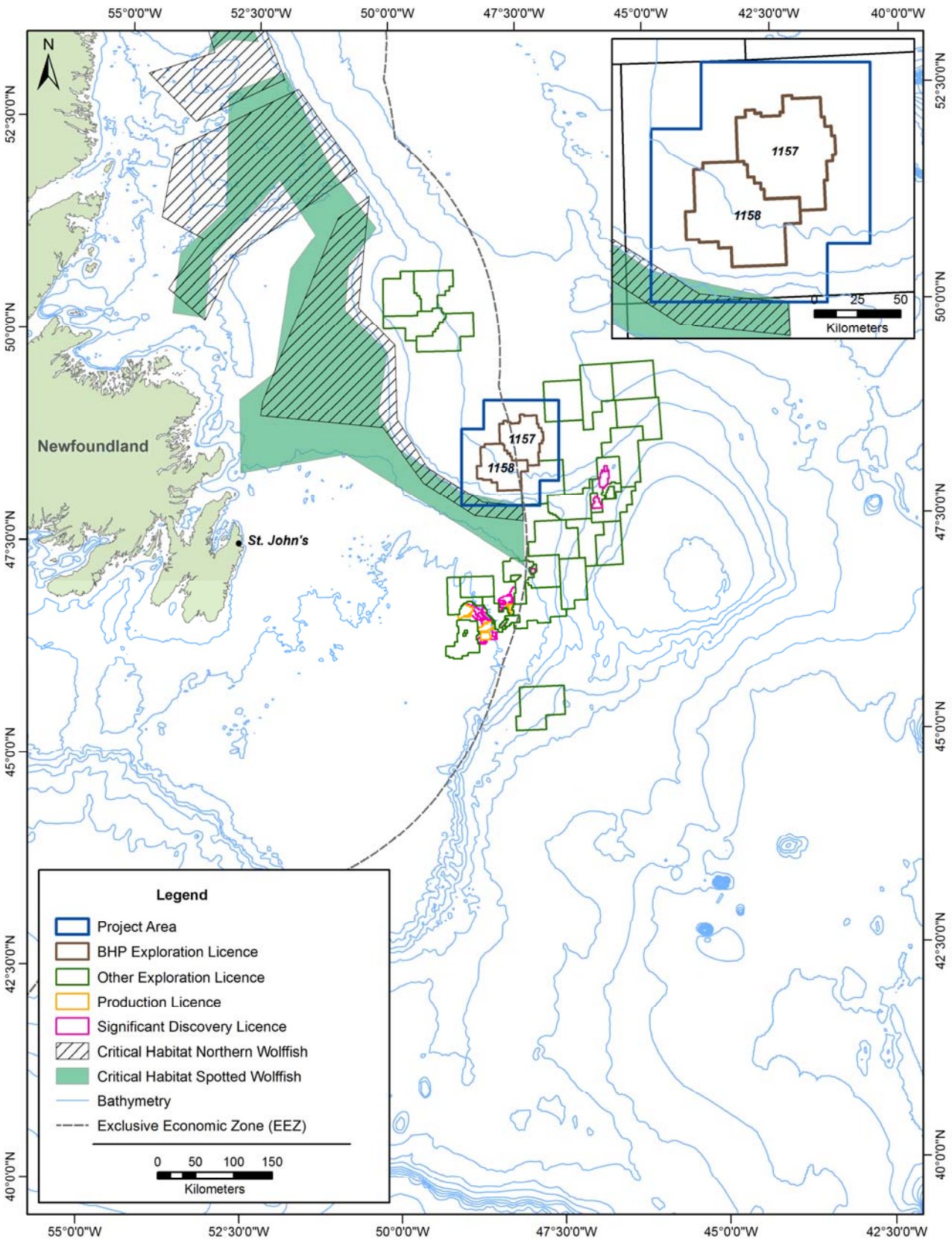


Figure 3.7: Critical Wolffish Habitat

3.3.5 Protected and Special Areas

A number of terrestrial, marine and coastal areas within and off eastern Newfoundland and Labrador have been designated as protected under provincial, federal and/or other legislation, or formally identified through relevant processes as being special or sensitive due to their ecological, historical and/or socio-cultural characteristics and importance. Given its location more than 300 km offshore, the Project will not occur within, or otherwise interact directly with, any of the existing provincial parks or historic sites, national parks or historic sites, World Heritage Sites, Ecological Reserves, Marine Protected Areas or Areas of Interest, Migratory Birds Sanctuaries, Important Bird Areas or other sites that have been designated as protected on or around the coastline of Newfoundland and Labrador. The Project Area likewise does not overlap with either of the identified Canadian fisheries closure areas (FCAs) or Preliminary Representative Marine Areas (RMAs) off Eastern Newfoundland (Figure 3.8).

As illustrated in Figure 3.8, the Project Area overlaps with portions of a Marine Refuge, a Canadian EBSA, a United Nations Convention on Biological Diversity EBSA and a Vulnerable Marine Ecosystem (VME), none of which have associated prohibitions of marine activities such as those being proposed as part of this Project. The Project Area does not intersect any of the NAFO FCAs, which are closed to bottom-contact fishing activities to protect sensitive coral and sponge habitat.

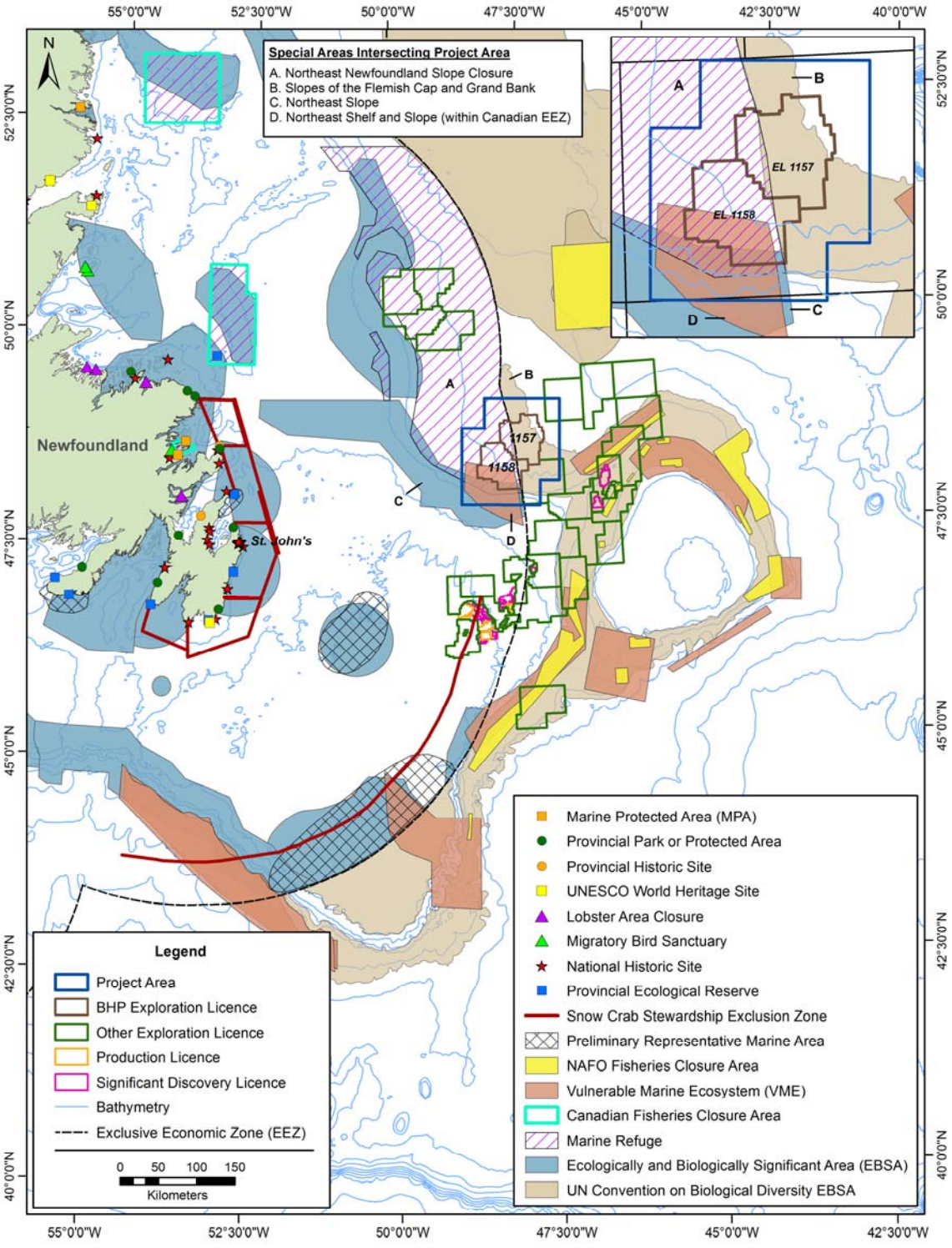


Figure 3.8: Protected and Special Areas in the Eastern Newfoundland Marine Environment

3.4 Human Environment

The following sections provide a brief overview of relevant aspects of the socioeconomic environment of the area, with a key focus on commercial fishing activity as well as other human uses of the marine environment.

3.4.1 Fisheries

Fisheries are an important component of the economy of Newfoundland and Labrador, including the various communities along the coastline of eastern Newfoundland where commercial fisheries are extensive and diverse. The Project Area overlaps with NAFO Division 3L and Unit Area 3Le as well as other fisheries resource management areas, and thus has the potential to interact with harvesting activities that have involved a range of species and gear types in past years.

DFO Statistical Services provides commercial fisheries information including landings (weight and value) statistics and geospatial data illustrating locations and timing of most domestic fishing activity. Associated mapping information is provided in aggregated data sets, which gives a general indication of fishing locations (by species, gear types and other pre-determined categories and data classes) for individual grid "cells" approximately 6 x 4 nautical miles in size. The DFO datasets record and report domestic and foreign fish harvests landed in Canada. Figures 3.9 and 3.10 provide annual, locational summary information for DFO-recorded commercial fishing activity in fishing areas including NAFO 3L, which surrounds the Project Area, for the 2012 to 2016 period (the most recent five-year period for which such data are available). The figures show overall fishing activity by year, as well as for mobile and fixed gear types. The available DFO data also indicate that key species fished in eastern Newfoundland waters include snow crab, redfish, Northern shrimp, turbot/Greenland halibut, American plaice, yellowtail flounder, Atlantic halibut and others. Fishing activity occurs year-round but is mainly concentrated in the May to July period. However, with the December 2017 closure of the Northeast Newfoundland Slope Marine Refuge to all bottom fishing, there is likely to be very little fishing activity in the Project Area going forward.

Various regulatory jurisdictions are relevant to marine fish and fisheries, within and around the Project Area. While the Government of Canada manages most fish stocks and fishing activities within the 200 nautical mile EEZ and for benthic invertebrates (such as crab) across the entire continental shelf, NAFO manages groundfish and other resource harvesting activities beyond the EEZ. The NAFO Regulatory Area (NRA) is 2,707,895 km^2 in size (or 41 percent of the total NAFO Convention Area) and comprises that part of the Northwest Atlantic high seas located adjacent to Canada's 200-mile EEZ. Fishing activity in the NRA targets a range of species, including cod, redfish, Greenland halibut, shrimp, skates and other finfish, with an approximate landed value of $200 million annually among all member countries (NAFO 2014). As a result of the 2007 United Nations General Assembly (UNGA Res. 61/105, paragraph 83) request that Regional Fisheries Management Organizations regulate bottom fisheries, NAFO undertook an exercise to identify bottom fishing areas in the NRA to outline and map its bottom fishing footprint. The NAFO fisheries footprint is 120,048 km^2 in size, and its location and relationship to the current Project Area is illustrated in Figure 3.11.

Information on fishing activity by member countries that fish in NAFO Divisions overlapping with the Project Area are available from various sources, including the STATLANT21A Databases (NAFO 2019). These data are not illustrated here.

Various fisheries survey programs are also undertaken by government and/or industry, including DFO Multispecies RV Trawl Surveys, which include annual (spring and fall) standardized bottom-trawl surveys to collect information for managing and monitoring fish resources in the Newfoundland and Labrador Region. An annual Industry - DFO Collaborative Post-season Trap Survey, for snow crab in NAFO Divisions 2J3KLOPs4R, is conducted beginning in late August or early September following the commercial snow crab season.

