Equinor Canada Ltd.

Central Ridge Exploration Drilling Program

Project Description

May 2019

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List of Abbreviations

2D	Two-Dimensional
3D	Three-Dimensional
4D	Four-Dimensional
Accord Acts	*Canada-Newfoundland and Labrador Atlantic Accord Implementation Act* and the *Canada-Newfoundland and Labrador Atlantic Accord Implementation Newfoundland and Labrador Act*
ADW	Approval to Drill a Well
AGC	Atlantic Groundfish Council
ASF	Atlantic Salmon Federation
ASP	Association of Seafood Producers
BOP	Blowout Preventer
BP	BP Canada Energy Group ULC
CAC	Criteria Air Contaminants
CE	Critically Endangered
CEAA 2012	*Canadian Environmental Assessment Act, 2012*
CEA Agency	Canadian Environmental Assessment Agency
CEPA	*Canadian Environmental Protection Act, 1999*
Chevron	Chevron Canada Limited
CL	Required Clarification
C-NLOPB	Canada-Newfoundland and Labrador Offshore Petroleum Board
CNSOPB	Canada Nova Scotia Offshore Petroleum Board
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2 eq	Carbon dioxide equivalent
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CPAWS	Canadian Parks and Wilderness Society
CWS	Canadian Wildlife Service
DFO	Fisheries and Oceans Canada
DND	Department of National Defence
DP	Dynamic Positioning
E	Endangered
EA	Environmental Assessment
Eastern Newfoundland EIS	Eastern Newfoundland Offshore Exploration Drilling Project Environmental Impact Statement (including the EL 1134 Addendum)

EBSA	Ecologically and Biologically Significant Area
EC	Environment Canada
ECCC	Environment and Climate Change Canada
ECSAS	Eastern Canadian Seabirds at Sea
EEM	Environmental Effects Monitoring
EEZ	Exclusive Economic Zone
EIS	Environmental Impact Statement
Ekuanitshit	Les Innus de Ekuanitshit
EL	Exploration Licence
EL 1134 Addendum	Eastern Newfoundland Offshore Exploration Drilling Project Environmental Impact Statement Addendum: Addition of EL 1134
ENGO	Environmental Non-Governmental Organization
EPA	Eastern Project Area
EPP	Environmental Protection Plan
ESRF	Environmental Studies Research Fund
Equinor Canada	Equinor Canada Ltd.
EU	European Union
ExxonMobil	ExxonMobil Canada Ltd.
FCA	Fisheries Closure Area
FFAW-Unifor	Fish, Food and Allied Workers Union
Flemish Pass EIS	Flemish Pass Exploration Drilling Program Environmental Impact Statement
FLO	Fisheries Liaison Officer
FPSO	Floating production, storage and offloading
GESAMP	United Nations Group of Experts on Scientific Aspects of Marine Environmental Protection
GHG	Greenhouse Gas
Husky Energy	Husky Oil Operations Limited
IBA	Important Bird Area
IMO	International Maritime Organization
IR	Information Requirement
IUCN	International Union for Conservation of Nature
JDB	Jeanne d'Arc Basin
KMKNO	Kwilmu'kw Maw-Klusuaqn Negotiation Office
LC	Least Concern
LSA	Local Study Area

LOMA	Large Ocean Management Area
MBCA	*Migratory Birds Convention Act*
MCG	Mi'kmaw Conservation Group
MCPEI	Mi'kmaq Confederacy of Prince Edward Island
MFN	Miawpukek First Nation
MMO	Marine Mammal Observer
MMS	Mi'gmawei Mawiomi Secretariat
MPA	Marine Protected Area
Mt	Megatonne
MTI	Mi'gmawe'l Tplu'taqnn Inc.
NAFO	Northwest Atlantic Fisheries Organization
NCC	NunatuKavut Community Council
NEB	National Energy Board
Nexen	Nexen Energy ULC
NG	Nunatsiavit Government
NL	Newfoundland and Labrador
NL ESA	Newfoundland and Labrador *Endangered Species Act*
NM	Nautical Mile
NO_2	Nitrogen dioxide
NO_X	Nitrogen oxide
NOIA	Newfoundland and Labrador Oceans Industry Association
NPA	Northern Project Area
NR	Not at Risk
NRCan	Natural Resources Canada
NT	Near Threatened
Nutashkuan	Première Nation des Innus de Nutashkuan
OA	Operations Authorization
OBIS	Ocean Biogeographic Information System
OCI	Ocean Choice International
OCSG	Offshore Chemical Selection Guidelines
OIM	Offshore Installation Manager
OSRP	Oil Spill Response Plan
OWTG	Offshore Waste Treatment Guidelines
PAAN	Protected Areas Association of Newfoundland
Passamaquoddy	Peskotomuhkati Nation at Skutik

PG / GB	Placentia Bay / Grand Banks
PL	Production Licence
$PM_{2.5}$	Particulate Matter less than 2.5 microns
QMFNB	Qalipu Mi-kmaq First Nation Band
RSA	Regional Study Area
RMA	Representative Marine Area
RMRI	Risk Management Research Institute
ROV	Remotely Operated Vehicle
RV	Research Vessel
SARA	*Species at Risk Act*
SBM	Synthetic-Based Mud
SC	Species of Concern
SDL	Significant Discovery Licence
SEA	Strategic Environmental Assessment
SIMA	Spill Impact Mitigation Assessment
SOCP	Statement of Canadian Practice with respect to the Mitigation of Geophysical Sound in the Marine Environment
SPA	Southern Project Area
SPOC	Single Point of Contact
Statoil	Statoil Canada Ltd.
Suncor Energy	Suncor Energy Offshore Exploration Partnership
t	Tonnes
T	Threatened
TAC	Total Allowable Catches
TPM	Total Particulate Matter
UINR	Unama'ki Institute of Natural Resources
UNCBD	United Nations Convention on Biological Diversity
UNFAO	United Nations Food and Agriculture Organization
UNESCO	United Nations Educational, Scientific and Cultural Organization
V	Vulnerable
VC	Valued Component
VME	Vulnerable Marine Ecosystem
VOC	Volatile Organic Compound
VSP	Vertical Seismic Profiling
WBM	Water-Based Mud

WG-EAFM	Working Group on Ecosystem Approach Framework to Fisheries Management
WNNB	Wolastoqey Nation in New Brunswick
WWF	World Wildlife Fund
ZOI	Zone of Influence

1.0 INTRODUCTION

Equinor Canada Ltd. (Equinor Canada), on behalf of its partners, Husky Oil Operations Limited (Husky Energy) and Suncor Energy Offshore Exploration Partnership (Suncor Energy), is proposing to undertake an exploration drilling program on Exploration Licenses (ELs) 1159 and 1160 in the Central Ridge Area located offshore Newfoundland and Labrador (NL) and approximately 375 km east of St. John's, NL.

The drilling, testing and abandonment of offshore exploratory wells in the first drilling program in an area set out in one or more ELs issued in accordance with the *Canada-Newfoundland and Labrador Atlantic Accord Implementation Act* is a designated project under the *Canadian Environmental Assessment Act, 2012* (CEAA 2012). This document has been prepared to address the information requirements pursuant to the CEAA 2012 and its regulations, as well as the requirements under the *Canada-Newfoundland and Labrador Atlantic Accord Implementation Act* and the *Canada-Newfoundland and Labrador Atlantic Accord Implementation Newfoundland and Labrador Act* (the Accord Acts). This document is provided to the Canadian Environmental Assessment Agency (CEA Agency) so that it may determine whether an environmental assessment (EA) pursuant to CEAA 2012 is required. It is also intended to assist other regulatory agencies, Indigenous groups and the public to determine their interest and participation in the potential EA process.

Appendix A contains a Table of Concordance between this document and the *Prescribed Information for the Description of a Designated Project Regulations* and the *Guide to Preparing a Description of a Designated Project under the Canadian Environmental Assessment Act, 2012* (CEA Agency 2015).

1.1 Overview of the Flemish Pass Exploration Drilling Program

In October 2016, Equinor Canada's CEAA 2012 EA associated with the Flemish Pass Exploration Drilling Program commenced (Reference number: 80129; CEA Agency 2018a).

Equinor Canada submitted the Environmental Impact Statement (EIS) in December 2017 (Statoil 2017; CEA Agency 2018a). As detailed in section 1.4.1 of the Flemish Pass Exploration Drilling Program EIS (herein referred to as the Flemish Pass EIS), Equinor Canada and ExxonMobil Canada Ltd. (ExxonMobil) are co-ventures in several ELs (i.e., ELs 1135, 1139, 1140, 1141, and 1142), and therefore Equinor Canada and ExxonMobil collaborated in the planning and completion of the EIS for their planned exploration drilling programs. Both operators submitted separate, but similar EISs. ExxonMobil had two submissions – the Eastern Newfoundland Offshore Exploration Drilling Project EIS (ExxonMobil 2017) and Eastern Newfoundland Offshore Exploration Drilling Project EIS: Addition of EL 1134 (ExxonMobil 2018) (collectively referred to as the Eastern Newfoundland EIS).

This joint EISs led to improved efficiency in the EA process by reducing duplication and regulatory, Indigenous and stakeholder burden. The joint EISs also resulted in a more comprehensive and integrated environmental analysis, including cumulative effects analysis, and their identification and application of mitigation measures.

The Flemish Pass and Eastern Newfoundland EISs were deemed conformant by the CEA Agency in December 2017, and the EL 1134 Addendum was deemed conformant in September 2018. The CEA Agency commenced the public and Indigenous comment period in January 2018 (CEA Agency 2018a).

The CEA Agency issued Equinor Canada a total of 109 Information Requirements (IRs) and 24 Required Clarifications (CLs). Equinor Canada responded to the majority of these IRs/CLs in conjunction with ExxonMobil (Equinor Canada and ExxonMobil 2018a, 2018b, 2018c), unless they were operator-specific (i.e., Statoil 2018). Responses to the IRs/CLs were addressed to the satisfaction of the CEA Agency.

The CEA Agency posted the Draft Environmental Assessment Report and potential conditions associated with the Flemish Pass EIS on February 13, 2019 (CEA Agency 2019a, 2019b). The CEA Agency also issued a public notice on February 14, 2019, which invited the public and Indigenous groups to comment on the Draft Environmental Assessment Report and potential conditions by March 16, 2019 (CEA Agency 2019c). The CEA Agency posted the final Environmental Assessment Report and Decision Statement associated with the Flemish Pass EIS on April 15, 2019 (CEA Agency 2019d) and April 17, 2019 (CEA Agency 2019e), respectively. As indicated in the CEA Agency's news release, the Flemish Pass EIS is subject to approximately 90 legally-binding conditions that will reduce or eliminate potential environmental effects, and Equinor Canada must fulfill all conditions (CEA Agency 2019f).

ELs 1159 and 1160 are located within the defined Project Area and scope assessed in the Flemish Pass and Eastern Newfoundland EISs, and therefore information in the EISs, responses to IRs/CLs and conditions in the Decision Statement (CEA Agency 2019e) are equally applicable to ELs 1159 and 1160.

It is noted that the Flemish Pass and Eastern Newfoundland EISs and responses to IRs/CLs are referred to throughout this document, however, these references (i.e. Statoil 2017, ExxonMobil 2017 and 2018, etc.) not repeated in subsequent sections of this document. Refer to Section 13 for applicable references.

No regional studies, as defined in CEAA 2012, have been undertaken in the NL Offshore Area, including the Project Area. However, the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) completed a strategic environmental assessment (SEA) (i.e. Eastern Newfoundland Strategic Environmental Assessment [AMEC 2014a]).

1.2 Project Description Approach

The Flemish Pass and Eastern Newfoundland EISs are specific to ELs 1134, 1135, 1137, 1139, 1140, 1141, and 1142. However, when identifying the Project Area an expanded area was selected (refer to figure 1-1 in the Flemish Pass EIS) to include other licenses that are not "designated projects" and are considered under a separate regulatory process through the Accord Acts, administrated by the C-NLOPB. Key factors in selecting a broader Project Area for the Flemish Pass and Eastern Newfoundland EISs included the following: the possibility of obtaining new ELs over the temporal scope of the EISs (e.g., ELs 1159 and 1160 were acquired by Equinor Canada in November 2018) and

potential working interest changes on existing ELs within the Project Area, which is a frequent occurrence in the oil and gas industry.

ELs 1159 and 1160 are located within the Project Area identified for the Flemish Pass and Eastern Newfoundland EISs and are illustrated in Figure 2-1. The overall environmental setting, biophysical characteristics, and effects assessments completed for the Flemish Pass and Eastern Newfoundland EISs are well understood and applicable to ELs 1159 and 1160.

Exploration drilling activities, and supporting activities, as described in the Flemish Pass and Eastern Newfoundland EISs would be the same activities to be carried out for ELs 1159 and 1160. The environmental effects associated with these activities would be the same as those assessed in the Flemish Pass and Eastern Newfoundland EISs and are therefore well understood.

Equinor Canada will apply the commitments and mitigations outlined in the Flemish Pass EIS and applicable IR/CL responses to ELs 1159 and 1160. In addition, Equinor Canada will apply conditions outlined in the Decision Statement associated with the Flemish Pass EIS (CEA Agency 2019e) to exploration drilling activities on ELs 1159 and 1160. Based on the above, an additional environmental assessment of exploration drilling activities on ELs 1159 and 1160 is not anticipated.

This document, while addressing the requirements of the *Project Description Regulations*, is prepared in a different manner than typical project descriptions for exploration drilling activities. The environmental effects associated with exploration drilling activities are well understood and an effects assessment for exploration drilling activities within the Project Area has been completed in the Flemish Pass and Eastern Newfoundland EISs, therefore this document will focus on comparing ELs 1159 and 1160 to the Flemish Pass EIS to confirm that information is valid, and to also identify and address gaps, if any. An in-depth evaluation of planned activities in relation to the Flemish Pass EIS is provided in Appendix B, and any aspects that differ have been incorporated into the main text of this document, as well as Appendices C to I.

1.3 Identification and Overview of the Operator

An overview of Equinor Canada is outlined in section 1.1 of the Flemish Pass EIS. All information in that section is applicable to ELs 1159 and 1160, except for licensing. The Flemish Pass EIS provided licensing information up to September 2017, however, as of February 2019, Equinor Canada is the operator of nine ELs and five significant discovery licences (SDLs), and is an interest holder in three ELs, 30 SDLs, and seven production licences (PLs) including Terra Nova, Hibernia, Hibernia South Extension, and Hebron production operations (C-NLOPB 2018a, 2019a, 2019b).

1.3.1 Equinor Canada’s Offshore Experience

An overview of Equinor Canada’s offshore experience is outlined in section 1.1.1 of the Flemish Pass EIS. All information in that section is applicable to ELs 1159 and 1160. Since the Flemish Pass EIS was submitted, Equinor Canada undertook a seabed survey in the Flemish Pass area.

1.3.2 Equinor's Management System

An overview of Equinor's management system is outlined in section 1.1.2 of the Flemish Pass EIS. All information in that section is applicable to exploration drilling on ELs 1159 and 1160.

1.3.3 Equinor Canada Contacts

The principal Equinor Canada contacts concerning exploration drilling on ELs 1159 and 1160 are as follows:

Primary Contact for Environmental Assessment:

Terry Forkheim
Senior Environment and Regulatory Advisor
Equinor Canada Ltd.
3600, 308 4th Avenue SW, Calgary, Alberta, T2P 0H7
Tel (587) 233-0560

Primary Contacts for Offshore NL Operations:

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Vice-President, Offshore NL
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2 Steers Cove, Level 2, St. John's, NL, A1C 6J5
Tel (709) 726-9091

1.4 Regulatory Context

1.4.1 The Accord Acts

An overview of the Accords Acts is outlined in section 1.3.1 of the Flemish Pass EIS. All information in that section is applicable to exploration drilling on ELs 1159 and 1160; however, an overview is provided in the following paragraphs.

As outlined on the C-NLOPB's website (C-NLOPB n.d), their role, under the Accord Acts, is to regulate oil and gas exploration and development in the Canada-NL Offshore Area, oversee compliance with regulatory requirements for worker safety, environmental protection and safety, conservation of the resource, land tenure, and Canada-Newfoundland and Labrador benefits. These processes are administered under various legislation, regulations, guidelines, and memoranda of understanding.

All petroleum-related work or activity in the Canada-NL Offshore Area requires an Operating Licence and an Operations Authorization (OA) issued by the C-NLOPB. In accordance with the Accord Acts and Section 6 of the *Newfoundland Offshore Petroleum Drilling and Production Regulations* prior to the issuance of an OA, the following information must be submitted by an operator and approved by the C-NLOPB:

- EA Report
- Canada-Newfoundland and Labrador Benefits Plan
- Safety Plan
- Environmental Protection Plan (EPP)
- Emergency Response and Spill Contingency Plans
- Evidence of Financial Responsibility
- Certificate of Fitness for the proposed equipment/facilities used to carry out drilling activities

The C-NLOPB's OA process is outlined in the Flemish Pass EIS (e.g., sections 1.3.1 and 2.12, table 1.2), and the same process would apply to exploration drilling on ELs 1159 and 1160.

Additional oversight for environmental protection and safety of operations is provided by regulations and guidelines issued by the C-NLOPB, and jointly with the Canada Nova Scotia Offshore Petroleum Board (CNSOPB) and/or National Energy Board (NEB). For exploration drilling programs, the *Newfoundland Offshore Drilling and Production Regulations* govern drilling activities and establish the framework for safety and environmental protection. Environmental guidelines to support drilling programs include *Offshore Chemical Selection Guidelines for Drilling & Production Activities on Frontier Lands* (OCSG) (NEB et al. 2009), *Offshore Waste Treatment Guidelines* (OWTG) (NEB et al. 2010) and *Environmental Protection Plan Guidelines* (NEB et al. 2011).

Key relevant legislation, regulations and guidelines applicable to the exploration drilling on ELs 1159 and 1160 are outlined in table 1.2 in the Flemish Pass EIS, and also outlined in Table 1.1 below.

1.4.2 Land Ownership and Licencing

An overview of land ownership and licencing is provided in section 1.3.1.1 of the Flemish Pass EIS. All information provided in that section is applicable to exploration drilling on ELs 1159 and 1160. The following paragraphs provide additional information regarding ELs 1159 and 1160.

As described in section 1.3.1.1 of the Flemish Pass EIS, the Canada-NL Offshore Area, as defined in the Accord Acts, includes those lands within Canada's 200 nautical mile (NM) Exclusive Economic Zone (EEZ) or to the edge of the continental margin, whichever is greater. EL 1159 is located beyond Canada's EEZ on the outer continental shelf, while EL 1160 has portions within and beyond Canada's EEZ. Other activities, such as vessel traffic, will take place within the 200 NM EEZ. In addition, CEAA 2012 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."*. Therefore, pursuant to CEAA 2012, exploration drilling on ELs 1159 and 1160 will be carried out on federal lands.

Table 1.1 Summary of Key Relevant Legislation, Regulations, and Guidelines

Legislation / Regulation / Guideline	Regulatory Authority	Overview	Potentially Applicable Permitting Requirement(s)
Specific to Oil and Gas Activities in the Canada-NL Offshore Area			
Accord Acts	C-NLOPB	The C-NLOPB is responsible, on behalf of the Governments of Canada and Newfoundland and Labrador, for petroleum resource management in the Canada-NL Offshore Area. The Accord Acts, administered by the C-NLOPB, govern all petroleum operations in that offshore area. The mandate of the C-NLOPB is to interpret and apply the provisions of the Accord Acts to all activities of operators in the Canada-NL Offshore Area and, to oversee operator compliance with those statutory provisions. The C-NLOPB's role is to facilitate the exploration for and development of petroleum resources in the Canada-NL Offshore Area in a manner that is consistent with the C-NLOPB's mandate including: • health and safety of workers • environmental protection; • effective management of land tenure; • maximum hydrocarbon recovery and value; and, • Canada/Newfoundland and Labrador benefits.	The various regulations and guidelines described below have been developed and issued under the Accord acts (and in some cases, also with other relevant legislation) The regulatory approvals and authorizations identified below may also be required pursuant to Section 138(1)(b) of the *Canada-Newfoundland Atlantic Accord Implementation Act* and Section 134(1)(b) of the *Canada-Newfoundland and Labrador Atlantic Accord Implementation Newfoundland and Labrador Act* and the various regulations made under the Accord Acts.
Accord Act Regulations	C-NLOPB	A number of Regulations made under the Accord Acts may be relevant to offshore oil and gas exploration drilling and associated activities, including the following: • *Certificate of Fitness Regulations* • *Drilling and Production Regulations* • *Marine Installations and Structures Transitional Regulations* • *Marine Installations and Structures Occupational Health and Safety Transitional Regulations*	The regulatory approvals and authorizations identified below may also be required pursuant to the relevant sections of the Accord Acts and/or one or more Regulations made under the Accord Acts. An Operating Licence, for example, is a prerequisite for oil and gas activity in the Canada-NL Offshore Area that involves fieldwork. The statutory requirements pertaining to Operating Licences are specified in Sections

Table 1.1 Summary of Key Relevant Legislation, Regulations, and Guidelines

Legislation / Regulation / Guideline	Regulatory Authority	Overview	Potentially Applicable Permitting Requirement(s)
		• *Offshore Petroleum Administrative Monetary Penalties Regulations* • *Offshore Petroleum Cost Recovery Regulations* • *Offshore Petroleum Financial Requirements Regulations* • *Oil and Gas Operations Regulations* • *Petroleum Geophysical Operations Regulations* • *Petroleum Installations Regulations*	137 and 138 of the Atlantic Accord Act and in the *Newfoundland Offshore Area Oil and Gas Operations Regulations.* There are also three types of authorizations administered by the C-NLOPB: 1) Operations Authorization (OA) 2) Geophysical Program Authorization 3) Diving Program Authorization An OA may include authorization for a drilling program, production project, well operations or other activities or components that are not covered by other types of authorizations. Also, operators applying to undertake a geophysical program, a wellsite seabed survey, vertical seismic profiling (VSP), an electromagnetic program, any other type of geological or geophysical program (including those that do not involve fieldwork), a geotechnical program or an environmental program, may apply for a Geophysical Program Authorization. C-NLOPB approvals may also involve the approval of certain documents, plans or other matters as specified by the legislation or regulations, or the approval of specific activities conducted under an earlier authorization. These include an: • Approval to Drill a Well (ADW) • Approval to Alter the Condition of a Well • Approval of a Formation Flow Testing Program

Table 1.1 Summary of Key Relevant Legislation, Regulations, and Guidelines

Legislation / Regulation / Guideline	Regulatory Authority	Overview	Potentially Applicable Permitting Requirement(s)
			• Approval of a Canada-Newfoundland and Labrador Benefits Plan Of relevance to this Project, an ADW is required for operations involving drilling within or under the marine environment. An ADW covers the operations on a well up to, and including, the termination of the well, which itself could include suspension, abandonment, or completion. A wellsite seabed survey must be completed prior to the issuance of such an ADW. If the well is to be tested, Approval of a Formation Flow Testing Program is also required in accordance with the *Newfoundland Offshore Petroleum Drilling and Production Regulations*.
Offshore Waste Treatment Guidelines (OWTG)	C-NLOPB	These guidelines outline recommended practices for the management of waste materials from oil and gas drilling and production facilities operating in the Canada-NL Offshore Area. The OWTG were prepared in consideration of the offshore waste / effluent management approaches of other jurisdictions, as well as available waste treatment technologies, environmental compliance requirements, and the results of environmental effects monitoring programs in Canada and internationally. The OWTG specify performance expectations for the following types of discharges (NEB et al. 2010): • emissions to air • produced water and sand • drilling muds and solids • storage displacement water • bilge water, ballast water and deck drainage • well treatment fluids	Adherence to OWTG

Table 1.1 Summary of Key Relevant Legislation, Regulations, and Guidelines

Legislation / Regulation / Guideline	Regulatory Authority	Overview	Potentially Applicable Permitting Requirement(s)
		• cooling water • desalination brine • sewage and food wastes • water for testing of fire control systems • discharges associated with subsea systems • naturally occurring radioactive material	
Drilling and Production Guidelines (updated August 2017)	C-NLOPB	These guidelines were developed and implemented by the C-NLOPB and CNSOPB to provide criteria for compliance requirements for operators planning to conduct offshore drilling activities on the east coast of Canada. Offshore oil and gas activities that involve drilling (including exploration and production) must be in compliance with the Drilling and Production Guidelines, in order to attain an ADW and an OA. These guidelines are based on past experiences in offshore oil and gas, legislation from the C-NLOPB, and from industry best practice. These guidelines provide direction and compliance standards for all aspects of offshore exploration drilling, including, but not limited to: • well approval applications • well installations, facilities, support craft • drilling fluid systems • riser specifications • drilling practices • formation flow testing equipment • well control • well casing and cementing design and processes • well abandonment • flaring • surveys	Adherence to Drilling and Production Guidelines

Table 1.1 Summary of Key Relevant Legislation, Regulations, and Guidelines

Legislation / Regulation / Guideline	Regulatory Authority	Overview	Potentially Applicable Permitting Requirement(s)
		• reporting and data requirements The guidelines also cover aspects of production activities, should production be planned in the case of a discovery.	
Offshore Chemical Selection Guidelines for Drilling and Production Activities on Frontier Lands (OCSG)	C-NLOPB	These guidelines provide a framework for chemical selection that reduces the potential for environmental effects from the discharge of chemicals used in offshore drilling and production operations. The framework incorporates criteria for environmental acceptability that were originally developed by the Oslo and Paris Commissions for the North Sea. An operator must meet the minimum expectations outlined in the OCSG as part of the authorization for work or activity related to offshore oil and gas exploration and production.	Adherence to OCSG
Compensation Guidelines Respecting Damage Relating to Offshore Petroleum Activity (updated November 2017)	C-NLOPB	These guidelines describe compensation sources available to potential claimants for loss or damage related to petroleum activity offshore Newfoundland and Labrador, and outline the regulatory and administrative roles which the C-NLOPB exercises respecting compensation payments for actual loss or damage directly attributable to offshore operators.	Adherence to Guidelines
Environmental Protection Plan Guidelines	C-NLOPB	These guidelines assist operators in developing Environmental Protection Plans (EPP) to meet the requirements of Sections 6 and 9 of the *Drilling and Production Regulations*	Adherence to Guidelines
Canada-Newfoundland and Labrador Exploration	C-NLOPB	This document provides an operator engaged in petroleum exploration activities, including geophysical, geotechnical, and drilling, in the Canada-NL Offshore Area with guidance for the preparation of a Canada-Newfoundland and Labrador Benefits Plan (Benefits Plan) which is required under Section 45 of the	Adherence to Guidance

Table 1.1 Summary of Key Relevant Legislation, Regulations, and Guidelines

Legislation / Regulation / Guideline	Regulatory Authority	Overview	Potentially Applicable Permitting Requirement(s)
Benefits Plan Guidance		Accord Acts. The guidance also addresses related contracting, expenditure, and employment reporting requirements.	
Geophysical, Geological, Environmental and Geotechnical Program Guidelines (Updated October 2018)	C-NLOPB	These Guidelines have been prepared to assist Applicants who wish to conduct geophysical, geological, geotechnical, or environmental programs within the offshore area.	Adherence to Guidelines and associated Geophysical Program Authorization
Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Marine Environment (SOCP)	Fisheries and Oceans Canada (DFO) / Environment and Climate Change Canada (ECCC)/ C-NLOPB	The SOCP specifies the minimum mitigation requirements that must be met during the planning and conduct of marine geophysical surveys, in order to reduce effects on life in the oceans. These mitigation measures can be applied to VSP operations. These requirements focus on planning and monitoring measures to avoid interactions with marine mammal and sea turtle species at risk where possible and reduce adverse effects on species at risk and marine populations.	Adherence to SOCP
Guidelines Respecting Financial Requirements (amended August 2017)	C-NLOPB	Operators wishing to conduct work or activity in the Canada-NL Offshore Area are required to provide proof of financial responsibility in a form and amount satisfactory to the C-NLOPB. These regulations and guidelines provide guidance to operators in providing proof of financial requirements regarding authorization being sought for work or activity relating to drilling, development, decommissioning or other operations in the offshore areas.	Adherence to Guidelines

Table 1.1 Summary of Key Relevant Legislation, Regulations, and Guidelines

Legislation / Regulation / Guideline	Regulatory Authority	Overview	Potentially Applicable Permitting Requirement(s)
Other Guidelines	C-NLOPB	Other Guidelines administrated by the C-NLOPB that do or may apply to aspects of offshore exploration programs such as those being proposed as part of this Project include: • Measures to Project and Monitor Seabirds in Petroleum-Related Activity in the Canada – Newfoundland and Labrador Offshore Area • Atlantic Canada Standby Vessel Guidelines • Cost Recovery Guidelines • Data Acquisition and Reporting Guidelines • Incident Reporting and Investigation Guidelines • *Measurement Under Drilling and Production Regulations* • Monitoring and Reporting • Physical Environmental Programs • Research and Development Expenditures • Safety Plan Guidelines • Transboundary Crewing	Adherence to Guidelines as applicable
Other Relevant Legislation			
CEAA 2012	CEA Agency	"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" is included in the list of designated activities under CEAA 2012. On April 17, 2019, the Flemish Pass and Eastern Newfoundland Exploration Drilling Projects were approved (with conditions) by the federal Minister of Environment in a Decision Statement issued under Section 54 of the *CEAA 2012*.	The Project is located within the Project Area assessed under the Flemish Pass and Eastern Newfoundland EISs. The CEA Agency will determine is an EA is required for exploration drilling activities associated with ELs 1159 and 1160.

Table 1.1 Summary of Key Relevant Legislation, Regulations, and Guidelines

Legislation / Regulation / Guideline	Regulatory Authority	Overview	Potentially Applicable Permitting Requirement(s)
Canadian Environmental Protection Act, 1999 (CEPA, 1999)	ECCC	CEPA, 1999 pertains to pollution prevention and the protection of the environment and human health in order to contribute to sustainable development. Among other items, CEPA, 1999 provides a wide range of tools to manage toxic substances, and other pollution and wastes, including disposal at sea.	Disposal at Sea Permits (under the *Disposal at Sea Regulations* pursuant to CEPA, 1999) have not been required in the past for operational discharges of drill muds or cuttings. Therefore, such a permit is not anticipated to be required in support of the Project.
Energy Safety and Security Act (S.C. 2015, c. 4)	Natural Resources Canada (NRCan)	Introduced in Parliament as Bill C-22, *Energy Safety and Security Act* received Royal Assent on February 26, 2015 and came into effect on February 26, 2016. *Energy Safety and Security Act* aims to strengthen the safety and security of offshore oil production through improved oil spill prevention, response, accountability, and transparency and amends the Accord Acts and the *Canadian Oil and Gas Operations Act* with the intent of updating, strengthening, and increasing the level of transparency of the liability regime that is applicable to spills and debris in the offshore areas. The Act also promotes harmonization of the EA process for offshore oil and gas projects and includes provisions to allow the offshore petroleum boards to enable them to conduct EAs under CEAA 2012.	Financial Responsibility and Financial Resources requirements have increased. Specific additional relevance to be determined, but likely to have specific implications for spill prevention and response.
Fisheries Act	DFO ECCC (administers Section 36, specifically)	The *Fisheries Act* contains provisions for the protection of fish, shellfish, crustaceans, marine mammals, and their habitats. Under the *Fisheries Act*, no person shall carry on work, undertaking, or activity that results in serious harm to fish that are part of a commercial, recreational, or Aboriginal fishery, or to fish that support such a fishery, unless this activity has been authorized by the Minister of Fisheries and Oceans. Section 36 of the *Fisheries Act* pertains to the prohibition of the deposition of a deleterious substance into waters frequented by fish.	Authorization from the Minister of Fisheries and Oceans under section 35(2) of the *Fisheries Act* has not been required in the past for offshore exploration drilling projects. Therefore, such an authorization is not anticipated to be required in support of the Project.

Table 1.1 Summary of Key Relevant Legislation, Regulations, and Guidelines

Legislation / Regulation / Guideline	Regulatory Authority	Overview	Potentially Applicable Permitting Requirement(s)
Migratory Birds Convention Act (MBCA)	ECCC	Under the MBCA, it is illegal to kill migratory bird species not listed as game birds or destroy their eggs or young. The Act also prohibits the deposit of oil, oil wastes or other substance harmful to migratory birds in waters or area frequented by migratory birds.	The salvage of stranded birds during offshore Project operations will require a handling permit under section 4(1) of the *Migratory Birds Regulations* pursuant to the MBCA.
Navigation Protection Act	Transport Canada	The NPA came into force in April 2014 and replaced the former *Navigable Waters Protection Act*. The *Navigation Protection Act* is intended to protect specific inland and nearshore navigable waters (as identified on the list of "Scheduled Waters" under the *Navigation Protection Act*) by regulating the construction of works on those waters and by providing the Minister of Transport with the power to remove obstructions to navigation.	No applicable permitting requirements have been identified for the Project, as the Project Area is located offshore, outside of the Scheduled Waters specified in the *Navigation Protection Act*.
Canada Shipping Act	Transport Canada	The *Canada Shipping Act, 2001* and related regulations set out the requirements for safety and environmental protection for Canadian vessels and their operator	Project components and activities will be required to comply with the relevant requirements of the Act and its Regulations.
Oceans Act	DFO	The *Oceans Act* provides for the integrated planning and management of ocean activities and legislates the marine protected areas (MPA) program, integrated management program, and marine ecosystem health program. MPAs are designated under the authority of the *Oceans Act*.	No applicable permitting requirements have been identified for the Project.

Table 1.1 Summary of Key Relevant Legislation, Regulations, and Guidelines

Legislation / Regulation / Guideline	Regulatory Authority	Overview	Potentially Applicable Permitting Requirement(s)
Species at Risk Act (SARA)	DFO / ECCC / Parks Canada	SARA is intended to protect species at risk in Canada and their "critical habitat" (as defined by SARA). The main provisions of the Act are scientific assessment and listing of species, species recovery, protection of critical habitat, compensation, permits and enforcement. The Act also provides for development of official recovery plans for species found to be most at risk, and management plans for species of special concern. Under the Act, operators are required to complete an assessment of the environment and demonstrate that no harm will occur to listed species, their residences or critical habitat or identify adverse effects on specific listed wildlife species and their critical habitat, followed by the identification of mitigation measures to avoid or reduce effects. All activities must be in compliance with SARA. Section 32 of the Act provides a complete list of prohibitions.	Under certain circumstances, the Minister of Fisheries and Oceans may issue a permit under section 73 of SARA authorizing an activity that has potential to affect a listed aquatic species, part of its critical habitat, or the residences of its individuals. However, such a permit is not anticipated to be required in support of the Project.
NL Endangered Species Act (NL ESA)	NL Department of Fisheries and Land Resources	The NL ESA provides special protection for plant and animal species considered to be endangered, threatened, or vulnerable in the province. The Act applies to species, sub-species and populations that are native to the province but does not include marine fish, bacteria, and viruses. It also does not apply to introduced species, except in extraordinary circumstances. Designation under the Act follows recommendations from the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and/or the Species Status Advisory Committee on the appropriate assessment of a species. Currently there are 43 species, subspecies, and populations listed under the Act. Eighteen of these species are listed as endangered, ten are listed as threatened and fifteen are listed as vulnerable.	No applicable permitting requirements have been identified for the Project.

Table 1.1 Summary of Key Relevant Legislation, Regulations, and Guidelines

Legislation / Regulation / Guideline	Regulatory Authority	Overview	Potentially Applicable Permitting Requirement(s)
Seabird Ecological Reserve Regulations, NLR 66/97	NL Department of Fisheries and Land Resources	Prohibit or limit industrial development and certain activities that can cause disturbance to breeding seabirds, including hiking, boat traffic and low-flying aircraft near the colonies during the breeding season.	No applicable permitting requirements have been identified for the Project.

As noted in the preceding sections, offshore subsurface rights for petroleum-related activities are administered by the C-NLOPB on behalf of the Governments of Canada and Newfoundland and Labrador. The C-NLOPB issues licences for land tenure that afford the holder of the licence exclusive rights to explore for or produce petroleum resources in that area, including ELs, SDLs, and PLs. ELs are issued in accordance with the C-NLOPB land tenure process, pursuant to the Accord Acts and are valid for up to nine years covering two periods. Note that the land tenure process is under review and changes are anticipated. The issuance of ELs is based on work commitments, whereby a well must be drilled or diligently pursued by the end of Period I.

Equinor Canada's interest rights (i.e., ELs, SDLs, and PLs) in the Canada-NL Offshore Area are discussed in Section 1.2. Table 1.2 below lists the ELs, interest holders and expiry dates.

Table 1.2 Licences Where Drilling Activity May Occur

Licence Number	Interest Holders (% ownership)	Expiry
EL 1159	Equinor Canada (operator; 70%) Husky Energy (30%)	Period I: January 15, 2025 Period II: January 15, 2028
EL 1160	Equinor Canada (operator; 60%) Suncor Energy (40%)	Period I: January 15, 2025 Period II: January 15, 2028

1.4.3 Canadian Environmental Assessment Act, 2012

Schedule I of the *Regulations Designating Physical Activities* designates "*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"* as a designated project under the CEAA 2012.

1.4.4 Other Potential Regulatory and Policy Requirements and Interests

Section 1.3.3 of the Flemish Pass EIS outlines the potential federal and provincial government departments and agencies that may have regulatory responsibilities, information and advice regarding exploration drilling on ELs 1159 and 1160, as well as key pieces of legislation and permits, approvals and authorizations that may be relevant. All information in that section is applicable to exploration drilling on ELs 1159 and 1160 and is outlined below. Key relevant legislation, regulations and guidelines applicable to proposed exploration drilling on ELs 1159 and 1160 are also outlined above in Table 1.1, as well as in table 1.2 in the Flemish Pass EIS.