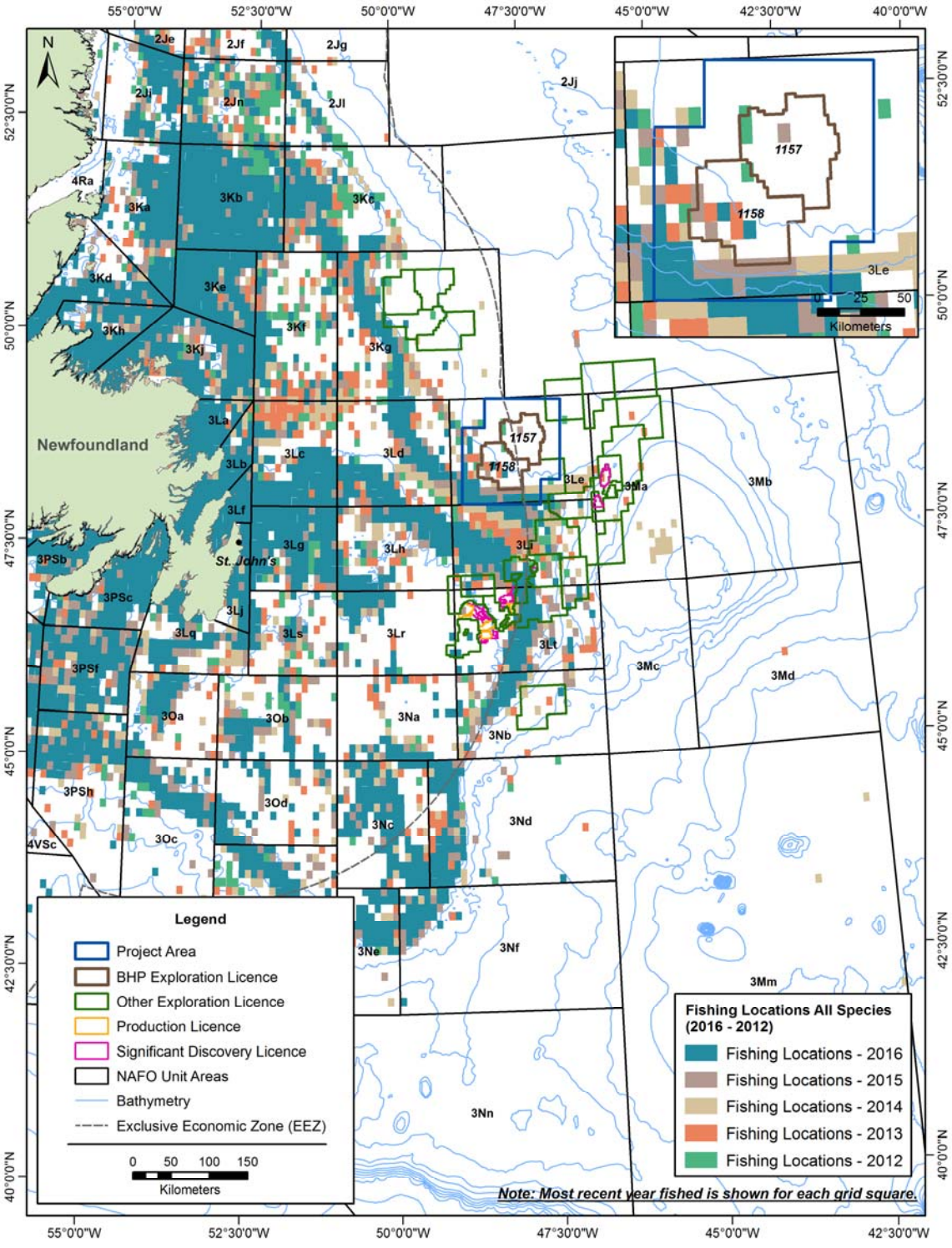


Figure 3.9: Domestically-Landed Commercial Fishing Locations, All Species (2012-2016)

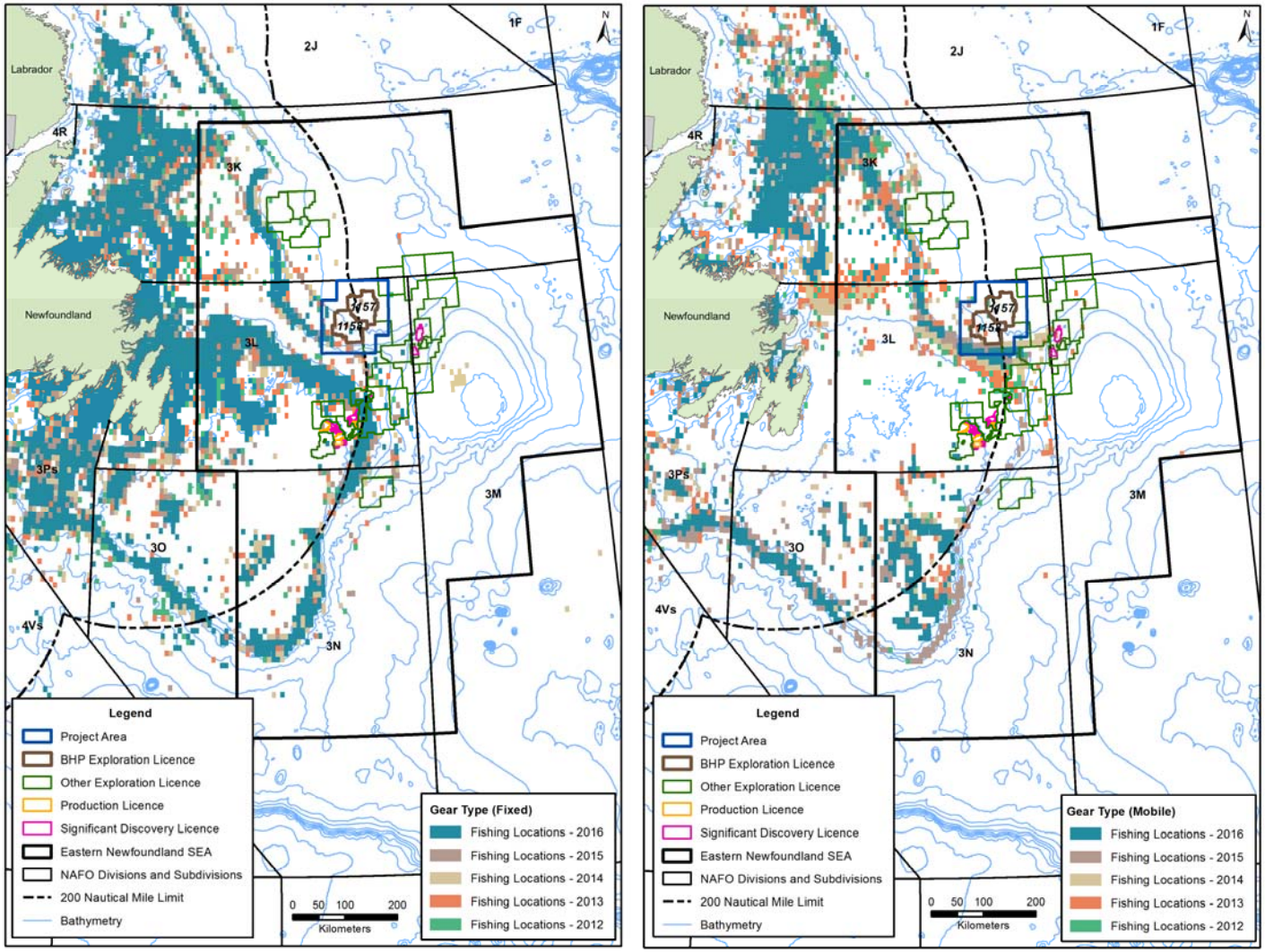


Figure 3.10: Domestically-Landed Commercial Fishing Locations: Fixed and Mobile Gear (2012-2016)

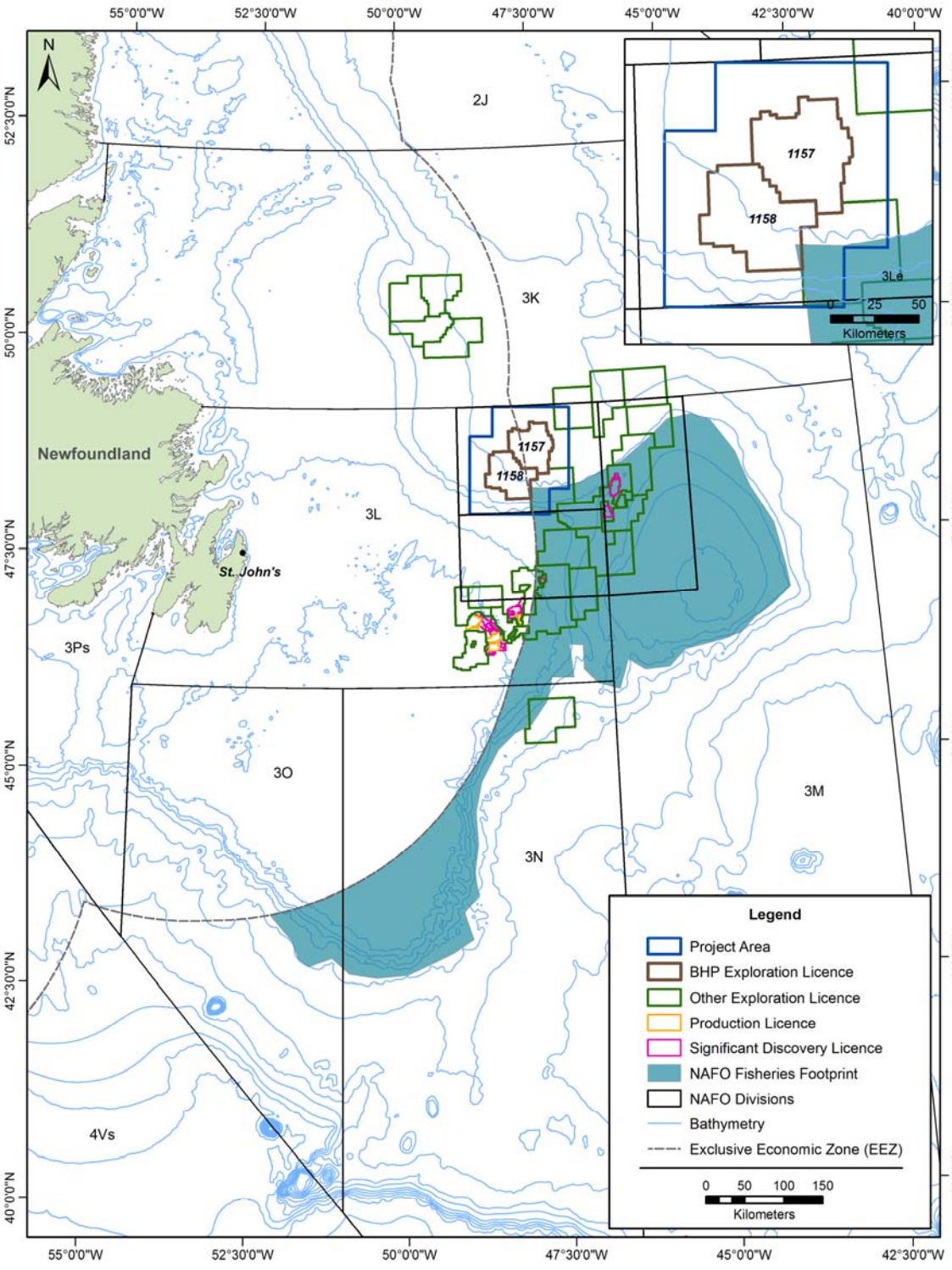


Figure 3.11: NAFO Managed Domestic Bottom Gear and Foreign Fleet Fisheries "Footprint"

Indigenous groups or individuals may hold commercial fishing licences for NAFO Divisions that overlap with the Project Area, but as these data are included in general fish harvesting datasets, it is not possible to identify this fishing activity. However, as commercial fishing is limited in the Project Area, it can be assumed that Indigenous commercial fishing is also limited.

Separate information is available on commercial-communal licences, which are issued to Indigenous groups and held collectively by the group. Each of the Indigenous groups in Newfoundland and Labrador hold commercial-communal licences in fishing areas surrounding the Project Area. These licences include harvesting in NAFO 3L (tuna and groundfish), Fishing Areas 7 and 8 (capelin, herring and mackerel), Shrimp Management Areas 6 and 7 and Sealing Areas 6 and 7. In addition, 21 Indigenous groups in the Maritime provinces hold licences for tuna and/or swordfish for NAFO Areas including 3L (DFO 2018). Based on information obtained for various recent and ongoing Project EAs in the Newfoundland offshore, no Indigenous groups are currently harvesting in these areas (Amec Foster Wheeler 2018, Stantec Consulting 2018).

The identified Indigenous groups are located 500 - 1,500 km west of the Project Area (Table 3.2). The closest Indigenous community is Miawpukek First Nation (Conne River) on the south and west coast of Newfoundland (Figure 3.12).

Table 3.2: Indigenous Communities and Reserves Distance from Project Area

Indigenous Group / Community	Province	Distance from PA (km)
Miawpukek First Nation	Newfoundland and Labrador	520
Lodge Bay	Newfoundland and Labrador	623
St. Lewis	Newfoundland and Labrador	624
Mary's Harbour	Newfoundland and Labrador	628
Red Bay	Newfoundland and Labrador	630
Williams Harbour	Newfoundland and Labrador	639
Capstan Island	Newfoundland and Labrador	641
West St. Modeste	Newfoundland and Labrador	641
Pinware	Newfoundland and Labrador	642
Forteau	Newfoundland and Labrador	651
Pinsents Arm	Newfoundland and Labrador	654
L'Anse-au-Clair	Newfoundland and Labrador	657
Port Hope Simpson	Newfoundland and Labrador	668
Normans Bay	Newfoundland and Labrador	670
Charlottetown	Newfoundland and Labrador	673
Qalipu Mi'kmaq First Nation	Newfoundland and Labrador	673
Black Tickle-Domino	Newfoundland and Labrador	698
Paradise River	Newfoundland and Labrador	777
Cartwright	Newfoundland and Labrador	779
Rigolet	Newfoundland and Labrador	887

Indigenous Group / Community	Province	Distance from PA (km)
Membertou First Nation	Nova Scotia	890
Eskasoni First Nation	Nova Scotia	929
Mud Lake	Newfoundland and Labrador	935
Potlotek First Nation	Nova Scotia	945
Sheshatshiu	Newfoundland and Labrador	946
Wagmatcook First Nation	Nova Scotia	946
Nutashkuan	Quebec	951
Happy Valley - Goose Bay	Newfoundland and Labrador	954
Waycobah First Nation	Nova Scotia	965
Makkovik	Newfoundland and Labrador	983
Postville	Newfoundland and Labrador	1005
Paq'tnkek Mi'kmaw	Nova Scotia	1,022
Hopedale	Newfoundland and Labrador	1063
Abegweit First Nation	Prince Edward Island	1,082
Pictou Landing First Nation	Nova Scotia	1,086
Mingan	Quebec	1,112
Natuashish	Newfoundland and Labrador	1138
Millbrook First Nation	Nova Scotia	1,146
Lennox Island First Nation	Prince Edward Island	1,147
Gespeg First Nation	Quebec	1,161
Sipekne'katik First Nation	Nova Scotia	1,168
Churchill Falls	Newfoundland and Labrador	1181
Nain	Newfoundland and Labrador	1208
Fort Folly First Nation	New Brunswick	1,215
Indian Island First Nation	New Brunswick	1,216
Buctouche First Nation	New Brunswick	1,220
Glooscap First Nation	Nova Scotia	1,227
Esgenoôpetitj First Nation	New Brunswick	1,228
Elsipogtog First Nation	New Brunswick	1,230
Annapolis Valley First Nation	Nova Scotia	1,257

Indigenous Group / Community	Province	Distance from PA (km)
Pabineau First Nation	New Brunswick	1,263
Gesgapegiag First Nation	Quebec	1,267
Eel Ground First Nation	New Brunswick	1,272
Metepenagiag Mi'kmaq First Nation	New Brunswick	1,287
Eel River Bar First Nation	New Brunswick	1,304
Listuguj First Nation	Quebec	1,329
Bear River First Nations	Nova Scotia	1,350
Labrador City	Newfoundland and Labrador	1352
Oromocto First Nation	New Brunswick	1,364
Saint Mary's First Nation	New Brunswick	1,373
Kingsclear First Nation	New Brunswick	1,390
Acadia First Nation	Nova Scotia	1,417
Tobique First Nation	New Brunswick	1,431
Peskotomuhkati Nation	New Brunswick	1,435
Woodstock First Nation	New Brunswick	1,440
Madawaska Maliseet First Nation	New Brunswick	1,463

Various Indigenous groups have asserted or established section 35 rights (*Constitution Act, 1982*) to the right to harvest for food, social or ceremonial (FSC) purposes or to earn a moderate livelihood from these activities in their traditional territories. Figures 3.13-3.15 illustrate established and asserted land claims areas (may coincide with traditional harvesting areas) of Indigenous peoples in Newfoundland and Labrador. Available information indicates that FSC harvesting occurs close to communities including coastal and tidal environments (DFO 2018). Though all harvesting for traditional purposes may not be captured in the DFO data, no FSC licences or known harvesting occur within or near the Project Area.

3.4.2 Other Socioeconomic Components and Activities

Human activities also take place in the marine environment of eastern Newfoundland (and potentially waters surrounding the Project Area) on either a year-round or seasonal basis. General shipping traffic includes marine tanker traffic and supply vessels associated with existing offshore oil development and activities, as well as cargo ships, fishing vessel transits and other vessel traffic. Naval training exercises, which involve both surface vessels and submarines, may also occur off eastern Newfoundland. Known and potential unexploded ordnance (UXO) sites exist in the North Atlantic and include shipwrecks and submarines as well as munitions dump sites off eastern Newfoundland (Figure 3.16). A number of existing subsea cable networks also cross the North Atlantic connecting sites in North America and Europe.

Eastern Newfoundland is subject to considerable oil and gas exploration activity, including geophysical surveys and drilling programs, with many thousands of kilometres of seismic survey data collected and several hundred wells drilled to date (Figure 3.17). Offshore oil production activities have also occurred since the 1990s and currently include four producing oilfields. Offshore oil and gas exploration and development activities also include a variety of ancillary and supporting activities in the marine environment.