Federal and provincial government departments and agencies, which may have regulatory responsibilities, information, and advice regarding exploration drilling activities on ELs 1159 and 1160 pursuant to their associated legislation and mandates include the following:

- Fisheries and Oceans Canada (DFO)
- Environment and Climate Change Canada (ECCC)
- Transport Canada
- Department of National Defence (DND)
- NL Department of Municipal Affairs and Environment
- NL Department of Fisheries and Land Resources
- NL Department of Natural Resources

Legislation, and regulations thereunder, that may be relevant and subsequently required regulatory approvals include the following:

- Accord Acts and its associated Regulations and Guidelines (as discussed above)
- *Fisheries Act*
- *Canadian Environmental Protection Act* (CEPA)
- *Oceans Act*
- *Navigation Protection Act*
- *Canada Shipping Act, 2001*
- *Migratory Birds Convention Act*
- *Species at Risk Act* (SARA)
- NL *Endangered Species Act* (NL ESA)
- NL *Seabird Ecological Reserve Regulations*

1.4.5 Federal Funding

No federal funding has been requested nor provided to Equinor Canada from any federal authority to support exploration drilling on ELs 1159 and 1160.

2.0 PROJECT DESCRIPTION

2.1 Scope

The scope of the exploration drilling on ELs 1159 and 1160 is the same as outlined in section 2.1 of the Flemish Pass EIS and includes the drilling, testing and decommissioning/abandonment of exploratory wells (including delineation wells) using one or more drilling installation, as well as associated exploration and supporting activities.

The Flemish Pass EIS environmental effects analysis considered the drilling of up to 30 wells. Wells to be drilled on ELs 1159 and 1160 would be captured within this 30-well count. No additional wells would be drilled with the inclusion of ELs 1159 and 1160. Therefore, the total number of wells to be drilled on ELs associated with the Flemish Pass EIS (i.e., ELs 1139, 1140, 1141, and 1142) and ELs 1159 and 1160 would not exceed 30.

2.2 Purpose

The purpose of exploration drilling on ELs 1159 and 1160 is the same as outlined in section 2.2 of the Flemish Pass EIS, and an overview is provided below.

In November 2018, Equinor Canada was awarded ELs 1159 and 1160 in the Central Ridge area of the Canada-NL Offshore Area (C-NLOPB 2018b).

The purpose of exploration drilling is to determine the potential for oil and gas resources on Equinor Canada-held land holdings within the Project Area. Exploration/delineation drilling is required to determine the presence, nature and volume of potential oil and gas resources within the ELs. Exploration drilling activities on ELs 1159 and 1160 also enables the licence interest holders to meet the work expenditure commitments that must be fulfilled over the term of the licence.

Exploration drilling is essential to enable continued oil and gas discoveries to maintain production and meet global energy demands. Equinor Canada-held land holdings within the Project Area have the potential to contain important and commercially significant hydrocarbon resources. Exploration drilling is expected to result in economic, social and technological benefits at the regional level. This includes contributing to energy diversity and supply. Oil continues to play an important part in meeting energy demands and exploration is necessary to enable oil and gas companies to maintain production. In addition, revenues and economic benefits generated from oil production form a significant part of the Newfoundland and Labrador economic and provincial government revenues.

2.3 Location and Designated Project Area

A project area is defined as the overall geographic area within which all components and activities will take place. As illustrated in Figure 2-1, the Project Area, as assessed in the Flemish Pass and Eastern Newfoundland EISs, includes Equinor Canada ELs 1159 and 1160 where exploration drilling activities may be carried out. The previously assessed Project Area also encompasses other existing Equinor Canada operated licences and partner operated licences. The Project Area includes a surrounding area to account for planned and potential ancillary and support activities at, or around, relevant well sites.

As defined in the Flemish Pass and Eastern Newfoundland EISs, the Project Area, which has an area of approximately 100,800 km², is divided into the Northern Section and Southern Section. EL 1160 is located within the Project Area – Southern Section, while EL 1159 is located within both the Project Area – Northern Section and Project Area – Southern Section. Refer to Figure 2-1 for locations of the Project Area, ELs 1159 and 1160, and ELs associated with the Flemish Pass EIS (i.e., ELs 1139, 1140, 1141, and 1142) and Eastern Newfoundland EIS (i.e., ELs 1134, 1135, and 1137).

Safety zones around drilling installations would be the same as those identified in the Flemish Pass and Eastern Newfoundland EISs (i.e., approximately 1 km² for a drill ship using dynamic positioning [DP] and 12 km² for a semi-submersible requiring anchors).

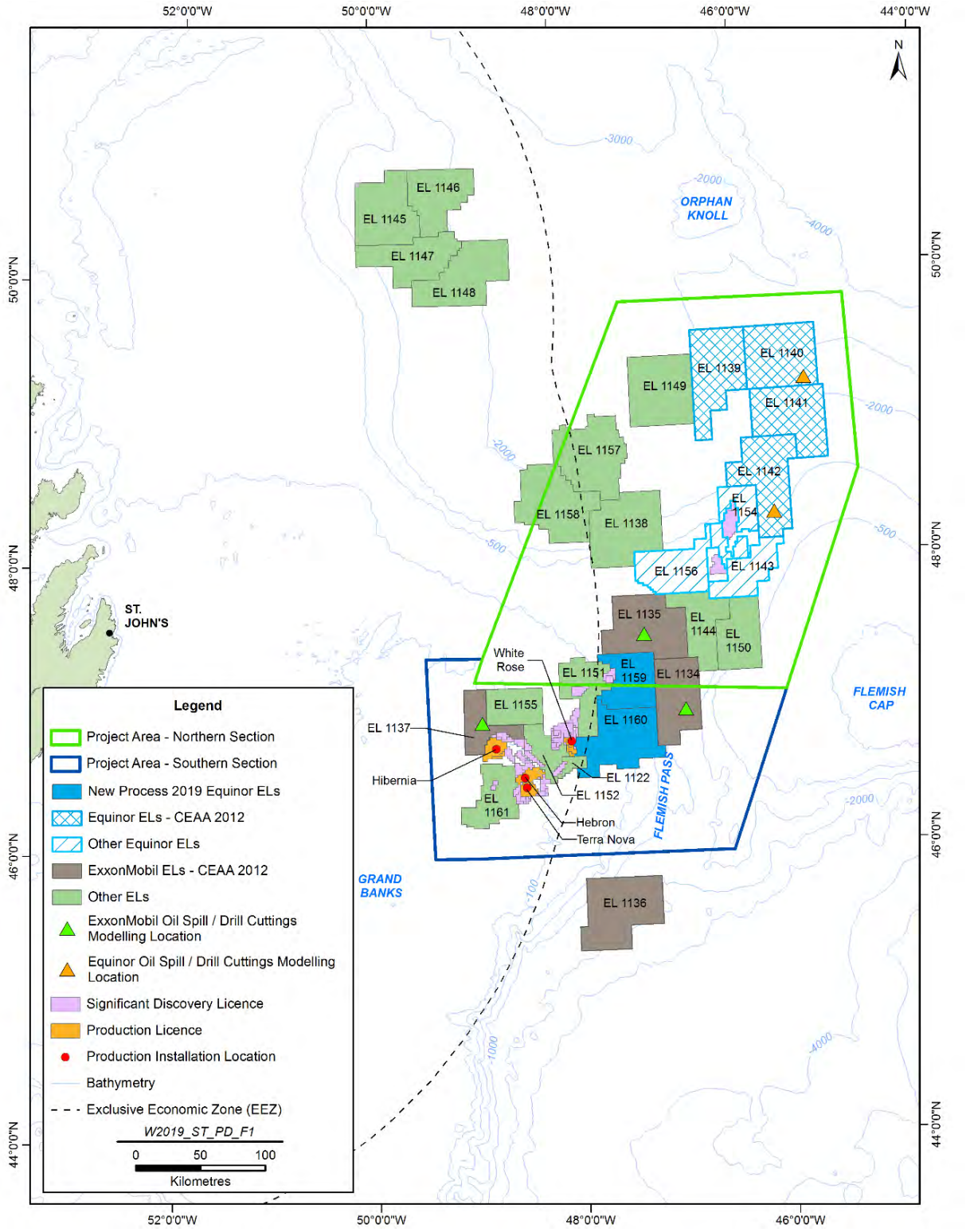


Figure 2-1 Project Area

The corner point coordinates for the previously assessed Project Area – Northern Section and Southern Section are provided in Tables 2.1 and 2.2 below. The corner point coordinates and water depth ranges for ELs 1159 and 1160 are presented in Tables 2.3 and 2.4, respectively. Water depths in EL 1159 range from approximately 90 m to 930 m, and EL 1160 ranges from approximately 40 m to 1,020 m. Average water depths in ELs 1159 and 1160 are approximately 350 m and 260 m, respectively.

Table 2.1 Project Area – Northern Section Coordinates

Project Area Vertices	Coordinates – NAD83 UTM ZONE 22N			
	Longitude (DMS)	Latitude (DMS)	Easting (m)	Northing (m)
A	44° 56' 48" W	49° 47' 31" N	935562	5533101
B	44° 55' 21" W	48° 34' 30" N	948190	5398059
C	45° 49' 04" W	47° 04' 57" N	893344	5227380
G	48° 59' 13" W	47° 12' 49" N	652421	5230868
I	47° 21' 04" W	49° 49' 18" N	762440	5525202

Table 2.2 Project Area – Southern Section Coordinates

Project Area Vertices	Coordinates – NAD83 UTM ZONE 22N			
	Longitude (DMS)	Latitude (DMS)	Easting (m)	Northing (m)
C	45° 49' 04" W	47° 04' 57" N	893344	5227380
D	46° 26' 02" W	45° 59' 28" N	853605	5103218
E	49° 25' 01" W	45° 59' 42" N	622584	5094695
F	49° 28' 29" W	47° 23' 03" N	615122	5248990
G	48° 59' 13" W	47° 12' 49" N	652421	5230868
H	48° 54' 10" W	47° 22' 44" N	658314	5249404

Table 2.3 Exploration Licence 1159 – Corner Point Coordinates

Coordinates – NAD83 UTM ZONE 22N	
Longitude (DMS)	Latitude (DMS)
47°00'W	47°10'N
47°15'W	47°10'N
47°30'W	47°10'N
47°00'W	47°20'N
47°15'W	47°20'N
47°30'W	47°20'N
47°00'W	47°30'N

47°15'W	47°30'N
47°30'W	47°30'N
Notes: Coordinates provided by C-NLOPB Land Registry (C-NLOPB 2019c) Water depths range from 90 m to 930 m	

Table 2.4 Exploration Licence 1160 – Corner Point Coordinates

Coordinates – NAD83 UTM ZONE 22N	
Longitude (DMS)	**Latitude (DMS)**
47°00'W	46°40'N
47°15'W	46°40'N
47°30'W	46°40'N
47°45'W	46°40'N
47°00'W	46°50'N
47°15'W	46°50'N
47°30'W	46°50'N
47°45'W	46°50'N
47°00'W	47°00'N
47°15'W	47°00'N
47°30'W	47°00'N
47°30'W	47°10'N
Notes: Coordinates provided by C-NLOPB Land Registry (C-NLOPB 2019d) Water depths range from 40 m to 1,020 m	

The Flemish Pass and Eastern Newfoundland EISs assessed the impacts of drilling activities within the Project Area, and within a water depth range of 70 m to 3,500 m, and therefore, the potential effects of exploration drilling activities associated with ELs 1159 and 1160 have already been assessed. Specific drilling locations cannot be identified at this time as they will be based on the interpretation of seismic data, which is an ongoing activity, and the results for each drilled well within the Project Area.

2.3.1 Study Areas

The Study Areas used for the basis of the EA in the Flemish Pass and Eastern Newfoundland EISs are applicable to exploration drilling activities on ELs 1159 and 1160 and the associated effects assessment. The Study Area is defined in 4.3.1.1 of the Flemish Pass and Eastern Newfoundland EISs and is based on potential interaction between activities and environmental components. In addition to environmental interactions arising from routine activities, the definition of the Study Area also considered the results of spill trajectory modelling.

2.3.2 Temporal Boundaries

The planned temporal scope covers a period of 10 years (from 2020 to 2029), which has been selected to generally align with the terms of the various existing and potential licences, as well as to provide an adequate and conservative timeframe within which planned activities (including well drilling, testing, abandonment, and associated activities) may occur. Within this temporal scope, the planned exploration activities associated with ELs 1159 and 1160 may occur at any time throughout the year.

2.4 Components and Activities

The scope, as identified in this document, includes the mobilization and operation of drilling installations, drilling activities, supporting ancillary activities to drilling programs, and well decommissioning or suspension. The components and activities are the same as those outlined in the Flemish Pass and Eastern Newfoundland EIS (i.e., section 2.5.2), and are summarized in the subsections below.

2.4.1 Drilling Installations and Activities

Exploration and delineation/appraisal wells are drilled to confirm the presence, or delineate the extent, of oil and gas resources at specific locations. Exploration wells are drilled to determine 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 delineation/appraisal wells into different parts of the identified hydrocarbon accumulation to confirm its size and the characteristics of the hydrocarbons found.

Specific wellsite locations are not currently defined, and will be selected as planning and design activities move forward. Detailed well design has likewise not yet been completed, and will depend on various factors including water depth, reservoir potential and its geological properties. Individual well designs will be developed and submitted for approval to the C-NLOPB as required per the applicable authorization and approvals processes.

Wells may be drilled using a semi-submersible drilling installation, or drillship (Figure 2-2). Type of installation chosen will be based primarily 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. Drilling installations and vessels that are used will meet the operational and environmental capabilities needed for the associated exploration activities, and will meet all regulatory requirements. For the purposes of environmental effects analysis, it is assumed that there may be up to two drilling installations actively engaged in drilling activities in the Project Area at any one time. A drilling installation can either be moored in position over the drilling site using mooring lines and anchors (generally in shallower water depths up to 500 m), or maintained on station by a DP system (generally in deeper water greater than 500 m).

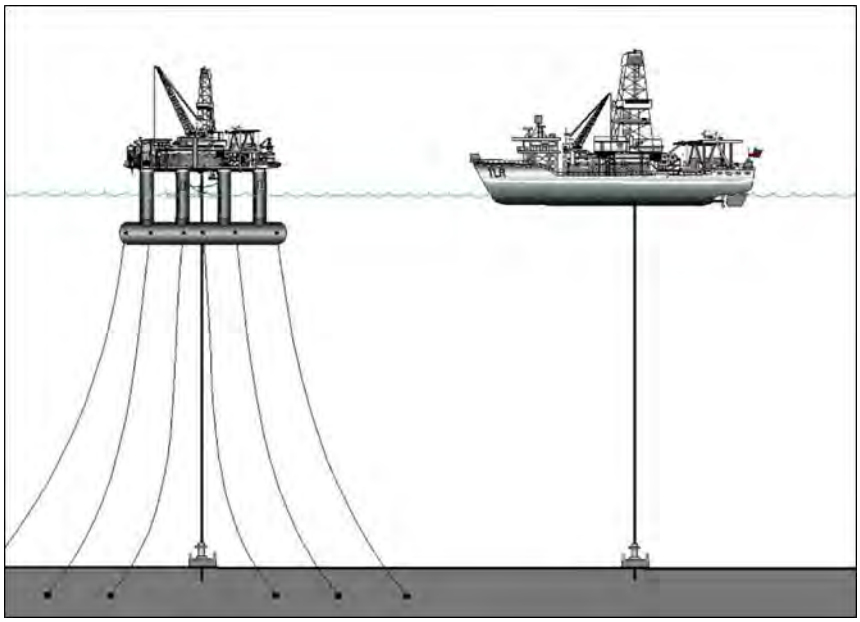


Figure 2-2 Typical Offshore Drilling Installations: Semisubmersible and Drill Ship

Equinor Canada will complete coral and sponge surveys at each well location, as well as 50 m around each anchor pattern, where applicable, at least three months prior to drilling activities. Site-specific survey details will be outlined in the *Coral and Sponge Survey Plans*, which will be provided to the C-NLOPB and DFO for their review and acceptance prior to commencing the survey. If corals and sponges and are identified, then a risk assessment will be completed. After the survey is complete, Equinor Canada will prepare *Coral and Sponge Survey Results and Risk Assessment Reports*, which will be provided to the C-NLOPB and DFO for their review and acceptance at least 60 days prior to commencing drilling.

Once an appropriate wellsite has been identified and the permits and regulatory approvals have been granted for a drilling campaign, the drilling installation will be mobilized to the wellsite location, after which the drilling of a well will be implemented in a number of stages. A safety zone is established around the drilling installation for the protection of the drilling installation and other equipment and for the safety of other ocean users.

Once the drill site clearance has been completed and the drilling installation has been positioned or moored with anchors the drilling process commences, with a well being drilled in sections by gradually reducing the size of the wellbore (or hole). Drilling muds are fluids which lubricate and cool the drill bit and hole, circulate cuttings and carry them back to the surface, and help maintain appropriate pressure in the well. Drilling of the first section of the well, the top hole, usually involves a large diameter hole to install the surface casing and conductor. These initial sections of the well are drilled using seawater or a water-based mud (WBM) without a riser in place. The riser enables the return of the drilling fluids and cuttings back to the drilling installation. As the initial (conductor) portion of a well is drilled without a riser in place, the drilling muds and cuttings are discharged directly to the seabed as allowed by the OWTG.

When top section drilling has been completed to the desired depth a steel casing is run and cemented in place to prevent the wall of the wellbore from caving in and to prevent muds and other fluids seeping out of the hole. At this stage, the wellhead is also installed on top of the casing and the riser and blow-out preventer (BOP) are then installed onto the wellhead. The riser is a large diameter pipe that acts as a channel connecting the drilling installation to the wellhead through the water column, and the wellhead provides structural integrity to house the BOP and pressure integrity for drilling operations. A BOP is 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. At intervals along the well, casing is cemented in place at set depths to reinforce the wellbore.

Once the riser has been installed, the remaining sections of the well are drilled to predefined depths using either WBM or synthetic-based mud (SBM) if the use of the former is technically impractical. Once the conductor hole is completed and when the riser and BOP are installed and in place, drilling muds and cuttings can be returned to the drilling installation for treatment and discharge, in the case of cuttings, and recovery and reuse of drilling muds.

With the casing and associated equipment in place, the drill bit and riser are lowered into the conductor hole. Drilling begins at the bottom of the initial (conductor) hole and then continues on to the desired depth under the seabed. Drill pipe sections are added as drilling continues and progresses. As sections of well are completed, the drill string is pulled out of the well and the sections of the casing are joined together, lowered into the well, and cemented into place. The circulation equipment includes high pressure pumps, equipment to separate rock cuttings from the fluids, and storage facilities for the used fluids once retrieved.

In addition to conventional drilling approaches, where a well is drilled from surface hole to final depth without moving the drilling installation, batch drilling may also occur in which only the top hole sections for multiple wells are completed. Once the all the top hole sections are finished, the drilling installation returns to a well to drill it to final depth before moving to the next wellsite.

2.4.2 Geophysical, Environmental and Geotechnical Surveys

Geophysical / Geohazard / Wellsite and Seabed Surveys: These surveys may be conducted prior to drilling to assess the potential for hazards (such as possible obstructions or seabed instability), which may include seismic sound sources, multibeam echo sounders, side scan sonar, sub-bottom profilers, and video equipment. A pre-drill coral survey will also be undertaken, using similar equipment listed above, to confirm the presence or absence of sensitive marine habitat (e.g., corals, sponges). Multiple streamer geophysical surveys including, but not limited to, conventional two-dimensional (2D) and three-dimensional (3D) seismic surveys, would not be included in the designated Project.

Vertical Seismic Profiling (VSP) survey is often undertaken following completion of drilling a well to correlate seismic data to well depth. A VSP survey is undertaken by placing a receiver (geophones) down the well at pre-determined depths, with a sound source (usually mid-sized air source arrays) suspended from the drilling installation. Walk-away VSP surveys may also be undertaken, which involve placing a sound source on a vessel which then moves away while operating the sound source at pre-determined distances from the borehole receiver. Data is recorded at multiple intervals down the well, and the information assists in determining and confirming the depth of the drilled well and for reconciling

drilling information with that obtained through geophysical survey work. VSP surveys are typically short-term activities (usually several days duration), with the sound source firing often limited to just a few hours. They also use sound sources that are considerably smaller than those used in regional geophysical surveys for oil and gas in the offshore.

Geotechnical Surveys: These surveys measure the physical properties of the seabed and subsoil through the collection of sediment samples and in-situ testing. Methods to collect the samples typically include drilled boreholes or gravity coring. In-situ testing is done through cone penetration testing and pore pressure measurements. Installation of piezometers in boreholes to measure soil properties may also be carried out. Piezometers could be left in place to collect data for up to 12 months or longer. Geotechnical surveys may occur throughout the temporal scope and at any time of the year, using dedicated vessels provided by marine geotechnical specialist suppliers.

Remotely Operated Vehicles (ROV) / Autonomous Underwater Vehicle Surveys: They may be used to conduct visual inspections (camera equipped) of activities and components. ROV surveys may also be used during pre-drill surveys and before marine installations to determine presence / absence of physical objects on the seafloor, as described earlier. They may also be used during the surveys described above to support drilling operations. They will be conducted throughout the temporal scope and at any time of the year using vessels of opportunity.

Environmental Surveys: May also be conducted to collect samples to analyze the physical, chemical, and biological aspects of the selected drilling area. Sampling is typically carried out from a support / supply vessel or a dedicated vessel suitable to the survey. Environmental surveys may include oceanography, meteorology, and ice / iceberg surveys. It can also include biota, water, and sediment sample collection, and ROV-video or drop camera surveys. Environmental surveys may occur throughout the temporal scope and at any time of the year using vessels of opportunity, typically taking 5 to 20 days to complete.

2.4.3 Formation Flow Test with Flaring

A formation flow test may be carried out on wells where hydrocarbons are discovered, and additional reservoir data is needed. During such testing, fluids from the reservoir are flowed back to the drilling installation, measured and if, required stored for future analysis. Produced hydrocarbons and some produced water from the reservoir are flared using high-efficiency burners. Flaring would be continuous and last between two to five days. If there is a larger amount of produced water than can be flared, it will be treated in accordance with the relevant regulatory requirements prior to ocean discharge or shipped onshore for disposal.

Equinor Canada will use third-party well testing contractors. Most suppliers for well testing equipment/services have their own burner technology that has been tested and quantified for liquid fallout (i.e., oil phase) and emissions (e.g., carbon monoxide [CO], carbon dioxide [CO_2], nitrogen oxides [NO_X], hydrocarbons). Documented fallout and combustion efficiencies for burners on the market from major suppliers are typically 99.9%.

An alternative to formation flow testing with flaring exists and may be used on exploration wells to gather similar data. These types of tests, called Formation Testing While Tripping, may be conducted without

the need to flare. Formation flow testing would only be carried out on exploration wells where hydrocarbons are discovered and additional information on the specific characteristics of the find is therefore required. The specific nature and duration of any such formation flow testing is dependent upon various factors but is typically in the order of two to three days, although this may be of longer duration (up to five days) depending on the characteristics of the hydrocarbons found and the analysis being undertaken.

2.4.4 Well Decommissioning or Suspension

Once drilling and formation flow testing (if required) is completed, the offshore wells drilled will be decommissioned or suspended. These activities typically involve the isolation of the wellbore by placing cement plugs and/or mechanical devices, at various depths, and in some cases the casing is cut and removed just below the surface of the seafloor and equipment removed. In certain circumstances, the well may be suspended, in accordance with C-NLOPB requirements, for future re-entry. This is similar to the decommissioning process, but the wellhead is not removed, and a suspension cap is installed to protect the wellhead connector.

The approach undertaken will be based largely upon the water depths at the well site and associated technical considerations, as follows:

- In water depths less than 500 m, the wellhead will be removed by using the drilling installation to cut the wellhead below the seafloor and return it to the installation.
- In water depths between 500 m and 1,500 m, wellheads will be removed by cutting the wellhead externally, leaving a portion of the casing above the seafloor. A supply vessel or well intervention vessel using a ROV and an exterior diamond wire cutting saw will be used to cut and remove the wellheads above the sea floor. Cutting of the wellheads above the seafloor will be completed as close to the natural seabed as practicably and technically feasible. A pipe stub with a maximum height of approximately 0.85 m will remain above the seabed. While current technology has a limit of 0.85 m of casing remaining above the seafloor, cutting as close to the seafloor will be attempted.
- In water depths greater than 1,500 m, the wellhead will remain in place and will not be removed.

Well decommissioning will be carried out as per Equinor's standard internal procedures, 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*. Wells will be monitored (typically using an ROV to ensure the areas are free of equipment and obstructions) and inspected in accordance with applicable regulatory requirements at the time of their decommissioning.

2.4.5 Supply and Servicing

Supply vessels and helicopters will be used to transport personnel, equipment and materials to and from a drilling installation. Supply vessels will make regular trips to the drilling installation throughout the drilling program, and a dedicated stand-by vessel may also attend to the installation throughout the

campaign. Personnel will be transported to and from the drilling installation 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 will be based in St. John's, NL. Existing facilities in eastern Newfoundland will be used, 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 will be based at the St. John's International Airport. These shore-based facilities are owned and operated by independent third-party service providers, service multiple operators and their activities, and were developed and operate in accordance with relevant regulatory requirements and approvals. They are also 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. Exploration drilling associated with ELs 1159 and 1160 will not require or result in upgrades or the development and use of new infrastructure at these established shore base facilities.

It is anticipated that with a single operating drilling installation there will be 8 to 10 return transits per month by the supply vessels. Supporting vessels that are involved in exploration drilling activities will travel in an essentially straight line between the drilling installation 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. It should be recognized that specific routes may vary at times based on the location of the active drilling installation(s), the shore-based support facility being used, environmental conditions (including weather and ice), and other logistical factors. For example, should the facilities in the port of St. John's be inaccessible or if the port facility cannot service the drilling program, other existing supply facilities in the province may be used.

2.5 Personnel

Personnel will be the same as outlined in section 2.6 of the Flemish Pass EIS and a summary is provided in the subsequent paragraph.

Each drilling campaign will be managed by Equinor Canada's multidisciplinary drilling team in the St. John's, NL office. The team will include members of Equinor's global drilling organization who are responsible for delivering the Company's standardized approach to exploration drilling programs. Certain members of the drilling team work offshore. The team will be led by the Drilling Supervisor, who is responsible for coordinated the overall execution of the drilling program and providing oversight of well-related operations. The Drilling Supervisor reports to the Equinor onshore well superintendent, who is responsible for supervising the execution of the approved drilling program. Contractors will also be retained for specific work components, including but not limited to delivery and operation of the drilling installation, onshore supply base support, supply and operation of supply vessels, and helicopter services. The drilling installation contractor, during drilling operations, employs the largest number of personnel associated with a drilling program. Typically, between 120-160 persons may work on the drilling installation during a drilling program. Offshore drilling contractor roles include the offshore installation manager (OIM), labourers, technicians, and health, safety and environment personnel. The Equinor Drilling Supervisor will work with the drilling contractor's OIM on the drilling installation to provide

safe and efficient drilling operations, and supervision of compliance with Company and local regulatory requirements. Equinor and contractor personnel are highly trained to carry out their specific roles.

2.6 Schedule

The schedule will be the same as outlined in section 2.7 of the Flemish Pass EIS, except for the years associated with the temporal duration.

Exploration drilling activities associated with ELs 1159 and 1160, including well decommissioning, will be aligned with the EL period terms and will end once regulatory obligations and commitments have been met and the licence has either reverted to the Crown or is converted to an SDL. The Project is scoped for a period of 10 years (i.e., 2020 to 2029), providing an adequate and conservative timeframe within which activities may occur. Exploration drilling campaigns may progress year-to-year and from well-to-well based on the results and evaluation of previously drilled wells, interpretation of geophysical data, and Equinor Canada's exploration requirements, with activities being carried out throughout the year. It is assumed that exploration drilling activities on ELs 1159 and 1160 can occur at any time of the year.

For a single drilling campaign, in any single year the following is an estimate of the timelines involved from mobilization to demobilization.

- Wellsite (geohazard) Survey – for deep-water locations this would use existing 3D geophysical data, for shallow water locations a separate geohazard survey may need to be completed. Normally completed three months to one year in advance; typically takes between 7-21 days to complete per well location
- Installation of transponders for DP system – up to 18 hours once vessel is on location (can be done weeks in advance of the drilling installation transiting to site)
- Pre-drill coral survey – normally at least three months in advance; may take between 3-7 days to complete per well location
- Drilling installation transit to site and ballasting – dependent on whether it is DP or anchored (two to six days, assuming transit from the Avalon peninsula)
- Drilling the well – 35-65 days (depending on weather, operational delays; depth of water); includes well suspension and or abandonment activities
- Demobilization – a few hours to a day; includes pulling the BOP and either moving to another well location or leaving the Project Area
- Wellhead removal – normally up to two days per wellhead, depending on water depth and methods employed

Table 2.5 provides a timeframe estimate for activities associated with drilling a single well. Therefore, if more than one well was to be drilled in any one year, the timeframe would be sequential and additive to that presented in Table 2.5. Note that activities may be longer or shorter in duration and activities such as geohazard or pre-drill coral surveys may occur earlier in the schedule depending on the availability of equipment and regulatory authorizations. For a multi-well drilling campaign, the wellsite survey / pre-drill coral survey and drilling activities would be repeated. Regulatory approval and stakeholder

engagement include all wells in a drilling campaign and are therefore not repeated for each well in a given campaign.

Table 2.5 Schedule – For a Single Well Drilling Campaign

Task	Year 1				Year 2				Year 3				Year 4			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Regulatory Approvals																
Stakeholder Engagement																
Well Selection and Design																
Pre-drill Coral Survey and/or Wellsite (Geohazard) Survey																
Logistics Preparation																
Drilling a single well (may include formation flow test) and well decommissioning																
End-of-well regulatory reporting																

2.7 Waste Discharges and Emissions

The primary waste discharges and emissions associated with exploration drilling on ELs 1159 and 1160 are the same as those outlined in section 2.9 of the Flemish Pass and Eastern Newfoundland EISs and include the following:

- Air emissions
- Hazardous and non-hazardous waste
- Drilling waste
- Liquid discharges
- Heat, light and sound emissions

As mentioned in Section 1.4.1, Equinor Canada will prepare an EPP and submit to the C-NLOPB for review as part of the OA application process. The EPP will provide details regarding the management of wastes, discharges and emissions for the drilling campaign and is specific to the drilling installation. The EPP will be prepared in accordance with the Environmental Protection Plan Guidelines (NEB et. al 2011).

Chemicals used for drilling operations will be screened in accordance with Equinor's chemical management and selection process that adheres to the OCSG (NEB et al 2009). The chemical selection and management process will be included in the EPP. The EPP will also include the procedures and processes for handling, storage, transfer and disposal of wastes during exploration drilling activities.

The water management system will be dependent on the configuration of the drilling installation's water system. The water system will manage water and waste water streams such as potable water, bilge and deck drainage, ballast water, grey/black water, cooling water and fire control water. The nature and management of waste streams is outlined in section 2.9.4 of the Flemish Pass EIS, and also summarized in Section 2.7.4 below.

2.7.1 Air Emissions

As mentioned in Section 2.1 and 2.4, the scope and components/activities associated with exploration drilling on ELs 1159 and 1160 is the same as outlined in the Flemish Pass EIS. There is no change to the proposed components/activities and the number of wells between ELs 1159 and 1160 and the Flemish Pass ELs 1139 to 1142 will not increase above the number assessed in the Flemish Pass EIS (i.e., 30). Therefore, the air emissions information brought forward in section 2.9.1 of the Flemish Pass EIS remains applicable and valid for ELs 1159 and 1160, however, information is summarized below.

Air emissions from the drilling installation and other drilling activities will regularly occur during program execution. The main source of atmospheric emissions will be the exhausts of the drilling installation, flaring (should it occur during a formation flow test), the supply vessels and helicopters.

The primary source of atmospheric emissions for the Project include exhaust gases from the combustion of fuel in engines powering the drilling installation, offshore supply vessels, and helicopters. Depending on the type of formation flow test carried out, atmospheric emissions could result if a formation flow test with flaring is undertaken. For the purposes of environmental assessment regarding estimation of air emissions, the Flemish Pass EIS assumed that flaring would be required. Typically flaring during a formation flow test is two to three days; however, if an extended flow test is required (depending on data requirements) flaring could last up to five days (refer to Section 2.4.3). Should flaring be required, it will be carried out in accordance with provisions of the Drilling and Production Guidelines (C-NLOPB and CNSOPB 2017).

Activities that will result in air emissions, including criteria air contaminants (CACs) and greenhouse gas (GHG), include:

- Drilling installation, vessel and helicopter traffic (CO, nitrogen dioxide [NO_2], total particulate matter [TPM], Sulphur dioxide [SO_2], volatile organic compounds [VOCs], GHGs)
- Power generation (CO, NO_2, TPM, SO_2, VOCs, GHGs)
- Formation flow testing with flaring (CO, NO_2, TPM, GHGs)

Activities associated with ELs 1159 and 1160 will operate in accordance with the *Canadian Environmental Protection Act*, through the National Ambient Air Quality Objectives for specified CACs, the Ambient Air Quality Standard for fine particulate (less than 2.5 microns; $PM_{2.5}$), and the International Maritime Organization's (IMO) relevant regulations and emission limits under MARPOL. The IMO is also considering mandatory energy efficiency measures on vessels and data collection systems, which will further reduce GHG emissions in the offshore.

Provincially, air emissions, including CACs, are regulated under the NL *Air Pollution Control Regulations* and GHGs under the *Management of Greenhouse Gas Act*. It is not known at this time whether GHG emissions for oil and gas projects in the NL offshore will be regulated under provincial or federal frameworks.

The sulphur content in the diesel fuel used will meet the *Sulphur in Diesel Fuel Regulations* for each regulated activity and will comply with the sulfur limits in fuels for large marine diesel engines, in accordance with the *Vessel Pollution and Dangerous Chemicals Regulations* under the *Canada Shipping Act*, *2001*.

Beginning on January 1, 2019, the federal government will implement an output-based pricing system for industrial facilities across Canada (Government of Canada 2018) for the provinces of New Brunswick, Ontario, Manitoba, Saskatchewan, Yukon, Nunavut, and Prince Edward Island (Bennett Jones LLP 2018). Other provinces, including NL, have their own systems that have been accepted by ECCC. The NL *Management of Greenhouse Gas Reporting Regulations*, made under the *Management of Greenhouse Gas Act* (Office of the Legislative Counsel 2017), specifies the industrial sectors to which the Regulations apply. In addition to the Regulations, the Government of NL has a proposed carbon pricing plan that would set performance standards (i.e., GHG targets) for large industrial facilities (Government of NL 2018). Currently, offshore oil and gas activities are not subject to the Regulations or the *Management of Greenhouse Gas Act*; however, the proposed carbon pricing plan indicates that amendments are proposed to the Regulations to include offshore oil and gas activities.

On a federal level, GHG emission reduction targets have also been set and include the following (ECCC 2018a):

- A 17 percent reduction below the 2005 emission levels by 2020 (under the 2009 Copenhagen Accord)
- A 30 percent reduction below the 2005 emission levels by 2030 (2015 submission to the United Nations Framework Convention on Climate Change)

The total annual reported GHG emissions for the province of NL and for Canada, as presented in Section 2.9.1.2 of the Flemish Pass EIS, were acquired from ECCC Greenhouse Gas Emissions Reporting Program, 2015 Facility GHG Emissions by province and territory (ECCC 2018b). The total annual provincial and national GHG emissions for 2016, as presented in the National Inventory Report, 1990-2016: Greenhouse Gas Sources and Sinks in Canada (ECCC 2018b), are 10.8 megatonnes of carbon dioxide equivalents (Mt CO_2 eq) and 704 Mt CO_2 eq, respectively. The total predicted annual equivalent CO_2 emissions for exploration drilling activities (including the drilling installation, helicopters, and supply vessels) range from 126,214 to 180,869 tonnes of carbon dioxide equivalents (t CO_2 eq) and therefore represent 1.17 to 1.67 percent of NL's average annual GHG emissions and 0.018 to 0.026 percent of Canada's average annual reported GHG emissions. During formation flow testing with flaring, a total of 131,437 to 186,091 t CO_2 eq per year could be emitted, which would therefore represent 1.22 to 1.72 percent of NL's average annual GHG emissions and 0.019 to 0.026 percent of Canada's average annual reported GHG emissions. These represent the total potential emissions from all components and activities associated with exploration drilling, including flaring.

2.7.2 Hazardous and Non-Hazardous Waste

As mentioned in Section 2.1 and 2.4, the scope and components/activities associated with exploration drilling on ELs 1159 and 1160 is the same as outlined in the Flemish Pass EIS. There is no change to the proposed components/activities and therefore, the potential types of hazardous and non-hazardous waste produced from exploration drilling activities on ELs 1159 and 1160 are the same as those outlined in section 2.9.2 of the Flemish Pass EIS. However, information is summarized in the subsequent paragraphs below.

As outlined in Section 2.7, the Equinor Canada EPP will include plans for the management of waste material during a drilling campaign. Hazardous wastes generated, including dangerous goods, will be stored in designated areas in appropriate containers/containment for transport to shore in compliance with the *Transportation of Dangerous Goods Act* and its regulations. Applicable approvals for the transportation, handling and temporary storage, of these hazardous wastes will be obtained as required. Hazardous wastes that may be produced and require management include oily wastes (e.g., filters, rags and waste oil), waste chemicals and containers, batteries, biomedical waste and spent drilling fluids. Biomedical waste will be collected onboard by health professionals and stored in special containers before being sent to shore for incineration.

Non-hazardous wastes generated that are not allowed to be disposed overboard, will be stored in appropriate containers onboard, and transported back to shore. Non-hazardous wastes include domestic wastes, packaging material, scrap metal and other recyclables such as waste plastic.