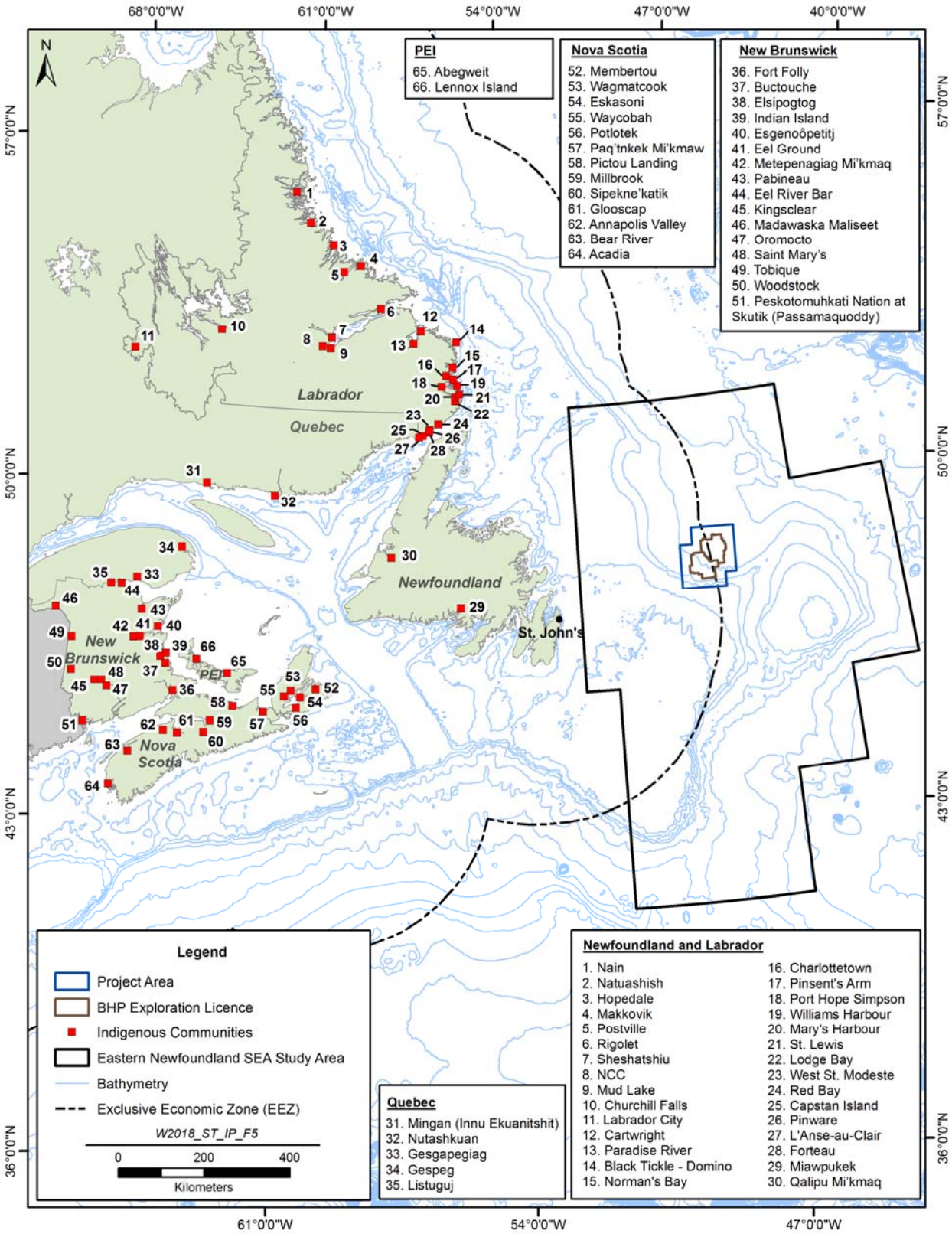


Figure 3.12: Indigenous Communities

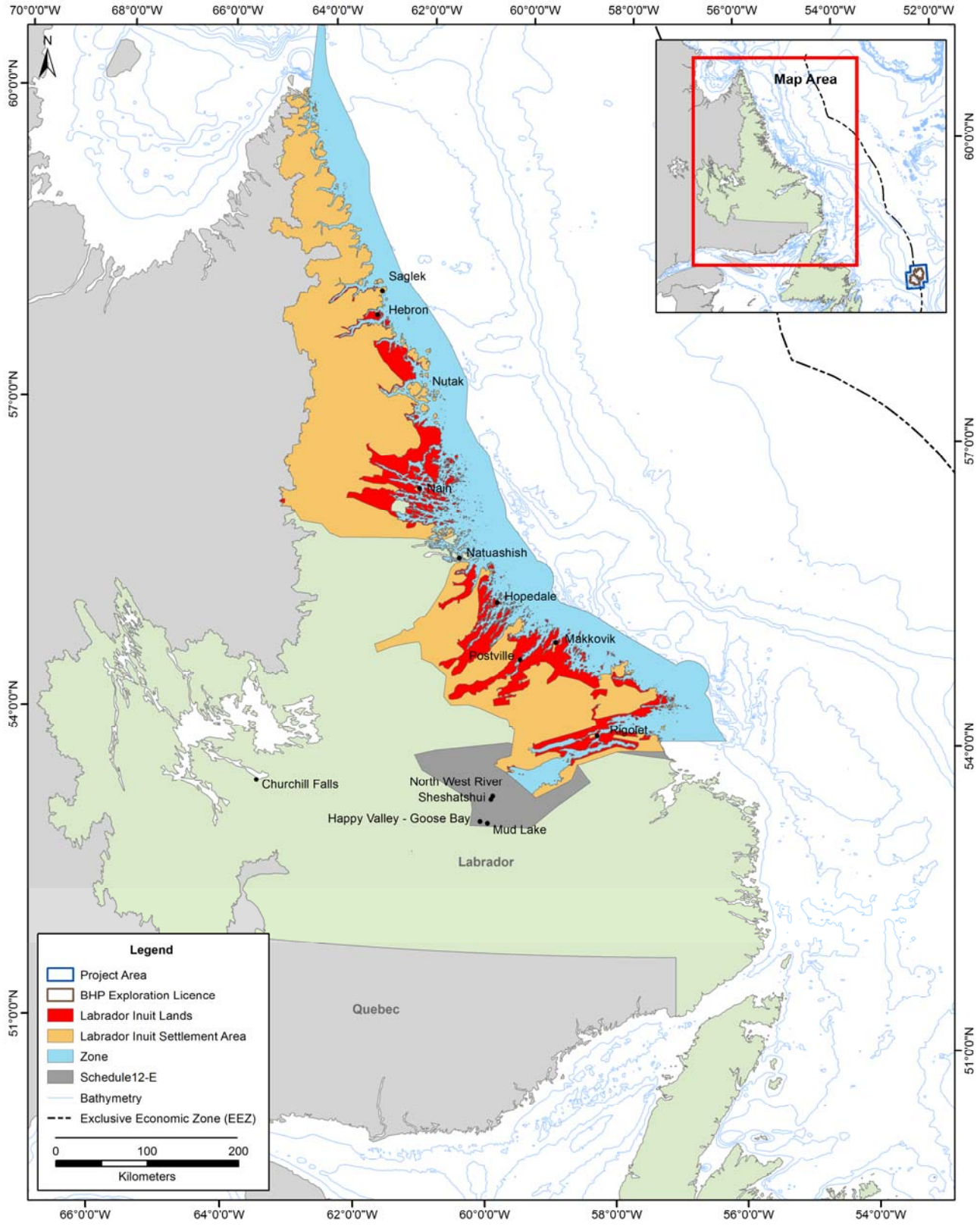


Figure 3.13: Labrador Inuit Land Claim Areas

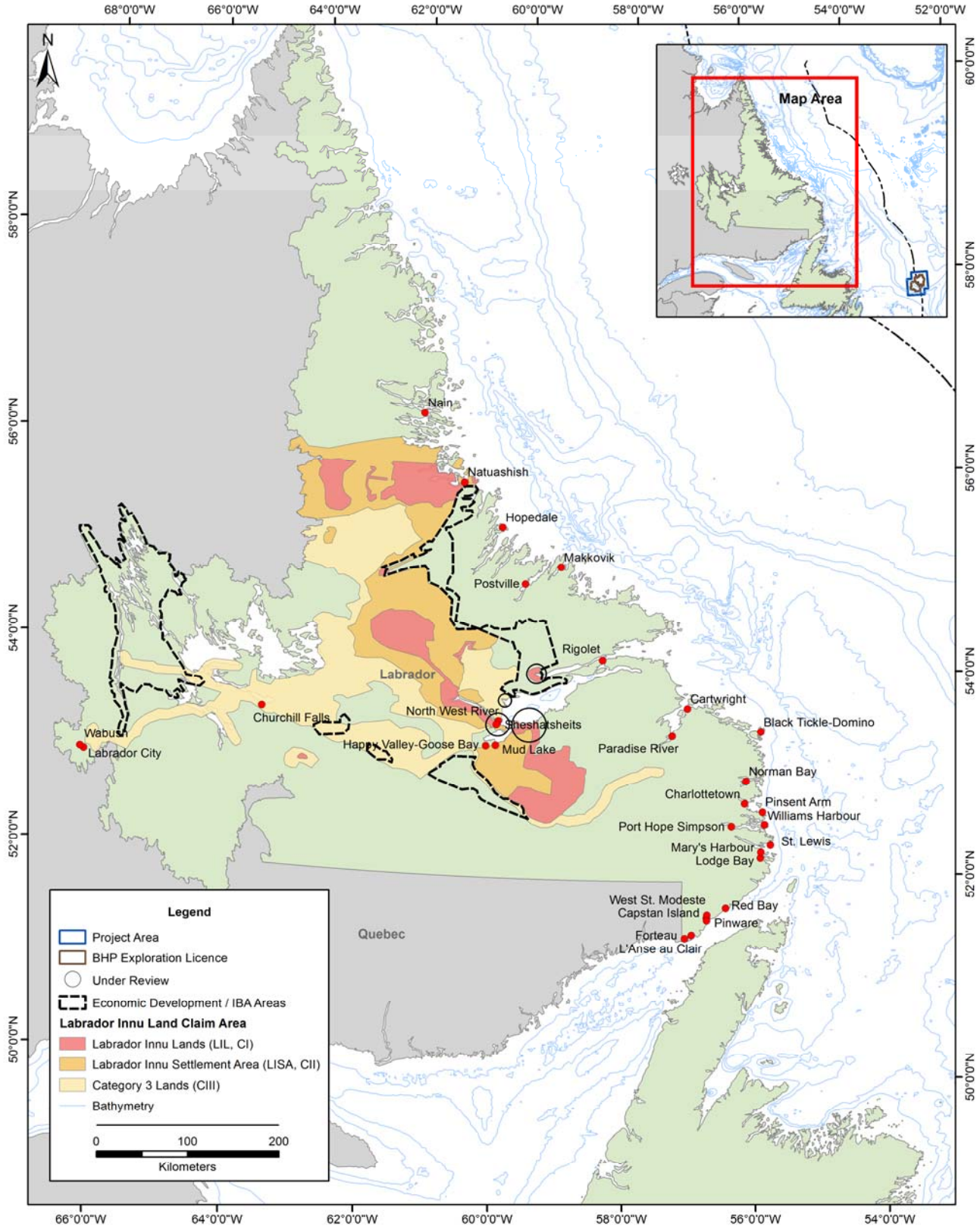


Figure 3.14: Labrador Innu Land Claim Areas

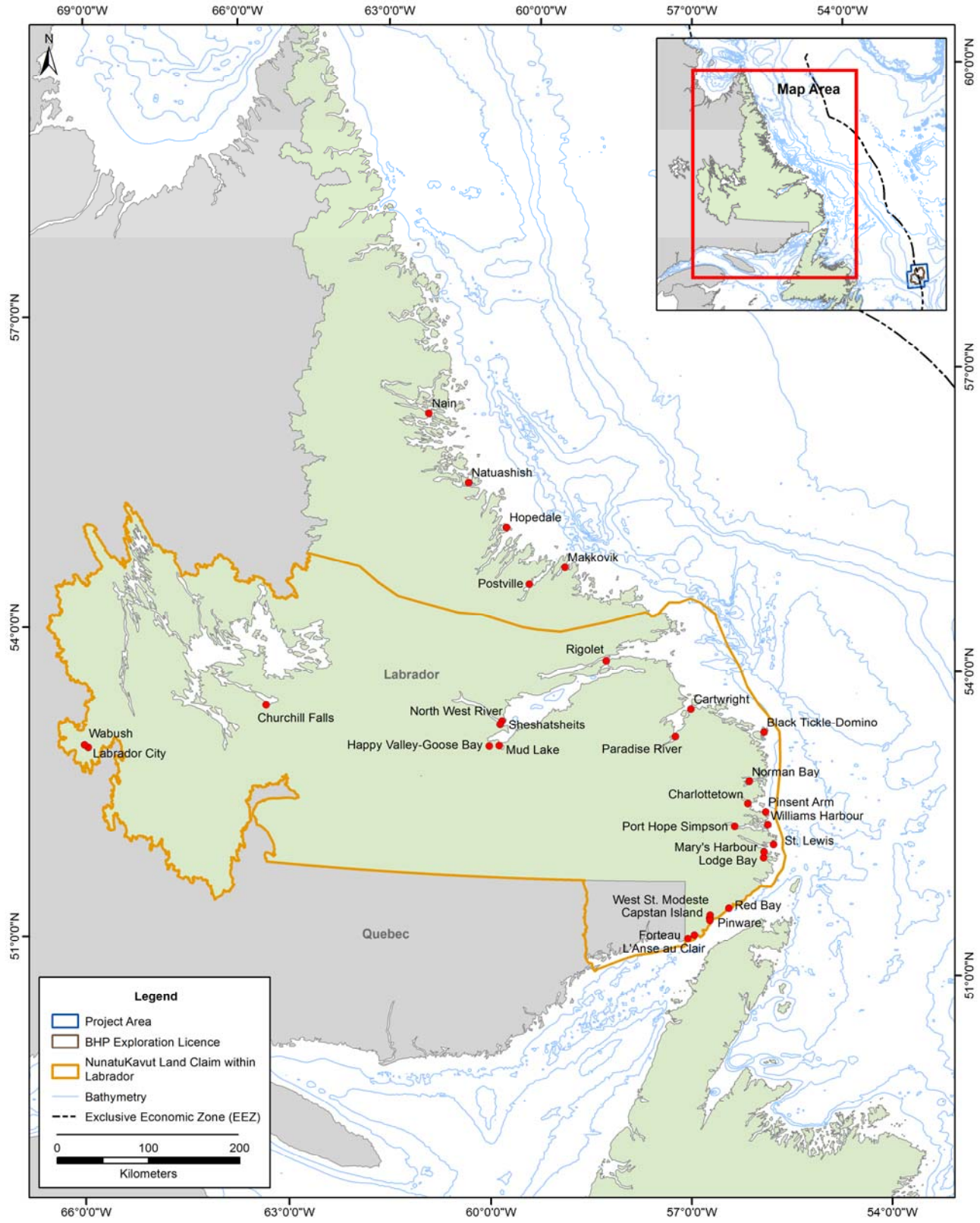


Figure 3.15: NunatuKavut Land Claim Area

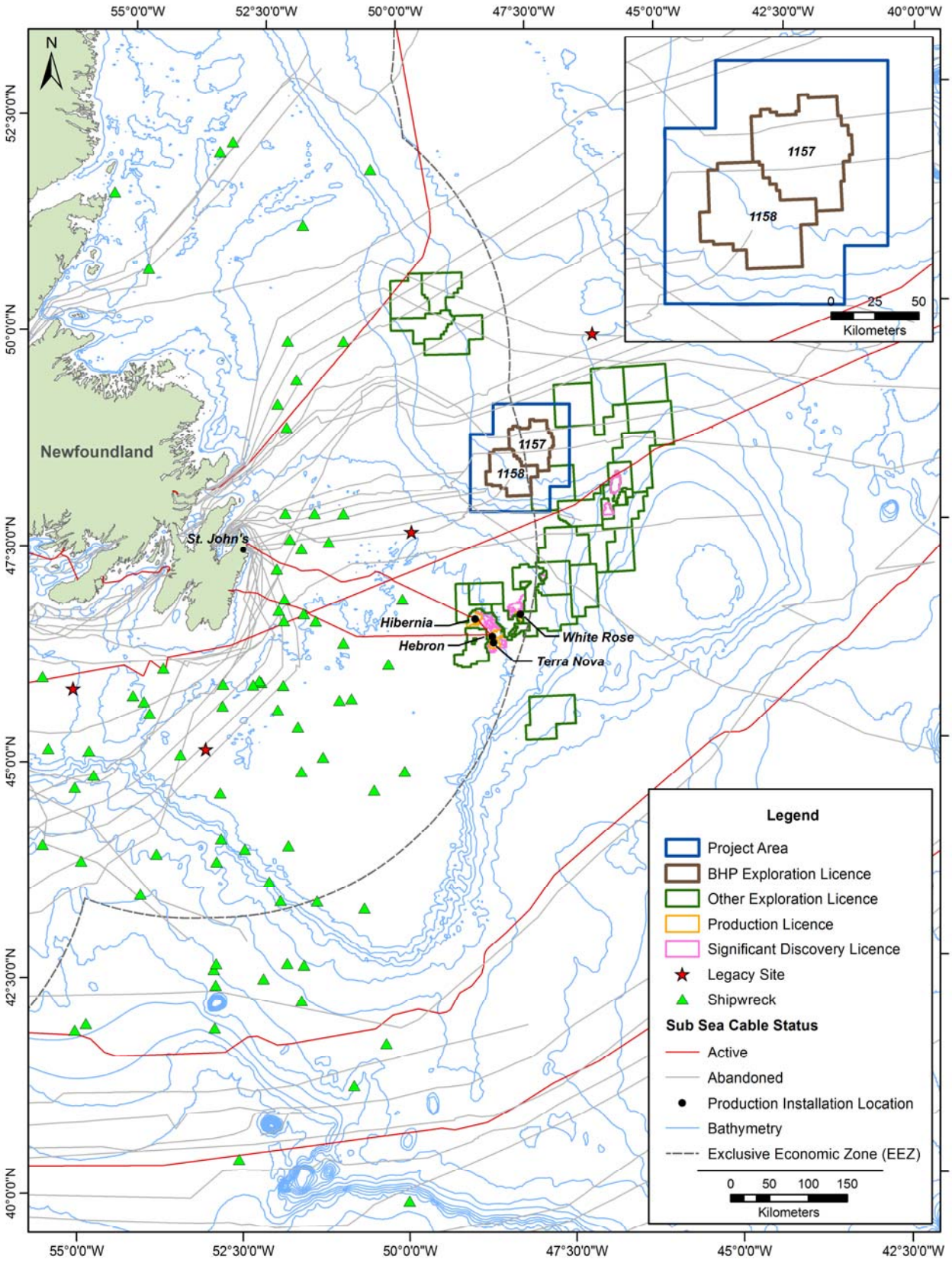


Figure 3.16: Known Shipwrecks, Unexploded Ordnances, DND Legacy Sites and Marine Cables

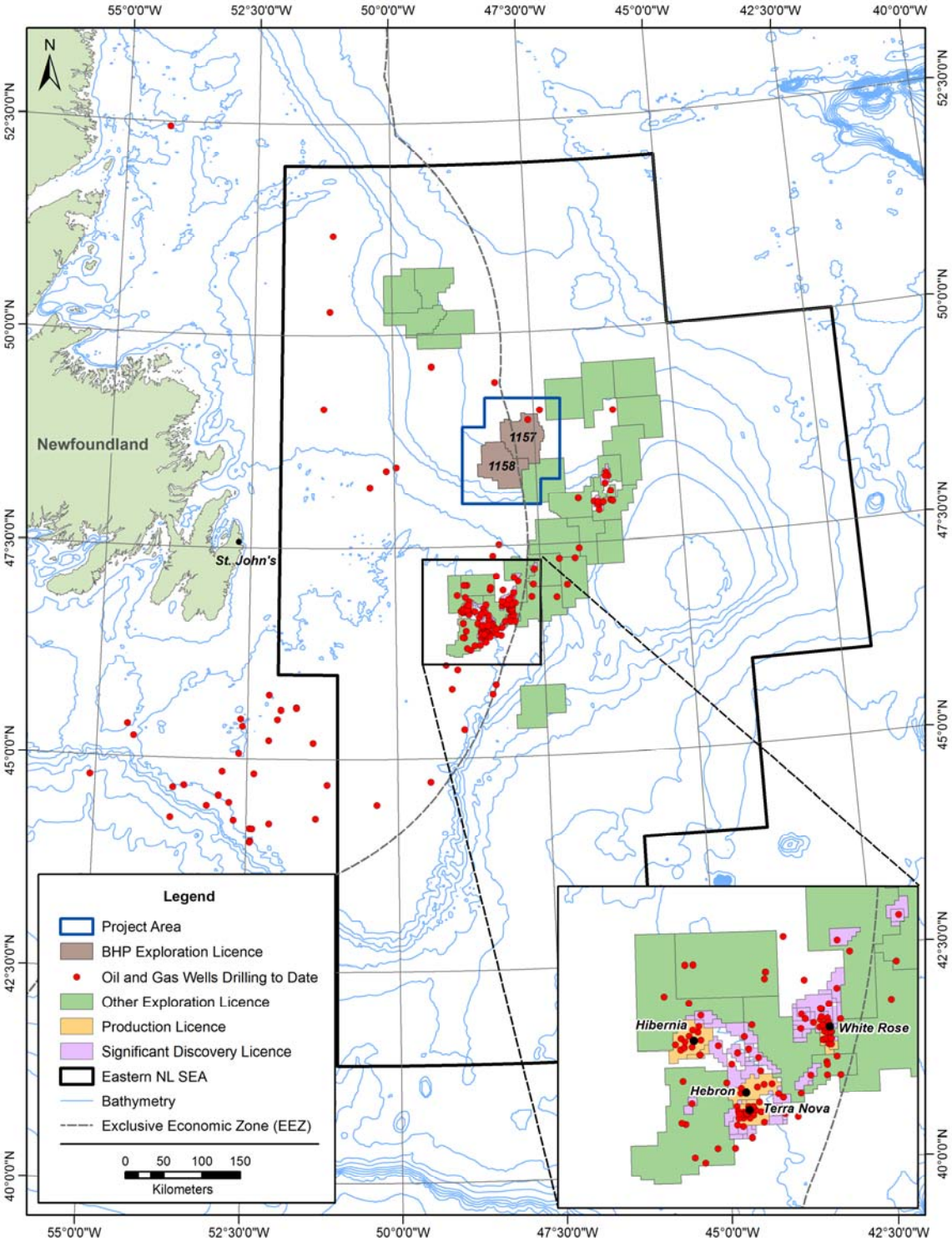


Figure 3.17: Offshore Oil and Gas Activities off Eastern Newfoundland

4.0 Consultation and Engagement

Consultation and engagement are often considered to be the cornerstone of the EA process, and are a key component of BHP's approach to the planning and implementation of its oil and gas exploration programs and other business activities.

BHP maintains ethical relationships with governments and their agencies, officials and personnel. Our ability to conduct business is directly affected by government decision-making and it is important we have open and constructive relationships with government.

BHP believes in developing strong, mutually beneficial relationships with communities, regions and countries where we do business and contributing to their economic and social development. BHP understands and minimizes adverse environmental, social, and human rights impacts from our 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, Indigenous groups, stakeholder organizations and interested members of the public.

4.1 Government and Regulator Consultation

As noted in Chapter 1, 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, BHP has met with a number of regulatory and government organizations, including the C-NLOPB, CEA Agency, and the NL Department of Natural Resources (Table 4.1).

Table 4.1: Regulator Engagement

Jurisdiction	Stakeholder
Federal Government	CEA Agency
Provincial Government	NL Department of Natural Resources
Federal / Provincial Government	Canada-Newfoundland and Labrador Offshore Petroleum Board (CNLOPB)

BHP plans to meet with various other agencies in the coming months. These may include the following:

- Fisheries and Oceans Canada;
- Parks Canada;
- Environment and Climate Change Canada;
- Health Canada;
- Department of National Defence;
- Transport Canada;
- Major Projects Management Office;
- Natural Resources Canada;
- NL Department of Municipal Affairs and Environment; and
- NL Department of Fisheries and Land Resources.

The governmental review of this Project Description will help to identify any important environmental questions and issues related to the proposed Project for consideration by the CEA Agency in determining whether (and if so, what level of) EA is required and the scope and focus of that review. If further assessment is deemed necessary, relevant departments and agencies will also be involved in the development and finalization of EIS Guidelines, the eventual review of the Project's EIS, and at other stages of the review process.

BHP will also continue to consult directly 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 Indigenous Peoples Engagement

BHP is committed to engaging with stakeholder Indigenous groups, ensuring they are informed on a regular basis, and to communicating transparently to ensure understanding of expectations, concerns, and interests. BHP aims to incorporate these engagement principles into our business plans.

BHP is aware that fishing enterprises associated with a number of Indigenous groups, or other related organizations, residing in Eastern Canada may engage in commercial fishing activity within NAFO Divisions that overlap parts of the proposed Project Area (see Section 3.4.1). CEA Agency has identified 43 Indigenous groups in five provinces as having a potential interest in offshore oil and gas activities in offshore Newfoundland and Labrador (Table 4.2). Identified Indigenous communities and first nation reserves are shown in Figure 3.12 above.

Table 4.2: Identified Indigenous Groups in Eastern Canada

Province	Affiliate Group	Indigenous Groups
Newfoundland and Labrador	NA	Labrador Inuit (Nunatsiavut Government) Labrador Innu (Innu Nation) NunatuKavut Community Council Miawpukek First Nation Qalipu Mi'kmaq First Nation Band Northern Peninsula (Mekap'sk) Mikmaq Band Inc.[1]
Nova Scotia	Kwilmu'kw Maw-klusuaqn Negotiation Office (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

[1] Northern Peninsula (Mekap'sk) Mikmaq Band Inc. has not been recognized by the Federal or Provincial Government.

Province	Affiliate Group	Indigenous Groups
		Waycobah First Nation
	NA	Millbrook First Nation
	NA	Sipekne'katik First Nation
Prince Edward Island	Mi`kmaq Confederacy of Prince Edward Island (MCPEI)	Abegweit First Nation Lennox Island First Nation
New Brunswick	Mi'gmawe'l Tplu'taqnn Incorporated (MTI)	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
	Wolastoqey (Maliseet) Nation in New Brunswick (MNNB)	Kingsclear First Nation Madawaska Maliseet First Nation Oromocto First Nation Saint Mary's First Nation Tobique First Nation
	NA	Elsipogtog First Nation
	NA	Woodstock First Nation
	NA	Peskotomuhkati Nation at Skutik (Passamaquoddy)
Quebec	Mi`gmawei Mawiomi Secretariat (MMS)	Micmas of Gesgapegiag La Nation Micmac de Gespeg Listuguj Mi'gmaq Government
	NA	Les Innus de Ekuanitshit
	NA	Première Nation des Innus de Nutashkuan

Based on current information in recent EAs for similar projects in the eastern Newfoundland offshore (Amec Foster Wheeler 2018, Stantec Consulting 2018), it is not likely that these (or any other) Indigenous groups hold established or asserted Aboriginal or Treaty rights (pursuant to Section 35 of the *Canadian Constitution Act, 1982*) within or near the proposed Project Area. It is BHP's understanding that these organizations may 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 increase Indigenous groups' involvement in commercial fisheries in Canada. Indigenous peoples throughout eastern Canada undertake harvesting in their traditional territories, which are generally near their communities.

As part of its ongoing engagement program, BHP has contacted each identified Indigenous group, directly or through agencies that represent them in consultation and negotiation. In March / April 2019, BHP wrote to the Indigenous groups to introduce the company and the Project, and to provide an opportunity for the groups to identify any questions or comments regarding the Project and its possible effects on Indigenous interests, as well as inviting further information sharing and engagement. As of the time of finalization and submission of this Project Description, three of these groups had responded to BHP acknowledging receipt of correspondence, clarifying contacts and language preference and indicating a concern for migrating salmon from rivers in traditional territory through or near drilling or exploration sites. As the EA progresses, BHP will follow up with each of these groups to confirm receipt of correspondence, request details related to consultation contacts and methods, and to request details on established or asserted rights, including fishing licenses, that may be affected by the Project.

4.3 Stakeholder Engagement and Public Consultation

During the preparation of this Project Description, BHP has met or corresponded with various interest groups (Table 4.3). In the coming months, meetings and / or correspondence are planned with other stakeholders including fishing industry and environmental non-government organizations.

Table 4.3: Stakeholder Engagement

Area of Interest	Stakeholder
Petroleum Industry	Newfoundland & Labrador Oil & Gas Industries Association (NOIA) Canadian Association of Petroleum Producers (CAPP)
Fishing / Seafood Processing Industry	Fish, Food and Allied Workers Union (FFAW-Unifor) Ocean Choice International Association of Seafood Producers Atlantic Groundfish Council Mi'kmaq Alsumk Mowimsikik Kaqoey Association (MAMKA)
Petroleum / Fishing Industries	One Ocean

BHP has met and / or corresponded with each of the organizations involved to provide a brief overview of the Project and subsequent discussion about concerns and potential issues. Discussions included the environmental assessment process, hazard assessment, consultation and communications with the fishing industry, available information on standard mitigations, use of fisheries liaison officers, local benefits including small companies and diversity and inclusion in procurement.

As part of its ongoing Project planning, BHP will continue to meet or otherwise communicate with these and other key stakeholders, including other fishing industry representatives, communities and environmental organizations to provide Project details and to identify and discuss any information, questions or concerns that stakeholders may have.

BHP is implementing a public consultation and stakeholder engagement program to 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. Should an EIS be required for the Project under *CEAA* 2012, the public consultation and stakeholder engagement program will meet *CEAA* 2012 requirements, and will include opportunities to identify stakeholder questions, concerns and issues that require consideration in the EIS, as well as in

eventual Project planning and implementation. A key focus of these consultation activities will be around obtaining and recording information and input related to:

1) Questions, issues or comments regarding the Project and its potential environmental and socioeconomic effects (including benefits);
2) Suggestions for any means through which these issues could be addressed in future Project planning and decisions / actions; and
3) Indigenous and local knowledge regarding the existing biophysical and socioeconomic environments in and around the Project Area.

The results of this consultation will be used to identify key issues and questions to be 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.

5.0 Potential Project-Related Environmental Interactions

The following sections provide a high level overview of potential environmental issues and interactions that may result from routine and non-routine components and activities associated with the proposed Project. This is followed by a discussion of some considerations relevant to the scope of any EIS that may eventually be required for the Project.

Oil and gas exploration and production activities have been ongoing in the Newfoundland offshore for nearly 50 years. During this timeframe, various measures (i.e., regulations, guidelines and practices) have been established to ensure appropriate protection of environment, health and safety in the offshore. Standard mitigation measures typically implemented in relation to offshore exploration drilling programs in NL are summarized in the Eastern Newfoundland SEA (Amec 2014). These measures are routinely and successfully applied to similar oil and gas exploration programs in offshore NL and elsewhere. BHP's own policies, principles and environmental management plans and procedures along with regulated and established planning and management measures, with will help ensure that the Project is planned and completed in a manner that avoids or reduces potential environmental effects.