Hazardous and non-hazardous wastes shipped to shore for disposal will be collected on-shore by a third-party contractor for disposal of the waste at an approved facility and in compliance with federal and provincial regulations and requirements.

2.7.3 Drilling Waste

2.7.3.1 Drill Mud and Cuttings

A combination of WBM and SBM will be used to drill the wells. Wastes generated from drilling include drilling muds and cuttings that retain a portion of the drilling mud. Drilling wastes will be disposed of in accordance with the OWTG (NEB et al. 2010).

WBM is comprised primarily of water, barite, and bentonite. Salt or fresh water is the carrier liquid for WBM. WBM and SBM additives could typically include barite, bentonite or other clays, silicates, lignite, caustic soda, sodium carbonate/bicarbonate, inorganic salts, surfactants, corrosion inhibitors, lubricants and other additives for unique drilling problems such as viscosity and mobility (Thomas 1984; GESAMP 1993). Chemicals used in drilling muds (SBM and WBM) are screened in accordance with Equinor Canada's chemical screening and management practices per the OCSG (NEB et al. 2009), and are classified under the offshore chemical notification system as substances which pose little or no risk to the environment.

Barite (barium sulphate) is used to control mud density, which helps balance formation pressures within the well. Bentonite clay is a viscosifier, which thickens the mud to suspend and carry drill cuttings to the surface.

The carrier fluid in SBM is a synthetic base fluid which can be made up of internal olefins, alpha olefins, polyalphaolefins, paraffins, esters or blends of these materials (BP 2016). Offshore Newfoundland, most operators currently use PureDrill IA35-LV as the base fluid for SBM (Petro-Canada 2017).

The initial surface sections are normally drilled riserless with WBM, with cuttings and water-based fluids discharged at depth. Water-based cuttings are discharged for the first sections of the well and in accordance with the OWTG. Once the riser is connected, SBM is generally used. Synthetic-based cuttings are treated prior to discharge to the sea as per the OWTG. For SBM cuttings, the drilling

installation will be equipped with solids control equipment for cuttings management for the treatment of the SBM cuttings prior to discharge. Typically, a combination of shale shakers and cuttings dryers / centrifuges are used to collect the SBM from the cuttings and treat SBM cuttings. Shale shakers are a system of fine and course mesh screens that collect cuttings while enabling the fluid to pass through for collection. The cuttings are sent to a cuttings dryer or high speed centrifuge which separates the drilling fluid from the cuttings. The treated cuttings are discharged overboard when the base oil retained on cuttings is below a threshold of 6.9 g/100g or less oil on wet solids. Excess or spent SBM that can no longer be used is sent to shore for disposal at an approved waste management facility. Per the C-NLOPB OA process, Equinor Canada will assess available drill cuttings treatment technology with the intent of using proven and practicable best technology considering that technologies may change over the temporal scope.

Drill mud and cuttings discharge volumes for different hole sections and mud type are summarized in Table 2.6, below.

Table 2.6 Drill Mud and Cuttings Discharge Volumes

Open Hole Section (Hole Diameter in inches)	Casing OD Section length (m)	Casing ID Mud type	Cuttings Volume per day	
			Metric ton[1]	m³
2,700 m Water Depth - Northern Project Area Modelling Location				
Conductor (42)	75	Seawater/WBM	207.7	80
Surface (26)	700	Seawater/WBM	675	260
Intermediate (17.5)	1,500	SBM	363.4	140
Production (12.25)	2,200	SBM	155.8	60
Total WBM Cuttings Discharge (NPA Well)[2]			882.6	340
Total SBM Cuttings Discharge (NPA Well)[2]			519.2	200
WBM Cuttings Discharge Rate (per well section/per day)[3]				
Conductor			69.2	26.7
Surface			112.5	43.3
SBM Cuttings Discharge Rate (per well section/per day)[3]				
Intermediate			36.3	14
Production			9.7	3.75
SBM retained on cuttings[4]			35.8	13.8
TOTAL Cuttings Volume Discharge (NPA Well)			1,401.8	540
1,100 m Water Depth - Eastern Project Area Modelling Location				
Conductor (42)	75	Seawater/WBM	207.7	80
Surface (26)	750	Seawater/WBM	363.4	140
Intermediate (17.5)	1,500	SBM	324.5	125
Production (12.25)	2,300	SBM	246.6	95
Total WBM Cuttings Discharge (EPA Well)			571.1	220

Table 2.6 Drill Mud and Cuttings Discharge Volumes

Open Hole Section (Hole Diameter in inches)	Casing OD Section length (m)	Casing ID Mud type	Cuttings Volume per day	
			Metric ton[1]	m³
SBM Cuttings Discharge (EPA Well)			571.1	220
WBM Cuttings Discharge Rate (per well section/per day)				
Conductor			103.8	40
Surface			181.7	70
SBM Cuttings Discharge Rate (per well section/per day)				
Intermediate			40.6	15.6
Production			24.7	9.5
SBM retained on cuttings[4]			39.4	15.2
TOTAL Cuttings Volume Discharge (EPA Well)			1,142.2	440
362 m Water Depth - Southern Project Area Modelling Location				
Conductor (42)	75	Seawater/WBM	207.7	80
Surface (26)	750	Seawater/WBM	324.5	125
Intermediate (17.5)	1,700	SBM	207.7	80
Production (12.25)	2,300	SBM	65	25
Total WBM Cuttings Discharge (SPA Well)			532.18	205
Total SBM Cuttings Discharge (SPA Well)			272.58	105
WBM Cuttings Discharge Rate (per well section/per day)				
Conductor			103.8	40
Surface			162.3	62.5
SBM Cuttings Discharge Rate (per well section/per day)				
Intermediate			26	10
Production			6.5	2.5
SBM retained on cuttings[4]			18.8	7.2
TOTAL Cuttings Volume Discharge (SPA Well)			804.76	310
89 m Water Depth - Jeanne d'Arc Basin Modelling Location				
Conductor (42)	79	Seawater/WBM	238.8	92
Surface (26)	379	Seawater/WBM	345.3	133
Intermediate (17.5)	1,729	SBM	449.1	173
Production (12.25)	2,838	SBM	184.3	71
WBM Cuttings Discharge (JDB Well)			584.1	225
SBM Cuttings Discharge (JDB Well)			633.4	244
WBM Cuttings Discharge Rate (per well section/per day)				
Conductor			119.4	46

Table 2.6 Drill Mud and Cuttings Discharge Volumes

Open Hole Section (Hole Diameter in inches)	Casing OD Section length (m)	Casing ID Mud type	Cuttings Volume per day	
			Metric ton[1]	m³
Surface			172.6	66.5
SBM Cuttings Discharge Rate (per well section/per day)				
Intermediate			56.1	21.6
Production			18.4	7.1
SBM retained on cuttings[4]			43.7	16.8
TOTAL Cuttings Volume Discharge (JBD Well)			1,217.5	469
1,175 m Water Depth – Flemish Pass South Modelling Location				
Conductor (42)	75	Seawater/WBM	207.7	80
Surface (28)	400	Seawater/WBM	402.4	155
Intermediate (17.5)	900	SBM	207.7	80
Production (12.25)	2,265	SBM	272.6	105
WBM Cuttings Discharge (EL 1134)			610.1	235
SBM Cuttings Discharge (EL 1134)			480.3	185
WBM Cuttings Discharge Rate (per well section/per day)				
Conductor			103.8	40
Surface			103.8	40
SBM Cuttings Discharge Rate (per well section/per day)				
Intermediate			69.2	26.7
Production			19.5	7.5
SBM retained on cuttings[4]			33.1	12.8
TOTAL Cuttings Volume Discharge (EL 1134)			1,090.3	420

Notes:
NPA = Northern Project Area; EPA = Eastern Project Area; SPA = Southern Project Area; JDB = Jeanne d'Arc Basin
[1]The model assumes specific weight of 2,596 kg/m³.
[2]This total is the volume for the entire well. For example, the NPA well in its entirety would discharge 340 m³ of WBM, and 200 m³ of SBM.
[3]These discharge rates are completed for each section of the well, as amounts will be discharged at different rates for each hole section, as opposed to being discharged equally throughout the well completion.
[4] SBM retained on cuttings based on 6.9 g / 100 g.

2.7.3.2 Cement

Cement constitutes a part of the well barrier envelope and is used during casing installation and plug and abandonment. For the initial riserless sections of the well, a spacer fluid is typically pumped ahead of the cement which is pumped down the drillstring and up the outside of the casing, with cement (and

spacer fluid) returns to the seabed in riserless sections. For casing operations with the riser installed, cementing / drilling fluid interface is returned up the riser to the rig. For most casing cement jobs, the cement / spacer mud / mud interface will be left in the annulus; exceptions include lines and plugs, where cement may be circulated back to surface. After every cementing operation, the cement unit must be cleaned / rinsed to prevent cement from hardening in the mixing tanks and liners. Each cleaning operation typically results in a discharge of approximately 1.5 m³ of water (80 percent) and residual cement slurry (20 percent) below surface. For a typical well, there are three to four casing cement jobs and several plug and abandonment (two to six) plugs. Therefore, total cement slurry discharges from a typical well operation ranges between 7.5 and 15 m³. During initial commissioning and testing of a cementing unit, a small volume “test mix” may also be performed (less than 10 m³) which is also discharged to sea. Unused cement bulks and cementing additives are returned to shore for future re-use or disposed of at an approved facility.

Drilled (hard) cement during the operation are discharged to seabed / sea when riserless. When drilling with the riser installed, drilled cement is processed by shakers and discharged overboard or captured in cutting skips and transported to shore. Although unlikely, cement unit failures, premature set up of cement, or environmental conditions (weather) may require a cement job to be aborted. If this occurs when drilling riserless, the cement is circulated out of the well to seabed. However, if the riser is installed, the cement is circulated out of well via the riser and may be discharged at surface. In this instance, a maximum of 200 m³ of cement slurry and 20 m³ of water-based spacer fluids could be discharged.

2.7.4 Liquid Waste

As mentioned in Section 2.1 and 2.4, the scope and components/activities associated with exploration drilling on ELs 1159 and 1160 is the same as outlined in the Flemish Pass EIS. There is no change to the proposed components/activities and therefore, liquid waste generated from exploration drilling activities on ELs 1159 and 1160 are the same as those outlined in section 2.9.4 of the Flemish Pass EIS. However, information is summarized below.

Products that have the potential to be discharged to the marine environment will be selected in accordance with the OCSG (NEB et al. 2009), the purpose of which is to reduce the potential environmental effects from the discharge of chemicals used in offshore drilling and production operations. The following liquid wastes, if generated, will be treated and managed in accordance with the OWTG (NEB et al. 2010):

- Produced water – formation flow test may result in produced water, including formation fluids, being brought to the surface, in which case it may be flared or treated on the drilling installation in accordance with the OWTG prior to discharge.
- Bilge and deck drainage water – bilge water is seawater that enters parts of the drilling installation, passing through pieces of equipment as it does so. Deck drainage water occurs on the surface decks of the drilling installation, resulting from precipitation and sea spray, as well as operational activities such as wash-down, fire control testing or equipment testing. Bilge and deck drainage water often can come in contact with equipment and machinery, and may be contaminated with oil. As provided for in the OWTG, the limit of residual oil

concentration in the water is 15 mg/L if it is to be discharged. Bilge and deck drainage water will be managed in accordance with the OWTG.

- Ballast water – ballast water is loaded into and discharged from drilling installation and supply vessels as required for stability and balance (e.g., managing inclement weather conditions). Ballast water is stored in dedicated tanks on the vessel, and does not make contact with oil or equipment. Ballast water will be discharged according to IMO *Ballast Water Management Regulations*, and Transport Canada's *Ballast Water Control and Management Regulations*, and the OWTG.
- Grey / black water (sewage) – grey water will be generated from galley, washing, and laundry facilities, and black water will be generated from the accommodation areas (sewage). Consistent with the OWTG, sewage will be macerated so that particles are less than 6 mm in size prior to discharge.
- Cooling water – cooling water may be used to cool equipment and engines on the drilling installation. If required, a small volume of seawater is pumped onto the drilling installation and passed over or through equipment and engines using heat exchangers. The seawater may be treated with biocides or through electrolysis to prevent microbiotic contamination of machinery. Due to the temporary nature of exploration drilling, biocides are not typically required in cooling water systems, which is more applicable to offshore oil and gas production facilities. A common exploration drilling activity that may require the use of biocides is during well decommissioning; however, biocides would be added to seawater contained in the wellbore and therefore would not enter the marine environment. If biocides are used, they will be selected using Equinor's chemical selection system and consistent with the OCSG, and will be discharged in accordance with the OWTG. The temperature of the discharged cooling water will be warmer than the receiving seawater, but the seawater temperature will quickly achieve background levels.
- Fire control water – fire prevention and response systems, including a dedicated fire water system, will be used on the drilling installation and supply vessels.
- BOP testing fluids - To facilitate proper functioning of the BOP for safe well operations, a regular program of function testing and pressure testing the BOP mechanism is required. Function testing is carried out every seven days, while pressure testing is carried out every 14 to 21 days, depending upon ongoing drilling installation operations. BOP systems use a water-based hydraulic fluid. Typically, the BOP fluid consists of fresh water and a solution of water-based Erifon and glycol. Approximately 35 m^3 of this solution could be discharged per month during testing. Occasionally, it may be required to disconnect the Lower Marine Riser Package from the subsea BOP and move the drilling installation to a safe location when weather events pass through the area, or to pull the BOP to surface if maintenance is required. When the BOP is disconnected, the fluid contained in the subsea accumulator bottles may be discharged. The total estimated control fluid discharged in each disconnection of the Lower Marine Riser Package is approximately 0.7 m^3. The total estimated control fluid discharged in each BOP pull is approximately 3.3 m^3. BOP fluids are screened for acceptability prior to use
- Food waste – food waste will be reduced prior to discharge, in accordance with the OWTG.

- Well treatment fluids - if well treatment fluids were generated then they would be treated until the oil in water concentration was ≤15 mg/L or transferred to shore for treatment/disposal.
- Liquid wastes such as waste chemicals, cooking oils or lubricating oils, that do not meet the performance, sampling and analysis targets set out in the OWTG are stored and transported to shore for disposal at an approved facility.

2.7.5 Heat, Light and Sound Emissions

As mentioned in Section 2.1 and 2.4, the scope and components/activities associated with exploration drilling on ELs 1159 and 1160 is the same as outlined in the Flemish Pass EIS. There is no change to the proposed components/activities and therefore, heat, light and sound emissions generated from exploration drilling activities on ELs 1159 and 1160 are the same as those outlined in section 2.9.5 of the Flemish Pass EIS. However, information is summarized in the subsequent subsections below.

Sound emissions will typically be generated during regular drilling operations and geophysical surveys. Light emissions will be generated at night on the drilling installation, through flaring when required during a formation flow test. Heat will be generated primarily through exhaust.

2.7.5.1 Light and Heat Emissions

Exploration drilling activities will present several sources of artificial light. The duration at any one location will be less than 65 days, with some lighting operating 24 hours a day. This includes navigation and deck lighting for the drilling installation and supply vessels necessary for maritime safety and crew safety requirements.

Flaring activity during a formation flow test will generate light and thermal emissions. Formation flow testing, as described in Section 2.4.3 is generally carried out on a temporary basis at the end of drilling operations. During formation flow testing it is possible that short, intermittent periods of flaring can last up to three days, or up to five days if an extended flow test is required.

Heat emissions generated by engines and flaring will be dissipated to the atmosphere without likely interactions to receptors.

2.7.5.2 Sound Emissions

Sound will be generated underwater during the operation of the drilling installation and supply vessels. The level of sound will be dependent on the type of drilling installation being used and method of positioning. Underwater sound generated from a drilling installation is continuous during a drilling program, while underwater sound from VSP operations is a temporary sound source (e.g., typically completed within 48 hours [refer to Section 2.4.2. The extent to which sound travels is determined by water depth, salinity, and temperature. An overview of underwater ambient sound and sound from drilling operations is provided in section 5.6 of the Flemish Pass and Eastern Newfoundland EIS, and also described below, and is based on two Project-specific reports:

- Eastern Newfoundland Drilling Noise Assessment: Qualitative Assessment of Radiated Sound Levels and Acoustic Propagation Conditions (Quijano et al. 2017)

- Marine Mammals and Sound Sources in the Flemish Pass: Analysis from 2014 and 2015 Acoustic Recordings (Maxner et al. 2017)

Quijano et al. (2017) includes a summary of ambient noise levels in the Project Area based on data collected along Canada's east coast in 2015/2016, a summary of environmental parameters in the Eastern Newfoundland Exploration Drilling Project Area, the expected underwater source levels based on the type of drilling installation, DP systems and VSP arrays likely to be used, and a qualitative comparison of environmental properties and expected source levels between the Project Area and specifications and those considered in the acoustic modeling conducted for the Scotian Basin Exploration Drilling Project (Quijano et al. 2017). The estimated sound levels attributable to the operation of the drilling installation were qualitatively assessed by comparison to the previously modelled Scotian Basin Exploration Drilling project, as the water depths and geoacoustic profiles in the deep-water sites for the proposed activity are similar to those from the Scotian Basin project.

Maxner et al. (2017) reviews acoustic recordings collected by Statoil (Equinor Canada) in the Flemish Pass between June and October 2014, and from May to September 2015. The data were analyzed to characterize the baseline soundscape, identify the presence of marine mammals, and characterize the soundscape during Statoil's (Equinor Canada's) 2014-2016 drilling program. Drilling operations by the semi-submersible West Hercules generated sound levels similar to those previously reported for the Stena IceMAX off Nova Scotia.

There is low potential for two drilling installations to be active at the same time as part of the Project, due primarily to commercial and logistical factors. There is therefore very little possibility that two drilling installations would operate at the same time in proximity to one another. However, the environmental effects assessment considered this potential occurrence, in order to be conservative and fully inclusive of all such possible scenarios, including the potential for "overlapping" or combined environmental effects to a valued component (VC) resulting from multiple, concurrent drilling campaigns.

Atmospheric sound is not of concern given the anticipated low levels of atmospheric sound emissions, the limited transmission of underwater sound above the surface and location of receptors. Helicopter traffic will generate atmospheric sound at the airport, in transit and at the drilling installation. However, with the use of the existing St. John's International Airport potential effects on human receptors is reduced. Helicopters are required to avoid Important Bird Areas (IBAs), so potential interactions with birds are reduced. Given the distance from the Project Area to shore (over 250 km) and occupational and safety requirements on the drilling installation, there will be no likely interaction with human receptors.

2.8 Alternative Means

Section 2.10.1 of the Flemish Pass and Eastern Newfoundland EISs took into consideration various alternative means, all of which remain applicable and valid for exploration drilling on ELs 1159 and 1160.

The most recent EIS Guidelines issued by the CEA Agency associated with exploration drilling was in December 2018 for the Chevron Canada Limited (Chevron) West Flemish Pass Exploration Drilling Project (CEA Agency 2018b) and the alternatives listed align with those already considered in the

Flemish Pass and Eastern Newfoundland EISs, and therefore remain valid for exploration drilling on ELs 1159 and 1160.

Table 2.7 provides a summary of alternative options that were taken into consideration in the Flemish Pass and Eastern Newfoundland EISs, and therefore applicable to exploration drilling on ELs 1159 and 1160. In addition, the chemical selection process, which is described in detail in section 2.10.1.7 of the Flemish Pass and Eastern Newfoundland EISs, would be the same for exploration drilling activities on ELs 1159 and 1160 and not repeated here.

Table 2.7 Summary of Alternative Means

Component	Alternatives Considered	Technically Feasible	Economically Feasible	Environmental Effects	Carried Forward in the Flemish Pass and Eastern Newfoundland EISs
Choice of drilling fluid	WBM	NO Technically inferior at deeper sections of well	NO Potential economic increases if used at deeper sections of well	WBM acceptable for upper hole sections; SBM acceptable for lower well sections. For both options, it is assumed appropriate controls are implemented and OSCG is followed. Both options considered in assessment of potential environmental effects.	✓
	SBM	YES	YES		✓
Choice of drilling unit	Semi-submersible	YES	YES	Both options considered acceptable assuming appropriate controls are implemented.	✓
	Drill ship	YES	YES		✓
Management of drilling wastes – WBM	Disposal at sea	YES	YES	Localized effects on seafloor.	✓
	Disposal on shore	YES	NO	N/A	✗
	Offshore re-injection	YES	NO	N/A	✗
Management of drilling wastes – SBM	Disposal at sea	YES	YES	Localized effects on seafloor.	✓
	Disposal on shore	YES	YES Increased costs from increased transportation and operational delays	Increase in greenhouse gas emissions, larger environmental footprint.	✗

Table 2.7 Summary of Alternative Means

Component	Alternatives Considered	Technically Feasible	Economically Feasible	Environmental Effects	Carried Forward in the Flemish Pass and Eastern Newfoundland EISs
	Offshore re-injection	YES	NO	N/A	✗
Water management and location of final effluent discharge points	N/A – Discharge points on a drilling installation are fixed and cannot be changed or re-configured. A drilling installation has yet to be selected, and therefore alternative locations for effluent discharge points are not available.				
Offshore drilling installation lighting	No or limited lighting	NO	NO	N/A	✗
	Standard lighting	YES	YES	Potential localized effects on migratory birds.	✓
	Spectral modified lighting	NO	NO	N/A	✗
Formation flow testing and nighttime flaring	No flaring	N/A – Not considered as an option due to regulatory and safety requirements			
	Reduced flaring (no flaring at night or during low-visibility weather)	YES However, potential to result in compromised data from formation flow tests; increased safety risk	YES However, increased cost and potential schedule extension	Reduced potential effects compared with standard flaring.	✗
	Flaring as required	YES	YES	Potential localized effects on migratory birds.	✓
	Formation testing while tripping	YES	YES	No flaring required.	✓

3.0 REGULATORY, INDIGENOUS AND STAKEHOLDER ENGAGEMENT

Engagement is a key component of Equinor Canada's approach to the planning and implementation of its offshore programs. Engagement with government departments and agencies, Indigenous groups and stakeholders associated with exploration drilling activities commenced in 2016 and is described in chapter 3 of the Flemish Pass and Eastern Newfoundland EISs. The scope and Project Area are the

same as those identified in the Flemish Pass and Eastern Newfoundland EISs, and therefore engagement activities that have occurred since 2016 are also applicable to ELs 1159 and 1160. Sections 3.2, 3.3, and 3.4 of the Flemish Pass and Eastern Newfoundland EISs contain a summary of engagement activities involving government departments and agencies, Indigenous groups and stakeholder organizations, respectively, up to approximately mid-October 2017.

Appendix C provides a summary of engagement activities with government departments and agencies, Indigenous groups and stakeholder organizations that have occurred from mid-October 2017 to May 3, 2019.

3.1 Indigenous Groups

Pursuant to EIS Guidelines and amendments (CEA Agency 2016, 2017a, 2017b), Equinor Canada engaged with the following 41 Indigenous groups regarding proposed exploration drilling activities during the Flemish Pass EIS:

Newfoundland and Labrador

- Nunatsiavut Government
- Innu Nation
- NunatuKavut Community Council (NCC)
- Qalipu Mi'kmaq First Nation Band (QMFNB)
- Miawpukek First Nation (MFN)

Nova Scotia

- 11 Mi'kmaq First Nation groups represented by 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
    - Paq'tnkek Mi'kmaw Nation
    - Pictou Landing First Nation
    - Potlotek First Nation
    - Wagmatcook First Nation
    - We'koqma'q First Nation
- Millbrook First Nation
- Sipekne'katik First Nation

New Brunswick

- Eight Mi'gmaq First Nations represented by Mi'gmawe'l Tplu'taqnn Inc. (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
- Elsipogtog First Nation
- Five Maliseet First Nation groups represented by Wolastoqey Nation in New Brunswick (WNNB):
    - Kingsclear First Nation
    - Madawaska Maliseet First Nation
    - Oromocto First Nation
    - Saint Mary's First Nation
    - Tobique First Nation
- Woodstock First Nation
- Peskotomuhkati Nation at Skutik (Passamaquoddy)

Prince Edward Island

- Two Mi'kmaq First Nation groups represented in consultation by Mi'kmaq Confederacy of Prince Edward Island (MCPEI):
    - Abegweit First Nation
    - Lennox Island First Nation

Québec

- Three Mi'gmaq First Nation groups represented by Mi'gmawei Mawiomi Secretariat (MMS):
    - Micmas of Gesgapegiag
    - La Nation Micmac de Gespeg
    - Listuguj Mi'gmaq Government
- Les Innus de Ekuanitshit
- Première Nation des Innus de Nutashkuan

The groups listed for the Flemish Pass EIS remain valid for ELs 1159 and 1160 as no additional groups have been identified in recent EIS Guidelines for other exploration drilling programs (e.g., Chevron's West Flemish Pass Exploration Drilling Project [CEA Agency 2018b] ExxonMobil's Southeastern Newfoundland Offshore Exploration Drilling Project [CEA Agency 2018c], BP Canada Energy Group's [BP's] Newfoundland Orphan Basin Exploration Drilling Project [CEA Agency 2018d]).

Section 3.3 of the Flemish Pass EIS contains a summary of engagement activities involving Indigenous groups from June 2016 to mid-October 2017. Appendix C provides summaries of engagement activities that have occurred from mid-October 2017 to May 3, 2019. It is noted that correspondence regarding the Flemish Pass Exploration Drilling Program was often completed in conjunction with ExxonMobil and other offshore exploration operators.

As indicated in Appendix C, Equinor Canada provided advanced notice to Indigenous groups regarding submitting this Project Description to the CEA Agency. As of May 3, 2019, two Indigenous groups (i.e., Elsipogtog First Nation and Première Nation des Innus de Nutashkuan) contacted Equinor Canada regarding the advanced notice letters. Equinor Canada provided clarification to both Indigenous groups regarding the purpose of the advanced letters. Refer to Appendix C (Tables C.4 and C.6) for correspondence details. To date, no other Indigenous groups have contacted Equinor Canada regarding the advanced letters associated with this Project Description.

As indicated in Appendix C (Table C.1), Equinor Canada also contacted the CEA Agency to determine if they have received any correspondence from Indigenous groups regarding the advanced letters associated with this Project Description. As of May 3, 2019, the CEA Agency has not provided any correspondence from Indigenous groups to Equinor Canada.

Section 3.3.3 of the Flemish Pass EIS outlines the key objectives and elements of Indigenous engagement, which remain valid and applicable to ELs 1159 and 1160. Equinor Canada will engage in a similar fashion for proposed activities in ELs 1159 and 1160, based on response and feedback to this Project Description. This could include meetings with interested parties.

3.2 Stakeholder Groups

Section 3.4 of the Flemish Pass EIS outlines the key stakeholders and environmental non-governmental organizations (ENGOs) that have historically been engaged in or have an interest in offshore oil and gas operations in NL. The ENGOs outlined in section 3.4 of the Flemish Pass EIS remain valid for ELs 1159 and 1160 and include Nature NL, World Wildlife Fund (WWF), Canadian Parks and Wilderness Society (CPAWS) and Sierra Club (NL Chapter). The Protected Areas Association of Newfoundland (PAAN) was identified in section 3.4 of the Flemish Pass EIS; however, it is Equinor Canada's understanding that PAAN is no longer active.

The fish harvesters and processors outlined in section 3.4 of the Flemish Pass EIS also remain valid for ELs 1159 and 1160 and include the Fish, Food and Allied Workers-Union (FFAW-Unifor), Ocean Choice International (OCI), Association of Seafood Producers (ASP) and Atlantic Groundfish Council (AGC) (formerly the Groundfish Enterprise Allocation Council).

Appendix C provides summaries of engagement activities that have occurred from mid-October 2017 to May 3, 2019. As indicated in Appendix C, Equinor Canada provided stakeholder organizations advanced notice regarding submitting this document to the CEA Agency. As of May 3, 2019, one stakeholder (i.e., FFAW-Unifor), contacted Equinor Canada and inquired whether the Project Description would include fisheries catch data. Refer to Appendix C (Table C.7) for details. To date, no other stakeholder groups have contacted Equinor Canada regarding the advanced notice associated with this Project Description.

4.0 ENVIRONMENTAL ASSESSMENT SCOPE, APPROACH AND METHODS

4.1 Scope

The EA scope is outlined in section 4.1 of the Flemish Pass EIS. The Flemish Pass EIS environmental effects analysis considered the drilling of up to 30 wells. Wells to be drilled on ELs 1159 and 1160 would be captured within this 30-well count. No additional wells would be drilled with the inclusion of ELs 1159 and 1160. Therefore, the total number of wells to be drilled on ELs associated with the Flemish Pass EIS (i.e. ELs 1139, 1140, 1141 and 1142) and ELs 1159 and 1160 would not exceed 30.

4.2 Valued Components

The VCs are outlined in section 4.2 of the Flemish Pass and Eastern Newfoundland EISs. All information in that section is applicable to ELs 1159 and 1160. VCs for the Flemish Pass and Eastern Newfoundland EISs were identified and selected based on several key considerations and inputs including the EIS Guidelines (CEA Agency 2016), regulatory guidance and Indigenous and stakeholder engagement (refer to chapter 3 of the Flemish Pass and Eastern Newfoundland EISs).

As mentioned in Section 3, engagement related to Equinor Canada's exploration drilling activities is ongoing and commenced in 2016. No additional information has been brought forward from engagement associated with the Flemish Pass EIS that would suggest a change in VCs. In addition, the CEA Agency recently issued EIS Guidelines for various other exploration drilling programs (e.g., Chevron's West Flemish Pass Exploration Drilling Project [CEA Agency 2018b], ExxonMobil's Southeastern Newfoundland Offshore Exploration Drilling Project [CEA Agency 2018c], BP's Newfoundland Orphan Basin Exploration Drilling Project [CEA Agency 2018d]), and the VCs identified are the same as those identified for the Flemish Pass and Eastern Newfoundland EISs, and therefore VCs remain valid for ELs 1159 and 1160.

The VCs selected for the Flemish Pass and Eastern Newfoundland EISs remain valid for ELs 1159 and 1160, and are as follows:

- Marine Fish and Fish Habitat (including Species at Risk)
- Marine and Migratory Birds (including Species at Risk)
- Marine Mammals and Sea Turtles (including Species at Risk)
- Special Areas
- Indigenous Communities and Activities
- Commercial Fisheries and Other Ocean Users

4.3 Environmental Effects Assessment

The EA approach and methodology are outlined in section 4.3 of the Flemish Pass and Eastern Newfoundland EISs. All information in that section is applicable to ELs 1159 and 1160 including, but not limited to, the study areas and effects evaluation criteria.

5.0 EXISTING PHYSICAL ENVIRONMENT

The Flemish Pass and Eastern Newfoundland EISs discuss the existing physical environment in chapter 5, and it is fully applicable to ELs 1159 and 1160 as they are within the Project Area and a summary is provided below. There are no updates required for this section, and a thorough comparison of exploration drilling activities on ELs 1159 and 1160 with the Flemish Pass EIS and IRs/CLs is included in Appendix B.

The following sections provide an overview description of relevant aspects of the existing physical environment of the Project Area, including geology, bathymetry, climatology, oceanography, and ice conditions.

5.1 Geology and Bathymetry

The geology of the eastern Newfoundland offshore area is complex and dynamic, and the current bedrock and surficial characteristics of the area have been shaped by various natural and human factors and processes over time. Located on the eastern continental shelf, this area was formed by extension during the breakup of Pangea and the opening of the Atlantic Ocean during the Late Triassic to mid-Cretaceous and is underlain by pre-rift basement rocks (Fader et al. 1989). 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 in the area include the Orphan, Flemish Pass, Jeanne d'Arc, and Carson (Fader et al. 1989). The primary reservoirs are located in the shallow marine and fluvial shale and sandstone deposited during the Late Jurassic and Early Cretaceous periods of the Mesozoic Era.

All of the Eastern Canadian continental shelf has been strongly influenced by Quaternary glaciation, which has resulted in an erosional morphology (Piper 1991). This glaciation produced a variety of glacial deposits, including sands and gravels, which are generally present as a veneer, basinal muds, muddy sands and gravels, glaciomarine sediments, and glacial drift sediments. In and around the Project Area, the identified deposits have been classified as the Grand Banks Sand and Gravel and Adolphus Sand and Gravel (Piper et al. 1988). Seabed features in the area include iceberg scouring, sand ridges and waves, shell beds, pockmarks, and seabed depressions of unknown origin (Cameron and Best 1985).

Canada's eastern continental margin is tectonically passive, and seismicity is relatively rare throughout much of the region. Natural Resources Canada (NRCan) (2017a) estimates that approximately 450 earthquakes occur each year in Eastern Canada. Seismicity generally occurs randomly along the Grand Banks margin. The most recent edition of the Seismic Hazard Map prepared by NRCan (2017b) indicates that the Project Area has been classified as having a low seismic hazard. According to the National Earthquake Database (NRCan 2017c) there have been seven seismic events recorded within the boundaries of the Project Area in the 1985 to 2017 period. The magnitudes of these events have been fairly low, ranging from 3.0 to 4.5, with an average magnitude of 3.9 and a median magnitude of 4.0. All of the recorded events have epicentres in the southwest portion of the Project Area, and are likely related to the various tectonic lineaments in the area.

The Project Area is in deep water; the Project Area primarily includes the Flemish Pass, with surrounding areas having depths up to and beyond 3,000 m.

5.2 Climatology

Existing and available climatological information for sites within the Project Area indicate that air temperatures are coolest in January or February and warmest from July through September. Air temperatures exhibit strong seasonal variations and also vary by geography. Daily mean values can range from -5°C in winter to 18°C in summer. Prevailing winds in the area are from the west to northwest in winter and from the southwest in summer. Extreme wind gusts greater than 51 m/s (100 knots) have been measured in winter and in association with tropical and post-tropical weather systems (Bowyer 1995). Mean hourly wind speeds can range from 6 m/s in summer to 13 m/s in winter. Extreme wind speeds in winter can reach 36 m/s or more (based on available climatology MSC50 data created by Oceanweather).

Precipitation varies within localized regions of the Project Area. Rain or drizzle can occur at any time of year and is most likely to occur with southerly or south-westerly winds. Snow and freezing rain are possible any time from October through May, and snow can accompany winds of any direction. Freezing rain is most common with easterly or north-easterly winds, and frequently persists for days in the spring along the East Coast. There is also a year-round potential for thunderstorms and hail, with hail most likely in winter, and thunderstorms most frequently reported in summer. In general, visibility is most favourable in fall and winter and most frequently restricted in summer and spring with some of the highest occurrences of marine fog in North America (AMEC 2014a).

5.3 Oceanography

Within the Project Area and surrounding area, the largest seas are typically found farthest offshore, usually during the winter season. For the Orphan Basin to the north, mean significant wave heights range from about 1.7 m in July to 4.3 m in July, with maximum significant wave heights ranging 6.3 m in July to 15.9 m in January (AMEC 2014a). Circulation, which includes the continental shelf waters, is dominated by a generally southward flow of the cold Labrador Current, which includes an inshore branch that flows along the Newfoundland coast at speeds approximately 10 cm/s and an offshore branch flowing along the outer edge of the Grand Banks. The inshore branch sometimes meanders over the Grand Banks. The offshore branch of the Labrador Current flows over the upper Continental Slope at depth, and through the Flemish Pass with average speeds of about 20 to 25 cm/s. Over parts of the Grand Banks, the mean currents are generally weak (less than 10 cm/s) and flow southward, dominated by wind-induced and tidal current variability. Average sea surface temperatures generally range from 0°C to 7°C in February to 10°C to 16°C in summer, whereas near-bottom sea temperatures generally range from 3°C to 4°C on average year-round. Average sea surface salinities range from about 32 psu to the south to almost 34 psu to the north. Near-bottom salinities are typically around 34 psu in both summer and winter (AMEC 2014a).

5.4 Ice Conditions

The Project Area is subject to seasonal intrusions of sea ice and icebergs, as well as vessel icing during particular meteorological conditions. Sea ice and iceberg conditions vary each year and by location, and are influenced by colder or milder winter conditions over Newfoundland and the surrounding waters, and seasonal wind patterns. Cold and dry winds from the west through north have the effect of moving ice further offshore, while north-easterly winds tend to bring ice towards shore. Sea ice is possible as early as the first week of January and in thicknesses up to 30 cm. By the end of March, most of the ice is thin first year (30 to 70 cm) ice, with patches of medium (70 to 120 cm) and thick (greater than 120 cm) first year ice. Generally, sea ice begins to retreat over the entire area by mid-April. By early May, the southern Grand Banks and Flemish Cap areas are generally ice-free. At the beginning of June, there is a risk of small areas of thick first year ice and occasionally old ice (ice which has survived at least one summer's melt) in the northern parts of the Orphan Basin. In general, the Project Area could be considered ice-free by mid-May, but this does vary year to year. The iceberg season may typically last from March to July and comprise growlers (less than 1 m height) to very large (100 to 200 m in length) icebergs. Ice islands, broken away from an Arctic ice shelf, may have areas of a few thousand square metres to 500 km², although they do not occur every year. The International Ice Patrol annual count of icebergs south of 48°N is highly variable but has an annual mean of approximately 550 icebergs and range from 0 to 2,202 icebergs (based on data thru 2006) (AMEC 2014a).

6.0 EXISTING BIOLOGICAL ENVIRONMENT

The Flemish Pass and Eastern Newfoundland EISs discuss the existing biological environment in chapter 6, and it is fully applicable to ELs 1159 and 1160 as they are within the Project Area and a summary is provided below. A thorough comparison of exploration drilling activities on ELs 1159 and 1160 with the Flemish Pass EIS and IRs/CLs is included in Appendix B.