5.1 Routine Components and Activities

The offshore oil and gas exploration activities proposed for this Project have the potential to interact with, and result in associated changes to, various aspects of the existing environment as described in Chapter 3. The Project includes planned offshore exploration activities in two BHP-held ELs within a Project Area off eastern Newfoundland. All drilling operations carried out as part of this Project will be conducted within the defined boundaries of the ELs themselves. The Project could also include VSP, geotechnical and ROV surveys, well testing, eventual decommissioning and abandonment or suspension, and associated supply and service activities. The following key components and activities, and potential environmental disturbances or interactions, are particularly relevant to any environmental effects analysis:

- Presence and operation of the drilling unit(s) (e.g., air emissions, lighting, underwater sound, solid and liquid wastes);
- Drilling activities and associated marine discharges (e.g., drill fluids and cuttings, liquid discharges, atmospheric emissions);
- VSP surveys (e.g., underwater sound);
- Supply vessel, helicopter operations, and ROV, geophysical, geotechnical, and environmental surveys (e.g., air emissions, lighting, underwater sound, solid and liquid waste generation); and
- Well decommissioning, abandonment or suspension activities.

As stated in *CEAA* 2012, the Project Description is required to provide a description of potential changes to fish and fish habitat, aquatic species, and migratory birds that may be affected as a result of Project activities. The Project Description must also provide information on the effects of potential environmental changes to federal or transboundary lands, and on Indigenous Peoples. Various environmental components may have potential environmental interactions with routine

Project Activities and are described below (Table 5.1). Potential environmental interactions would be assessed in more detail in the EIS should a federal EA process be required under *CEAA* 2012.

Table 5.1: Environmental Components/Issues and Potential Environmental Interactions with Routine Project Components and Activities Relevant to *CEAA 2012*

Environmental Component / Issue	Relevant Section(s) of *CEAA 2012*	Potential Environmental Interactions/Changes
Fish, Fish Habitat, and Aquatic Species	5(1)(a)(i) 5(1)(a)(ii)	Potential environmental changes from routine Project activities may affect fish, fish habitat, aquatic species as defined under SARA, marine mammals, and other aquatic species (including aquatic plants), due to the following: • 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; • Behavioural disturbances associated with drilling unit(s) and vessel presence, operation, and movements (noise, lights, discharges, habitat availability), resulting in possible avoidance or attraction by marine biota (fish, mammals, turtles); and • Possible effects on marine habitats including water quality and the contamination, smothering or other alteration of seabed and benthic organisms due to physical disturbance of the substrate, discharge and deposition of drill cuttings and/or fluids, or other solid and liquid wastes.
Migratory Birds	5(1)(a)(iii)	Potential environmental changes from routine Project activities may affect migratory birds (as defined under the *Migratory Birds Convention Act* 1994), due to the following: • Attraction and disturbance/disorientation, potential injury or mortality associated with presence and operation of drilling units and supply vessels; • Possible health effects due to contamination of individuals and/or their habitats from emissions from drilling unit(s) or vessels; and • Potential changes to the availability, distribution and/or quality of food sources resulting from potential effects on fish and fish habitat.
Project Activities Occurring on Federal Lands	5(1)(b)(i)	Potential environmental changes from routine Project activities in federal waters – the Project Area includes marine areas (federal lands) located within Canada's EEZ – due to the following: • Potential interactions described for fish, fish habitat and aquatic species, migratory birds, and atmospheric environment (e.g., air and sound emissions).
Transboundary Issues	5(1)(b)(ii)	Routine Project activities that occur within the EEZ are not anticipated to result in environmental emissions or other direct interactions that extend to the environment outside NL or Canadian jurisdiction. Although zone of influence of Project components and activities that occur within EEZ are not expected to extend to other jurisdictions, the Project may potentially affect environmental components (e.g., migratory fish, aquatic species, or birds and air and water quality) that extend to and/or move both within and outside Canadian jurisdiction. Potential interactions include: • Environmental interactions described for fish, fish habitat and aquatic species, migratory birds, and atmospheric environment (e.g., air and sound emissions).
Health and Socio-Economic Conditions for Indigenous People	5(1)(c)(i)	Potential environmental changes from routine Project activities may affect Indigenous fishing activities (including commercial communal licenses) with associated potential effects to socio-economic conditions, due to the following interactions: • 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 (e.g., fishing exclusion zone);

Environmental Component / Issue	Relevant Section(s) of *CEAA 2012*	Potential Environmental Interactions/Changes
		• Potential interactions with protected or special marine areas and possible associated effects on their human use and value; and Health conditions of Indigenous Peoples are not predicted to be affected by changes to the environment resulting from Project Activities.
Health and Socio-Economic Conditions	5(2)(b)(i)	Potential environmental changes from routine Project activities may affect commercial fishing activities with associated potential effects to socio-economic conditions, due to the following interactions: • 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 (e.g., fishing exclusion zone); • Potential interactions with protected or special marine areas and possible associated effects on their human use and value; and The health conditions of people are not predicted to be affected by changes to the environment resulting from Project Activities.
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)	No interactions or adverse effects are anticipated to result from routine Project activities in the marine environment more than 300 km offshore. Presence/absence of marine heritage resources on the seabed will be assessed through pre-drilling well site surveys. If the presence of such resources are identified during Indigenous engagement, they will be considered in the EIS.
Current Use of Lands and Resources for Traditional Purposes by Indigenous Peoples	5(1)(c)(iii)	No potential environmental changes from routine Project activities are anticipated to affect current use of lands and resources for traditional purposes by Indigenous Peoples given the location and water depths of the Project Area. Available information indicates that traditional harvesting areas, including documented FSC licences, occur at least 300 km from the Project Area. None of the identified Indigenous groups (or others) hold, claim or otherwise assert Aboriginal or Treaty rights within or near the proposed 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)	Routine Project activities authorized by the C-NLOPB and associated air emissions have the potential to result in directly related or incidental changes to the atmospheric environment.

5.1.1 Non-Routine Activities

Accidental events or malfunctions are potential, though unlikely, occurrences during offshore exploration drilling programs. Environmental incidents that may be associated with offshore drilling activities include potential subsurface blowouts (uncontrolled release of hydrocarbons), as well as batch spills of hydrocarbons or other substances (e.g., hydraulic fluid, drilling fluid, diesel) from a drilling unit or associated supply and support vessel activities. These events vary considerably in terms of their nature, scale, duration, and potential environmental consequences. Spills may occur in the offshore (e.g., during drilling activities) or nearshore (e.g., during supply vessel transit) environments.

The fate and behaviour of accidental spills depend upon Project and site-specific characteristics including volume of hydrocarbon, types and properties, as well as oceanographic conditions, location and timing of a spill. Project-specific

analysis of oil spill probabilities, as well as modelling studies of the likely fate and behaviour of possible oil spills will be conducted as part of the environmental assessment process to predict potential areas that may be affected by a spill. Various potential environmental interactions that may be associated with unplanned events are specified under *CEAA* 2012 and summarized in Table 5.2.

As indicated previously, oil spill prevention is a key focus of BHP's plans and activities and an integral component of all aspects of planning and implementation of its offshore petroleum exploration and development activities. This includes the incorporation of multiple preventative measures as part of project design and implementation. BHP's project and site-specific Oil Spill Response Plan that will be developed for this Project will detail the equipment and procedures that will be implemented to effectively respond to such an incident.

Table 5.2: 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
Fish, Fish Habitat, and Aquatic Species	5(1)(a)(i) 5(1)(a)(ii)	Potential environmental changes from non-routine Project activities (i.e., spills) may affect fish, fish habitat, aquatic species as defined under SARA, marine mammals, and other aquatic species (including aquatic plants), due to: • Changes in the presence, abundance, distribution and/or health of marine fish/other aquatic species as a result of exposure to accidental spills; • Reduced availability and quality of habitat including degradation and reduction of marine water quality; • Injury or mortality through physical exposure, ingestion, or effects on prey and habitats/water quality); and • Associated reduced food availability or quality from exposure to spills or degradation of water and habitats.
Migratory Birds	5(1)(a)(iii)	Potential environmental changes from non-routine Project activities (i.e., spills) may affect migratory birds (as defined under the *Migratory Birds Convention Act* 1994), due to: • Changes in the presence, abundance, distribution and/or health of marine birds due to exposure to accidental spills; • Reduced availability and quality of habitat including degradation and reduction of marine water quality; • Injury or mortality through physical exposure, ingestion, or effects on prey and important habitats); and • Associated reduced food availability or quality from exposure to spills or degradation of water and habitats.
Project Activities Occurring on Federal Lands	5(1)(b)(i)	Potential environmental changes from non-routine Project activities may occur in federal waters – Project

Environmental Component / Issue	Relevant Section(s) of *CEAA 2012*	Potential Environmental Interactions / Changes
		Area includes marine areas (federal lands) within Canada's EEZ. Potential interactions would include: • Potential environmental interactions described for fish, fish habitat and aquatic species, migratory birds, and atmospheric environment (e.g., air and sound emissions).
Transboundary Issues	5(1)(b)(ii)	An accidental event could result in transboundary effects by extending outside 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 Canada's EEZ. No land masses are anticipated to be affected. Oil spill modelling and analyses (previous and possible additional studies) assess the nature and geographic extent of any such accidental event and its potential effects.
Health and Socio-Economic Conditions for Indigenous People	5(1)(c)(i) 5(2)(b)(i)	Potential environmental changes from non-routine Project activities may affect Indigenous Peoples with associated potential effects to socio-economic conditions due to the following interactions: • Potential interactions with locations and environmental components used or otherwise valued by Indigenous Peoples, including communities, asserted or established traditional territories and resources, and other components of the health, heritage and other socioeconomic conditions of an Indigenous group; • Potential effects resulting from an accidental event such an oil spill on marine fish, birds, marine and migratory birds, and marine mammals and sea turtles that are used for traditional purposes. This may include closure and associated restrictions on commercial-communal fish harvesting, reduced catchability of commercial fish species, changes to population size and health of commercial fish species, and loss or contamination of migratory birds or eggs harvested for food; and • Potential interactions with protected or special marine areas and associated effects on their human use and value.
Health and Socio-Economic Conditions	5(2)(b)(i)	Potential environmental changes from non-routine Project activities may affect commercial fishing activities with associated potential effects to socioeconomic conditions, due to the following interactions: • Potential effects resulting from an accidental event such an oil spill on marine fish, birds, marine and

Environmental Component / Issue	Relevant Section(s) of *CEAA 2012*	Potential Environmental Interactions / Changes
		migratory birds, and marine mammals and sea turtles. These may include closure and associated restrictions on fisheries, reduced catchability of commercial fish species, changes to population size and health of commercial fish species, and loss or contamination of migratory birds or eggs harvested for food. Potential interactions with protected or special marine areas and possible associated effects on their human use and value; and • 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)	Non-routine Project activities such as a spill could potentially cause a change to the environment that may affect physical and cultural heritage areas (including shipwrecks). However, interactions and adverse effects from spills are not anticipated as Project activities are located over 300 km offshore and the Presence/absence of marine heritage resources on the seabed will be assessed through pre-drilling well site surveys. Oil spill modelling and analyses (previous and possible additional studies) assess the nature and geographic extent of any such accidental event and its potential effects.
Current Use of Lands and Resources for Traditional Purposes by Indigenous Groups	5(1)(c)(iii)	Potential environmental changes from non-routine Project activities may affect Indigenous Peoples including Aboriginal or Treaty rights to harvesting due to the following interactions: • Potential interactions with locations and environmental components used or otherwise valued by Indigenous Peoples, including communities, asserted or established traditional territories and resources, and other components of the health, heritage and other socioeconomic conditions of an Indigenous group. • Potential effects resulting from an accidental event such an oil spill on marine fish, birds, marine and migratory birds, and marine mammals and sea turtles that are used for traditional purposes. This may include closure and associated restrictions on commercial-communal fish harvesting, reduced catchability of commercial fish species, changes to population size and health of commercial fish species, and loss or contamination of migratory birds or eggs harvested for food. Available information does not indicate that any Indigenous groups hold, claim or otherwise assert Aboriginal or Treaty rights within or near the proposed

Environmental Component / Issue	Relevant Section(s) of *CEAA 2012*	Potential Environmental Interactions / Changes
		Project Area, nor undertake traditional activities within or near the Project Area. Furthermore, there are no documented FSC licences within or near the Project Area. Oil spill modelling and analyses (previous and possible additional studies) assess the nature and geographic extent of any such accidental event and its potential effects, including the potential for these effects to extend to or otherwise affect lands and resources currently used by an Indigenous group for traditional purposes.
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)	A spill occurring because of Project activities has the potential to result in temporary and localized changes to the marine and atmospheric environment as discussed above.

5.1.2 Potential Mitigations

A summary of some of the standard mitigation measures that are often implemented in offshore exploration drilling programs is also provided 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 BHP'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. These mitigations include:

- Avoidance of known important and sensitive species and areas / times where possible in the planning and conduct of oil and gas activities.
- Minimizing associated vessel and aircraft traffic, use of existing and common travel routes where possible and avoidance of low-level aircraft operations wherever possible.
- Minimizing environmental discharges and emissions from planned operations and activities, including compliance with relevant regulations and standards.
- Conducting sea bed surveys to assess the potential presence of sensitive benthic mico-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 Offshore Waste Treatment Guidelines 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 collecting and releasing 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 Offshore Chemical Selection Guidelines for Drilling and Production Activities on Frontier Lands.
- Use of mechanical procedures during well completion and abandonment activities where possible, including proactive design of well structures.
- Spill prevention plans and procedures, with associated and effective spill preparedness and response plans.
- On-going information gathering and analysis regarding fishing areas / 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).

5.2 Environmental Assessment Scoping Considerations

Any required EIS for this Project will be planned and prepared in accordance with the requirements of *CEAA* 2012 and its associated Regulations, and in full compliance with the EIS Guidelines that may be issued by the Agency. The potential interactions of the Project will be evaluated in the EIS by consideration of components and activities described in Chapter 2, including those associated with the drilling of exploration and possibly appraisal wells, VSP, geotechnical and ROV surveys, well testing and eventual decommissioning and abandonment or suspension, and relevant supply and service activities. The EIS will provide the required information about the Project, its biophysical and socioeconomic existing environment, potential environmental effects, proposed mitigations and any associated residual environmental effects and proposed follow-up initiatives.

BHP recognizes that the scope and focus of any EIS that may be required under *CEAA 2012*, including the final selection of valued components (VCs) upon which it will focus, will be established by the CEA Agency based upon the requirements of the Act, the results of the review processes described previously, and associated input from participating governmental, Indigenous, stakeholder and public interests. Any Project-related onshore support activities are anticipated to take place at an existing, established onshore supply facility that is owned and operated by a third-party contractor, has been previously approved under applicable regulatory processes, and provides services to multiple offshore operators. Thus, it is anticipated that onshore components and activities, and support vessel and aircraft transit to and from the Project Area from supply bases will not be included as part of the scope of the Project for EA purposes. Should a federal EA process be required under *CEAA* 2012, it is therefore proposed that the scope of the EIS be limited to offshore components. However, onshore components will be considered if so directed by the Agency. Based on the initial information and analysis provided above (Table 5.1 and Table 5.2) and recent EAs for similar exploration projects off NL and elsewhere, a preliminary list of potential VCs upon which any eventual EIS will likely include:

- Marine Fish and Fish Habitat (including Species at Risk and of conservation concern);
- Marine and Migratory Birds (including Species at Risk and of conservation concern);
- Marine Mammals and Sea Turtles (including Species at Risk and of conservation concern);
- Special Areas;
- Commercial Fisheries and Other Ocean Users; and
- Indigenous Peoples.

6.0 References

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

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

Amec Foster Wheeler Environment & Infrastructure (2018). Nexen Energy ULC Flemish Pass Exploration Drilling Project (2018-2028) Environmental Impact Statement. Prepared for Nexen Energy ULC.

Baillon, S., J.-F. Hamel, V.E. Wareham, and A. Mercier. (2012). Deep cold-water corals as nurseries for fish larvae. Frontiers in Ecology and the Environment, 10(7): 351-356.

Baillon, S., J.-F. Hamel, and A. Mercier. (2014). Diversity, distribution and nature of faunal associations with deep-sea pennatulacean corals in the Northwest Atlantic. PloS one, 9(11): e111519.

Baker, K.D., Haedrich, R.L., Snelgrove, P.V.R., Wareham, V.E., Edinger, E.N. and K.D. Gilkinson. (2012). Small-scale patterns of deep-sea fish distributions and assemblages of the Grand Banks, Newfoundland continental slope 65: 171-188.

Beazley, L.L., Kenchington, E.L., Murillo, F.J. and M. del Mar Sacau. (2013). Deep-sea sponge grounds enhance diversity and abundance of epibenthic megafauna in the northwest Atlantic. ICES Journal of Marine Sciences, doi:10.1093/icesjms/fst124.

Bell, J.S. and G.R. Campbell. (1990). Petroleum Resources: in Geology of the Continental Margin of Eastern Canada, Keen, M.J. and Williams, G.L. (Eds.), The Geology of North America, Vol I-1, Geological Survey of Canada, 679-719

Campbell, D.C. (2005). Major Quaternary Mass-Transport Deposits in Southern Orphan Basin, Offshore Newfoundland and Labrador. Geological Survey of Canada, Current Research 2005-D3.

Carter, L., C.T. Schafer, and M.A. Rashid. (1979). Observations on depositional environments and benthos of the continental slope and rise, east of Newfoundland. Canadian Journal of Earth Sciences, 16(4): 831-846.

C-Core (2017). Metocean Climate Study Offshore Newfoundland & Labrador Study Main Report, Volume 2: Regional Trends and Comparisons with Other Regions. Report prepared for Nalcor Energy – Oil and Gas Inc.

CEA Agency; Canadian Environmental Assessment Agency. (2018). Draft Agreement to Conduct a Regional Assessment of Offshore Oil and Gas Exploratory Drilling East of Newfoundland and Labrador. 14 pp.

CIS; Canadian Ice Service (2011). Sea ice climatic atlas, East Coast, 1981-2010. Environment Canada. Available at: http://publications.gc.ca/collections/collection_2013/ec/En57-38-2010-eng.pdf

C-NLOPB; Canada-Newfoundland and Labrador Offshore Petroleum Board. (2019). Exploration and Licencing: Land Rights Issuance Process. Available from: https://www.cnlopb.ca/exploration/issuanceprocess/

d'Entremont, A., J. Kaariainen, and K. Baker. (2008). SERPENT of the Deep-Best Practices in Research, Monitoring and Partnerships for a Deepwater Well off Atlantic Canada. In SPE International Conference on Health, Safety, and Environment in Oil and Gas Exploration and Production. Society of Petroleum Engineers. SPE-111789.

DFO; Department of Fisheries and Oceans Canada. (2010). Occurrence, Susceptibility to Fishing, and Ecological Function of Corals, Sponges, and Hydrothermal Vents in Canadian Waters. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2010/041.

DFO; Department of Fisheries and Oceans Canada. (2018). Data and Information on Indigenous Commercial-Communal and Food, Social and Ceremonial Fisheries.

Drover, K. (2010). Lona O-55 Benthic Environment Monitoring Program: Final Report. Report for Chevron Canada Resources. 8 p

ECCC; Environment and Climate Change Canada. (2018). National Pollutant Release Inventory Data Search. Available at: https://pollution-waste.canada.ca/.

Edinger, E., Baker, K., Devillers, R., and V. Wareham. (2007a). Coldwater corals in Newfoundland and Labrador waters: Distribution and fisheries impacts. WWF-Canada, 41 p. plus enclosed map CD.

Edinger, E.N., Wareham, V.E., and R.L. Haedrich. (2007b). Patterns of groundfish diversity and abundance in relation to deep-sea coral distributions in Newfoundland and Labrador waters. Bulletin of Marine Science. 81:289-313.

EMCP; ExxonMobil Canada Properties Ltd. (2011). Hebron Project Comprehensive Study Report. Submitted to the Canada-Newfoundland and Labrador Offshore Petroleum Board, St. John's, NL.

EMCP; ExxonMobil Canada Properties Ltd. (2017). Eastern Newfoundland Offshore Exploration Drilling Project – Environmental Impact Statement. Prepared by Amec Foster Wheeler and Stantec Consulting. St. John's, NL Canada. November 2017.

Enachescu, M.E., Hogg, J.R., Fowler, M., Brown, D.E., and I. Atkinson. (2010, September). Late Jurassic source rock super-highway on conjugate margins of the North and Central Atlantic (offshore East Coast Canada, Ireland, Portugal, Spain and Morocco). In *Central & North Atlantic Conjugate Margins Conference, Lisbon* (Vol. 29, pp. 49-80).

Fader, G.B., Cameron, G.D.M. and M.A. Best. (1989). Geology of the Continental Margin of Eastern Canada, Geological Survey of Canada, Map 1705A.

FAO; Food and Agriculture Organization of the United Nations. (2019). Vulnerable Marine Ecosystems. Available at: http://www.fao.org/in-action/vulnerable-marine-ecosystems/definitions/en/

Fifield, D. A., Lewis, K.P., Gjerdrum, C., Robertson, G.J., and R. Wells. (2009). Offshore Seabird Monitoring Program. Environment Studies Research Funds Report No. 183. St. John's. 68 p.

G and G Exploration Consulting Ltd. (2003). Hydrocarbon Potential of Parcels 1-12, C-NOPB Call for Bids NF 03-1. Orphan Basin Offshore Newfoundland. Canadian Journal of Earth Sciences. 22:504-526.

Gates, A.R., D.O.B. Jones and J. Kaariainen. (2008). Orphan Basin SERPENT Final Report, National Oceanography Centre Southampton Research and Consultancy Report; No. 41.

Gilkinson, K. and E. Edinger. (2009). The Ecology of Deep-Sea Corals of Newfoundland and Labrador Waters: Biogeography, Life History, Biogeochemistry, and Relation to Fishes. Canadian Technical Report of Fisheries and Aquatic Sciences 2830.

Guijarro, J., Beazley, L., Lirette, C., Kenchington, E., Wareham, V., Gilkinson, K., Koen-Alonso, M., and F.J. Murillo (2016). Species distribution modelling of corals and sponges from research vessel survey data in the Newfoundland and Labrador region for use in the identification of significant benthic areas. Canadian Technical Report for Fisheries and Aquatic Sciences. 3171: vi + 126p.

Gullage, L., R. Devillers, R., and E. Edinger (2017). Predictive distribution modelling of cold-water corals in the Newfoundland and Labrador region. Marine Ecology Progress Series, 582: 57-77.

Knudby, A., Lirette, C., Kenchington, E., and F.J. Murillo. (2013). Species Distribution Models of Black Corals, Large Gorgonian Corals and Sea Pens in the NAFO Regulatory Area. NAFO Scientific Council Research Document 13/078. 1-17.

LGL Limited. (2003). Orphan Basin Strategic Environmental Assessment. LGL Rep. SA767. Report for Canada-Newfoundland Offshore Petroleum Board. 244 p.

LGL Limited. (2005). Orphan Basin Exploration Drilling Program Environmental Assessment. LGL Rep. SA825. Rep. by LGL Limited, St. John's, NL, Canning & Pitt Associates, Inc., St. John's, NL, SL Ross Environmental Research Limited, Ottawa, ON, Oceans Limited, St. John's, NL, Lorax Environmental, Vancouver, BC, and PAL Environmental Services, St. John's, NL, for Chevron Canada Limited, Calgary, AB, ExxonMobil Canada Ltd., St. John's, NL, Imperial Oil Resources Ventures Limited, Calgary, AB and Shell Canada Limited. 353 p.

LGL Limited. (2011). Environmental Assessment of Chevron's North Grand Banks Regional Seismic Program, 2011-2017. LGL Report SA1119. Prepared by LGL Limited in association with Canning and Pitt Associates Inc., St. John's, NL, and Oceans Ltd., St. John's, NL for Chevron Canada Limited, Calgary, AB. 226 p. + Appendices.

LGL Limited. (2013). Orphan Basin Exploration Drilling Program Environmental Assessment: Validation 2013/2014. LGL Rep. SA1210. Rep. by LGL Limited, St. John's, NL and Mahone Bay, NS for Chevron Canada Limited, Calgary, AB. 38 p. + appendix.

Meredyk, S.P. (2017). Physical Characterization and benthic Megafauna Distribution and Species Composition on Orphan Knoll and Orphan Seamount, NW Atlantic. Masters Thesis. Memorial University, St. John's, NL.