The Flemish Pass and Eastern Newfoundland EISs used information from various sources for marine fish and fish habitat, marine and migratory birds and marine mammals and sea turtles. The Flemish Pass and Eastern Newfoundland EISs used the most current data available at the time; however, updated information is available and various tables and figures have been updated in Appendix D. Appendix D also provides an updated figure of special areas and brings forward additional special areas to take into consideration since the submittal of the Flemish Pass and Eastern Newfoundland EISs (and associated IRs/CLs).

There are a wide range of fish, marine mammals, and marine birds that could occur in the Project Area. Fish species known to occur within the Project Area include wolffish, skate, hake, cusk, eel, spike, sculpin, sand lance, tuna, and shark species (AMEC 2014a). Some of these species are listed as species of conservation interest under SARA and assessed as at-risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

6.1 Plankton, Plants and Macroalgae

Plankton, including fish larvae (ichthyoplankton) and pelagic invertebrates in the vicinity of the Project Area, are similar to those described in the Eastern Newfoundland SEA (AMEC 2014a, section 4.2.1.3).

The discussion that follows is, based on the nature of this environmental component and the existing information sources used, necessarily regional in scope.

Plankton comprise the largest and most diverse ecosystem component on earth, representing the microscopic organisms that are passively distributed by currents. Organisms in this group include picoplankton (organisms between 0.2 and 2.0 µm in diameter including prokaryotes and eukaryotes), phytoplankton (microscopic plants), zooplankton (small animals) including invertebrate and vertebrate embryos and larvae, as well as viruses and phages (Legendre and Rassoulzadegan 1995; Suttle 2005). Plankton include the most basal levels of the marine food web and include photosynthetic organisms that are consumed by planktivores, who in turn are often prey items for larger organisms. The majority of primary plankton productivity occurs in the light-infused epipelagic zone (0-200 m water depth) (Licandro et al. 2015) but this productivity is also transferred to the benthos on the ocean's bottom through sinking biomass and waste (Legendre and Rassoulzadegan 1995). Ichthyoplankton tend to be distributed according to environmental variables such as temperature and salinity and therefore are more evenly distributed across pelagic habitats (Pepin and Anderson 1997).

The Project Area is generally too deep to support macroalgae and seagrass colonization and growth. While some seaweeds can be found on the Grand Bank up to 100 m, these areas have few plant species and low biomass (AMEC 2014a).

6.2 Pelagic Macroinvertebrates

Pelagic macroinvertebrates include animals that live exclusively in the pelagic environment or swim up from the benthos to feed. In their review of available trawl data from the Flemish Cap Vázquez et al. (2013) compiled percentage of hauls for each species or group captured from 1977-2012 (no biomass, seasonal timing or locations were provided). Although sampling was variable and modified throughout this time period, the data provide a summary overview of the most prevalent Flemish Cap pelagic species of macroinvertebrates sampled during Canadian and European Union (EU) surveys (1977-2012) as compiled by Vázquez et al. (2013). Among collected pelagic macroinvertebrates, species such as the northern shortfin squid and northern shrimp were observed in as many as 77 percent and 94 percent of survey trawls conducted in 2003, and the percentage of trawls capturing these species has subsequently declined to 17 percent and 59 percent respectively in 2012 (Vázquez et al. 2013).

In addition to the high proportion of small crustaceans (copepods and shrimp) that live in the pelagic environment, a variety of gelatinous animals can be found here. For example, pelagic tunicates include salps, pyrosomes and doliolids, are gelatinous, free-floating, filter feeding animals found as single individuals or assembled into colonies. Other groups of gelatinous animals include pelagic cnidarians and ctenophores (jellyfish).

6.3 Benthic Invertebrates

Benthic invertebrate species known to occur within the Project Area include polychaetes, whelks, echinoderms, isopods, crustaceans, and molluscs. Previous studies have shown that the Project Area is host to a wide range of benthic species depending on the habitat type (AMEC 2014a). Deep-water corals, sponges, and sea pens have been recorded within the Project Area, primarily in the vicinity of

the Flemish Pass and around the edges of the Grand Banks and Flemish Cap (AMEC 2014a). These organisms increase habitat complexity, provide habitat to fin fish and shellfish species. Corals identified in the Project Area include alcyonaceans, pennatulaceans, scleratcinians, and antipatharians. These coral species are noted as being of conservation interest due to their role in marine habitat development, and their sensitivity to stressors on the environment, including anthropogenic impacts such as fishing and oil and gas activities (DFO 2015; Statoil 2016). Epifaunal communities of the Flemish Pass were characterized during the NEREIDA program where Beazley and Kenchington (2015) identified 527 species from 400-1,400 m depths. Sponges and cnidarians represented the highest number of taxa followed by arthropods echinoderms, and molluscs (Beazley and Kenchington 2015).

6.4 Corals and Sponges

Murillo et al. (2011) characterized coral distributions for the Grand Banks beyond the Canadian EEZ and observed that soft corals, gorgonian corals, sea pens, and black corals were characteristic species for the Flemish Pass. For deep areas of the Flemish Pass and Flemish Cap, habitat complexity decreases with depth with higher prevalence of mud substrates. The presence of structure forming sponges and corals is key to supporting benthic communities (Beazley et al. 2013) because they provide habitat, refuge and foraging areas for a variety of species. Echinoderms, in particular suspension feeding brittlestars, are highly responsive to presence of structure forming sponge grounds (Beazley et al. 2013; Beazley and Kenchington 2015). In the Flemish Pass, this is evidenced by the shift in benthic communities (between 1,000-1,300 m) that corresponds to a distinct change in the density of sponges.

Bottom trawling and video surveys have identified over 50 species of corals and sea pens within and around the Project Area along the shelf of the Flemish Cap, Flemish Pass and northeast slope of the Grand Banks (Wareham 2009; Murillo et al. 2011; Beazley et al. 2013, Vàzquez et al. 2013; Baillon et al. 2014a, 2014b; Beazley and Kenchington 2015). Within the Project Area, coral biomass is mainly distributed along the slopes of the Flemish Pass, Flemish Cap, and Grand Bank. with fewer observations on the Grand Bank Shelf and on top of the Flemish Cap (Murillo et al. 2011). Coral biomass was highest between 600-900 m along the northern Flemish Cap, Flemish Pass, and Northeast Grand Bank shelf and was associated with warm, more saline waters with silty sand substrates (Murillo et al. 2011, 2016).

At least 32 species of sponges have also been observed in and adjacent to the Project Area (Murillo et al. 2012; Beazley et al. 2013; Knudby et al. 2013; Beazley and Kenchington 2015). Sponge samples captured by trawls may disintegrate before reaching the surface for identification (Knudby et al. 2013) due to their fragile nature and the damaging effects of trawls. As a result, many samples are not identified to species in DFO and Northwest Atlantic Fisheries Organization (NAFO) trawl surveys and there is a potential that sponge species richness is somewhat different than reported.

Refer to Appendix D (Section 1.1) for a summary of known and potential coral / sponge occurrences in ELs 1159 and 1160, as well as figures outlining distributions within the Project Area, including ELs 1159 and 1160.

6.5 Fish and Shellfish

In the Project Area, sand lance were the dominant species in shelf habitats, transitioning to redfish on the shallow to middle slope, blue hake in the middle-deep slope, and roundnose grenadier in the deep slope. In the Project Area – Southern Section eight species (sand lance, capelin. deepwater redfish, sculpin, American plaice, lanternfish, hookear sculpin, and yellowtail flounder) comprise 95 percent of individuals captured, with sand lance, capelin, and deepwater redfish accounting for over 85 percent of the total catch.

Refer to Appendix D (Section 1) for additional information and figures associated with marine fish.

6.6 Marine and Migratory Birds

The coastline of eastern and southern NL and the waters offshore provide important habitat for various species of marine-associated birds. The nutrient-rich Grand Banks and Flemish Cap regions are important feeding areas for dozens of marine bird species, and are of importance to planktivorous species including storm-petrels, shearwaters and dovekies due to the abundance of food in this area (Barrett et al. 2006; Fort et al. 2012, 2013). Marine-associated birds in this area can be roughly divided into 1) seabirds, 2) waterfowl and divers, and 3) shorebirds. These groups are considered to be the most vulnerable to perturbation because they spend much of their life in the marine environment.

A diverse assemblage of seabirds can be found in the marine waters off eastern Newfoundland at all times of year, including cormorants, gannets, phalaropes, gulls, terns, alcids (auks), jaegers and skuas, and tubenoses (fulmars, petrels and shearwaters). Seabirds are at their highest density during the spring and summer months, when species are migrating and zooplankton productivity is highest (Templeman 2010; AMEC 2014a). Other species with potential to occur within the Project Area include puffins, razorbills, phalarope, skua, and jaeger.

Cormorants generally feed within a few kilometres of their colony or roost location and rarely venture far from the coast at any time of year, and so their abundance is low. Few of the cormorant sightings were far from shore and all were in the winter months and none within or near the Project Area.

The northern gannet is a highly pelagic species, spending most of its time in continental shelf waters and coming ashore only to breed in large, dense, colonies. Gannets are most likely to be present in the area from March to November, because the majority of the population overwinters in the Gulf of Maine and further south (Montevecchi et al. 2012; Mowbray 2002). However, they have been observed in the waters off Newfoundland at all times of year.

Phalaropes spend most of the year offshore. They breed in Arctic tundra during the summer months and typically overwinter south of Canada, occurring most frequently in the area during migration. The red-necked phalarope has been assessed by COSEWIC as a species of Special Concern. Phalarope sightings were infrequent in summer and fall and even rarer in winter, and no sightings were reported in the region during the spring surveys. Although most of the sightings were not identified to species level, of those that were identified most were red phalarope which is known to be the more pelagic of the two species (Tracy et al. 2002).

There are six species of gulls found commonly off the coast of eastern Newfoundland: herring, great black-backed and ring-billed gulls and black-legged kittiwakes occur in temperate areas year-round, while Iceland and glaucous gulls nest in the Arctic and are only found in the region outside the breeding season. Other species, including the Arctic-nesting Sabine's and ivory gulls as well as laughing, black-headed and lesser black-backed Gulls, occur infrequently in eastern Newfoundland. The ivory gull is listed as Endangered under both the provincial NL ESA and the federal SARA. Outside of the breeding season, most gull species are associated with coastal areas, while Sabine's gull, ivory gull and black-legged kittiwake tend to be found further offshore. A recent tracking study of black-legged kittiwakes has shown that the Northwest Atlantic, and, in particular the shelf edge off Newfoundland, is an important wintering area for kittiwakes, with most of the Atlantic population overwintering in this region (Frederiksen et al. 2012). Gulls and kittiwakes were both commonly observed in the area year-round. Most of the large gulls identified to species level were great black-backed gull, herring gull, and in the winter months, Iceland gull and glaucous gull. Kittiwakes and great black-backed gulls were among the most commonly reported species during bird surveys conducted for Statoil within and near the Flemish Pass in the summer and winter months (Statoil 2015a, 2015b). Ivory gulls were reported on two occasions from bird surveys conducted during Statoil's drilling campaign at EL 1112 in the winter months (Statoil 2015a).

Terns are typically found in coastal environments, seldom seen far from shore except for Arctic Terns, which tend to be highly pelagic during migration (Hatch 2002; Nisbet 2002; Cuthbert and Wires 1999). They were infrequently observed in the spring and summer, and essentially absent in the fall and winter. While most tern sightings could not be identified to species level, both common and Arctic terns have been observed in the waters of eastern Newfoundland (Eastern Canadian Seabirds at Sea [ECSAS] 2016).

Six members of the alcid (auk) family occur in the Project Area and surrounding region: dovekie, razorbill, common murre, thick-billed murre, Atlantic puffin and black guillemot. The dovekie is a largely Arctic-nesting species, while the other five species breed in eastern Newfoundland. Among seabirds, murres and dovekies spend a large proportion of their time on the water relative to more aerial species (Weise and Ryan 2003; Wilhelm et al. 2007; Fifield et al. 2009) and congregate over relatively small, productive areas such as around the Grand Banks (Gaston et al. 2011; Hedd et al. 2011; Montevecchi et al. 2012). The core winter distribution of the world's dovekie population lies within the waters off eastern Newfoundland (Fort et al. 2013). Most of the eastern Canadian population of common murres and over a third of the region's thick-billed murres also congregate in this region in the winter months (McFarlane Tranquilla et al. 2013).

Five species of jaegers and skuas regularly occur off eastern Newfoundland: pomarine jaeger, parasitic jaeger, long-tailed jaeger, great skua and south polar skua. Non-breeders are found offshore year-round, In the winter months, the waters off eastern Canada support a large proportion of the Icelandic population of great skuas (Magnusdottir et al. 2012).

Outside the breeding season, fulmars and shearwaters are found in offshore waters and spend most of their time in the air, at or near the water's surface. The northern fulmar is common year-round in the waters off eastern Newfoundland. Shearwaters are most common overall in offshore Newfoundland in

the summer and fall months, particularly on the east and northeast Grand Banks (Fifield et al. 2009). Most of the world's population of great shearwaters is found in the northwest Atlantic in the summer months, outside of their austral breeding season (Brown 1986). In the summer months, northern fulmars and great shearwaters are among the most commonly observed species in seabird surveys conducted for Statoil (Statoil 2015b; Fugro EMU 2015).

Two species of storm-petrels are found in the waters off eastern Newfoundland (Leach's storm-petrel and Wilson's storm-petrel). Storm-petrels are found in offshore environments year-round, often following ships and fishing boats (Huntington et al. 1996). Leach's storm-petrel is the species most frequently found stranded on platforms and vessels off eastern Newfoundland; of 135 birds found between 2012 and 2015, 111 were Leach's storm-petrels, (e.g., Thomas et al. 2014; McTavish and Lang 2015,). The majority of strandings (more than 80 percent) occurred in September and October, corresponding with the departure of fledglings from the breeding colonies (Davis et al. 2015). They are commonly observed in the summer months and regularly seen in the spring and fall, but are uncommon in winter.

Waterfowl observations were scarce in the waters off eastern Newfoundland, but the most frequently observed species was common eider, followed by long-tailed duck; loons (common and red-throated), scoters (white-winged, surf and black) and a handful of other duck species were infrequently observed.

Marine shoreline habitats such as sandy mudflats and coastal barrens are used by foraging shorebirds during migration, but they are not typically found offshore. Therefore, shorebirds are considered to be very infrequent visitors to the region, primarily in the fall months. Small groups of unidentified shorebirds were observed during night time surveys conducted at two offshore production platforms in October 2015 (McTavish and Lang 2015).

Refer to Appendix D (Section 2) for additional information and figures associated with marine and migratory birds.

6.7 Marine Mammals and Sea Turtles

Marine mammals and sea turtles that are known to occur in offshore Newfoundland include: an estimated 23 species of cetaceans (whales, dolphins, and porpoises), of which 7 are mysticetes (baleen whales), and 16 are odontocetes (toothed whales); 4 species of phocids (seals); and 4 species of sea turtles. While some species of marine mammals remain in the waters off Newfoundland year-round, many marine mammals and sea turtles arrive in the late spring and early summer and remain until the fall.

Seven species of baleen whales have been identified as having the potential to occur in or near the Project Area, based on their known occurrence in the overall eastern Newfoundland offshore region. Humpback, fin, minke, and sei are the most common. While some species of baleen whales can be observed in the waters off Newfoundland year-round (blue, fin, humpback, and minke whales), most individuals of all species arrive in the late spring and early summer and remain until fall. Several species migrate to lower latitudes in the winter months, returning to the productive waters off Newfoundland in the spring to feed (AMEC 2014a).

The odontocetes are comprised of the toothed whales, dolphins, and porpoises. There are 16 species of odontocetes that, based on direct sighting information or known occurrence, have the potential to occur in or near the Project Area. Several species of odontocetes have the potential to occur in the region seasonally, namely the common bottlenose dolphin, short-beaked common dolphin, and striped dolphin, while others have the potential to be found year-round.

Four species of seals have the potential to occur off eastern Newfoundland (grey seal, bearded seal, harp seal, and hooded seal). There are no pinniped species at risk expected to occur in the Project Area.

Sea turtle distribution in coastal waters is highly seasonal and location-dependent. Although sea turtles are likely uncommon transients in the Project Area, five species have the potential to occur there on occasion, based on known sightings or expected occurrence off eastern Newfoundland (leatherback sea turtle, loggerhead sea turtle, Kemp's ridley sea turtle, green sea turtle; and hawksbill sea turtle). While the leatherback and loggerhead sea turtles have been regularly found in the Project Area (section 6.3.6 of the Flemish Pass and Eastern Newfoundland EISs), the green sea turtle, hawksbill sea turtle and kemp's ridley sea turtle have occasionally been found in the waters off eastern Canada in the summer months (ExxonMobil 2018).

Refer to Appendix D (Section 3) for additional information and figures associated with marine mammals and sea turtles.

6.8 Species at Risk and Species of Conservation Concern

The marine fish, marine mammals, sea turtles, and birds that are of conservation interest that could occur within the Project Area are listed in Tables 6.1, 6.2, and 6.3, respectively. Very few bird species at risk or species of conservation concern are likely to occur in the Project Area. Eleven marine mammal and sea turtle species are designated at risk or otherwise have special conservation status.

Refer to Appendix D (Sections 1.3, 2.2 and 3.1) for additional information and figures associated with species at risk.

Table 6.1 Marine Fish Species at Risk that are Known to or May Occur within the Project Area

Species		Status / Designation [1,2]				Relevant Population (Where Applicable)
Common Name	Scientific Name	NL ESA	SARA	COSEWIC	IUCN	
Striped wolffish	*Anarhichas lupus*		SC	SC		
Northern wolffish	*Anarhichas denticulatus*		T	T		
Spotted wolffish	*Anarhichas minor*		T	T		
American eel	*Anguilla rostrata*	V		T	E	Global (International Union for Conservation of Nature [IUCN])

Table 6.1 Marine Fish Species at Risk that are Known to or May Occur within the Project Area

Species		Status / Designation [1,2]				Relevant Population (Where Applicable)
Common Name	Scientific Name	NL ESA	SARA	COSEWIC	IUCN	
Blue shark	*Prionace glauca*			NR	NT	Atlantic (COSEWIC); Global (IUCN)
Basking shark	*Cetorhinus maximus*			SC	V	Atlantic (COSEWIC); Global (IUCN)
Common lumpfish	*Cyclopterus lumpus*			T		Atlantic (COSEWIC)
Atlantic cod	*Gadus morhua*			E	V	NL (COSEWIC); Global (IUCN)
Cusk	*Brosme brosme*			E		
White hake	*Urophycis tenuis*			T		Atlantic and Northern Gulf of St. Lawrence (COSEWIC)
Haddock	*Melanogrammus aeglefinus*				V	
Porbeagle	*Lamna nasus*			E	V	Global (IUCN)
Shortfin mako	*Isurus oxyrinchus*			SC	V	Atlantic (COSEWIC); Global (IUCN)
White shark	*Carcharodon carcharias*		E	E	V	Atlantic (COSEWIC/SARA); Global (IUCN)
Roughhead grenadier	*Macrourus berglax*			SC		
Roundnose grenadier	*Coryphaenoides rupestris*			E	CE	Global (IUCN)
American plaice	*Hippoglossoides platessoides*			T		NL (COSEWIC)
Atlantic halibut	*Hippoglossus hippoglossus*			NR	E	Global (IUCN)
Barndoor skate	*Dipturus laevis*			NR	E	Global (IUCN)
Little skate	*Leucoraja erinacea*				NT	Global (IUCN)
Smooth skate	*Malacoraja senta*			E	E	Funk Island Deep (COSEWIC); Global (IUCN)
Spinytail skate	*Bathyraja spinicauda*				NT, V	Global, Northwest Atlantic (IUCN)
Thorny skate	*Amblyraja radiata*			SC	V	Canada, Global (IUCN)
Winter skate	*Leucoraja ocellata*			E	E	Eastern Scotian Shelf – Newfoundland (COSEWIC); Global (IUCN)

Table 6.1 Marine Fish Species at Risk that are Known to or May Occur within the Project Area

Species		Status / Designation [1,2]				Relevant Population (Where Applicable)
Common Name	Scientific Name	NL ESA	SARA	COSEWIC	IUCN	
Spiny dogfish	*Squalus acanthias*			SC	V	Atlantic (COSEWIC); Global (IUCN)
Atlantic salmon	*Salmo salar*		E	E, T, SC	LC	Inner Bay of Fundy, (SARA): South Newfoundland, Quebec Eastern North Shore, Quebec Western North Shore, Anicosti Island, Inner St. Lawrence, Gaspe-Southern Gulf of St. Lawrence, Eastern Cape Breton, Nova Scotia Southern Upland (COSEWIC); Global (IUCN)
Albacore tuna	*Thunnus alalonga*				NT	Global (IUCN)
Atlantic bluefin tuna	*Thunnus thynnus*			E	E	Atlantic (COSEWIC); Global (IUCN)
Bigeye tuna	*Thunnus obesus*				V	Global (IUCN)
Acadian redfish	*Sebastes fasciatus*			T	E	Atlantic (COSEWIC); Global (IUCN)
Deepwater redfish	*Sebastes mentella*			T	LC	Northern (COSEWIC); Global (IUCN)
Greenland shark	*Somniosus microcephalus*				NT	
Lanternfish (global population)	*Myctophidae*				LC	Global (IUCN)
Atlantic hagfish (global population)	*Myxine glutinosa*				LC	Global (IUCN)
Alewife	*Alosa pseudoharengus*				LC	
Black dogfish (global population)	*Centroscyllium fabricii*				LC	Global (IUCN)

Notes:
[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

Table 6.2 Bird Species at Risk that are Known to or May Occur within the Project Area

Common Name	*Scientific Name*	Provincial Status	Federal Status	
			SARA Schedule 1 Status	COSEWIC Assessment
Barrow's goldeneye (Eastern pop.)	*Bucephala islandica*	Vulnerable	Special Concern	Special Concern
Harlequin duck (Eastern pop.)	*Histrionicus histrionicus*	Vulnerable	Special Concern	Special Concern
Ivory gull	*Pagophila eburnea*	Endangered	Endangered	Endangered
Ross's gull	*Rhodostethia rosea*		Threatened	Threatened
Piping plover (*melodus* ssp.)	*Charadrius melodus melodus*	Endangered	Endangered	Endangered
Red knot (*rufa* ssp.)	*Calidris canutus rufa*	Endangered	Endangered	Endangered
Buff-breasted sandpiper	*Tryngites subruficollis*			Special Concern
Red-necked phalarope	*Phalaropus lobatus*			Special Concern
Peregrine Falcon	*Falco peregrinus anatum/tundrius*	Vulnerable	Special Concern	Special Concern
Common nighthawk	*Chordeiles minor*	Threatened	Threatened (Schedule 1)	Threatened
Bank swallow	*Riparia riparia*			Threatened
Gray-cheeked thrush (*minimus* spp.)	*Catharus minimus minimus*	Threatened		
Olive-sided flycatcher	*Contopus cooperi*	Threatened	Threatened (Schedule 1)	Threatened
Bobolink	*Dolichonyx oryzivorus*	Vulnerable		Threatened
Short-eared owl	*Asio flammeus*	Vulnerable	Special Concern Schedule 1	Special Concern

Table 6.3 Marine Mammal and Sea Turtle Species at Risk that are Known to or May Occur within the Project Area

Common Name	Scientific Name	SARA Schedule 1 Status [1]	COSEWIC Designation [2,3]
Mysticetes (Baleen Whales)			
Blue whale (Atlantic population)	*Balaenoptera musculus*	Endangered	Endangered
Fin whale (Atlantic population)	*Balaenoptera physalus*	Special Concern	Special Concern
North Atlantic right whale	*Eubalaena glacialis*	Endangered	Endangered
Bowhead whale (Eastern Canada-West Greenland population)	*Balaena mysticetus*		Special Concern
Odontocetes (Toothed Whales) [4]			
Northern bottlenose whale (1: Scotian Shelf population/ 2: Davis Strait-Baffin Bay-Labrador Sea population)	*Hyperoodon ampullatus*	4) Endangered	1) Endangered 2) Special Concern
Sowerby's beaked whale	*Mesoplodon bidens*	Special Concern	Special Concern
Killer whale (Northwest Atlantic / Eastern Arctic population)	*Orcinus orca*		Special Concern
Harbour porpoise (Northwest Atlantic population)	*Phocoena phocoena*	Threatened on Schedule 2	Special Concern
Beluga whale (St. Lawrence Estuary population)	*Delphinapterus leucas*	Endangered	Endangered
Sea Turtles			
Leatherback sea turtle (Atlantic population)	*Dermochelys coriacea*	Endangered	Endangered
Loggerhead sea turtle	*Caretta caretta*	Endangered	Endangered

Notes:

[1] SARA = Canadian *Species at Risk Act*

[2] COSEWIC = Committee on the Status of Endangered Wildlife in Canada

[3] None of these marine mammal or sea turtle species are currently listed under the NL ESA

[4] Pygmy sperm whales (*Kogia breviceps*; not listed under SARA or COSEWIC) and Cuvier's beaked whale (*Ziphius cavirostris*; not listed under SARA or COSEWIC) may also occur in and near the Project Area based on the Environmental Studies Research Fund (ESRF) acoustic study (Delarue et al. 2018); however, there have been no confirmed visual detections in or near the Project Area.

Key Sources: Husky Energy (2012), AMEC (2014a, 2014b), BP (2016)

6.9 Special Areas

Currently, there are no known Marine Protected Areas (MPAs) within the vicinity of the Project Area. However, nationally DFO is increasing the number of MPAs. This initiative includes the marine waters off NL. Multiple areas within offshore Newfoundland have been designated as environmentally sensitive (Appendix D; Section 4).

In addition to Canadian-designated Ecologically and Biologically Significant Area (EBSAs), NAFO has identified a number of areas as Vulnerable Marine Ecosystems (VMEs) for deep-water corals and sponges in the offshore region, including many canyons around the continental shelf, seamounts, and knolls. The Newfoundland Seamounts and the Beothuk Knoll have been identified as potential VMEs (NAFO 2008). The VMEs are closed to bottom trawling activities in the area, to manage habitat for corals such as gorgonians, black corals, sea pens, and sponges. These areas were created in response to the known sensitivity of corals and sponges, particularly gorgonians and black corals that cannot reattach themselves to substrate after disturbance (NAFO 2009). In the NL offshore area, there are no areas identified where drilling cannot occur. While DFO and NAFO have identified EBSAs and VMEs, there are no restrictions in these areas regarding drilling activity. The C-NLOPB requires mitigation be put in place to reduce potential effects on sensitive marine organisms (e.g., corals). Refer to Section 2.4.1 for information regarding pre-drill coral / sponge surveys.

Refer to Appendix D (Section 4) for additional information and figures associated with special areas.

7.0 EXISTING HUMAN ENVIRONMENT

The Flemish Pass and Eastern Newfoundland EISs discuss the existing human environment in chapter 7, and it is fully applicable to ELs 1159 and 1160 as they are within the Project Area. A thorough comparison of exploration drilling activities on ELs 1159 and 1160 with the Flemish Pass EIS and IRs/CLs is included in Appendix B. Appendix E contains updated information associated with commercial fisheries, marine research, marine shipping and offshore oil and gas activity.

7.1 Indigenous Communities and Activities

Section 7.3.4 of the Flemish Pass EIS identifies and describes the various Indigenous groups throughout Newfoundland and Labrador, the Maritime Provinces, and Québec who have been identified by the CEA Agency as having interests related to exploration drilling activities and its potential environmental effects, including potential interactions with their commercial and current traditional hunting and fishing activities.

Indigenous groups that reside in Newfoundland and Labrador include:

- Labrador Inuit (Nunatsiavut Government)
- Labrador Innu (Innu Nation)
- NCC
- QMFNB
- MFN

Other Indigenous groups in the Maritime Provinces and Quebec and their identified potential interests in the Project are outlined in Table 7.1.

Table 7.1 Indigenous Groups in the Maritime Provinces and Quebec

Province	Group	Identified Interest
Prince Edward Island	Abegweit First Nation	Commercial-Communal Swordfish Licence in NAFO Division 3, 4, 5
	Lennox Island First Nation	

Table 7.1 Indigenous Groups in the Maritime Provinces and Quebec

Province	Group	Identified Interest
Nova Scotia	Paq'tnkek*	Commercial-Communal Swordfish Licence in NAFO Division 3, 4, 5
	Pictou Landing*	
	Wagmatcook*	
	Millbrook*	
New Brunswick	Elsipogtog First Nation	Asserted Aboriginal right to fish for food, social, and ceremonial purposes where that right could be affected by effects to the Atlantic salmon population(s) identified as endangered by COSEWIC
	Buctouche First Nation	
	Eel Ground First Nation	
	Eel River Bar First Nation	
	Esgenoôpetitj First Nation	
	Fort Folly First Nation	
	Indian Island First Nation	
	Metepenagiag Mi'kmaq Nation	
	Pabineau First Nation	
	Kingsclear First Nation	
	Madawaska Maliseet First Nation	
	Oromocto First Nation	
	Saint Mary's First Nation	
	Tobique First Nation	
	Woodstock First Nation	
	Passamaquoddy	
Nova Scotia	Acadia First Nation	Asserted Aboriginal right to fish for food, social, and ceremonial purposes where that right could be affected by effects to the Atlantic salmon population(s) identified as endangered by COSEWIC
	Annapolis Valley First Nation	
	Bear River First Nation	
	Eskasoni First Nation	
	Glooscap First Nation	
	Membertou First Nation	
	Paq'tnkek Mi'kmaw Nation*	
	Pictou Landing First Nation*	
	Potlotek First Nation	
	Wagmatcook First Nation*	
	Waycobah First Nation	
	Millbrook First Nation*	
	Sipekne'katik First Nation	
Quebec	Conseil des Montagnais de Natashquan	Asserted Aboriginal right to fish for food, social, and ceremonial

Table 7.1 Indigenous Groups in the Maritime Provinces and Quebec

Province	Group	Identified Interest
	Conseil des Innus de Ekuanitshit	purposes where that right could be affected by effects to the Atlantic salmon population(s) identified as endangered by COSEWIC
	La Nation Micmac de Gespeg	
	Listuguj Mi'gmaq Government	
	Micmacs of Gesgapegiag	
*Indigenous groups that have commercial-communal swordfish licences that overlap the Project Area and may also be exercising rights related to endangered Atlantic Salmon		

7.2 Commercial Fisheries and Other Users

Within the Project Area, the socioeconomic setting primarily consists of commercial fishing and industrial oil and gas activity. The waters of the Canada-NL Offshore Area, and specifically the area of the Grand Banks, are productive for marine life, and home to a number of commercially-important fish species. Domestic fisheries for groundfish, shellfish and invertebrates, and pelagic species occur in the Canada-NL Offshore Area, with northern shrimp and snow crab historically providing the majority of commercial landings after the collapse of groundfish stocks in the 1990s. The Project Area is located within NAFO Subdivisions 3KLMNO, occupying less than 30 percent of 3KLMNO, which historically have been areas of commercial fishing activity.

Within the Project Area, there is a higher rate of fishing activity, as this area is located on the edge of the Grand Banks and is a prominent area for commercial fishing activity. This area is dominated by a high amount of northern shrimp and snow crab landings, yellowtail flounder; Greenland halibut, redfish, American plaice, and other groundfish species have landings within this area as well. Other species such as herring, capelin, sea urchins, scallops, and lobster have landings recorded in waters that encompass the larger RSA around the Project Area.

In terms of timing of commercial fishing activities, April to August are the months in which commercial fishing in the Canada-NL Offshore Area is most active, with fishing activities gradually slowing down in the fall and winter. This is driven primarily by the snow crab fishing season, which takes place from April to August. Other fisheries such as those for northern shrimp and groundfish species occur year-round, but are predominantly active during the summer months, when ocean productivity is higher.

Research activities also have the potential to occur year-round. DFO conducts annual research surveys in the spring and fall in the Canada-NL Offshore Area. This includes DFO's Atlantic Zone Monitoring Program, the RAPID Climate Change Program Study, and the post-season trap survey for snow crab in partnership with FFAQ-Unifor. These research activities occur throughout various NAFO divisions in the Canada-NL Offshore Area, including the Project Area. Military activities do not have a set schedule, but can be scheduled to occur at any time of the year. The Canada-NL Offshore Area has been subject to offshore oil and gas activity for over 30 years, and there has been some level of activity in the Project Area during this timeframe. Other oil and gas activities will, and have the potential to be, occurring during the temporal scope.

8.0 ENVIRONMENTAL EFFECTS ASSESSMENT

As described in Sections 2.1, 2.3, and 4.2, the scope, Project Area and VCs for ELs 1159 and 1160 are the same as those identified in the Flemish Pass EIS, and therefore the environmental effects assessments completed in chapters 8 to 13 of the Flemish Pass EIS are valid and applicable. The information in Sections 8.2 to 8.7 below brings forward key aspects and updated information, if applicable, since the submittal of the Flemish Pass EIS. A thorough comparison of the exploration drilling activities on ELs 1159 and 1160 with the Flemish Pass EIS and IRs/CLs is included in Appendix B. Refer to Section 12 regarding commitments and mitigation measures.

Table 8.1 below outlines the components or activities that were assessed for each VC in the Flemish Pass and Eastern Newfoundland EISs, which remain applicable and valid for ELs 1159 and 1160.

Table 8.1 Summary of Potential Interactions on Valued Components

Component or Activity	Valued Components					
	Marine Fish and Fish Habitat	Marine and Migratory Birds	Marine Mammals and Sea Turtles	Special Areas	Indigenous Communities and Activities	Commercial Fisheries and Other Ocean Users
Presence and Operation of Drilling Installation	•	•	•	•		•
Drilling and Associated Marine Discharges	•	•	•	•		•
Formation Flow Testing with Flaring	•	•	•			
Wellhead Decommissioning	•		•	•		•
Geophysical, Geohazard, Wellsite, Seabed and VSP Surveys	•	•	•	•		•
Geological, Geotechnical and Environmental Surveys	•		•			•
Supply and Servicing	•	•	•			•

8.1 Modelling

8.1.1 Drill Cuttings Dispersion Modelling

The Flemish Pass and Eastern Newfoundland EISs completed drill cuttings dispersion modelling in five locations within the Project Area, which are illustrated in Figure 2-1. ELs and corresponding water depths and maximum cuttings thickness ranges from seasonal scenarios are outlined in Table 8.2 below.

Table 8.2 Maximum Water-Based Mud Cuttings Thickness by Distance from Well Site

Exploration Licence	Water Depth (m)	Maximum Thickness (mm) Range									
		0-10m	10-100m	100-200m	200-500m	500m-1km	1-2km	2-4km	4-5km	5-31km	>31km
EL 1134	1,175	12-31	13-22	8-80	69-97	24-26	0.05-1	0.01-0.07	<0.01-0.07	-	-
EL 1135	360	7-13	7-11	1-54	57-80	10-74	1-18	-	-	-	-
EL 1137	89	12-21	10-108	1-48	55-102	1-20	1-22	-	-	-	-
EL 1140	2,700	14-63	14-78	8-50	18-56	8-28	1	-	-	-	-
EL 1142	1,100	25-58	80-116	4-40	1-9	-	-	-	-	-	-

As described in Section 2.3, water depths for ELs 1159 and 1160 range from approximately 40 m to 1,020 m. Modelling results from ELs 1134, 1135, 1137 and 1142 are suitable to apply to ELs 1159 and 1160 and therefore remodelling is not anticipated.

8.1.2 Spill Trajectory Modelling

In support of the Flemish Pass and Eastern Newfoundland EISs, 18 accidental event scenarios were modelled to assess the potential environmental effects associated with subsurface blowouts and batch spills. Section 10.2 provides an overview of the 18 spill scenarios that were modelled; 15 of those scenarios would be applicable to ELs 1159 and 1160 due to similar water depths and spill rates.

8.2 Marine Fish and Fish Habitat (including Species at Risk)

The environment effects assessment of exploration drilling activities on Marine Fish and Fish Habitat (including Species at Risk), as described in sections 8.1 to 8.6 of the Flemish Pass and Eastern Newfoundland EISs, would be the same for exploration drilling activities carried out in ELs 1159 and 1160, and a summary is included in the subsections below.

Table B.8 in Appendix B provides a thorough comparison of exploration drilling activities on ELs 1159 and 1160 with the Flemish Pass EIS and IRs/CLs.

The conclusions in the Flemish Pass and Eastern Newfoundland EISs remain valid; with the implementation of mitigation measures, exploration drilling activities on ELs 1159 and 1160 are not likely to result in significant adverse environmental effects on Marine Fish and Fish Habitat.

Refer to Tables F.1 and F.2 in Appendix F for individual environmental effects assessment summaries for planned activities for ELs 1159 and 1160, respectively.

8.2.1 Anticipated Changes to the Environment

The key potential environmental interactions between planned offshore oil and gas activities and marine fish and their habitats include the following (adapted from AMEC 2014a):

- The possible destruction, contamination or alteration of marine habitats and benthic organisms due to the discharge and deposition of drill cuttings and/or fluids, the deployment and use of other equipment, and possibly the introduction and spread of aquatic invasive species
- Potential contamination of fish / invertebrates and their habitats due to other environmental discharges during planned oil and gas exploration drilling and other associated survey and support activities
- The attraction of marine fish to the drilling installation and vessels, with increased potential for injury, mortality, contamination, or other interactions
- Possible temporary avoidance of areas by marine fish due to underwater noise or other disturbances, which may alter their presence and abundance as well as disturbing movements / migration, feeding, or other activities
- Possible changes in the availability, distribution, or quality of feed sources and/or habitats for fish and invertebrates as a result of planned activities and their associated environmental emissions
- Possible injury, mortality, or other disturbances to marine fish as a result of exposure to noise within the water column during wellsite surveys or VSP survey activity

As a result of these identified environmental interactions, issues identified in the Flemish Pass EIS Guidelines, and concerns raised through consultation and engagement, the assessment of environmental effects on Marine Fish and Fish Habitat is focused on the following potential environmental effects:

- Change in Habitat Availability and Quality
- Change in Fish Mortality, Injury, Health
- Change in Fish Presence and Abundance (Behavioural Effects)

8.2.2 Anticipated Effects (Planned Components and Activities)

The anticipated effects of planned components and activities on Marine Fish and Fish Habitat are assessed.

8.2.2.1 Presence and Operation of Drilling Installation

The potential environmental effects of presence and operation of the drilling installation are primarily related to underwater noise and vibrations, light emissions and other environmental discharges, interactions with the benthic environment, and aquatic invasive species.

The presence of the drilling installation in combination with lighting effects will have localized positive effects on fish abundance and diversity by creating a “reef effect” that aggregates plankton and increases invertebrate colonization, resulting in increased local productivity and food sources. Continuous operation noises or DP may result in localized area avoidance; however, fish may remain in the area for relatively higher foraging opportunities. Safety zones around drilling operations may also afford localized, short-term protection to species that are otherwise exposed to overfishing. Direct contact with the seabed will occur if anchoring is used rather than DP; however, underwater surveys will be conducted prior to anchoring operations to confirm that anchors are not set in sensitive coral or sponge habitats. As the Project Area is within an area of low seabed complexity, the introduction of subsea infrastructure may provide opportunities for colonization and increased distribution of benthic species that have pelagic eggs or larvae. This effect would be temporary for the length of drill operations, but the combination of increased colonization opportunities and local enrichment may support faster recovery in an otherwise slow recovering environment. Lighting and other environmental discharges (including organic waste material) associated with the drilling installation may also result in the short-term and localized attraction of some individual fish. There is the potential for temporary positive effects from the creation of increased availability of shelter and food for juveniles around the drilling installation and decreased fishing pressure on adults within the safety zone. There is also a potential for short-term exposure and subsequent potential uptake of contaminants from waste discharge.

The interactions described above may result in changes to habitat availability and quality, fish mortality / injury risk and fish health, and fish presence and abundance. These changes are predicted to be adverse, low in magnitude, localized and certainly within the Project Area, short to medium term duration, occurs regularly and reversible with a high level of confidence.

8.2.2.2 Drilling and Associated Marine Discharges

The primary interactions from discharge of drill cuttings include cuttings deposition and potential seabed disturbance (smothering habitat), chemical toxicity, and bioaccumulation (uptake of contaminants by fish and the presence or perception of taint). Drilling waste discharges will adhere to the requirements for cuttings treatment and discharge guidelines in the OWTG. Discharge of drilling fluids and associated drilling cuttings may affect the benthic environment, with immobile or sessile bivalve and infaunal species being particularly sensitive to burial or drilling mud deposition. However, the high dispersal of the low toxicity and non-bioaccumulating drill cuttings has relatively low potential for adverse environmental effects. Drill cuttings dispersion modelling was conducted at three locations in the Project Area – Northern Section and two locations in the Project Area – Southern Section. In the Project Area – Northern Section, approximately 99 percent of WBM drill cuttings settle less than 2 km from the drill centre under all season scenarios. Treated SBM drill cuttings released under the water surface become well dispersed, with greater than 97 percent of SBM drill cuttings settling outside the 32 km model area. In the modelled Eastern Project Area, relatively lower currents results in settling of discharged cuttings within 5-31 km of the wellhead for three of four seasonal scenarios with the SBM drill cuttings drifting beyond the 32 km model in the June scenario. Due to the distance settled away from the well site, overall accumulation thicknesses are relatively low. In the Project Area – Southern Section, areas of accumulation for WBMs will occur within 2 km of the wellhead indicating that any physical or chemical effects on fish habitat will be relatively localized. While SBMs are discharged at relatively shallower

depths in comparison to other modelled areas, overall average thickness is minimal (0.4 mm or less). However, there are some areas of accumulation that reach up to 3 mm within the model boundary indicating some potential localized disturbances to fish habitat. The physical and chemical effects of this volume of WBM and SBM drill cuttings over this area are anticipated to only have localized habitat disturbances, if any. Because overall sedimentation is low, there is low potential for smothering effects or creating of oxygen depletion conditions, reducing potential recovery and recolonization times.

The use and eventual release of seawater and WBMs are not predicted to result in adverse environmental effects related to toxicity or bioaccumulation. When SBM is used (i.e., drilling the lower portions of each well), fluids and cuttings will be returned to the drilling installation for treatment before discharge below the water surface. It is not likely that the treated released SBM and SBM-associated drill cuttings will result in adverse effects associated with contamination of marine biota or habitats, as these materials have low toxicity, and localized biological effects (Deblois et al. 2014).

These interactions may result in potential changes to habitat availability and quality, fish mortality / injury risk and fish health, and fish presence, and abundance. These changes are predicted to be adverse, low in magnitude, localized and certainly within the Project Area, medium to long term in duration, occurring on a regular basis and reversible, with a high level of confidence.

8.2.2.3 Formation Flow Testing with Flaring

The predicted environmental effects of formation flow testing with flaring are primarily related to short-term light and atmospheric emissions, and produced water discharge that may result in change in fish presence and abundance. Due to the low emission quantities, the temporary and short-term nature of air and light emissions, there will be limited potential interactions with fish or their habitat. These changes are predicted to be adverse, low in magnitude, localized, short term, occurring sporadically and reversible. These predictions have been made with a high level of confidence.

8.2.2.4 Wellhead Decommissioning

Wellhead decommissioning will be conducted by cutting off the wellhead rather than blasting for environmental and safety reasons. Wellhead cutting will be conducted by an ROV and result in short term, low-magnitude emissions of noise and light. Fish will likely temporarily avoid the area during activities. The remaining seabed infrastructure may add small quantities of habitat heterogeneity to the existing environment and potentially aid in recolonization of benthic species and overall recovery. These changes are predicted to be adverse, negligible to low in magnitude, localized, short-term, occurring sporadically, and reversible, with a high level of confidence.

8.2.2.5 Geophysical / Geohazard / Wellsite / Seabed Surveys and Vertical Seismic Profiling

The predicted environmental effects of geophysical, geohazard, wellsite, and VSP surveys are primarily related to seismic noise that may result in changes to fish mortality / injury risk, fish health, and fish presence and abundance. The possible effects from the use of seismic sound energy in the marine environment may be behavioural (avoidance, other changes in distribution or activities) or involve injury to or mortality of individual fish. However, operations will be short-term and localized, and have reversible, low-magnitude effects. Noise and seismic emissions from VSP activities are mainly directed

downwards into the well, with limited horizontal range. Mobile fish and invertebrate species are predicted to temporarily avoid areas of survey operations, minimizing potential interactions. The geophysical sound source will go through a “ramp up” phase to increase initial fish and invertebrate avoidance to limit potential effects. Eggs, larvae and benthic invertebrates adjacent to the sound source may be affected. However, due to the highly localized effects and short-term nature of operations, it will not have population effects.

While there may be some short-term behavioural effects to individual fish in the immediate vicinity of the survey activity, it is unlikely that fish will be displaced from key habitats or disrupted during key activities over extended areas or periods, or be otherwise affected in a manner that causes negative and detectable effects to fish populations in the region. These changes are predicted to be adverse, low in magnitude, occurring within the Project Area, short-term, occurring sporadically and reversible, with a high level of confidence.

8.2.2.6 Geological, Geotechnical and Environmental Surveys

Most of these types of survey activities will not result in physical contact with the seabed, and will therefore not directly interact with or disturb benthic animals or their habitats. When used, sediment sampling equipment will be in direct contact with the seabed and potentially injury or cause mortality in fish, change habitat quantity or quality, and indirectly affect distribution and abundance; however, the small footprint of this temporary activity is not likely to cause any effects on population scales. Water sampling activities are not likely to have interactions with the seabed or fish. Underwater video surveys may have lighting and noise emissions; however, the temporary nature of the activity limits any potential effects on the environment. Fish may also migrate away from the area while the short-term activity is ongoing. These changes are predicted to be adverse, negligible to low in magnitude, localized, short-term, occurring sporadically and reversible, with a high level of confidence.

8.2.2.7 Supply and Servicing

Helicopter use will have no direct interactions with fish and fish habitat. With respect to offshore supply vessels, all exhaust emission levels will follow air quality regulations and guidelines. Similar to the drilling installation, all offshore supply vessel wastewaters will be treated to reduce contaminant or hydrocarbon levels prior to discharge under MARPOL. Due to the transitory nature of vessels, discharges are not likely to accumulate in any area and the low volumes would likely become highly dispersed in the marine environment. The continuous noise and lighting from vessels would also be relatively low and result in temporary avoidance by fish. As with other emissions, the temporary interaction with any one area limits potential noise and light interactions with fish. These changes are predicted to be adverse, low in magnitude, localized, short-term, occurring on a regular basis and reversible, with a high level of confidence.

8.3 Marine and Migratory Birds (including Species at Risk)

The environment effects assessment of exploration drilling activities on Marine and Migratory Birds (including Species at Risk), as described in sections 9.1 to 9.6 of the Flemish Pass and Eastern Newfoundland EISs, would be the same for exploration drilling activities carried out in ELs 1159 and 1160, and a summary is included in the subsections below.

Table B.9 in Appendix B provides a thorough comparison of exploration drilling activities on ELs 1159 and 1160 with the Flemish Pass EIS and IRs/CLs.

The conclusions in the Flemish Pass and Eastern Newfoundland EISs remain valid; with the implementation of mitigation measures, exploration drilling activities on ELs 1159 and 1160 are not likely to result in significant adverse environmental effects on Marine and Migratory Birds.

Refer to Tables F.3 and F.4 in Appendix F for individual environmental effects summaries for planned activities for ELs 1159 and 1160, respectively.

8.3.1 Anticipated Changes to the Environment

The key potential environmental interactions between planned offshore oil and gas activities and Marine and Migratory Birds, include the following (adapted from AMEC 2014a):

- Potential attraction of birds to offshore drilling installations and vessels, including their lights, flares or other light emissions, and waste discharges, resulting in possible injury or mortality (strikes, strandings, incineration, disorientation, increased energy expenditure)
- Possible injury of avifauna (particularly diving birds) due to exposure to noise within the water column during VSP or wellsite surveys using seismic sound sources or disruptions to and changes in their distributions and behaviours
- Changes in the presence, abundance, distribution, and/or health of birds (individuals and populations) resulting from direct exposure to waste discharges from installations or vessels (physical exposure, ingestion)
- Possible indirect effects due to changes in the availability, distribution, and/or quality of food sources or habitats for marine and migratory birds due to disturbances (noise, light) and/or waste discharges (such as drilling fluids, other liquid and solid waste materials).

As a result of these identified environmental interactions, issues identified in the Flemish Pass EIS Guidelines, and concerns raised through consultations and engagement, the assessment of environmental effects on Marine and Migratory Birds (including species at risk and species of conservation concern) is focused on the following potential environmental effects:

- Change in Mortality / Injury Levels and Bird Health (Individuals or Populations)
- Change in Avifauna Presence and Abundance (Behavioural Effects)
- Change in Habitat Availability and Quality
- Change in Food Availability or Quality

8.3.2 Anticipated Effects (Planned Components and Activities)

The anticipated effects of planned components and activities on Marine and Migratory Birds are assessed.

8.3.2.1 Presence and Operation of Drilling Installation

The predicted environmental effects associated with the presence and operation of the drilling installation are primarily related to lighting and emissions that may result in changes in mortality / injury

levels, presence and abundance of avifauna, and food and habitat availability and quality. This includes the possible attraction of birds due to lighting, avoidance of the drilling installation due to sensory disturbance, and the creation of new foraging opportunities for predator species (e.g., through prey attraction due to organic waste disposal, creation of new “artificial reef” habitat). There may also be a slight increase in mortality / injury levels due to collisions, disorientation, and potential predation; however, the mortality rate is anticipated to be low as most stranded birds encountered on platforms and vessels are released successfully. Some localized and short-term behavioural effects (change in presence and abundance) are also likely to occur from the operation of the drilling installation; however, these effects will be localized, transient, and short-term in nature. Changes in habitat and food availability and quantity, if any, will also be on a localized scale and for a short-term duration. These changes are predicted to be adverse, low in magnitude, localized and certainly within the Project Area, short to medium term, regular in frequency, and reversible, with a moderate level of confidence.

8.3.2.2 Drilling and Associated Marine Discharges

The predicted environmental effects of drilling and associated marine discharges are primarily related to release of organic wastes, which may result in changes in mortality / injury levels, presence and abundance of avifauna, and food availability and quality. Organic waste will be reduced prior to discharge in accordance with the OWTG. Discharge of organic wastes (sewage and food scraps) may result in enhancement of the local food supply and attraction of birds to vessels and platforms. However, this potentially positive effect may be offset by increased exposure to risk of collision / strandings or predation as well as energetic costs due to deviation from normal movement / migration patterns. Proper waste management will reduce such effects of discharges of organic waste on birds. These potential effects are predicted to be adverse, low in magnitude, localized, short-term, sporadic in frequency, and reversible, with a moderate level of confidence.

8.3.2.3 Formation Flow Testing with Flaring

The predicted environmental effects of formation flow testing with flaring are primarily related to attraction of birds to flares, which may result in changes in mortality / injury levels, and in presence and abundance of avifauna. Any flaring events conducted will occur several hundred kilometres offshore, far away from coastal breeding sites and IBAs and well beyond the foraging range of almost all species that nest in Newfoundland. Therefore, breeding birds are unlikely to be affected by this activity, with the potential exception of the Leach’s storm-petrel, which may forage thousands of kilometres from the nest site during the breeding season (Pollet et al. 2014). Although there is some potential for the attraction of migratory landbirds, it is unlikely that large numbers of landbirds will be affected. Any such effects are predicted to be adverse, low in magnitude, localized and certainly within the Project Area, short-term, sporadic in frequency, and reversible, with a moderate level of confidence.

8.3.2.4 Wellhead Decommissioning

No effects on Marine and Migratory Birds as a result of wellhead decommissioning are anticipated. Wellhead decommissioning is conducted underwater, at depth, and in adherence to the requirements set out under the *Newfoundland Offshore Petroleum Drilling and Production Regulations*.

Decommissioning activities will be conducted well below diving depths for even the deepest-diving seabirds.

8.3.2.5 Surveys

The predicted environmental effects of survey activities are primarily related to noise exposure from geophysical testing, which may result in changes in presence and abundance of avifauna, and potentially short-term injury. Deep-diving birds such as alcids (including murres, dovekies, and puffins), as well as other bird species that forage underwater, may be at somewhat higher risk of injury or disruption due to exposure to underwater noise such as that generated by seismic sound sources. VSP and geophysical, geohazard, wellsite and/or seabed surveys using 2D seismic arrays or other equipment will be conducted as required. However, these surveys will be short-term and localized in nature, and Marine and Migratory Birds are unlikely to be affected by the underwater sound energy that is associated with these activities. These changes are predicted to be adverse, negligible in magnitude, localized and certainly within the Project Area, short-term, sporadic in frequency, and reversible, with a high level of confidence.

8.3.2.6 Supply and Servicing

The primary environmental effects of supply and servicing activities are related to potential disturbance due to vessel movements, release of organic wastes leading to increased food availability, and attraction / disorientation of birds due to lighting. The various bird species that occupy the Project Area and potential vessel and aircraft traffic routes will not likely be disturbed by vessel activity or associated aircraft use due to its short-term transitory nature, and because it will generally be in keeping with the overall marine traffic that has occurred throughout the region for years. The release of organic wastes by offshore vessels and activities can attract birds, which may increase the potential for interactions including risk of predation, collision and exposure to contaminants. However, this will be reduced with proper waste management practices and adherence to associated MARPOL requirements (e.g., food and sewage waste will not be discharged within 5.5 km (3 nautical miles) of the coast). Potential effects due to lighting on supply vessels, will be highly transient in nature. Overall, the presence of these vessels in the Canada-NL Offshore Area would result in a negligible addition of night lighting in this region. These changes are predicted to be adverse, low in magnitude, localized in extent, short-term, regular in frequency, and reversible, with a high level of confidence.

8.4 Marine Mammals and Sea Turtles (including Species at Risk)

The environment effects assessment of exploration drilling activities on Marine Mammals and Sea Turtles (including Species at Risk), as described in sections 10.1 to 10.6 of the Flemish Pass and Eastern Newfoundland EISs, would be the same for exploration drilling activities carried out in ELs 1159 and 1160, and a summary is included in the subsections below.

Table B.10 in Appendix B provides a thorough comparison of exploration drilling activities on ELs 1159 and 1160 with the Flemish Pass EIS and IRs/CLs.

The conclusions in the Flemish Pass and Eastern Newfoundland EISs remain valid; with the implementation of mitigation measures, exploration drilling activities on ELs 1159 and 1160 are not likely to result in significant adverse environmental effects on Marine Mammals and Sea Turtles.

Refer to Tables F.5 and F.6 in Appendix F for individual environmental effects summaries for planned activities for ELs 1159 and 1160, respectively.

8.4.1 Anticipated Changes to the Environment

The key potential environmental interactions between offshore oil and gas activities and marine mammals and sea turtles include the following (adapted from AMEC 2014a):

- Temporary hearing impairment or permanent injury or mortality from exposure to loud underwater noise after coming into close contact with an underwater sound source (e.g., drilling, VSP) at or above threshold levels for onset of injury derived from published scientific literature or those used in relevant legislation
- Behavioural effects due to sound sources or other disturbances at or above threshold levels for onset of behavioural disturbance derived from published scientific literature or those used in relevant legislation. These may include alterations in the presence, abundance, and overall distribution (including avoidance) of marine mammals and sea turtles as well as modifications to their movements, feeding, communication patterns and other activities
- Interference with (and the masking of) sounds within the marine environment that originate from and/or are used by marine biota, such as in communication between individuals, the identification and detection of predators and prey, echolocation, and other activities and requirements
- Potential for injury or mortality through collisions or other interactions with offshore survey and supply vessels, including possible attraction of individual animals
- Possible changes in the availability, distribution, or quality of feed sources and/or habitats for marine mammals and sea turtles

As a result of these potential effects, identified environmental interactions, issues identified in the Flemish Pass EIS Guidelines, and concerns raised through consultations and engagement, the assessment environmental effects on Marine Mammals and Sea Turtles (including species at risk) is focused on the following potential environmental effects:

- Change in Mortality or Injury (Underwater Noise)
- Change in Habitat Quality or Use (Behavioural Effects)
- Change in Mortality or Injury (Vessel Strikes)
- Change in Food Availability or Quality
- Change in Health (Contaminants)

8.4.2 Anticipated Effects (Planned Components and Activities)

The anticipated effects of planned components and activities on Marine Mammals and Sea Turtles are assessed.

8.4.2.1 Presence and Operation of Drilling Installation

The predicted environmental effects associated with presence and operation of a drilling installation are primarily related to increase in underwater noise that may result in a change in mortality or injury and change in habitat quality or use (behavioural effects). However, in this case, marine mammals or sea turtles are not expected to be injured or killed as a result of underwater noise introduced during presence and operation of a drilling installation, nor is the quality or availability of their prey expected to be adversely affected. Some degree of change in habitat use in response to underwater noise is expected of individuals that occur within tens of kilometres of the drilling installation at the time of operation. The exact nature of behavioural response cannot be predicted but could include interference in communication, minor alterations in activity, or localized avoidance responses. The number of individuals affected is expected to be minimal relative to overall population sizes, effects will be of moderate duration (less for transient individuals), and there are no known concentration or critical habitat areas in the Regional Study Area (RSA). These changes are predicted to be adverse, low to medium in magnitude, within the Project Area and Local Study Area (LSA), short- to medium-term, regular to continuous in frequency, and reversible, with a moderate level of confidence.

8.4.2.2 Drilling and Associated Marine Discharges

The predicted environmental effects to marine mammals and sea turtles associated with drilling and associated marine discharges is change in health (contaminants) related to routine discharges of drilling muds, drilling fluid, and cuttings associated with drilling activities. Chemicals used for drilling operations will be screened in accordance with a chemical management system that adheres to the C-NLOPB requirements. With the application of mitigation measures, the potential for changes in health and in food availability or quality as a result of drilling and marine discharges is predicted to be adverse but negligible. This conclusion has been determined with a high level of confidence, based on the implementation of industry-standard guidelines and best management practices and the limited potential for exposure of marine mammals and sea turtles to marine contaminants or contaminated prey. These changes are predicted to be adverse, low in magnitude, within the Project Area, short-term, regular in frequency, and reversible, with a high level of confidence.

8.4.2.3 Formation Flow Testing with Flaring

In cases where a formation flow test is carried out, interactions with marine mammals and sea turtles will be similar to those discussed in Section 8.4.1. Given compliance with OWTG requirements, the potential for changes in health and food availability or quality as a result of drilling and marine discharges is predicted to be adverse but negligible. These changes are predicted to be adverse, negligible to low in magnitude, localized and within the Project Area, short-term, sporadic in frequency, and reversible, with a high level of confidence.

8.4.2.4 Wellhead Decommissioning

During wellhead decommissioning, disturbance during mechanical removal of wellheads and presence of the ROV may result in temporary, localized avoidance by marine mammals and sea turtles within the immediate area surrounding the wellhead. Underwater noise will be produced by either the drilling

installation or an alternative vessel capable of carrying out the decommissioning activity. Sound levels are likely to be similar to or less than those summarized in Section 8.4.2.1. Changes in marine fish health (and thus changes in marine mammal and sea turtle prey quality) are not expected. As such, potential interactions with marine mammals associated with this activity will be limited to change in habitat quality or use due to an increase in underwater noise during vessel transit and change in mortality or injury from vessel strike risk. At water depths greater than 1,500 m, it is planned that the wellhead will remain in place and will not be removed, and therefore no interactions with marine mammals or sea turtles are anticipated during or after the activity. These changes are predicted to be adverse, negligible to low in magnitude, localized with some extension into Project Area, short-term, sporadic in frequency, and reversible, with a high level of confidence.

8.4.2.5 Surveys

Underwater noise produced during VSP and other geophysical surveys have the potential for injury or mortality or behavioural changes in marine mammals and sea turtles. However, in this case, and particularly with the implementation of mitigation measures, injury or mortality is not predicted for marine mammals or sea turtles as a result of underwater noise from VSP and other geophysical surveys, nor is the quality or availability of their prey expected to be adversely affected. Some degree of change in habitat use in response to underwater noise is expected for individuals that occur within a few kilometres of the surveys at the time of operation. The exact nature of behavioural response cannot be predicted but could include, for example, interference in communication, minor alterations in activity, or localized avoidance responses. Avoidance responses, where they occur, will further reduce the potential for injury. The number of individual marine mammal and sea turtles affected is expected to be minimal relative to overall population sizes, effects will be localized and of short-term duration, and there are no known concentration or critical habitat areas in the Project Area. Geological, geotechnical, and environmental surveys have a low potential to affect Marine Mammals and Sea Turtles, resulting from changes in habitat quality or use, change in mortality / injury (vessel strikes), and change in food availability and quality. The changes associated with surveys are predicted to be adverse, negligible to low in magnitude, localized with some extension into the LSA, short-term, sporadic in frequency, and reversible, with a high level of confidence.

8.4.2.6 Supply and Servicing

Marine transportation associated with support / supply / survey vessels will result in an increase in marine vessel traffic to, from and within the LSA and within the RSA overall, and an associated increase in underwater noise and vessel strike risk. Despite the lack of underwater sound modelling and uncertainty regarding noise thresholds for different species of marine mammals and sea turtles, potential for exposure is expected to be brief and transient in nature. While vessel strikes can and do have serious consequences for individuals involved, these events are rare on a per-vessel basis and only a small number of vessels relative to current vessel traffic volumes will be added in the RSA. Helicopter support will be used for crew transfers out of St. John’s International Airport. Routine transportation activities associated with helicopter support have the potential to result in change in habitat quality or use for marine mammals and sea turtles as a result of sensory disturbances from the introduction of visual cues and noise. These changes are predicted to be adverse, low in magnitude, within the LSA, short-term, regular in frequency, and reversible, with a high level of confidence.

8.5 Special Areas

The environment effects assessment of exploration drilling activities on Special Areas, as described in sections 11.1 to 11.5 of the Flemish Pass and Eastern Newfoundland EISs, would be the same for exploration drilling activities carried out in ELs 1159 and 1160, and a summary is included in the subsections below.

Table B.11 in Appendix B provides a thorough comparison of exploration drilling activities on ELs 1159 and 1160 with the Flemish Pass EIS and IRs/CLs.

Special Areas associated with the Flemish Pass and Eastern Newfoundland EISs, and in relation to ELs 1159 and 1160, are illustrated in Figure 8-1 below. Updated information associated with distances from ELs 1159 and 1160 to Special Areas is outlined in Table 8.3 below.

An additional United Nations Convention on Biological Diversity (UNCBD) EBSA has been designated since submission of the Flemish Pass and Eastern Newfoundland EISs. The Southeast Shoal and Adjacent Areas on the Tail of the Grand Bank UNCBD EBSA extends from the Canadian EEZ in the area of the southern Grand Banks to the 100 m contour of the shelf. The shoal is a very productive ecosystem, providing a shallow, relatively warm, sandy habitat. The shoal is an ancient beach relic that provides an offshore capelin-spawning ground and spawning area for Atlantic wolffish, Atlantic cod, and American plaice, as well as a yellowtail flounder nursery. The shoal is also home to unique populations of blue mussels and wedge clams. The Tail provides an important feeding area for humpback and fin whales and large numbers of seabirds (UNCBD 2019).

8.5.1 Special Areas Overlapping with ELs 1159 and 1160

Table 8.4 below outlines the Special Areas that overlap with ELs 1159 and 1160, as well as their defining features.

UNCBD EBSA – Slopes of the Flemish Cap and Grand Bank also overlaps with the majority of ELs associated with the Flemish Pass and Eastern Newfoundland EISs (i.e., ELs 1134, 1135, 1140, 1141, and 1142), and UNFAO VME – Southern Flemish Pass to Eastern Canyons overlaps with EL 1134. The response to IR-40 completed an environmental effects assessment taking into consideration these Special Areas, which remains applicable and valid for ELs 1159 and 1160.

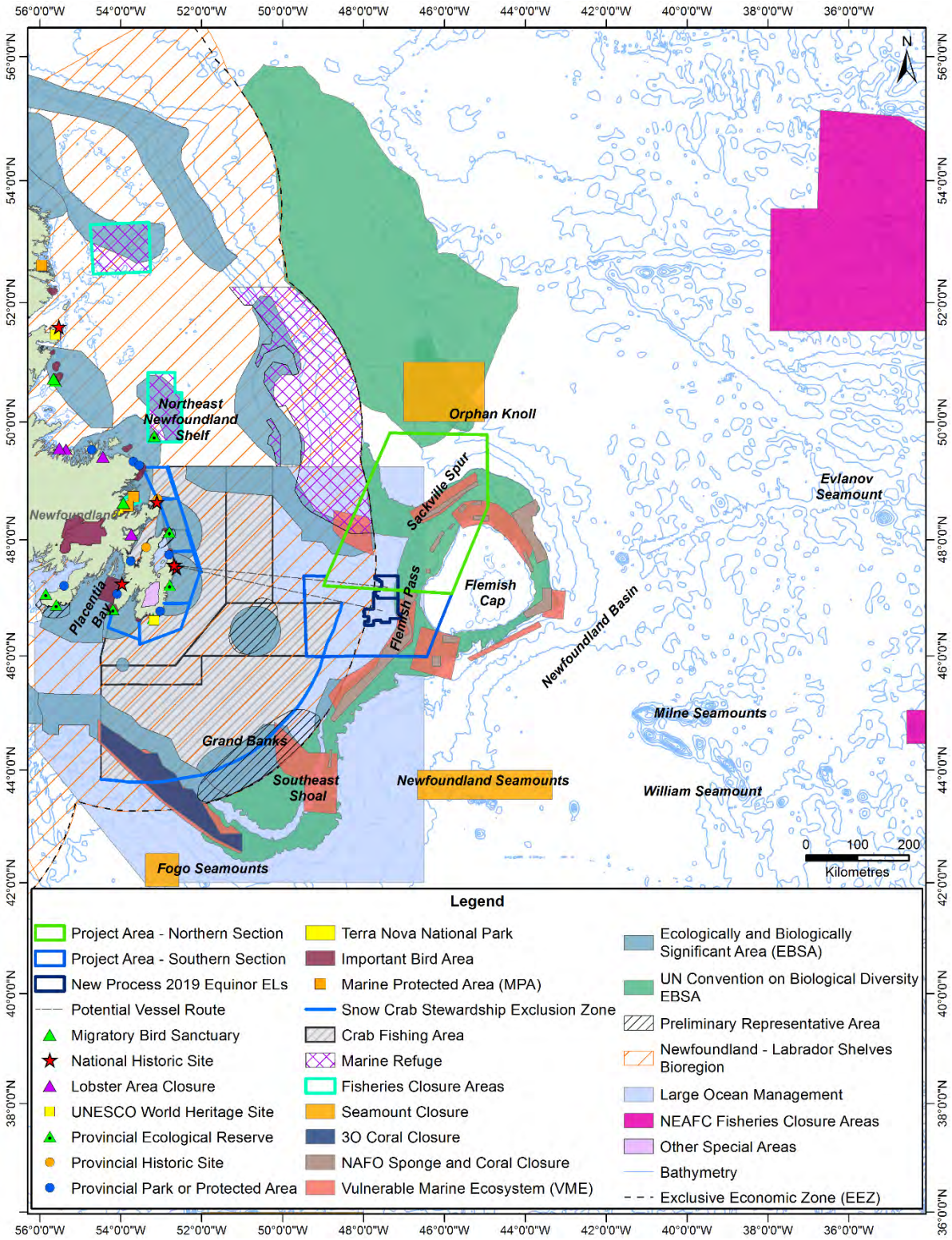


Figure 8-1 Special Areas in Eastern Newfoundland

Table 8.3 Special Areas Minimum Distances to ELs 1159 and 1160

Special Area	Minimum Distance (km)	
	EL 1159	EL 1160
Marine Protected Areas (MPA)		
Eastport – Duck Islands MPA	469	478
Eastport – Round Island MPA	474	480
Laurentian Channel MPA	700	672
Gilbert Bay MPA	827	853
Marine Refuges		
Northeast Newfoundland Slope Closure	82	117
Hawke Channel Closure	694	723
Funk Island Deep Closure	434	455
Canadian Fisheries Closure Areas (FCA) within the EEZ		
Eastport Lobster Management Area	455	464
Funk Island Deep Box	434	455
Hawke Box	694	723
Lobster Area Closures		
Mouse Island	625	638
Glover's Harbour	613	627
Gander Bay	546	561
Gooseberry Island	457	456
Penguin Islands	704	691
Snow Crab Stewardship Exclusion Zones		
Crab Fishing Area 5A (2 zones)	392	406
Crab Fishing Area 6A (2 zones)	390	393
Crab Fishing Area 6B	341	338
Crab Fishing Area 6C	327	316
Crab Fishing Area 8A	346	328
Crab Fishing Area – 8BX	62	44
Crab Fishing Area 9A (2 zones)	445	426
Near Shore (2 zones)	324	314
Canadian EBSAs		
Newfoundland and Labrador Shelves Bioregion EBSAs		
Orphan Spur	250	280
Notre Dame Channel	437	458
Fogo Shelf	448	465
Grey Islands	554	572

Table 8.3 Special Areas Minimum Distances to ELs 1159 and 1160

Special Area	Minimum Distance (km)	
	EL 1159	EL 1160
Gilbert Bay	798	824
Labrador Marginal Trough	711	740
Labrador Slope	632	663
Hamilton Inlet	867	894
Southern Pack Ice	NA	NA
Refined Placentia Bay/Grand Banks Large Ocean Management Area (PG/GB LOMA) EBSAs		
Northeast Slope	49	81
Virgin Rocks	187	159
Lilly Canyon-Carson Canyon	171	113
Southeast Shoal	304	246
Eastern Avalon	323	307
Southwest Slope	481	424
Smith Sound	425	429
Placentia Bay	459	446
Laurentian Channel	668	638
Haddock Channel Sponges	485	456
South Coast	715	702
St. Mary's Bay	432	415
Bonavista Bay	441	448
Baccalieu Island	330	331
Preliminary Representative Marine Areas (RMAs)		
Virgin Rocks	185	163
South Grand Bank Area	255	197
Northwestern Conception Bay	379	381
Southern Coast of Burin Peninsula and Southeastern Placentia Bay	572	555
Migratory Bird Sanctuaries		
Terra Nova	483	490
Ile aux Canes	684	703
Shephard Island	689	708
Coastal National Parks and Historic Sites		
Cape Spear National Historic Site	370	360
Signal Hill National Historic Site	374	365
Ryan Premises National Historic Site	426	436
Castle Hill National Historic Site	472	457

Table 8.3 Special Areas Minimum Distances to ELs 1159 and 1160

Special Area	Minimum Distance (km)	
	EL 1159	EL 1160
Terra Nova National Park	466	473
Coastal Provincial Ecological Reserves		
Witless Bay Seabird Ecological Reserve	382	368
Baccalieu Island Seabird Ecological Reserve	389	392
Mistaken Point Fossil Ecological Reserve	418	398
Funk Island Seabird Ecological Reserve	481	501
Cape St. Mary's Seabird Ecological Reserve	491	473
Lawn Bay Seabird Ecological Reserve (Middle Lawn, Swale, and Colombier Islands)	598	580
Fortune Head Fossil Ecological Reserve	616	599
Coastal Provincial Parks and Protected Areas		
Marine Drive Provincial Park Reserve	385	379
Chance Cove Provincial Park	404	384
Dungeon Provincial Park	424	435
Bellevue Beach Provincial Park Reserve	455	446
Gooseberry Cove Provincial Park	482	465
Windmill Bight Provincial Park Reserve	480	496
Deadman's Bay Provincial Park	492	508
Frenchman's Cove Provincial Park	580	565
Dildo Run Provincial Park	570	585
Coastal Provincial Historic Sites		
Cape Bonavista Lighthouse Historic Site	426	437
Heart's Content Cable Station Historic Site	428	424
United Nations Convention on Biological Diversity (UNCBD) EBSAs		
Labrador Sea Deep Convection Area	1075	1109
Seabird Foraging Zone in the Southern Labrador Sea	248	290
Orphan Knoll	297	339
Slopes of the Flemish Cap and Grand Bank	X	X
Southeast Shoal and Adjacent Areas on the Tail of the Grand Bank	268	211
United Nations Food and Agriculture Organization (UNFAO) VMEs		
Northeast Shelf and Slope (within Canadian EEZ)	40	75
Sackville Spur	108	149
Northern Flemish Cap	151	180
Southern Flemish Pass to Eastern Canyons	4	X

Table 8.3 Special Areas Minimum Distances to ELs 1159 and 1160

Special Area	Minimum Distance (km)	
	EL 1159	EL 1160
Beothuk Knoll	70	41
Deep Water Coral Area	175	148
Flemish Cap East	275	268
South East Shoal and Adjacent Shelf Edge/Canyons	310	254
Division 3O Coral Closure	517	463
NAFO FCAs		
High Sponge and Coral Concentration Area Closures		
Tail of the Bank (1)	307	250
Flemish Pass/Eastern Canyon (2)	12	2
Beothuk Knoll (3)	129	94
Eastern Flemish Cap (4)	238	231
Northeast Flemish Cap (5)	241	264
Sackville Spur (6)	111	152
Northern Flemish Cap (7)	176	205
Northern Flemish Cap (8)	192	224
Northern Flemish Cap (9)	167	201
Northwest Flemish Cap (10)	76	109
Northwest Flemish Cap (11)	52	71
Northwest Flemish Cap (12)	130	163
Beothuk Knoll (13)	111	86
Eastern Flemish Cap (14)	237	249
Seamount Closures		
Orphan Knoll Seamount	292	331
Newfoundland Seamounts	336	292
Fogo Seamounts (1)	631	575
Fogo Seamounts (2)	727	669
30 Coral Area Closure	515	462
IBAs		
Quidi Vidi Lake	373	365
Witless Bay Islands	379	364
Cape St. Francis	378	374
Baccalieu Island	387	388
Grates Point	393	395
Mistaken Point	409	388

Table 8.3 Special Areas Minimum Distances to ELs 1159 and 1160

Special Area	Minimum Distance (km)	
	EL 1159	EL 1160
The Cape Pine and St. Shotts Barren	441	421
Placentia Bay	462	448
Terra Nova National Park	464	471
Funk Island	475	494
Cape Freels Coastline and Cabot Island	466	481
Cape St. Mary's	481	463
Wadham Islands and adjacent Marine Area	506	523
Corbin Island	566	549
Middle Lawn Island	598	580
Green Island	634	616
United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Sites		
Mistaken Point Ecological Reserve	417	396
Red Bay National Historic Site	793	815
L'Anse aux Meadows National Historic Site	730	752
Note: X indicates that the EL and special area intersect.		

Table 8.4 Special Areas Overlapping with ELs 1159 and 1160

Exploration Licence	Overlapping Special Areas	Defining Features
EL 1159	• UNCBD EBSA – Slopes of the Flemish Cap and Grand Bank	• Identification of the UNCBD EBSAs are part of an initiative to conserve global diversity. The Slopes of the Flemish Cap and Grand Bank EBSA contains most of the aggregations of indicator species for VMEs in the NAFO Regulatory Area. The area includes NAFO closures to protect corals and sponges and a component of Greenland halibut fishery grounds in international waters. A high diversity of marine taxa, including threatened and listed species, are found within the EBSA (UNCBD 2017).
EL 1160	• UNCBD EBSA – Slopes of the Flemish Cap and Grand Bank • UNFAO VME – Southern Flemish Pass to Eastern Canyons	• See above for UNCBD EBSA defining features. • The Southern Flemish Pass to Eastern Canyons VME includes large gorgonians and high density of sponges. Vulnerable fish species in the area include striped wolffish, redfish, spiny tailed skate, northern wolffish, some black dogfish and deep-sea cat shark (WG-EAFM 2008; UNFAO 2019).