Miles, L.L. (2018). Cold-water coral distributions and surficial geology on the Flemish Cap, Northwest Atlantic. Masters Thesis. Memorial University, St. John's, NL.

Murillo, F.J., Muñoz, P. D., Altuna, A., and A. Serrano. (2011). Distribution of deep-water corals of the Flemish Cap, Flemish Pass, and the Grand Banks of Newfoundland (Northwest Atlantic Ocean): interaction with fishing activities. ICES Journal of Marine Science: Journal du Conseil, 68(2), 319-332.

Murillo, F.J., Muñoz, P.D., Cristobo, J., Rios, P., Gonzalez, C., Kenchington, E., and A. Serrano. (2012). Deep-sea sponge grounds of the Flemish Cap, Flemish Pass and the Grand Banks of Newfoundland (Northwest Atlantic Ocean): Distribution and species composition. Marine Biology Research, 8:842-854.

Murillo, F.J., Serrano, A., Kenchington, E., and J. Mora. (2016a). Epibenthic assemblages of the Tail of the Grand Bank and Flemish Cap (northwest Atlantic) in relation to environmental parameters and trawling intensity. Deep Sea Research Part I: Oceanographic Research Papers. 109: 99-122.

Murillo, F.J., Kenchington, E., Lawson, J.M., Li, G., and D.J.W. Piper. (2016b). Ancient deep-sea sponge grounds on the Flemish Cap and Grand Bank, northwest Atlantic. Marine Biology. 163:63. Doi: 10.1007/s00227-016-2839-5.

NAFO; Northwest Atlantic Fisheries Organization. (2011). New VME Indicator Species (Excluding Corals and Sponges) and Some Potential VME Elements of the NAFO Regulatory Area. NAFO SCR Doc. 11/73.

NAFO; Northwest Atlantic Fisheries Organization (2019) STATLANT 21A Data Extraction Tool. Available at: https://www.nafo.int/Data/STATLANT

Neff, J.M., S. McKelvie and R.C. Ayers, Jr. (2000). Environmental impacts of synthetic based drilling fluids. Report prepared for MMS by Robert Ayers & Associates, Inc. August 2000. U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, LA. OCS Study MMS 2000- 064. 118 pp.

Nogueira, A., D. González-Troncoso, and N. Tolimieri. (2016). Changes and trends in the overexploited fish assemblages of two fishing grounds of the Northwest Atlantic. ICES Journal of Marine Science, 73(2): 345-358.

Nogueira, A., X. Paz, and D. González-Troncoso. (2017). Demersal groundfish assemblages and depth-related trends on Flemish Cap (NAFO Division 3M): 2004–2013. Fisheries Research, 186: 192-204.

NRCan (Natural Resources Canada). (2018a). Earthquake Zones in Eastern Canada. Available at: http://earthquakescanada.nrcan.gc.ca/zones/eastcan-en.php.

NRCan (Natural Resources Canada). (2018b). Simplified Seismic Hazard Map for Canada. Available at: http://earthquakescanada.nrcan.gc.ca/hazard-alea/simphaz-en.php.

Piper, D. J., Tripsanas, E., Mosher, D. C., and K. MacKillop. (2018). Paleoseismicity of the continental margin of eastern Canada: Rare regional failures and associated turbidites in Orphan Basin. *Geosphere*, *15*(1), 85-107.

SARA; Species at Risk Public Registry. (2018). Northern Wolffish and Spotted Wolffish (recovery strategy) Atlantic Wolffish (management plan). Available at: https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/recovery/wolffish-northern-spotted-atlantic-strategy-management-plan.html#toc0.

Spier, C., Stringfellow, W.T., Hazen, T. C., and M. Conrad. (2013). Distribution of hydrocarbons released during the 2010 MC252 oil spill in deep offshore waters. *Environmental Pollution*, *173*, 224-230.

Stantec Consulting (2018). Newfoundland Orphan Basin Exploration Drilling Program Environmental Impact Statement. Prepared for BP Canada Energy Group ULC.

Statoil Canada Ltd. (2017). Flemish Pass Exploration Drilling Program – Environmental Impact Statement. Prepared by Amec Foster Wheeler and Stantec Consulting. St. John's, NL Canada. November 2017.

Templeman, N.D. (2007). Placentia Bay-Grand Banks Large Ocean Management Area Ecologically and Biologically Significant Areas. DFO Canadian Science Advisory Secretariat Research Document, 2007/052.

Wareham, V.E. and E.N. Edinger. (2007). Distribution of deep-sea corals in the Newfoundland and Labrador region, Northwest Atlantic Ocean, Bulletin of Marine Science 81: 289–313.

Wells, N.J., Stenson, G.B., Pepin, P., and M. Koen-Alonso. (2017). Identification and Descriptions of Ecologically and Biologically Significant Areas in the Newfoundland and Labrador Shelves Bioregion. DFO Can. Sci. Advis. Sec. Res. Doc. 2017/013. v + 87 p.

WGEAFM (Working Group on Ecosystem Approaches to Fisheries Management). (2008). Scientific council meeting – June 2008. NAFO SCS Doc. 08/10.

Appendix A

Table of Concordance with the Prescribed Information for the Description of a Designated Project Regulations under *CEAA* 2012 and the Guide to Preparing a Description of a Designated Project under *CEAA* 2012

Prescribed Information for the Description of a Designated Project Regulations		Guide to Preparing a Description of a Designated Project under *CEAA 2012*		Where Addressed in the Project Description
General Information / General Information and Contacts				
1	The project's name, nature and proposed location.	1.1	Describe the nature of the designated project, and proposed location	*Section 1.1, 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.	1.2	Proponent information 1.Name of the designated project. 2.Name of the proponent. 3. Address of the proponent. 4.Chief Executive Officer or equivalent (include name, official title, email address and telephone number). 5.Principal contact person for purposes of the project description (include name, official title, email address and telephone number).	*Section 1.2*
3	A description of and the results of any consultations undertaken with any jurisdictions and other parties including Aboriginal peoples and the public.	1.3	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).	*Section 4.0*
4	The environmental assessment and regulatory requirements of other jurisdictions	1.4	Provide information on whether the designated project is subject to the environmental assessment and/or regulatory requirements of another jurisdiction(s).	*Section 1.3*
4.1	A description of any environmental study that is being or has been conducted of the region where the project is to be carried out	1.5	Provide information on whether the designated project will be taking place in a region that has been the subject of an environmental study.	*Section 3.0*
Project Information				
5	A description of the project's context and objectives	2.1	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	*Section 1.1, 2.0*
6	The provisions in the schedule to the *Regulations Designating Physical Activities* describing the project in whole or in part.	2.2	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	*Section 1.3.1*
7	A description of the physical works that are related to the project including their purpose, size and capacity	2.3	Provide a description of the components associated with the designated project, including: 1.The 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.	*Section 2.3*
8	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	2.3	2.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. 3.If the designated project or one component of the designated project is an expansion, describe the size and nature of the expansion	*Section 2.3*

			with reference to the thresholds set out in the Regulations Designating Physical Activities	
9	A description of all activities to be performed in relation to the project	2.3	4.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.	*Section 2.0*
10	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	2.4	Emissions, discharges and waste Provide a description of any waste that is likely to be generated during any phase of the designated project and plans to manage that waste, including the following: 1.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. 2.Sources and location of liquid discharges. 3.Types of wastes and plans for their disposal (e.g., landfill, licenced waste management facility, marine waters, or tailings containment facility).	*Section 2.4*
11	A description of the anticipated phases of and the schedule for the project's construction, operation, decommissioning and abandonment	2.5	5.Construction, operation, decommissioning and abandonment phases and scheduling. Provide a description of the timeframe in which the development is to occur and the key project phases, including the following: 1.Anticipated scheduling, duration and staging of key project phases, including preparation of the site, construction, operation, decommissioning and abandonment. 2.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).	*Section 2.2*
Project Location Information				
12	A description of the Project's location, including	3.0	Provide a description of the designated project's location, including:	*Section 2.1*
(a)	Its geographic coordinates	3.1	1.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.	*Section 2.1*
(b)	Site maps produced at an appropriate scale in order to determine the project's overall location and the spatial relationship of project components	3.1	2. 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.	*Section 1.1, 2.1, 3.2, 3.3*

			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; • linear and other transportation components (e.g., airports, ports, railways, roads, electrical power transmission lines and pipelines); • other features of existing or past land use (e.g., archaeological sites, commercial development, houses, industrial facilities, residential areas and any waterborne structures); • location of Aboriginal groups, settlement land (under a land claim agreement) and, if available, traditional territory; • federal lands[3] including, but not limited to National parks, National historic sites, and reserve lands; • nearby communities; • permanent, seasonal or temporary residences; • fisheries and fishing areas (i.e., Aboriginal, commercial and recreational); • 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); and, • provincial and international boundaries.	
(c)	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			*Section 1.3, 2.1*
		3.1	4. Photographs of work locations to the extent possible	*n/a*
(d)	The project's proximity to any permanent, seasonal or temporary residences	3.1	5. Proximity of the designated project to: • any permanent, seasonal or temporary residences;	*Section 2.1, 3.3*
(e)	The project's proximity to reserves, 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,	*Section 3.3, 4.2*
(f)	The project's proximity to any federal lands		• any federal lands.	*Section 1.3, 2.1*
		3.2	Land and Water Use 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. 1.Zoning designations. 2.Legal description of land to be used (including information on sub-surface rights) for the designated project, including the title, deed or document and any authorization relating to a water lot. 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. 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.	*Section 1.3, 2.1, 3.3, 4.2*
Federal Involvement				

13	A description of any financial support that federal authorities are, or may be, providing to the project	4.1	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.	*Section 1.3*
14	A description of any federal land that may be used for the purpose of carrying out the project	4.2	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).	*Section 1.3*
15	A list of permits, licences or other authorizations that may be required under any Act of Parliament to carry out the project	4.3	Provide a list of any federal permits, licences or other authorizations that may be required to carry out of the project.	*Section 1.3*
Environmental Effects				
16	A description of the physical and biological setting	5.1	Using existing knowledge and available information provide an overview of the following: 1.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).	*Section 3.0*
17	A description of any changes that may be caused, as a result of carrying out the project, to	5.2	A description of any changes that may be caused as a result of carrying out the designated project to:	*Section 5.0*
(a)	fish and fish habitat as defined in subsection 2(1) of the *Fisheries Act;*	(a)	Fish and fish habitat, as defined in the *Fisheries Act*	*Section 5.1, 5.2*
(b)	aquatic species, as defined in subsection 2(1) of the *Species at Risk Act* ; and			*Section 5.1, 5.2*
		(b)	b.marine plants, as defined in the *Fisheries Act*; and	*Section 5.1, 5.2*
(c)	migratory birds, as defined in subsection 2(1) of the *Migratory Birds Convention Act, 1994*	(c)	migratory birds, as defined in the *Migratory Birds Convention Act*, 1994	*Section 5.1, 5.2*
18	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.	5.3	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	*Section 5.1, 5.2*
19	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.	5.4	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.	*Section 3.3, 4.2, 5.1, 5.2*
Proponent Engagement and Consultation with Aboriginal Groups				
		6.0	Provide the following information to the extent that it is available or applicable:	*Section 4.2*
		6.1	A list of Aboriginal groups that may be interested in, or potentially affected by, the designated project.	*Section 4.2*
		6.2	2.A description of the engagement or consultation activities carried out to date with Aboriginal groups, including: • names of Aboriginal groups engaged or consulted to date with regard to the designated project; • date(s) each Aboriginal group was engaged or consulted; and, • means of engagement or consultation (e.g., community meetings, mail or telephone).	*Section 4.2*
		6.3	An overview of key comments and concerns expressed by Aboriginal groups identified or	*n/a*

			engaged to date, including any responses provided to these groups.	
		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 exchanged and collected (or, alternatively, an indication of why such engagement or consultation is not required).	*Section 4.2*
Consultation with the Public and Other Parties (other than Aboriginal consultation included above)				
		7.0	Provide the following information to the extent that it is available or applicable	*Section 4.0*
		7.1	An overview of key comments and concerns expressed to date by stakeholders and any responses that have been provided.	*Section 4.3*
		7.2	An overview of any ongoing or proposed stakeholder consultation activities	*Section 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.	*Section 4.1*
Summary				
20	A summary of the information required under sections 1 to 19	8.0	Proponents are to include as part of the project description a standalone section that summarizes the information identified in Sections 1 to 7 of this Guide	*Provided as a separate document*