8.5.2 Anticipated Changes to the Environment

Changes to the environment because of offshore oil and gas activities and their potential effects on identified Special Areas may be both direct and indirect in nature and cause. The conduct of oil and gas exploration activities directly within or near such areas may have adverse implications for these locations and their important and defining ecological and socio-cultural characteristics. These interactions may occur through the possible presence of oil and gas exploration equipment, personnel, and activities within the Special Area in question, as well as the associated emissions and discharges from planned activities. Biophysical effects resulting from oil and gas or other human activities within the RSA may also extend to adjacent Special Areas by affecting the marine fish, birds, mammals, or other environmental components that move to and through these areas. Any resulting decrease in the real or perceived integrity of these areas in the short or long term may also affect their ecological and/or societal importance, use and value.

As a result of these identified environmental interactions, issues identified in the Flemish Pass EIS Guidelines and concerns raised through consultation and engagement, the assessment of environmental effects on Special Areas is focused on the following potential environmental effects:

- Change in Environmental Features and/or Processes
- Change in Human use and/or Societal Value

8.5.3 Anticipated Effects (Planned Components and Activities)

Exploration activities will occur in an offshore marine area that is more than 300 km from the shoreline of eastern Newfoundland. These planned components and activities will therefore not occur within, or otherwise interact directly with any of the existing provincially-defined Special Areas, such as provincial ecological reserves, parks and protected areas and historic sites. Likewise, exploration drilling activities will not have a direct interaction with most federally designated areas (i.e., marine protected areas, fisheries closures within Canada's EEZ, migratory bird sanctuaries, national parks and historic sites). International designations such as IBAs will also not be directly affected. These areas, most regularly used by humans for recreation, subsistence or tourism activities, are located in coastal and onshore areas.

8.5.3.1 Potential Zones of Influence

Special Areas outside of the ELs 1159 and 1160 have the potential to be affected by extended effects associated with sound, lighting and drill cuttings. The response to IR-40-2 outlines the methodology used to determine the potential zone of influence (ZOI) boundaries, which remains applicable and valid for ELs 1159 and 1160 and summarized below.

As shown in Figure 8-2, ZOIs for sound, lighting and drill cuttings were applied to the outer boundaries of ELs 1159 and 1160. In lieu of applying ZOIs to individual ELs, which would result in separate ZOIs, one ZOI was selected for the two ELs. This approach results in a very conservative ZOI as the maximum boundary extents were selected.

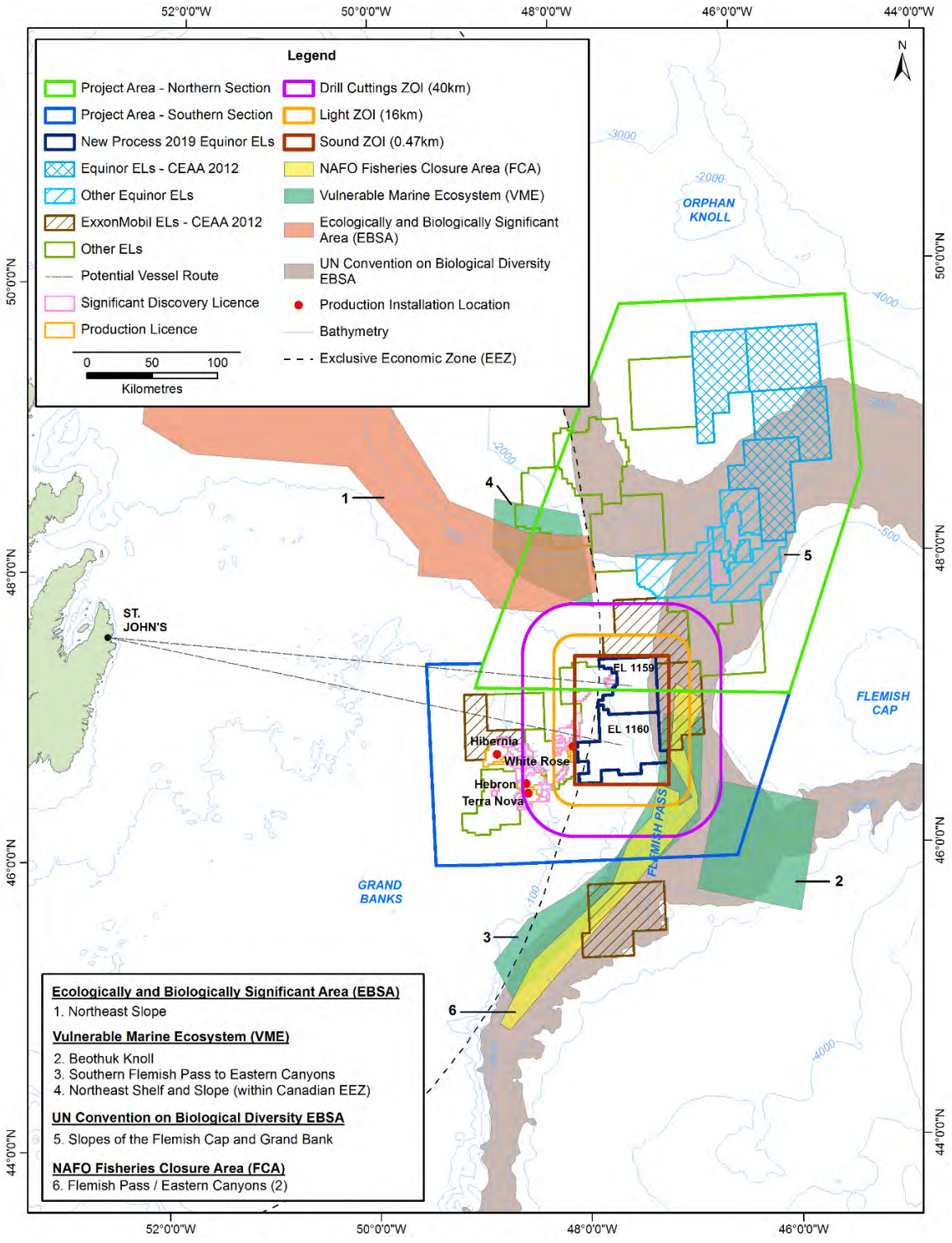


Figure 8-2 Potential Zones of Influence Around ELs 1159 and 1160 Associated with Light, Sound, and Drill Cuttings

Sound

Section 10.3.3 of the Flemish Pass and Eastern Newfoundland EISs discuss results from modelling completed by another operator for the Scotian Basin. These results indicated that predicted cumulative sound exposure levels (over 24 hours) associated with operating drilling installations would decrease to below threshold values for potential marine mammal auditory injury at distances between 120 m and 470 m from the source (Zykov 2016). Therefore 470 m was selected as a conservative ZOI for sound.

Taking into consideration the 470 m conservative ZOI for sound, exploration drilling activities associated with ELs 1159 and 1160 do not extend to any additional Special Areas, and therefore an expanded effects assessment is not required.

Lighting

Section 9.3.3 of the Flemish Pass and Eastern Newfoundland EISs, and the response to IR-86, discussed bird attraction to fully lit production platforms from up to 5 km, however, attraction distances greater than 5 km could not be ruled out (Poot et al. 2008). The response to IR-86-2 further discussed this topic, including a study that found bird colonies up to 16 km were susceptible to stranding due to light attraction, which suggests that attraction distances of anthropogenic light sources may be greater than 5 km (Rodriguez et al. 2014, 2015). It is noted that exploration drilling installations emit less light than a fully lit production platform, and therefore selecting 16 km as the ZOI is very conservative.

Taking into consideration the 16 km conservative ZOI for lighting, exploration drilling activities associated with ELs 1159 and 1160 have the potential to extend to the NAFO FCA – Flemish Pass / Eastern Canyons (2).

Defining Features

NAFO FCA – Flemish Pass / Eastern Canyons (2) is closed to protect extensive sponge grounds and large gorgonian corals in the Flemish Pass.

Effects Assessment

Benthic species are not anticipated to be adversely affected by light due to distance to seafloor, which was also concluded in the response to IR-40.

Drill Cuttings

Based on drill cuttings modelling completed for the Flemish Pass and Eastern Newfoundland EISs, it was determined that 40 km at any of the modelled locations was the maximum distance that SBM drill cuttings may accumulate. Therefore, 40 km was selected as a very conservative ZOI associated with drill cuttings.

Taking into consideration the 40 km conservative ZOI for drill cuttings, exploration drilling activities associated with ELs 1159 and 1160 have the potential to extend to the VME – Beothuk Knoll, VME –

Northeast Shelf and Slope (within the Canadian EEZ) and NAFO FCA – Flemish Pass / Eastern Canyons (2).

Defining Features

The Beothuk Knoll VME was identified for abundant gorgonian corals and high density of sponges. Vulnerable fish species include northern wolffish, spiny tailed skate, roundnose grenadier, deep-sea cat shark, and black dogfish.

The Northeast Shelf and Slope (within the Canadian EEZ) VME has been identified due to an abundance of gorgonian and black corals.

Flemish Pass / Eastern Canyons (2) NAFO FCA is closed to protect extensive sponge grounds and large gorgonian corals in the Flemish Pass.

Effects Assessment

The two VMEs above were already taken into consideration in the response to IR-40-2 and remain applicable and valid for ELs 1159 and 1160. The effects assessment in the response to IR-40-2 addressed the NAFO FCA as it overlaps with EL 1134 overlaps and therefore remains applicable and valid for ELs 1159 and 1160.

The potential effects of drill cuttings deposition include: seabed disturbance (burial and smothering), chemical toxicity, and bioaccumulation (uptake of contaminants by fish and the presence or perception of taint). Benthic habitats are vulnerable to effects from deposition and accumulation on the ocean floor and these effects are discussed in the following paragraphs. Other marine species such as fish and mammals may be vulnerable to the effects of contamination.

To mitigate any contamination of marine species, once drilling commences, WBM cuttings will be discharged and SBM cuttings will be returned to the drilling installation for recovery and reuse or treatment and discharge in accordance with the OWTG (NEB et al 2010) and the International Convention for the Prevention of Pollution from Ships (IMO 1973). In addition, chemicals used in drilling muds will be selected in accordance with the OCSG (NEB et al 2009).

The discharge of drill cuttings is one of the primary potential interactions with benthic habitats during offshore drilling programs and effects are outlined in section 8.3.4 of the Flemish Pass EIS. Due to the presence of high currents in the Flemish Pass, cuttings piles are more likely to disperse in a shorter timeframe. Bottom currents will likely further aid in cuttings dispersion in this area, reducing potential for long term effects due to burial by sediments (section 5.5 of the Flemish Pass EIS).

In summary, the predicted environmental effects of drilling discharges on special areas identified for sensitive benthic habitats are primarily related to potential sedimentation and burial of benthic species. As discussed in section 2.5.2.1 of the Flemish Pass EIS, pre-drill coral and sponge surveys and risk assessments will be completed and mitigation measures, if required from the risk assessment, will be implemented prior to drilling (e.g., relocating wellsite, using a cuttings transport system). These effects are predicted to be adverse, low in magnitude, localized and within the Project Area, short to long term

in duration, occurring sporadically to regularly and reversible, with these predications being made with a moderate to high level of confidence. With the implementation of appropriate mitigation measures, the overall magnitude of the effect of marine discharges on these special areas is anticipated to be low.

Summary

These areas have been designated as such to protect important and sensitive benthic components and habitats from further disturbance due to certain types of bottom-dragging fishing activity, but their designations as such do not prohibit petroleum exploration activities in these areas. The planned drilling and associated activities will be characterized by a relatively small and temporary footprint, with mitigation measures planned to reduce potential effects the marine benthic environment. In particular, a pre-drill survey will be undertaken to determine if corals/sponges are present within the potential zone of influence as predicted by the drill cuttings model. Many of the other offshore survey activities that are planned to be undertaken will not result in any direct contact with the seabed, and will therefore not physically disturb benthic animals or their habitats. Any seabed geological, geochemical or geotechnical sampling activities will likewise have a short duration, and those which involve contact with the seabed will have a small footprint.

Notwithstanding the overall size and extent of the Project Area itself, all exploration drilling activity carried out as part will occur within the boundaries of an EL, as defined in Section 2.3.

The offshore vessel and aircraft activity within the Project Area and to and from eastern Newfoundland will be generally in keeping with, and may make a relatively minor contribution to, the overall marine vessel activity occurring in the region for many years. Supporting vessels that are involved in exploration drilling activities will travel in an essentially straight line between a drilling installation operating within an EL (see Section 2.4.5) in the Project Area and the established supply facility in eastern Newfoundland, recognizing that specific routes may vary at times based on the location of the active drilling installation(s) and to avoid sea-ice. The planning and conduct of vessel traffic will be undertaken in consideration of these factors, relevant regulatory requirements, and through established cooperative processes that involve discussions and communications between the oil and gas sector, fishing industry and other ocean users.

The changes associated with components and activities are predicted to be neutral to adverse, negligible to low in magnitude, localized and within the Project Area, short to medium term duration, occurring sporadically to regularly in frequency, and reversible, with a high level of confidence. As described for the biophysical VCs (Sections 8.2 to 8.4), exploration drilling activities on Els 1159 and 1160 are not expected to result in significant adverse effects upon marine fish, birds, mammals, sea turtles, species at risk or their habitats. It will therefore not adversely affect the ecological features, processes and integrity of any marine or coastal locations that are designated as Special Areas, nor their human use and societal value.

The conclusions in the Flemish Pass and Eastern Newfoundland EISs remain valid; with the implementation of mitigation measures, the overall and defining physical, biological and socioeconomic environments within Special Areas will not be adversely affected by exploration drilling activities on ELs 1159 and 1160.

Refer to Tables F.7 and F.8 in Appendix F for individual environmental effects summaries for planned activities on ELs 1159 and 1160, respectively.

8.6 Indigenous Communities and Activities

The environment effects assessment of exploration drilling activities on Indigenous Communities and Activities, as described in sections 12.1 to 12.5 of the Flemish Pass and Eastern Newfoundland EISs, would be the same for exploration drilling activities carried out in ELs 1159 and 1160, and a summary is provided below.

Table B.12 in Appendix B provides a thorough comparison of exploration drilling activities on ELs 1159 and 1160 with the Flemish Pass EIS and IRs/CLs.

The conclusions in the Flemish Pass and Eastern Newfoundland EISs remain valid for exploration drilling activities on ELs 1159 and 1160; given the nature, location and timing of various activities and associated environmental interactions, it is not anticipated to have adverse effects on Indigenous Communities and Activities.

Refer to Tables F.9 and F.10 in Appendix F for individual environmental effects summaries for planned activities for ELs 1159 and 1160, respectively.

8.6.1 Anticipated Changes to the Environment

The presence of drilling installations and the conduct of these exploration activities is not anticipated to interact directly with or adversely affect Indigenous Communities and Activities, as the Project Area is located hundreds of kilometres from the nearest community. Indirect effects may occur if the exploration drilling activities adversely affect fish and wildlife, as these biophysical effects may in turn reduce the availability or quality of such resources and their use for traditional purposes.

As a result of these identified environmental interactions, issues identified in the Flemish Pass EIS Guidelines and concerns raised through engagement, the assessment of environmental effects on Indigenous communities and their activities is focused on the following potential environmental effects:

- Change in Health and Socioeconomic Conditions
- Change in the Current Use of Lands and Resources for Traditional Purposes
- Change in Physical and Cultural Heritage and Change in any Structure, Site, or Thing that is of Historical, Archaeological, Paleontological or Architectural Significance

8.6.2 Anticipated Effects (Planned Components and Activities)

In general, components or activities that would result in possible restricted access to lands and resources, possible emissions to the environment, or other disturbances have the potential to (directly or indirectly) affect Indigenous communities and their activities where these occur within or near the Project Area and its expected environmental ZOI (LSA).

Most activities will take place in an offshore marine environment, hundreds of kilometres from land and away from any Indigenous community. Emissions and discharges and environmental interactions will

be localized and short-term in nature (Chapters 8-11 and 13 of the Flemish Pass EIS), and are unlikely to extend to or affect the physical or social health and well-being or other socioeconomic conditions of Indigenous communities.

The components and activities will be located a considerable distance (hundreds of kilometres) from Indigenous communities, and from the traditional territories associated with each of these groups. Equinor Canada is not aware that these or other Indigenous groups assert Aboriginal or Treaty rights or otherwise undertake traditional activities within or near the Project Area and LSA, pursuant to Section 35 of the *Constitution Act, 1982*. Although fishing enterprises associated with several of these organizations undertake commercial fishing activity for various species within NAFO Divisions that overlap parts of the Project Area, it is understood that most of these organizations (including those in NL) undertake fishing activities off eastern Newfoundland through commercial licences issued by the federal government under the *Fisheries Act* and its associated *Aboriginal Communal Fisheries Licencing Regulation*, as well as other government policies and strategies that are designed to involve Indigenous groups in commercial fisheries in Canada. As “traditional use” is (as outlined above) generally understood to mean activities that have been exercised (and are being exercised) by an identifiable Indigenous community since before European contact or control of a specific area, these contemporary, commercial land and resource use activities within the LSA may not be considered traditional in that they are not a continuation of ancestral activities that took place historically within this area offshore eastern Newfoundland. The planned components and activities, and the environmental emissions / disturbances and associated environmental changes resulting from these (as defined through the LSA), will therefore not directly interfere with or otherwise interact with the current use of lands and resources for traditional purposes by Indigenous communities. Exploration drilling activities will not have adverse effects on such activities as they do not occur within or near the LSA at any time of the year.

The environmental effects analysis also indicates there is limited potential for marine associated species that are known to be used by the identified Indigenous groups to occur within the Project Area / LSA prior to moving to any area of traditional use (e.g., Atlantic salmon [various populations]). The implementation of the mitigation measures outlined throughout the Flemish Pass EIS will reduce direct or indirect potential effects on these resources. Exploration drilling activities will not have an adverse effect on the availability or quality of resources that are currently used for traditional purposes by Indigenous groups to a nature and to a degree that would alter the nature, location, timing, intensity or value of these activities or the health or heritage of any Indigenous community.

The Project Area and LSA are not known to contain resources of historical, archaeological, paleontological, or architectural significance, and given its location far offshore eastern Newfoundland, are not likely to contain such resources or materials that are relevant to and valued by Indigenous groups. Based on the nature, location, extent and duration of planned activities and the associated emission and discharges, the Project will not interact with nor adversely affect physical and cultural sites, including structures, sites, or things of historical, archaeological, paleontological, or architectural significance.

8.7 Commercial Fisheries and Other Ocean Users

The environment effects assessment of exploration drilling activities on Commercial Fisheries and Other Ocean Users, as described in sections 13.1 to 13.5 of the Flemish Pass and Eastern Newfoundland EISs, would be the same for exploration drilling activities carried out in ELs 1159 and 1160, and summarized below.

Table B.13 in Appendix B provides a thorough comparison of exploration drilling activities on ELs 1159 and 1160 with the Flemish Pass EIS and IRs/CLs.

The conclusions in the Flemish Pass and Eastern Newfoundland EISs remain valid; with the implementation of mitigation measures, exploration drilling activities on ELs 1159 and 1160 are not likely to result in significant adverse effects on Commercial Fisheries and Other Ocean Users.

Refer to Tables F.11 and F.12 in Appendix F for individual environmental effects summaries for planned activities for ELs 1159 and 1160, respectively.

8.7.1 Anticipated Changes to the Environment

Potential interactions between offshore oil and gas exploration activities and Commercial Fisheries and Other Ocean Users can occur both directly and indirectly. Key potential interactions have been identified based on previous EAs conducted for similar projects and activities in the Canada-NL Offshore Area, including the Eastern Newfoundland SEA (AMEC 2014a), and include:

- Possible damage to fishing gear, vessels, equipment, or other components as a result of direct interactions between equipment or emissions and these other ocean users
- Loss of access to important and established fishing grounds, or other areas of potential marine use, as a result of activities, and associated decreases in value (economic or otherwise) of these activities
- Possible indirect effects on Commercial Fisheries and Other Ocean Users due to biophysical effects on the presence, abundance, distribution, or quality of marine fish species or other resources
- Possible interference with scheduled government / industry research activities, including direct disturbance and/or effects on research results and associated management decisions

As a result of these identified environmental interactions, issues identified in the Flemish Pass EIS Guidelines and concerns raised through consultation and engagement, the assessment of environmental effects on Commercial Fisheries and Other Ocean Users is focused on the following potential environmental effects:

- Direct interference, resulting in a change in the distribution, intensity and/or functions (effectiveness / efficiency) of Commercial Fishing and Other Ocean Users
- Damage to fishing gear, vessels, and other equipment and components
- Change in the abundance distribution and quality of marine resources, resulting in a change in distribution, intensity and/or function (effectiveness / efficiency) of Commercial Fishing and Other Ocean Uses

8.7.2 Anticipated Effects (Planned Components and Activities)

8.7.2.1 Presence and Operation of Drilling Installation (Including Drilling and Associated Discharges)

The predicted environmental effects associated with the presence and operation of a drilling installation are primarily associated with environmental effects on fish, as discussed in section 6.1 and chapter 8 of the Flemish Pass and Eastern Newfoundland EISs. Biophysical effects to fish or other marine resources have the potential to result in a subsequent change in the nature, quality, and/or value of one or more of the marine activities that depend upon them. However, disturbance to fish or other marine biota will therefore be localized and of short-term duration at any one location. It is therefore unlikely that marine resources will be affected or disrupted due to presence of the drilling installation and associated drilling activities in a manner and to a degree that would then translate into effects on the overall availability or quality of a marine resource, and thus, on the overall nature, intensity or value of related commercial activity.

The presence and operation of the drilling installation and the safety zone may require commercial fishers and other oceans users (e.g., research surveys) to reroute, relocate or reschedule their activities. Given the short-term and localized nature of these planned activities, and in consideration of the implementation of communication protocols, such as Notices to Shipping, and the relatively small footprint of the safety zone, it is predicted there will be no measurable adverse effects on other ocean users resulting from the presence and operation of the drilling installation and associated drilling activities.

With implementation of mitigation measures, the overall magnitude of the effect of drilling and marine-associated discharges on Commercial Fisheries and Other Ocean Users is anticipated to be low. The slight decrease in access to fishing or other ocean use will be localized, short-term, occurring continuously when drilling activities are scheduled, and reversible, with a high level of confidence. The localized and short-term nature of these disturbances at any one location and time considerably reduces the potential for detectable, adverse effects upon the commercial fishery and other ocean users.

8.7.2.2 Formation Flow Testing with Flaring

Formation flow testing, including associated flaring activity, is not expected to have adverse interactions with or effects on Commercial Fisheries and Other Ocean Users. When well fluids are sent through the wellbore and to the drilling installation for testing, it is in a closed casing and does not interact with the surrounding marine environment. Likewise, flaring is not anticipated to have an interaction with commercial fishing activity and other ocean users, as it will take place above the drilling installation and will therefore not come into contact with commercial fishing activities or resources, nor have an interaction that would result in an effect on other ocean users.

8.7.2.3 Wellhead Decommissioning

The potential for gear damage from wellhead decommissioning is limited as the cut will be as close to the seafloor as possible (maximum height is 0.85 m) and Equinor Canada will provide the locations for

each decommissioned well to fishers and the Canadian Hydrographic Service, enabling mobile-gear and fixed-gear fishers to avoid these locations. Given the implementation of mitigation measures, the resulting residual environmental effects on Commercial Fisheries and Other Ocean Users is expected to be adverse, low in magnitude, localized, long-term in duration, continuous in occurrence, and reversible, made with a high level of confidence.

8.7.2.4 Surveys

The effects of underwater noise associated with surveys on marine fish species have been assessed in the Marine Fish and Fish Habitat VC and it was concluded that there would not be a significant residual environmental effect on marine fish species (including commercial fish species). Therefore, underwater noise is likely to have only limited indirect effects on catch rates and associated economic value for commercial fishers.

Some surveys that use geophysics, such as VSP and wellsite surveys, can result in direct interference with commercial fishing activity because the sound waves have the potential to interact with fishing gear (e.g., crab pots) that may already be set in an area where surveying is taking place. However, due to the transient and localized nature of surveys, and their short-term duration, gear damage is not likely. Similarly, although there is a potential for interaction with research gear, and other vessels, the likelihood is low due to the nature of the activity.

In consideration of the limited temporal scope of surveys, and the implementation of mitigation, the residual environmental effects of surveys are predicted to be adverse, low in magnitude, localized, short-term in duration, occurring sporadically, and reversible, with a high level of confidence.

8.7.2.5 Supply and Servicing

The contribution to existing offshore supply vessel and helicopter traffic serving the offshore industry will be negligible, and will continue at approximately the same level as current traffic supporting the operators' ongoing exploration activities in the region. Residual environmental effects on Commercial Fisheries and Other Ocean Users associated with supply and servicing operations are predicted to be low in magnitude, localized, short-term in duration, occurring at regular intervals, and reversible, with a high level of confidence.

9.0 CUMULATIVE ENVIRONMENTAL EFFECTS

Chapter 14 of the Flemish Pass and Eastern Newfoundland EISs describe and outline the cumulative environmental effects assessment. The discussion below takes exploration drilling activities on ELs 1159 and 1160 into consideration from a cumulative effects perspective. The Flemish Pass EIS environmental effects analysis considered the drilling of up to 30 wells. Wells to be drilled on ELs 1159 and 1160 would be captured within this 30-well count and located within the Project Area. No additional wells would be drilled with the inclusion of ELs 1159 and 1160.

Refer to Table B.14 in Appendix B for a thorough comparison of exploration drilling activities on ELs 1159 and 1160 with the Flemish Pass EIS and IRs/CLs.

9.1 Approach and Methods

The approach and methods outlined in section 14.1 of the Flemish Pass and Eastern Newfoundland EISs remain applicable and valid for exploration drilling activities on ELs 1159 and 1160.

9.1.1 Identification of Valued Components

The VCs identified in section 14.1.1 of the Flemish Pass and Eastern Newfoundland EISs remain applicable and valid for exploration drilling activities on ELs 1159 and 1160, and include the following:

- Marine Fish and Fish Habitat (including Species at Risk)
- Marine and Migratory Birds (including Species at Risk)
- Marine Mammals and Sea Turtles (including Species at Risk)
- Special Area
- Indigenous Communities and Activities
- Commercial Fisheries and Other Ocean Users

9.1.2 Spatial and Temporal Boundaries

The spatial and temporal boundaries outlined in section 14.1.2 of the Flemish Pass and Eastern Newfoundland EISs remain applicable and valid for exploration drilling activities on ELs 1159 and 1160.

9.1.3 Sources of Potential Cumulative Effects

A general list of other projects and activities that are considered in the cumulative effects assessment is provided in Table 9.1 below and includes various ongoing and future projects and activities off eastern Newfoundland and elsewhere. Figures 9-1 and 9-2 illustrate particular locations of known and defined projects and activities. This includes, for example, the locations of the four offshore production projects, the location of the proposed Bay du Nord development project, commercial fishing activity, and other human components and activities.

Table 9.1 Overview of Other Projects and Activities Considered in the Cumulative Effects Assessment

Project / Activity	Overview
Hibernia	• Discovered in 1979, the Hibernia Oilfield is operated by the Hibernia Management and Development Company Ltd., and is located approximately 315 km east-southeast of St. John's, NL. • The development phase of that project commenced in late 1990 and continued until the mating of the Gravity Based Structure and its topsides at Bull Arm NL in 1997, after which the platform was towed to and installed at its site on the Grand Banks in June of that year. • With estimated recoverable reserves of approximately 1.4 billion barrels, commercial production from the Hibernia field commenced in November 1997 and is on-going. • In recent years, the project has been further expanded to include the Hibernia Southern Extension, from which production commenced in 2011.

Table 9.1 Overview of Other Projects and Activities Considered in the Cumulative Effects Assessment

Project / Activity	Overview
	• This ongoing project is located approximately 51 km from the closest edge of the Project Area - Northern Section, and is within the Project Area - Southern Section. • Hibernia is located approximately 86 km from EL 1159 and 60 km from EL 1160. • Production activities at Hibernia are planned to extend throughout the temporal duration of exploration drilling activities on ELs 1159 and 1160.
Terra Nova	• Discovered in 1984 and declared a significant discovery in 1985, this oilfield has reserve estimates of approximately 500 million barrels of recoverable oil. • The Terra Nova Project is currently in operation by Suncor Energy Inc. using a floating production, storage, and offloading (FPSO) facility, and is located approximately 350 km southeast of St. John's and 35 km southeast of Hibernia. • Production from the FPSO began in January 2002. • This on-going project is located approximately 80 km from the closest edge of the Project Area - Northern Section, and is within the Project Area - Southern Section. • Terra Nova is located approximately 86 km from EL 1159 and 40 km from EL 1160. • Production activities at Terra Nova are planned to extend throughout the temporal duration of exploration drilling activities on ELs 1159 and 1160.
White Rose and Extension Project	• Discovered in 1984, a SDL for the field was issued in January 2004. • It is located approximately 350 km east-southeast of St. John's, and approximately 50 km from the Hibernia and Terra Nova fields. • The White Rose oilfield and its satellite extensions are operated by Husky Energy Inc. using an FPSO, and first oil was produced in November 2005 followed by the North Amethyst expansion in May 2010. • This on-going project is located approximately 44 km from the closest edge of the Project Area - Northern Section, and is within the Project Area - Southern Section. • White Rose is located approximately 36 km from EL 1159 and 2 km from EL 1160. • Production activities at White Rose are planned to extend throughout the temporal duration of exploration drilling activities on ELs 1159 and 1160.
Hebron	• First discovered in 1980, this oilfield is estimated to contain more than 700 million barrels of recoverable resources. • The Hebron Platform was towed to field in June 2017. The Project is designed for an oil production rate of 150,000 barrels of oil per day. • First oil from the Hebron Project is expected by the end of 2017. • This project is located approximately 73 km from the closest edge of the Project Area - Northern Section, and is within the Project Area - Southern Section. • Hebron is located approximately 82 km from EL 1159 and 40 km from EL 1160. • Production activities at Hebron are planned to extend throughout the temporal duration of exploration drilling activities on ELs 1159 and 1160.
Proposed Bay du Nord Development Project	• Discovered in 2013 and an SDL was issued in November 2017. • The proposed project would be operated by Equinor Canada. • This proposed project has yet to receive sanction by Equinor Canada. • This project is proposed and is currently going through an EA, with a Project Description filed in June 2018 and the CEA Agency issuing a *Notice of Commencement of an Environmental Assessment* in August 2018. An EIS associated with this proposed project is not currently available on the CEA Registry.

Table 9.1 Overview of Other Projects and Activities Considered in the Cumulative Effects Assessment

Project / Activity	Overview
	• If the proposed project is executed, then it will be located approximately 450 km east-northeast of St. John's, NL. • The area associated with the core development area is anticipated to be small and well-defined (i.e., 450 km²), while the broader project area has an estimated area of approximately 4,900 km² and is associated with potential future development. The footprint of proposed facilities on the seabed, based on the current stage of design, only covers an area of approximately 7 km². • The proposed project is a subsea development, which may include multiple templates and/or individual satellite wells tied back via flowlines to the FPSO installation. The total number of wells for the core development is estimated to be between 10 and 30 wells. • The proposed Bay du Nord development project is located approximately 39 km from EL 1159 and 80 km from EL 1160. • *Note: The majority of information above is from the Bay du Nord project description (Equinor Canada 2018), and information may be updated in the Bay du Nord EIS.*
Offshore Petroleum Exploration – Drilling	• The eastern Newfoundland offshore area is also subject to ongoing and planned offshore exploration drilling programs which were in progress or being subject to EA review or recently approved as of the time of writing (see https://www.cnlopb.ca/assessments/). • As of March 4, 2019, a total of 470 wells have been drilled in the Canada-NL Offshore Area, including 171 exploration wells, 57 delineation wells, and 242 development wells (C-NLOPB 2019e). • The type and amount of offshore exploration activity can vary considerably from year to year throughout the eastern Newfoundland offshore. • Over the period of January 1, 2015 to March 4, 2019, 12 exploration wells were drilled (C-NLOPB 2019e).
Offshore Petroleum Exploration – Geophysical and Other Exploration Activities	• Offshore geophysical survey programs are often planned and conducted to get an overall understanding of regional geology and hydrocarbon potential, and to help identify sites or zones that may warrant further investigation, such as through eventual exploration drilling activities (see below). • These may include 2D, 3D and possibly four-dimensional (4D) geophysical data acquisition, as well as associated geochemical, environmental, and geotechnical survey activities. • While exploration projects and activities are typically proposed and approved through the EA process as multi-year programs that can cover quite large offshore areas, the type and level of activity conducted each year can also vary and is usually a fraction of the overall scope assessed. • For general illustration, over the period 2014 to 2017, approximately 1.8 million km of geophysical survey data (2D, 3D, and other) was collected in the eastern Newfoundland offshore region, and approximately 160,000 km of geophysical survey data was collected in the Jeanne d'Arc Basin (C-NLOPB 2018c). • There are a number of offshore geophysical programs off the eastern Newfoundland offshore area that were in progress, being subject to EA review or recently approved as of the time of writing this document (see https://www.cnlopb.ca/assessments/).
Fishing Activity	• Commercial fisheries within and around the Project are extensive and diverse, as described in detail (including associated mapping) (see Section 7 and Appendix E).

Table 9.1 Overview of Other Projects and Activities Considered in the Cumulative Effects Assessment

Project / Activity	Overview
Other Marine Vessel Traffic	• This includes tanker traffic and supply vessels associated with the existing offshore oil developments, as well as cargo ships and fishing vessel transits (see Section 7 and Appendix E).
Hunting Activity	• Wildlife (especially seabird) populations off Newfoundland and Labrador are subject to hunting activity. • Although little or no hunting activity is expected to occur in the far offshore locations that comprise the Project Area, these activities do affect the bird and seal populations that occur in, and move to and through, the region.

9.1.4 Assessing Cumulative Effects on Each VC

Information outlined in section 14.1.4 of the Flemish Pass and Eastern Newfoundland EISs remains applicable and valid for ELs 1159 and 1160. Other future projects and activities that are relevant to the VC and its cumulative effects assessment are outlined in Table 9.2.

Table 9.2 Potential Interactions with Other Projects and Activities Considered in the Cumulative Effects Assessment

Project / Activity	VCs Potentially Affected					
	Marine Fish and Fish Habitat	Marine and Migratory Birds	Marine Mammals and Sea Turtles	Special Areas	Indigenous Communities and Activities	Commercial Fisheries and Other Ocean users
Hibernia	●	●	●	●	●	●
Terra Nova	●	●	●	●	●	●
White Rose and Extension Project	●	●	●	●	●	●
Hebron	●	●	●	●	●	●
Proposed Bay du Nord Development Project	●	●	●	●	●	●
Offshore Petroleum Exploration – Geophysical and Other Exploration Activities	●	●	●	●	●	●
Offshore Petroleum Exploration – Drilling	●	●	●	●	●	●
Fishing Activity	●	●	●	●	●	
Other Marine Vessel Traffic	●	●	●	●	●	●
Hunting Activity		●	●		●	

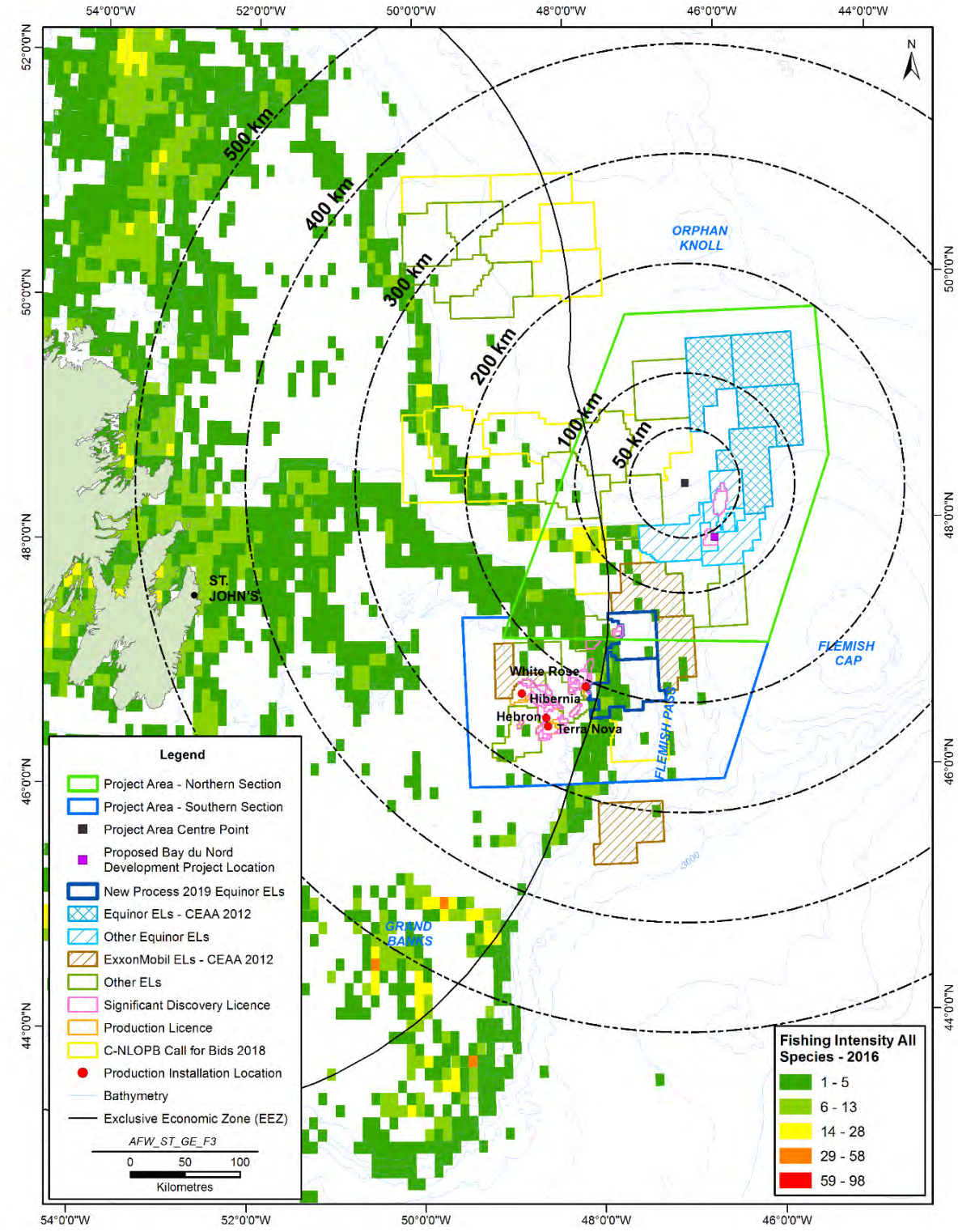


Figure 9-1 Other Projects and Activities Considered in the Cumulative Effects Assessment (Including Distances from Project Area – Northern Section)

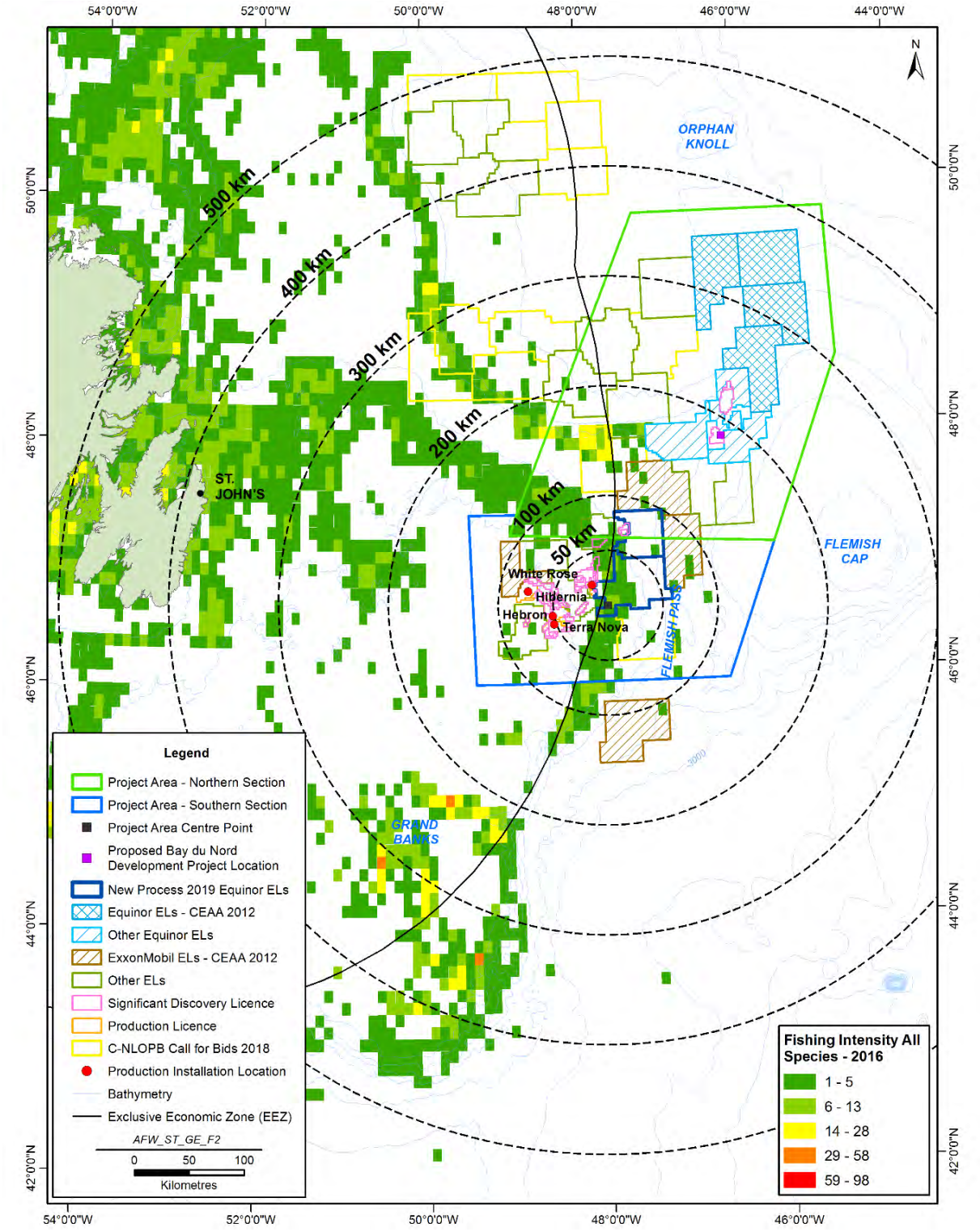


Figure 9-2 Other Projects and Activities Considered in the Cumulative Effects Assessment (Including Distances from Project Area – Northern Section)

9.2 Marine Fish and Fish Habitat (including Species at Risk)

Information outlined in section 14.2 of the Flemish Pass and Eastern Newfoundland EISs and the response to IR-90 remains applicable and valid for exploration drilling activities on ELs 1159 and 1160.

The environment effects assessment of exploration drilling activities on Marine Fish and Fish Habitat (including Species at Risk), as described in sections 8.1 to 8.6 of the Flemish Pass and Eastern Newfoundland EISs, would be the same for exploration drilling activities carried out in ELs 1159 and 1160. With the implementation of the various mitigation measures (refer to Appendices F and I), exploration drilling activities on ELs 1159 and 1160 are not anticipated to result in significant adverse effects on Marine Fish and Fish Habitat.

Potential interactions with Marine Fish and Fish Habitat as a result of exploration drilling on ELs 1159 and 1160 are primarily related to underwater sound, light emissions, marine discharges, and direct interaction with the benthic environment. Potential interactions will, however, short-term and localized in nature, and are not expected to have overall (population level) adverse effects on fish. Potential effects on corals and sponges will be minimized or avoided by implementing mitigation measures such as completing pre-drill surveys (refer to Appendices F and I).

There are currently four operational production facilities offshore Newfoundland (i.e., Hibernia, Terra Nova, White Rose and Hebron) in the Project Area – Southern Section, each of which will contribute somewhat to environmental effects on Marine Fish and Fish Habitat. However, ongoing environmental effects monitoring (EEM) programs for these projects have generally demonstrated a localized (i.e., less than 10 km) geographic extent for the project-induced changes on fish habitat. It assumed that Hebron and the proposed Bay du Nord development project (located in the Project Area – Northern Section) will have similar zones of influence. This suggests a limited potential for cumulative effects to occur between exploration drilling activities carried out on ELs 1159 and 1160 and these ongoing petroleum production projects.

It is acknowledged that White Rose is located approximately 2 km from the closest edge of EL 1160. However, as outlined in table 14.14 of the Flemish Pass and Eastern Newfoundland EISs, this production facility has a safety zone of approximately 95 km², and the South White Rose Extension has a safety zone of 9 km², which would aid in increasing the separation distance between exploration drilling activities and production, and in turn reduce the potential for cumulative effects to Marine Fish and Fish Habitat.

Exploration drilling activities carried out on ELs 1159 and 1160 will operate for a short period of time in any one location, resulting in a short-term disturbance within a relatively limited ZOI. This will reduce the potential for individuals and populations to be affected through multiple interactions with exploration drilling activities on ELs 1159 and 1160 and other activities in the marine environment, and for species to be affected simultaneously and repeatedly by multiple projects and activities. As part of the planning and implementation of its activities, Equinor Canada will continue to communicate with relevant marine users and other stakeholders, including other oil and gas exploration companies and other marine users operating in the area, to make a reasonable effort to provide appropriate spatial and temporal separation that is maintained as required for operational, regulatory and safety reasons. This, along with the other

planned mitigation measures (see Appendices F and I) that will be implemented, will reduce the potential for and degree of associated cumulative effects on Marine Fish and Fish Habitat.

The conclusions in the Flemish Pass and Eastern Newfoundland EISs remain valid; exploration drilling activities on ELs 1159 and 1160 are not likely to result in significant adverse cumulative environmental effects on Marine Fish and Fish Habitat (including Species at Risk) in combination with other projects and activities that have been or will be carried out.

9.3 Marine and Migratory Birds (including Species at Risk)

Information outlined in section 14.3 of the Flemish Pass and Eastern Newfoundland EISs and the response to IR-90 remains applicable and valid for exploration drilling activities on ELs 1159 and 1160.

The environment effects assessment of exploration drilling activities on Marine and Migratory Birds (including Species at Risk), as described in sections 9.1 to 9.6 of the Flemish Pass and Eastern Newfoundland EISs, would be the same for exploration drilling activities carried out in ELs 1159 and 1160. With the implementation of the various mitigation measures (refer to Appendices F and I), exploration drilling activities on ELs 1159 and 1160 are not anticipated to result in significant adverse effects on Marine and Migratory Birds.

Potential interactions with Marine and Migratory Birds as a result of exploration drilling on ELs 1159 and 1160 are primarily related to potential attraction and/or disorientation of birds due to artificial light sources associated with the drilling installation and vessels. Potential interactions with marine birds will, however, entail a localized and short-term disturbance at any one location and time, which reduces the potential for individuals and populations to be affected repeatedly through multiple interactions with ELs 1159 and 1160, as well as the potential for, and degree and duration of, overlap between the effects of exploration drilling on ELs 1159 and 1160 and other activities in the marine environment.

It is acknowledged that White Rose is located approximately 2 km from the closest edge of EL 1160. However, as outlined in table 14.14 of the Flemish Pass and Eastern Newfoundland EISs, this production facility has a safety zone of approximately 95 km², and the South White Rose Extension has a safety zone of 9 km², which would aid in increasing the separation distance between exploration drilling activities and production, and in turn reduce the potential for cumulative effects to Marine and Migratory Birds.

ELs 1159 and 1160 are located within, or partially within, the Project Area – Southern Section, and there is potential for cumulative effects to result from the combined effects of exploration drilling on ELs 1159 and 1160 and other offshore exploration and production activities, marine traffic, and commercial fishing activity. All four production facilitations (i.e., Hibernia, Terra Nova, White Rose and Hebron) are located within the Project Area – Southern Section. Although these are long-term operations with similarly long-term environmental disturbances, the localized nature of these effects, and the short-term and localized environmental disturbances that may result from adjacent activities associated with exploration drilling activities on ELs 1159 and 1160, will reduce the potential for cumulative effects to occur.

The conclusions in the Flemish Pass and Eastern Newfoundland EISs remain valid; exploration drilling activities on ELs 1159 and 1160 are not likely to result in significant adverse cumulative environmental effects on Marine and Migratory Birds (including Species at Risk) in combination with other projects and activities that have been or will be carried out.

9.4 Marine Mammals and Sea Turtles (including Species at Risk)

Information outlined in section 14.4 of the Flemish Pass and Eastern Newfoundland EISs and the response to IR-90 remains applicable and valid for exploration drilling activities on ELs 1159 and 1160.

The environment effects assessment of exploration drilling activities on Marine Mammals and Sea Turtles (including Species at Risk), as described in sections 10.1 to 10.6 of the Flemish Pass and Eastern Newfoundland EISs, would be the same for exploration drilling activities carried out in ELs 1159 and 1160. With the implementation of the various mitigation measures (refer to Appendices F and I), exploration drilling activities on ELs 1159 and 1160 are not anticipated to result in significant adverse effects on Marine Mammals and Sea Turtles.

Potential interactions with Marine Mammals and Sea Turtles as a result of exploration drilling on ELs 1159 and 1160 are primarily related to possible injury or disturbance from the movement and sound associated with the drilling installation and vessels. However, potential interactions are likely to be highly transient and temporary for individual marine mammals and sea turtles, especially in consideration of anticipated large-scale daily and seasonal fluctuations within the assessment areas and alternate habitats available throughout the RSA.

Other projects and activities that may affect Marine Mammals and Sea Turtles include commercial fishing, marine traffic, other exploration drilling and activities, and production facilities. Safety zones are required between offshore oil and gas activities, which help reduce the degree to which the potential environmental zones of influence from sound may overlap and interact in space and time. There is, however, the potential that underwater sound produced from these activities may extend beyond these established safety zones and interact spatially with those of other projects and activities. Individual marine mammals and sea turtles may also be exposed to multiple sources of underwater sound while in the RSA due to their widespread, mobile, and migratory nature, which could increase the risk of mortality or physical injury and may result in behavioural changes in individuals exposed to multiple sound sources.

The four production facilities have vessel traffic occurring year-round, which results in a continuous sound source, however, levels from these activities are below those expected to cause auditory injury (Zykov 2016). Sound generated by exploration drilling and geophysical surveys is temporary and relatively short-term in nature.

It is acknowledged that White Rose is located approximately 2 km from the closest edge of EL 1160. However, as outlined in table 14.14 of the Flemish Pass and Eastern Newfoundland EISs, this production facility has a safety zone of approximately 95 km², and the South White Rose Extension has a safety zone of 9 km², which would aid in increasing the separation distance between exploration drilling

activities and production, and in turn reduce the potential for cumulative effects to Marine Mammals and Sea Turtles.

Project vessel traffic within the RSA and vessel traffic associated with other projects and activities pose a risk of mortality or physical injury to marine mammals and sea turtles due to the increased potential for vessel strikes. Vessel traffic associated with ELs 1159 and 1160 is short-term and transient in nature, which limits the potential for vessel strikes.

The conclusions in the Flemish Pass and Eastern Newfoundland EISs remain valid; exploration drilling activities on ELs 1159 and 1160 are not likely to result in significant adverse cumulative environmental effects on Marine Mammals and Sea Turtles (including Species at Risk) in combination with other projects and activities that have been or will be carried out.

9.5 Special Areas

Information outlined in section 14.5 of the Flemish Pass and Eastern Newfoundland EISs and the response to IR-90 remains applicable and valid for exploration drilling activities on ELs 1159 and 1160.

The environment effects assessment of exploration drilling activities on Special Areas, as described in sections 11.1 to 11.5 of the Flemish Pass and Eastern Newfoundland EISs, would be the same for exploration drilling activities carried out in ELs 1159 and 1160. With the implementation of mitigation measures (refer to Appendices F and I), the overall and defining physical, biological and socioeconomic environments within Special Areas will not be adversely affected by exploration drilling activities on ELs 1159 and 1160.

Many of the Special Areas in eastern Newfoundland are in the nearshore and onshore areas and will therefore not have direct contact with exploration drilling activities on ELs 1159 and 1160. Several Special Areas, or portions of them, overlap with the Project Area and potential traffic routes including but not limited to EBSAs, VMEs, NAFO FCAs (refer to Section 6). Exploration drilling activities are not prohibited from occurring in these Special Areas.

The Special Areas that overlap with the Project Area and ELs 1159 and 1160 are outlined in Table 9.3 below.

Table 9.3 Special Areas Overlapping with Project Area and ELs 1159 and 1160

Special Area		Project Area		Exploration Licence	
Type	**Name**	**Northern Section**	**Southern Section**	**EL 1159**	**EL 1160**
EBSA	Northeast Shelf and Slope	Overlaps	Overlaps	-	-
UNCBD EBSA	Seabird Foraging Zone in the Southern Labrador Sea	Overlaps	-	-	-
	Slopes of the Flemish Cap and Grand Bank	Overlaps	Overlaps	Overlaps	Overlaps

Table 9.3 Special Areas Overlapping with Project Area and ELs 1159 and 1160

Special Area		Project Area		Exploration Licence	
Type	**Name**	**Northern Section**	**Southern Section**	**EL 1159**	**EL 1160**
VME	Northeast Shelf and Slope (within Canadian EEZ)	Overlaps	-	-	-
	Sackville Spur	Overlaps	-	-	-
	Northern Flemish Cap	Overlaps	-	-	-
	Southern Flemish Pass to Eastern Canyons	-	Overlaps	-	Overlaps
	Beothuk Knoll	-	Overlaps	-	-
NAFO FCA	Northwest Flemish Cap (10)	Overlaps	-	-	-
	Northwest Flemish Cap (11)	Overlaps	-	-	-
	Northwest Flemish Cap (12)	Overlaps	-	-	-
	Flemish Pass / Eastern Canyon (2)	Overlaps	Overlaps	-	-
	Sackville Spur (6)	Overlaps	-	-	-
	Northern Flemish Cap (7)	Overlaps	-	-	-
	Northern Flemish Cap (8)	Overlaps	-	-	-
	Northern Flemish Cap (9)	Overlaps	-	-	-
Snow Crab Stewardship Exclusion Zone	Crab Fishing Area 8B	Overlaps	-	-	-

The four production facilities (i.e., Hibernia, Terra Nova, White Rose, and Hebron) do not overlap with any Special Areas. However, other projects and activities such as exploration drilling on other ELs may interact spatially. Several other existing and active ELs in this region overlap with portions of these or other Special Areas. The specific location and timing of other offshore exploration activities in the region over the 10-year temporal duration is not known and cannot be defined; however, these activities are short-term in nature and have a relatively limited ZOI, and mitigation measures will be implemented. In addition, while other general marine traffic occurs throughout the Newfoundland offshore and is likely to intersect with EBSAs and VMEs that overlap the Project Area, vessel traffic is intermittent and transient at any one location and time, with negligible contributions to cumulative effects on an area.

It is acknowledged that White Rose is located approximately 2 km from the closest edge of EL 1160. However, as outlined in table 14.14 of the Flemish Pass and Eastern Newfoundland EISs, this production facility has a safety zone of approximately 95 km², and the South White Rose Extension has a safety zone of 9 km², which would aid in increasing the separation distance between exploration drilling activities and production, and in turn reduce the potential for cumulative effects to Special Areas.

The conclusions in the Flemish Pass and Eastern Newfoundland EISs remain valid; exploration drilling activities on ELs 1159 and 1160 are not likely to result in significant adverse cumulative environmental

effects on Special Areas in combination with other projects and activities that have been or will be carried out.

9.6 Indigenous Communities and Activities

Information outlined in section 14.6 of the Flemish Pass and Eastern Newfoundland EISs and the response to IR-90 remains applicable and valid for exploration drilling activities on ELs 1159 and 1160.

The environment effects assessment of exploration drilling activities on Indigenous Communities and Activities, as described in sections 12.1 to 12.5 of the Flemish Pass and Eastern Newfoundland EISs, would be the same for exploration drilling activities carried out in ELs 1159 and 1160. Given the nature, location and timing of various activities and associated environmental interactions, it is not anticipated to have adverse effects on Indigenous Communities and Activities.

There are no documented food, social or ceremonial licenses within the Project Area / LSA and Indigenous groups do not otherwise undertake the current use of lands and resources for traditional purposes within or near this area. There are also no other known aspects of the physical and cultural heritage of these groups located in proximity to, or which may otherwise be affected by, exploration drilling activities on ELs 1159 and 1160.

Equinor Canada is aware that a number of Indigenous communities hold commercial communal swordfish licences for NAFO areas 3O, 3M, and 3N, which overlap or are near the Project Area. Additionally, other fishing enterprises associated with Indigenous groups undertake commercial fishing activities off eastern Newfoundland. Equinor Canada has engaged associated licence holders as part of the Flemish Pass EIS. To date, no Indigenous community has specifically provided information that they actively fish in the Project Area at the current time. However, this does not mean that those Indigenous communities will not exercise their right to fish in those areas in the future. However, at the current time there appears to be no potential for interaction with commercial communal fishery licence holders.

No residual effects (direct nor indirect) on the current use of lands and resources for traditional purposes by any group are therefore anticipated as a result of exploration drilling on ELs 1159 and 1160.

The environmental effects analysis also indicates that few of the marine species that are known to be used by Indigenous groups migrate through the Project Area/LSA and are thus likely to be affected by activities and disturbances, and the implementation of the various environmental mitigation measures (see Appendices F and I) will serve to further address direct or indirect potential effects on these resources. There is therefore almost no potential for the availability or quality of resources that are currently used for traditional purposes by Indigenous groups to be reduced or negatively affected in other ways as a result of the Project, especially to a nature and to a degree that would alter the nature, location, timing, intensity or value of these activities or the health or heritage of Indigenous peoples.

The conclusions in the Flemish Pass and Eastern Newfoundland EISs remain valid; exploration drilling activities on ELs 1159 and 1160 are not anticipated to result in residual environmental effects on

Indigenous Communities and Activities and will therefore not result in or contribute to cumulative effects to this VC.

9.7 Commercial Fisheries and Other Ocean Users

Information outlined in section 14.7 of the Flemish Pass and Eastern Newfoundland EISs and the response to IR-90 remains applicable and valid for exploration drilling activities on ELs 1159 and 1160.

The environment effects assessment of exploration drilling activities on Commercial Fisheries and Other Ocean Users, as described in sections 13.1 to 13.5 of the Flemish Pass and Eastern Newfoundland EISs, would be the same for exploration drilling activities carried out in ELs 1159 and 1160. With the implementation of mitigation measures, exploration drilling activities on ELs 1159 and 1160 are not likely to result in significant adverse effects on Commercial Fisheries and Other Ocean Users.

Other projects and activities that may affect Commercial Fisheries and Other Ocean Users include other exploration drilling and activities and production facilities. The dynamic nature of fishing and other marine based activity throughout the region (in terms of locations, seasons, gear types, and key species) makes it difficult to predict specific areas and times from year-to-year for both domestic and foreign fleets, and thus, the potential for interactions between separate projects, activities and their effects.

Production facilities have established safety zones that occupy a relatively small footprint in comparison to available fishing grounds. Supply vessel activity associated with production facilities is year-round, however, operators have established communication protocols to mitigate interactions with commercial fish harvesters and other ocean users.

Exploration drilling activities and geophysical surveys also implement safety zones during program activities. It is possible for multiple exploration operations to occur within the Project Area or RSA at a given time during the 10-year temporal duration. The implementation of multiple safety zones, depending on proximity to one another, could result in a (cumulatively) larger area restricted to commercial fishers and other ocean users. However, exploration drilling and geophysical surveys are relatively short-term and localized in nature.

The presence of supply vessels, domestic and foreign fishing vessels, and marine traffic associated with other industries (shipping, military, research) are also sources of potential interactions with fishing vessels and activities within the Project Area and RSA. The volume of marine traffic associated with ongoing offshore activities, if increased over time, could potentially cause adverse effects on commercial fish harvesting activity and other ocean use. These supply vessel routes have been established over time. Supply vessel traffic represents a small component of total marine traffic in the region, is expected to occupy a low proportion of the total available fishing area and is inherently short-term and transitory in nature.

There is relatively more existing and planned marine-based activity occurring within the Project Area – Southern Section than the Project Area – Northern Section. The four production facilities are located in the Jeanne d'Arc Basin. White Rose is the closest producing facility; minimum distances from ELs 1159 and 1160 are approximately 36 km and 2 km, respectively. While production facilities may have their

own effects on commercial fishing activity, such as the creation of safety zones, and supply vessel traffic, it is not anticipated that effects on commercial fishing activity and other marine users from those producing fields will interact cumulatively with potential environmental effects of exploration drilling on ELs 1159 and 1160.

The Project Area – Southern Section has higher levels of marine traffic than other areas offshore Newfoundland, mostly due to the presence of established oil and gas production facilities, and higher volumes of marine research, commercial fishing, and shipping activities (see Section 7). This has the potential to result in cumulative effects due to the increase in supply vessel traffic related to exploration drilling on ELs 1159 and 1160. However, supply vessel traffic will only contribute a small increase to the marine traffic that already occurs within the Project Area - Southern Section. Due to the short-term nature of Project activities and transient nature of supply vessel operations, and common traffic routes and communications protocols that have been in operation for years, it is not anticipated that this Project will result in or contribute to detectable, adverse cumulative effects on Commercial Fisheries and Other Ocean Users.

The conclusions in the Flemish Pass and Eastern Newfoundland EISs remain valid; exploration drilling activities on ELs 1159 and 1160 are not likely to result in significant adverse cumulative environmental effects on Commercial Fisheries and Other Ocean Users in combination with other projects and activities that have been or will be carried out.

9.8 Mitigation, Monitoring and Follow-up

VC-specific mitigation measures, monitoring and follow-up were identified for the Flemish Pass and Eastern Newfoundland EISs (refer to Appendices F and I) and remain valid and applicable for exploration drilling activities on ELs 1159 and 1160. No additional or revised mitigation measures, monitoring or follow-up is required or proposed.

10.0 ACCIDENTAL EVENTS

10.1 Spill Prevention and Response

Section 15.1, including subsections, of the Flemish Pass EIS outline spill prevention and response measures including aspects such as, well control and blowout prevention, contingency planning, well capping and containment, spill response, response contractors and agencies, spill response tactics (e.g., natural attenuation, mechanical containment, in-situ burning and chemical dispersion), Spill Impact Mitigation Assessment (SIMA), shoreline protection and clean-up, oiled wildlife response, remediation, and financial requirements. All information in section 15.1 of the Flemish Pass EIS remains valid for ELs 1159 and 1160.

Refer to Table B.15 in Appendix B for a thorough comparison of exploration drilling activities on ELs 1159 and 1160 with the Flemish Pass EIS and IRs/CLs.

10.2 Potential Accidental Event Scenarios

Section 15.2, including subsections, of the Flemish Pass and Eastern Newfoundland EISs describe the potential accidental event scenarios, which includes local conditions and natural hazards, vessel collision, dropped objects, loss of drilling installation stability of structural integrity and loss of well control. These potential scenarios remain applicable and valid for ELs 1159 and 1160, and there are no additional scenarios to consider.

Section 15.2.6 of the Flemish Pass and Eastern Newfoundland EISs outline the accidental spill scenarios that were selected for detailed spill fate and behaviour modelling and include batch diesel spills and subsurface blowouts.

The Flemish Pass and Eastern Newfoundland EISs completed spill trajectory modelling of the 18 unmitigated scenarios outlined in Table 10.1 and illustrated in Figure 2-1. These scenarios occurred throughout the Project Area and a range of water depths and spill rates. Modelling undertaken for ELs 1134, 1135, 1137, and 1142 are suitable to apply to ELs 1159 and 1160 due to water depths and estimated spill rates, and therefore re-modelling is not anticipated. Estimated spill rates associated with EL 1159 and 1160 are adequately addressed in the ranges provided in Table 10.1, with EL 1159 being similar to EL 1135 (which is the highest, worst-case scenario) and EL 1160 being significantly lower as it's located in a lower pressure area.

Table 10.1 Summary of Spill Trajectory Modelling

Exploration Licence	Water Depth	Product Type	Spill Rate	Duration	Total Volume
Subsurface Blowouts					
EL 1134*	1,175 m	Crude	6,010 m³/d	30 days	180,300 m³
EL 1134*	1,175 m	Crude	6,010 m³/d	113 days	679,130 m³
EL 1135*	362 m	Crude	24,802 m³/d	30 days	744,062 m³
EL 1135*	362 m	Crude	24,802 m³/d	113 days	2,802,633 m³
EL 1137*	89 m	Crude	4,165 m³/d	30 days	124,964 m³
EL 1137*	89 m	Crude	4,165 m³/d	113 days	470,603 m³
EL 1140	2,700 m	Crude	4,980 m³/d	36 days	179,280 m³
EL 1142*	1,100 m	Crude	15,000 m³/d	113 days	1,695,000 m³
Batch Spills					
EL 1134*	1,175 m	Diesel	N/A	Instantaneous	100 L
EL 1134*	1,175 m	Diesel	N/A	Instantaneous	1,000 L
EL 1135*	362 m	Diesel	N/A	Instantaneous	100 L
EL 1135*	362 m	Diesel	N/A	Instantaneous	1,000 L
EL 1137*	89 m	Diesel	N/A	Instantaneous	100 L
EL 1137*	89 m	Diesel	N/A	Instantaneous	1,000 L
EL 1140	2,700 m	Diesel	N/A	Instantaneous	100 L
EL 1140	2,700 m	Diesel	N/A	Instantaneous	1,000 L

Table 10.1 Summary of Spill Trajectory Modelling

Exploration Licence	Water Depth	Product Type	Spill Rate	Duration	Total Volume
EL 1142*	1,100 m	Diesel	N/A	Instantaneous	100 L
EL 1142*	1,100 m	Diesel	N/A	Instantaneous	1,000 L
Note: Scenarios marked with * can be applied to ELs 1159 and 1160 due to water depths and estimated spill rates.					

Vessel collisions were not modelled for the Flemish Pass and Eastern Newfoundland EISs; however, as mentioned in section 15.2.2.1 of the Flemish Pass EIS, and the response to IR-47, there have been no near-shore supply vessel groundings or spills over the more than 30 years of oil and gas exploration in the Canada-NL Offshore Area. Section 15.2.2 of the Flemish Pass EIS and the response to IR-47-2, indicated that a nearshore spill event would result in oil moving east and would not contact the shoreline, which is supported by the *Quantitative Assessment of Oil Spill Risk for the South Coast of Newfoundland and Labrador (Phase 1)* (RMRI 2006) that was prepared for Transport Canada. This conclusion is further supported by modelling completed by CNOOC Petroleum North America ULC (formerly Nexen Energy ULC [Nexen]), which involved a release of approximately 750,000 L from a vessel collision between St. John's, NL and their project area (Nexen 2018). The vessel collision release is predicted to migrate to the east and did not cause any shoreline oiling (Nexen 2018). Based on this, re-modelling of a vessel collision is not anticipated for ELs 1159 and 1160.

SBM spills were not modelled for the Flemish Pass and Eastern Newfoundland EISs; however, as mentioned in the response to IR-48, the effects of an SBM spill were assessed in section 15.5.1.2.3 of the Flemish Pass EIS. Modelling an SBM spill would provide a footprint of the likely area to be potentially affected; however, the environmental effects as assessed in the Flemish Pass and Eastern Newfoundland EISs would not change. The response to IR-48-2 provided an expanded analysis of the potential effects of an SBM spill. In addition, Nexen modelled a surface release of 64 m^3 and subsurface releases of 255 m^3 and 89 m^3 (Nexen 2018); modelling locations had water depths of 378 m and 1,137 m, which are applicable and valid for ELs 1159 and 1160 as water depths range from approximately 40 m to 1,020 m. Based on this, re-modelling of SBM spills is not anticipated for ELs 1159 and 1160.

10.3 Spill Risk and Probabilities

Section 15.3, including subsections, of the Flemish Pass EIS outlines the spill risk and probabilities calculated based on number of wells (i.e., 30) and drilling duration (i.e., 35 to 65 days); this information remains valid for ELs 1159 and 1160 as the well count and drilling duration is the same.

Section 15.3.1.2 of the Flemish Pass EIS included information and summary tables related to Canada-NL Offshore spill data from 1997 to 2015. Equinor Canada received CL-18 that noted inconsistencies with some data from 1997 and 2015, and also requested that the information was updated to include 2016 data; however, Equinor Canada provided updated data to the end of 2017 as it was available. Refer to Appendix G for spill data up to 2018.

10.4 Fate and Behaviour of Potential Spills

A thorough overview of fate and behaviour of potential spills modelled in Table 10.1 above is included in section 15.4 of the Flemish Pass and Eastern Newfoundland EISs, and section 7.1 of the EL 1134 Addendum and is applicable and valid for ELs 1159 and 1160. As noted in Table 10.1, modelling was completed on 18 unmitigated scenarios involving various water depths, spill rates, locations, and durations. Out of the 18 scenarios modelled, 15 of them are suitable to apply to ELs 1159 and 1160 based on water depths and spill rates. In addition, all modelled unmitigated subsurface blowouts and batch spills resulted in the same predictions (i.e., surface oil would move eastward due to prevailing westerly winds), and therefore re-modelling for ELs 1159 and 1160 is not anticipated.

10.5 Accidental Events – Environmental Effects Assessment

CEAA 2012 defines “federal lands” as those lands that include the EEZ and continental shelf of Canada. Therefore, exploration drilling activities on Els 1159 and 1160 will be carried out on federal lands under the jurisdiction of the C-NLOPB. An accidental event during exploration drilling activities could potentially result in changes to the environment, including air and noise emissions, that would occur in federal lands as defined by the Accord Acts. Routine project activities could potentially result in changes to the environment (i.e., as described above and including air and noise emissions) that would occur on federal land as defined by the Accord Acts.

10.5.1 Marine Fish and Fish Habitat (including Species at Risk)

Section 15.5.1 of the Flemish Pass and Eastern Newfoundland EISs, and section 7.2.1 of the EL 1134 Addendum provide a thorough assessment on Marine Fish and Fish Habitat and subsurface blowout and batch spill scenarios that were modelled. Section 15.5.1 of the Flemish Pass and Eastern Newfoundland EISs, including subsections, provide an overview of the potential issues and interactions, and the potential effects of hydrocarbons, dispersants and drill mud spill on Marine Fish and Fish Habitat, which are also applicable and valid for ELs 1159 and 1160.

The predicted residual environmental effects of accidental event scenarios on Marine Fish and Fish Habitat for ELs 1159 and 1160 would be the same as those for the Flemish Pass and Eastern Newfoundland EISs and are summarized in Table H.1 in Appendix H.

Taking into consideration the results of the spill modelling exercises completed in the Flemish Pass and Eastern Newfoundland EISs, and planned mitigation, the predicted residual environmental effects from an accidental event scenario on Marine Fish and Fish Habitat is considered not significant. This determination of significance remains applicable and valid for ELs 1159 and 1160.

10.5.2 Marine and Migratory Birds (including Species at Risk)

Section 15.5.2 of the Flemish Pass and Eastern Newfoundland EISs, and section 7.2.2 of the EL 1134 Addendum, provide a thorough assessment on Marine and Migratory Birds and subsurface blowout and batch spill scenarios that were modelled. Section 15.5.2 of the Flemish Pass and Eastern Newfoundland EISs, including subsections, provide an overview of the potential issues and interactions, and the

potential effects of hydrocarbons and dispersants on Marine and Migratory Birds, which are also applicable and valid for ELs 1159 and 1160.

The predicted residual environmental effects of accidental event scenarios on Marine and Migratory Birds for ELs 1159 and 1160 would be the same as those for the Flemish Pass and Eastern Newfoundland EISs and are summarized in Table H.2 in Appendix H.

Taking into consideration the results of the spill modelling exercises completed in the Flemish Pass and Eastern Newfoundland EISs, and planned mitigation, a precautionary conclusion was drawn and residual environmental effects from a subsurface blowout on Marine and Migratory Birds was predicted to be significant, but dependent on the specific occurrence, nature and degree of the event, but extremely unlikely to occur. This determination of significance remains applicable and valid for ELs 1159 and 1160.

10.5.3 Marine Mammals and Sea Turtles (including Species at Risk)

Section 15.5.3 of the Flemish Pass and Eastern Newfoundland EISs, and section 7.2.3 of the EL 1134 Addendum, provide a thorough assessment on Marine Mammals and Sea Turtles and subsurface blowout and batch spill scenarios that were modelled. Section 15.5.3 of the Flemish Pass and Eastern Newfoundland EISs, including subsections, provide an overview of the potential issues and interactions, and the potential effects of hydrocarbons and dispersants on Marine Mammals and Sea Turtles, all of which is also applicable and valid for ELs 1159 and 1160.

The predicted residual environmental effects of accidental event scenarios on Marine Mammals and Sea Turtles for ELs 1159 and 1160 would be the same as those for the Flemish Pass and Eastern Newfoundland EISs, and are summarized in Table H.3 in Appendix H.

Taking into consideration the results of the spill modelling exercises completed in the Flemish Pass and Eastern Newfoundland EISs, and planned mitigation, the predicted residual environmental effects from an accidental event scenario on Marine Mammals and Sea Turtles is considered not significant. This determination of significance remains applicable and valid for ELs 1159 and 1160.

10.5.4 Special Areas

Section 15.5.4 of the Flemish Pass and Eastern Newfoundland EISs, and section 7.2.4 of the EL 1134 Addendum provide a thorough assessment on Special Areas and subsurface blowout and batch spill scenarios that were modelled. Section 15.5.4 of the Flemish Pass and Eastern Newfoundland EISs, including subsections, provide an overview of the potential issues and interactions, and mentions that Special Areas are closely related to Marine Fish and Fish Habitat, Marine and Migratory Birds and Marine Mammals and Sea Turtles, which are also applicable and valid for ELs 1159 and 1160.

Table 10.1 outlines the 18 spill scenarios modelled for the Flemish Pass and Eastern Newfoundland EISs. Out of all the spill modelling completed, the subsurface blowout modelled for EL 1135 resulted in the highest volume of oil being released (i.e., 2,802,633 m^3), which is due to the duration (i.e., 113 days) and spill rate (i.e., 24,802 m^3/d), and is therefore conservative to apply to ELs 1159 and 1160.

Section 15.5.4.3 of the Eastern Newfoundland EIS outlines the Special Areas that would overlap with affected areas exceeding the socioeconomic threshold based on EL 1135 modelling results. This information remains applicable and valid for ELs 1159 and 1160.

The predicted residual environmental effects of accidental event scenarios on Special Areas for ELs 1159 and 1160 would be the same as those for the Flemish Pass and Eastern Newfoundland EISs and are summarized in Table H.4 in Appendix H.

Taking into consideration the results of the spill modelling exercises completed in the Flemish Pass and Eastern Newfoundland EISs, and planned mitigation, the predicted residual environmental effects from an accidental event scenario on Special Areas is considered not significant. This determination of significance remains applicable and valid for ELs 1159 and 1160.

10.5.5 Indigenous Communities and Activities

Section 15.5.5 of the Flemish Pass and Eastern Newfoundland EISs, and section 7.2.5 of the EL 1134 Addendum, provide a thorough assessment on Indigenous Communities and Activities and subsurface blowout and batch spill scenarios that were modelled. Section 15.5.5 of the Flemish Pass and Eastern Newfoundland EISs, including subsections, provide an overview of the potential issues and interactions and fish species used by Indigenous groups, all of which is also applicable and valid for ELs 1159 and 1160.

The predicted residual environmental effects of accidental event scenarios on Indigenous Communities and Activities for ELs 1159 and 1160 would be the same as those for the Flemish Pass and Eastern Newfoundland EISs and are summarized in Table H.5 in Appendix H.

Taking into consideration the results of the spill modelling exercises completed in the Flemish Pass and Eastern Newfoundland EISs, and planned mitigation, the predicted residual environmental effects from an accidental event scenario on Indigenous Communities and Activities is considered not significant. This determination of significance remains applicable and valid for ELs 1159 and 1160.

10.5.6 Commercial Fisheries and Other Ocean Users

Section 15.5.6 of the Flemish Pass and of the Eastern Newfoundland EISs, and section 7.2.6 of the EL 1134 Addendum, provide a thorough assessment on Commercial Fisheries and Other Ocean Users and subsurface blowout and batch spill scenarios that were modelled. Section 15.5.6 of the Flemish Pass and Eastern Newfoundland EISs, including subsections, provide an overview of the potential issues, and effects of hydrocarbons and dispersants on Commercial Fisheries and Other Ocean Users, all of which is also applicable and valid for ELs 1159 and 1160.

The predicted residual environmental effects of accidental event scenarios on Commercial Fisheries and Other Ocean Users for ELs 1159 and 1160 would be the same as those for the Flemish Pass and Eastern Newfoundland EISs and are summarized in H.6 in Appendix H.

Taking into consideration the results of the spill modelling exercises completed in the Flemish Pass and Eastern Newfoundland EISs, and planned mitigation, the predicted residual environmental effects from an accidental event scenario on Commercial Fisheries and Other Ocean Users is considered not significant. This determination of significance remains applicable and valid for ELs 1159 and 1160.

11.0 EFFECTS OF THE ENVIRONMENT

Chapter 16 of the Flemish Pass and Eastern Newfoundland EISs considered environmental factors, including climatological and meteorological conditions (wind, precipitation, fog, and visibility), oceanographic conditions (waves, currents), seasonal presence of sea ice and icebergs, geology and seismicity, and other environmental features and conditions. It also described how these issues will be considered and addressed as part of ongoing and future planning, design, and eventual implementation. This includes discussing how relevant engineering and environmental design criteria, industry standards, guidelines, and regulatory conditions will be applied and will be relevant to the mitigation of such Effects of the Environment on the Project.

Information in the Flemish Pass and Eastern Newfoundland EISs related to Effects of the Environment on the Project remains valid and applicable for ELs 1159 and 1160.

12.0 SUMMARY AND CONCLUSION

Chapter 17 of the Flemish Pass and Eastern Newfoundland EISs remain applicable and valid for exploration drilling activities on ELs 1159 and 1160. The Flemish Pass and Eastern Newfoundland EISs contain a table summarizing mitigations and commitments made throughout the EIS, and this table has been updated in Appendix I to incorporate additional commitments made in IR/CL responses. In addition, Equinor Canada will apply conditions outlined in the Decision Statement (CEA Agency 2019e) associated with the Flemish Pass EIS to exploration drilling activities on ELs 1159 and 1160.

The proposed exploration drilling activities associated with ELs 1159 and 1160 have been reviewed and assessed to be within the scope of the Flemish Pass EIS, specifically:

- The scope and nature of activities planned and assessed in the Flemish Pass EIS have not changed, and therefore re-assessment is not anticipated
- ELs 1159 and 1160 are within the defined Project Area assessed for the Flemish Pass and Eastern Newfoundland EISs
- The well count assessed in the Flemish Pass EIS (i.e., 30) remains the same, and therefore re-assessment is not anticipated
- Engagement with government departments and agencies, Indigenous groups and stakeholders completed for the Flemish Pass EIS is also applicable to ELs 1159 and 1160
- Updated information regarding the existing biological and human environments has been compiled and reviewed; however, it does not change the environmental effects assessments
- The Flemish Pass and Eastern Newfoundland EISs completed drill cuttings modelling in five locations with varying locations and water depths, four of which are applicable and valid for ELs 1159 and 1160 and therefore re-modelling is not anticipated

- The Flemish Pass and Eastern Newfoundland EISs completed spill trajectory modelling of eight unmitigated subsurface blowouts with varying locations, water depths, spill rates and durations, seven of which are applicable and valid for ELs 1159 and 1160 and therefore re-modelling is not anticipated
- The Flemish Pass and Eastern Newfoundland EISs completed spill trajectory modelling of 10 unmitigated batch spills with varying locations, water depths and volumes, eight of which are applicable and valid for ELs 1159 and 1160 and therefore re-modelling is not anticipated
- The environmental effects predicted for the Flemish Pass EIS remain valid for ELs 1159 and 1160, and therefore re-assessment is not anticipated
- The nature of species at risk in the Project Area have been validated and no new species have been added to Schedule 1 of SARA, and therefore re-assessment is not anticipated
- The commitments and mitigation measures associated with the Flemish Pass EIS (i.e., in the Flemish Pass EIS, IR/CL responses) remain applicable and valid, and will be implemented for ELs 1159 and 1160
- Conditions outlined in the Decision Statement (CEA Agency 2019e) associated with the Flemish Pass EIS will be implemented for exploration drilling activities on ELs 1159 and 1160

A summary of the residual adverse effects for each VC from interactions, accidental events, and cumulative effects is provided in Table 12.1.

In conclusion, the proposed exploration drilling activities on ELs 1159 and 1160 are not expected to result in significant adverse residual environmental effects on the environment and will not cumulatively interact with other industries in the Canada-NL Offshore Area, including other oil and gas operations, in a way that would cause significant environmental effects. Exploration drilling on ELs 1159 and 1160 has the potential to provide economic benefits to Newfoundland and Labrador, and Canada, while posing a low risk of environmental effects.

Table 12.1 Summary of Residual Environmental Effects for Routine Operations, Accidental Events, and Cumulative Effects

VC	Routine Operations	Accidental Events		Cumulative Effects
	Significance of Residual Environmental Effect	Significance of Residual Environmental Effect	Likelihood of Significant Effect	Significance of Residual Environmental Effect
Marine Fish and Fish Habitat	N	N	N/A	N
Marine and Migratory Birds	N	S	L	N
Marine Mammals and Sea Turtles	N	N	N/A	N
Special Areas	N	N	N/A	N
Indigenous Communities and Activities	N	N	N/A	N
Commercial Fisheries and Other Ocean Users	N	N	N/A	N

Table 12.1 Summary of Residual Environmental Effects for Routine Operations, Accidental Events, and Cumulative Effects

VC	Routine Operations	Accidental Events		Cumulative Effects
	Significance of Residual Environmental Effect	Significance of Residual Environmental Effect	Likelihood of Significant Effect	Significance of Residual Environmental Effect

Key:
N = Not significant residual environmental effect (adverse)
S = Significant residual environmental effect (adverse)
L = Low likelihood
N/A = Not Applicable

13.0 REFERENCES

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APPENDIX A

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

Table of Concordance with the Prescribed Information for the Description of a Designated Project Regulations 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 1.0
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).	Sections 1.0 and 1.3.3
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 3
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 1.4
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 1.1
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 1.0
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 2.4

Table of Concordance with the Prescribed Information for the Description of a Designated Project Regulations 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
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 2.4
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 with reference to the thresholds set out in the Regulations Designating Physical Activities	Section 2.4
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.	Sections 1.2 and 1.4

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
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 2.7
11	A description of the anticipated phases of and the schedule for the project's construction, operation, decommissioning and abandonment	2.5	1. Construction, operation, decommissioning and abandonment phases and scheduling. 2. Provide a description of the timeframe in which the development is to occur and the key project phases, including the following: 3. Anticipated scheduling, duration and staging of key project phases, including preparation of the site, construction, operation, decommissioning and abandonment. 4. 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).	Sections 2.4 and 2.6
Project Location Information				
12	A description of the Project's location, including	3.0	Provide a description of the designated project's location, including:	-
(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 2.3

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
(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. 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.	Section 2.3 Figure 8-1
(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 1.4
		3.1	4. Photographs of work locations to the extent possible	N/A

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
(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; • traditional territories, settlement land (under a land claim agreement) as well as lands and resources currently used for traditional purposes by Aboriginal peoples; and, • any federal lands.	Sections 1.0, 1.4.2, 7.1, and 8.6.2
(e)	The project's proximity to reserves, traditional territories as well as lands and resources currently used for traditional purposes by Aboriginal peoples			
(f)	The project's proximity to any federal lands			
		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.	Sections 1.4.2 Section 2.3.1
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 1.4.5

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
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).	Sections 1.4.2 and 10.5
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 1.4.4
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).	Sections 5 and 6 Appendix D
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:	-
(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 8.2
(b)	aquatic species, as defined in subsection 2(1) of the *Species at Risk Act*; and			Sections 8.2 and 8.4
		(b)	marine plants, as defined in the *Fisheries Act*; and	Section 8.2
(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 8.3
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	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	Sections 8.2 to 8.7

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
	proposed to be carried out or outside of Canada.			
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 8.6
Proponent Engagement and Consultation with Aboriginal Groups				
		6.0	Provide the following information to the extent that it is available or applicable:	-
		6.1	A list of Aboriginal groups that may be interested in, or potentially affected by, the designated project.	Section 3.1
		6.2	1. 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 3.1 Appendix C – Tables C.2 to C.6
		6.3	An overview of key comments and concerns expressed by Aboriginal groups identified or engaged to date, including any responses provided to these groups.	Section 3.1 Appendix C – Tables C.2 to C.6
		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	Section 3.1

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
			and collected (or, alternatively, an indication of why such engagement or consultation is not required).	
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	-
		7.1	An overview of key comments and concerns expressed to date by stakeholders and any responses that have been provided.	Section 3.2 and Appendix C – Table C.7
		7.2	An overview of any ongoing or proposed stakeholder consultation activities	Section 3.2
		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 1.4.4 Appendix C; Table C-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	Refer to Project Description Summary

APPENDIX B

Evaluation of Planned Activities Associated with ELs 1159 and 1160 in Relation to the Flemish Pass Environmental Assessment

Table B.1 Chapter 1 – Introduction

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
1.1	Identification and Overview of the Operator	Information in Flemish Pass EIS remains valid for ELs 1159 and 1160, however, refer to Section 1.3 for updated licencing information.	No IRs/CLs received on this section.
1.1.1	Statoil's Offshore Experience	Information in Flemish Pass EIS remains valid for ELs 1159 and 1160, however, information in Section 1.3.1 has been updated to include the 2018 seabed survey.	No IRs/CLs received on this section.
1.1.2	Statoil's Management System	Information in Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
1.1.3	Statoil Contacts	Information in the Flemish Pass EIS is not valid for ELs 1159 and 1160; refer to Section 1.3.3 for updated Equinor Canada contacts.	No IRs/CLs received on this section.
1.2	Project Location and Overview	Information in Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
1.2.1	Project Location	The Project Area identified in the Flemish Pass EIS remains valid for ELs 1159 and 1160, however, Figure 2-1 has been updated to illustrate the location of ELs 1159 and 1160, and Section 2.3 provides additional information regarding water depths, coordinates, etc.	No IRs/CLs received on this section.
1.2.2	Key Project Components and Activities	Information regarding Project activities in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required. The temporal scope for the Flemish Pass EIS is not valid for ELs 1159 and 1160. Although they are both 10-year periods, the Flemish Pass EIS was from 2018 to 2027, while ELs 1159 and 1160 is from 2020 to 2029.	IR-01 IR-03
1.3	Regulatory Framework and the Role of Government	Information in Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
1.3.1	The Accords Act	Information in Flemish Pass EIS remains valid for ELs 1159 and 1160, however, additional information has been brought forward in Section 1.4.1 and mainly focused on the types of plans and aspects required to submit to the C-NLOPB to obtain an OA.	No IRs/CLs received on this section.
1.3.1.1	Land Tenure and Licencing	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, however, additional information has been brought forward regarding the ELs location compared to Canada's 200 NM EEZ, and a summary table outlining licence information.	No IRs/CLs received on this section.
1.3.1.2	Other Licences, Authorizations, and Approvals	Information in Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
1.3.2	Environmental Assessment under CEAA 2012	Select information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, however, original information was specific to ELs 1139, 1140, 1141 and 1142 and the associated EA process (e.g. project description, notice of EA determination, and EA commencement), and therefore not applicable to this Project. Refer to Section 1.4.3 for information applicable to ELs 1159 and 1160.	No IRs/CLs received on this section.
1.3.3	Other Potential Regulatory and Policy Requirements and Interests	Information in Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
1.4	Purpose and Organization of the EIS	Information in Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
1.4.1	EIS Coordination – Statoil and ExxonMobil	Information in the Flemish Pass EIS is not valid for this Project as Equinor Canada and ExxonMobil are not co-ventures for ELs 1159 and 1160.	No IRs/CLs received on this section.
1.4.2	EIS Organization and Content	Information in Flemish Pass EIS remains valid for ELs 1159 and 1160, however, any reference to differences between Equinor and ExxonMobil EIS reports is not applicable as mentioned above.	No IRs/CLs received on this section.

Evaluation of Planned Activities Associated with ELs 1159 and 1160 in Relation to the Flemish Pass Environmental Assessment

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
1.5	Key Legislation, Regulations, and Associated Approvals	Information in Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Table B.2 Chapter 2 – Project Description

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
2.1	Project Scope	Information in the Flemish Pass EIS and IR/CL responses remains valid for ELs 1159 and 1160. Refer to Section 2.1 for information regarding the number of wells. It is noted the well count with the addition of ELs 1159 and 1160 will remain the same as the Flemish Pass EIS (i.e. 30).	IR-71 IR-91 CL-02
2.2	Purpose of the Project	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, however, ELs 1159 and 1160 were awarded in November 2018. Refer to Section 2.2.	No IRs/CLs received on this section.
2.2.1	Environmental, Economic, and Social Benefits	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.2.1.1	Energy Diversification and Sustainable Development	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.2.1.2	Benefits to the Provincial Economy and Community Investment	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.2.1.3	Employment Benefits	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.2.1.4	Knowledge Benefits	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.3	Project Location and Designated Project Area	Information in the Flemish Pass EIS and CL response remains valid for the Project Area, however, refer to Section 2.3 for updated information regarding EL locations, coordinates and water depths.	CL-03
2.4	Resource Use and Environmental Features	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-39 IR-39-2

Evaluation of Planned Activities Associated with ELs 1159 and 1160 in Relation to the Flemish Pass Environmental Assessment

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
2.5	Project Components and Activities	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.5.1	Drilling Installation	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.5.1.1	Drilling Installation Selection and Regulatory Approval Process	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.5.1.2	Semi-submersible Drilling Unit	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.5.1.3	Drill Ship	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.5.2	Project Activities	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.5.2.1	Wellsite Surveys – Drill Planning	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-23 IR-23-2 IR-79
2.5.2.2	Mobilization of the Drilling Installation	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.5.2.3	Offshore Well Drilling	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-01 IR-02
2.5.2.4	Formation Flow Testing with Flaring	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-10 IR-12 IR-12-2 CL-13
2.5.2.5	Geophysical, Environmental	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159	IR-05 IR-05-2

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
	and Geotechnical Surveys	and 1160, and therefore no new information is applicable or required.	
2.5.2.6	Supply and Servicing	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.5.2.6.1	Onshore Supply Base	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.5.2.6.2	Offshore Supply Vessels	Information in the Flemish Pass EIS and CL response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	CL-01
2.5.2.6.3	Helicopters	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.5.2.7	Well Suspension, Abandonment, Decommissioning and Demobilization	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-04
2.6	Project Personnel	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.7	Project Schedule	Information in the Flemish Pass EIS is not valid as this Project has a temporal scope from 2020 to 2019, while the Flemish Pass EIS was from 2018 to 2017.	No IRs/CLs received on this section.
2.8	Summary of Changes to the Project	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.9	Waste Discharges and Emissions	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.9.1	Air Emissions	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-08 IR-09

Evaluation of Planned Activities Associated with ELs 1159 and 1160 in Relation to the Flemish Pass Environmental Assessment

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
2.9.1.1	Criteria Air Contaminants	N/A - Heading	N/A - Heading
2.9.1.1.1	Drilling Installation	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.9.1.1.2	Supply Vessel	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-11
2.9.1.1.3	Helicopter	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.9.1.1.4	Formation Flow Testing with Flaring	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.9.1.1.5	Daily Air Contaminant Emissions	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-08 IR-09
2.9.1.2	Greenhouse Gas Emissions	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-08 IR-09
2.9.1.3	Summary and Potential for Accumulation and Interactions of Air Emissions (Cumulative Effects)	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.9.2	Hazardous and Non-hazardous Wastes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.9.3	Drilling Waste	N/A – Heading	N/A - Heading
2.9.3.1	Drill Mud and Cuttings	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.9.3.2	Cement	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160,	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	**IRs/CLs**
		and therefore no new information is applicable or required.	
2.9.4	Liquid Wastes	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-07 IR-07-2 IR-78 IR-78-2
2.9.5	Heat, Light, and Sound Emissions	N/A – Heading	N/A - Heading
2.9.5.1	Light and Heat Emissions	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.9.5.2	Sound Emissions	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-72
2.10	Alternative Means of Carrying Out the Project	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.10.1	Identification and Evaluation of Alternatives	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.10.1.1	Drilling Fluids Selection	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.10.1.2	Drilling Installation Selection	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-01
2.10.1.3	Drilling Waste Management	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-07 IR-07-2
2.10.1.4	Water Management and Location of Final Effluent Discharge Points	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.10.1.5	Offshore Drilling Installation Lighting	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160,	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	**IRs/CLs**
		and therefore no new information is applicable or required.	
2.10.1.6	Formation Flow Testing and Nighttime Flaring	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-06
2.10.1.7	Chemical Selection	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.11	Environmental Planning and Management	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.11.1	Safety and Sustainability Policies	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.11.1.1	Our Approach to Safety	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.11.1.2	Our Approach to Sustainability	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.11.2	The Statoil Management System	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.12	Environmental Planning	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.12.1	Project Planning, Assessment, and Implementation: Application of the Precautionary Principle	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
2.12.2	Environmental Management	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Evaluation of Planned Activities Associated with ELs 1159 and 1160 in Relation to the Flemish Pass Environmental Assessment

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
2.12.3	Environmental Monitoring	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Table B.3 Chapter 3 – Regulatory, Indigenous, and Stakeholder Engagement

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
3.1	EIS Guidelines	Although EIS Guidelines have not been issued for this Project, the Guidelines issued for the Flemish Pass EIS remain valid for ELs 1159 and 1160. The CEA Agency has recently issued EIS Guidelines for other exploration drilling programs (CEA Agency 2018b, 2018c and 2018d), which contain the same content as those issued for the Flemish Pass EIS, and therefore valid for this Project.	No IRs/CLs received on this section.
3.2	Government Departments and Agencies	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, however, refer to Appendix C for updated engagement activities involving government departments and agencies.	No IRs/CLs received on this section.
3.3	Indigenous Groups	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
3.3.1	Aboriginal and Treaty Rights	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
3.3.2	Assessment of Potential Environmental Effects on Indigenous Peoples – CEAA 2012, Section 5(1)(c)	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
3.3.3	Engagement with Indigenous Groups	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, however, refer to Appendix C for updated engagement activities involving Indigenous groups.	No IRs/CLs received on this section.
3.3.4	Newfoundland and Labrador Indigenous Groups	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, however, refer to Appendix C for updated engagement activities involving Indigenous groups.	No IRs/CLs received on this section.
3.3.4.1	Labrador Inuit (Nunatsiavut Government)	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, however, refer to Appendix C for updated	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
		engagement activities involving Indigenous groups.	
3.3.4.2	Labrador Innu (Innu Nation)	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, however, refer to Appendix C for updated engagement activities involving Indigenous groups.	No IRs/CLs received on this section.
3.3.4.3	NunatuKavut Community Council	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, however, refer to Appendix C for updated engagement activities involving Indigenous groups.	No IRs/CLs received on this section.
3.3.4.4	Miawpukek First Nation	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, however, refer to Appendix C for updated engagement activities involving Indigenous groups.	No IRs/CLs received on this section.
3.3.4.5	Qalipu Mi'kmaq First Nation	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, however, refer to Appendix C for updated engagement activities involving Indigenous groups.	No IRs/CLs received on this section.
3.3.4.6	Mi'kmaq Alsumk Mowimsikik Kaqoey Association	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, however, refer to Appendix C for updated engagement activities involving Indigenous groups.	No IRs/CLs received on this section.
3.3.5	Maritime Provinces and Quebec Indigenous Groups	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, however, refer to Appendix C for updated engagement activities involving Indigenous groups.	No IRs/CLs received on this section.
3.4	Stakeholder Meetings and Discussions	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, however, refer to Appendix C for updated engagement activities involving stakeholders.	No IRs/CLs received on this section.

Table B.4 Chapter 4 – Environmental Assessment Scope, Approach, and Methods

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
4.1	Scope of the Environmental Assessment and Factors Considered	Information in the Flemish Pass EIS and IR/CL responses remains valid for ELs 1159 and 1160. Refer to Section 4.1 for information regarding the number of wells. It is noted the well count with the addition of ELs 1159 and 1160 will remain the same as the Flemish Pass EIS (i.e. 30).	IR-71 IR-91
4.2	Identification and Selection of Valued Components	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-26
4.3	Environmental Effects Assessment (Planned Project Components and Activities)	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
4.3.1	Environmental Assessment Study Areas and Effects Evaluation Criteria	N/A – Heading	N/A – Heading
4.3.1.1	Study Areas	Information in the Flemish Pass EIS and CL responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	CL-04 CL-05
4.3.1.2	Significance Criteria	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
4.3.2	Potential Environmental Changes, Effects, and Associated Parameters	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
4.3.3	Environmental Effects	Information in the Flemish Pass EIS and IR response remains valid	IR-65

Evaluation of Planned Activities Associated with ELs 1159 and 1160 in Relation to the Flemish Pass Environmental Assessment

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
	Assessment and Mitigation	for ELs 1159 and 1160, and therefore no new information is applicable or required.	
4.4	Cumulative Environmental Effects	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
4.5	Accidental Events	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
4.6	Effects of the Environment on the Project	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Table B.5 Chapter 5 – Existing Physical Environment (Terry)

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
5.1	Geology and Geomorphology	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.1.1	Bedrock Geology	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.1.2	Geomorphology and Surficial Geology	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.1.3	Seismicity	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.1.4	Geohazards	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.2	Bathymetry	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.3	Climatology	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.3.1	Wind Speed and Direction	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.3.1.1	Project Area – Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.3.1.2	Project Area – Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.3.1.3	Potential Vessel and Aircraft Traffic Routes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
5.3.2	Air Temperature	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.3.2.1	Project Area – Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.3.2.2	Project Area – Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.3.2.3	Potential Vessel and Aircraft Traffic Routes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.3.3	Precipitation	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.3.3.1	Project Area – Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.3.3.2	Project Area – Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.3.3.3	Potential Vessel and Aircraft Traffic Routes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.3.3.4	Lightning	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.3.4	Fog and Visibility	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.3.4.1	Project Area – Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
5.3.4.2	Project Area – Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.3.4.3	Potential Vessel and Aircraft Traffic Routes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.4	Air Quality	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.5	Oceanography	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.5.1	Waves	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.5.1.1	Project Area – Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.5.1.2	Project Area – Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.5.1.3	Potential Vessel and Aircraft Traffic Routes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.5.2	Ocean Currents	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.5.2.1	Project Area – Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.5.2.2	Project Area – Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
5.5.2.3	Potential Vessel and Aircraft Traffic Routes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.5.3	Extreme Events	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.5.4	Seawater Properties (Temperature, Salinity, pH, Turbidity)	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.5.4.1	Project Area – Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.5.4.2	Project Area – Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.5.4.3	pH and Turbidity	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.5.5	Tides	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.5.6	Storm surge	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.6	Ambient Noise	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.6.1	Measured Soundscape near Drilling Operations	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.6.2	Soundscape by Band	Information in the Flemish Pass EIS and CL response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	CL-10

Evaluation of Planned Activities Associated with ELs 1159 and 1160 in Relation to the Flemish Pass Environmental Assessment

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
5.6.3	Effects of Vessels on the Soundscape	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.6.4	Summary of Effects of Sources on the Soundscape	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.7	Ice Conditions	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.7.1	Sea Ice	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.7.1.1	Project Area – Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.7.1.1.1	Southwestern Quadrant	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.7.1.1.2	Northwestern Quadrant	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.7.1.1.3	Southeastern Quadrant	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.7.1.1.4	Northeastern Quadrant	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.7.1.2	Project Area – Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.7.1.3	Potential Vessel Traffic Routes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
5.7.2	Icebergs	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.7.2.1	Project Area – Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.7.2.2	Project Area – Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.7.2.3	Potential Vessel Traffic Routes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.7.3	Marine Icing	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.7.3.1	Project Area – Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.7.3.2	Project Area – Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.7.3.3	Potential Vessel Traffic Routes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.8	Climate Change	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.8.1	Atmospheric Climate Changes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.8.1.1	Wind	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
5.8.1.2	Temperature	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.8.1.3	Precipitation	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.8.1.4	Storms	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.8.2	Oceanographic Changes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.8.2.1	Ocean-Water Temperatures	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.8.2.2	Waves	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.8.2.3	Currents	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.8.2.4	Sea Level	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.8.3	Ice Conditions	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.8.3.1	Sea Ice	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
5.8.3.2	Icebergs	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Table B.6 Chapter 6 – Existing Biological Environment

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
6.1	Marine Fish and Fish Habitat	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.1.1	Approach and Key Information Sources	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and figures and tables in Appendix D have been updated to take the most current survey data into consideration.	No IRs/CLs received on this section.
6.1.1.1	Canadian Research Vessel Multi-Species Surveys	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.1.1.2	International Research Vessel Surveys	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.1.1.3	Other Information Sources	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.1.1.4	Use and Adequacy of Existing Environmental Information for EIS Purposes	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-23 IR-23-2
6.1.2	Trophic Linkages and Community Change	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.1.3	Key Marine Assemblages	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.1.4	Plankton, Plants and Macroalgae	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.1.5	Pelagic Macroinvertebrates	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
6.1.6	Benthic Invertebrates	Information in the Flemish Pass EIS and CL response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	CL-06
6.1.6.1	Grand Banks Shelf (Project Area – Northern and Southern Sections)	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.1.6.2	Grand Bank Slope (Project Area – Southern Section)	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.1.6.3	Flemish Pass and Flemish Cap (Project Area – Northern and Southern Sections)	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.1.6.4	Orphan Basin (Project Area – Northern Section)	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.1.6.5	Corals and Sponges	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, however, Appendix D contains an updated table outlining known or potential coral / sponge occurrence in ELs 1159 and 1160.	No IRs/CLs received on this section.
6.1.6.6	Video Surveys of Previous Statoil Exploration Wellsites in the Project Area	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.1.6.7	Key Reproduction Times and Areas for Benthic Invertebrates	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.1.7	Finfish (Demersal and Pelagic Species)	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.1.7.1	Grand Bank Shelf and Slope (Project Area – Northern and Southern Sections)	Information in the Flemish Pass EIS and IR/CL responses remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	IR-24 CL-07

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
6.1.7.2	Flemish Cap (Project Area – Northern and Southern Sections)	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.1.7.3	Flemish Cap and Grand Banks Slope (Project Area – Northern and Southern Sections)	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	IR-18
6.1.7.4	Migratory Atlantic Salmon (*Salmo salar*)	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-16 and IR-16a IR-16 and IR-16a-2 IR-16 and IR-16a-2b
6.1.7.5	Key Spawning Times and Areas for Finfish	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.1.8	Species at Risk	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.1.9	Summary of Key Areas and Times	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.1.10	Special Areas of Importance to Marine Fish	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	IR-39 IR-39-2
6.2	Marine and Migratory Birds	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	IR-33
6.2.1	Approach and Key Information Sources	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated CWS data has been incorporated into the tables and figures in Appendix D.	No IRs/CLs received on this section.
6.2.2	Seabirds	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.2.2.1	Cormorants	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160,	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
		and updated information is provided in Appendix D.	
6.2.2.2	Gannets	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.2.2.3	Phalaropes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.2.2.4	Gulls	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.2.2.5	Terns	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.2.2.6	Alcids	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.2.2.7	Jaegers and Skuas	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.2.2.8	Fulmars and Shearwaters	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.2.2.9	Storm-petrels	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.2.3	Other Marine-Associated Avifauna	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.2.3.1	Waterfowl and Divers	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.2.3.2	Shorebirds	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160,	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
		and therefore no new information is applicable or required.	
6.2.3.3	Landbirds	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.2.4	Species at Risk	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	IR-36
6.2.5	Summary of Key Areas and Times	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.3	Marine Mammals and Sea Turtles	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.3.1	Approach and Key Information	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated data from opportunistic sightings has been incorporated into the tables and figures in Appendix D.	No IRs/CLs received on this section.
6.3.2	Overview	Information in the Flemish Pass EIS and CL response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	CL-11
6.3.3	Mysticetes (Baleen Whales)	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.3.3.1	Non-SAR Mysticete Species Descriptions and General Distributions	N/A – Heading	N/A – Heading
6.3.3.1.1	Humpback Whale	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.3.3.1.2	Minke Whale	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
6.3.3.1.3	Sei Whale	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.3.4	Odontocetes (Toothed Whales)	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.3.4.1	Non-SAR Odontocetes Species Descriptions and General Distributions	N/A – Heading	N/A – Heading
6.3.4.1.1	Atlantic Spotted Dolphin	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.3.4.1.2	Atlantic White-sided Dolphin	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.3.4.1.3	Common Bottlenose Dolphin	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.3.4.1.4	False Killer Whale	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.3.4.1.5	Long-Finned Pilot Whale	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.3.4.1.6	Risso's Dolphin	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.3.4.1.7	Short-Beaked Common Dolphin	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.3.4.1.8	Sperm Whale	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160,	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
		and updated information is provided in Appendix D.	
6.3.4.1.9	Spinner Dolphin	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.3.4.1.10	Striped Dolphin	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.3.4.1.11	White-beaked Dolphin	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.3.5	Phocids	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.3.5.1	Phocid Species Descriptions and General Distributions	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.3.5.1.1	Grey Seal	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.3.5.1.2	Harbour Seal	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.3.5.1.3	Harp Seal	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.3.5.1.4	Hooded Seal	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.3.6	Sea Turtles	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.3.6.1	Non-SAR Sea Turtles Species Descriptions and	N/A – Heading	N/A – Heading

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
	General Distributions		
6.3.6.1.1	Green Sea Turtle	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.3.6.1.2	Kemp's Ridley Sea Turtle	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.3.7	Species at Risk	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	IR-36
6.3.7.1	Listed Species Descriptions and General Distributions	N/A – Heading	N/A – Heading
6.3.7.1.1	Beluga Whale	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.3.7.1.2	Blue Whale	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.3.7.1.3	Bowhead Whale	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.3.7.1.4	Fin Whale	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.3.7.1.5	Harbour Porpoise	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.3.7.1.6	Killer Whale	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.3.7.1.7	North Atlantic Right Whale	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160,	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
		and updated information is provided in Appendix D.	
6.3.7.1.8	Northern Bottlenose Whale	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.3.7.1.9	Sowerby's Beaked Whale	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.3.7.1.10	Leatherback Sea Turtle	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.3.7.11	Loggerhead Sea Turtle	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.3.8	Summary of Key Areas and Times	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	No IRs/CLs received on this section.
6.4	Special Areas	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	IR-39 IR-39-2
6.4.1	Approach and Key Information Sources	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	IR-39 IR-39-2
6.4.2	Canadian Designations and their Management	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.2.1	Bioregions and Large Ocean Management Areas	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-39 IR-39-2
6.4.2.2	Marine Protected Areas and Areas of Interest	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-39 IR-39-2
6.4.2.2.1	Project Area - Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160,	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	**IRs/CLs**
		and therefore no new information is applicable or required.	
6.4.2.2.2	Project Area - Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.2.2.3	Potential Vessel and Aircraft Traffic Routes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.2.3	Fisheries Closure Areas within Canada's Exclusive Economic Zone	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.2.3.1	Project Area - Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.2.3.2	Project Area - Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.2.3.3	Potential Vessel and Aircraft Traffic Routes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.2.4	Ecologically and Biologically Significant Areas	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.2.4.1	Project Area - Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.2.4.2	Project Area - Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.2.4.3	Potential Vessel and Aircraft Traffic Routes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.2.5	National Marine Conservation	Information in the Flemish Pass EIS and IR responses remains valid for ELs	IR-39

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
	Areas and Preliminary Representative Marine Areas	1159 and 1160, and therefore no new information is applicable or required.	IR-39-2
6.4.2.5.1	Project Area - Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.2.5.2	Project Area - Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.2.5.3	Potential Vessel and Aircraft Traffic Routes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.2.6	National Wildlife Areas, Marine Wildlife Areas and Migratory Bird Sanctuaries	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.2.6.1	Project Area - Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.2.6.2	Project Area - Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.2.6.3	Potential Vessel and Aircraft Traffic Routes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.2.7	National Parks and Historic Sites	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.2.7.1	Project Area - Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.2.7.2	Project Area - Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
6.4.2.7.3	Potential Vessel and Aircraft Traffic Routes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.3	Newfoundland and Labrador Designations and their Management	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.3.1	Provincial Wilderness and Ecological Reserves	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.3.1.1	Project Area - Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.3.1.2	Project Area - Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.3.1.3	Potential Vessel and Aircraft Traffic Routes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.3.2	Provincial Parks and Protected Areas	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.3.2.1	Project Area - Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.3.2.2	Project Area - Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.3.2.3	Potential Vessel and Aircraft Traffic Routes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.3.3	Provincial Historic Sites	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
6.4.3.3.1	Project Area - Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.3.3.2	Project Area - Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.3.3.3	Potential Vessel and Aircraft Traffic Routes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.4	International Designations and their Management	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and updated information is provided in Appendix D.	IR-39 IR-39-2
6.4.4.1	Vulnerable Marine Ecosystems	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.4.1.1	Project Area - Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.4.1.2	Project Area - Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.4.1.3	Potential Vessel and Aircraft Traffic Routes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.4.2	NAFO Fisheries Closure Areas	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.4.2.1	Project Area - Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.4.2.2	Project Area - Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
6.4.4.2.3	Potential Vessel and Aircraft Traffic Routes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.5	Other Identified Marine Special Areas	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.5.1	Important Bird Areas	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.5.1.1	Project Area - Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.5.1.2	Project Area - Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.5.1.3	Potential Vessel and Aircraft Traffic Routes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.5.2	UNESCO World Heritage Sites	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.5.2.1	Project Area - Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.5.2.2	Project Area - Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.5.2.3	Potential Vessel and Aircraft Traffic Routes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.5.3	Convention on Wetlands of International Importance	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Evaluation of Planned Activities Associated with ELs 1159 and 1160 in Relation to the Flemish Pass Environmental Assessment

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
6.4.5.4	Western Hemisphere Shorebird Reserve Network	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
6.4.5.5	The UNESCO World Biosphere Reserve Program	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Table B.7 Chapter 7 – Existing Human Environment

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
7.1	Commercial Fisheries	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, refer to Appendix E for updated information and figures associated with commercial fisheries as a whole.	No IRs/CLs received on this section.
7.1.1	Administrative Areas and Key Information Sources	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.1.2	Historic Overview of Domestic Commercial Fisheries	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.1.3	Current Domestic Fisheries	Information in the Flemish Pass EIS and CL response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	CL-14
7.1.3.1	Project Area - Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.1.3.2	Project Area - Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.1.3.3	Potential Vessel and Aircraft Traffic Routes	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-41
7.1.4	Location and Timing of Harvest	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.1.5	International Fisheries	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.1.6	Description of Key Fisheries by Species	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.1.6.1	Northern Shrimp	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160,	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	**IRs/CLs**
		and therefore no new information is applicable or required.	
7.1.6.2	Snow Crab	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.1.6.3	Groundfish Species	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.1.7	Fishing Gear	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.1.7.1	Project Area - Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.1.7.2	Project Area - Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.1.7.3	Potential Vessel and Aircraft Traffic Routes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.1.8	Potential Commercial Fisheries	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.1.9	Aquaculture	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.1.10	Recreational Fishing	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.2	Other Human Components and Activities	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.2.1	Marine Research	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and Appendix E contains updated	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
		information regarding proposed surveys for 2019.	
7.2.2.1	Project Area - Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.2.2.2	Project Area - Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.2.2.3	Potential Vessel and Aircraft Traffic Routes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.2.2	Marine Shipping	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix E.	No IRs/CLs received on this section.
7.2.3	Offshore Oil and Gas Activity	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and updated information is provided in Appendix E.	No IRs/CLs received on this section.
7.2.3.1	Project Area - Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.2.3.2	Project Area - Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.2.3.3	Potential Vessel and Aircraft Traffic Routes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.2.4	Military Operations	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.2.5	Other Marine Infrastructure	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.3	Indigenous Communities and Activities	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160,	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	**IRs/CLs**
		and therefore no new information is applicable or required.	
7.3.1	Newfoundland and Labrador	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.3.1.1	Labrador Inuit	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.3.1.2	Labrador Innu (Innu Nation)	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.3.1.3	NunatuKavut Community Council	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.3.1.4	Qalipu Mi'kmaq First Nation	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.3.1.5	Miawpukek First Nation	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-43
7.3.2	Mi'kmaq of the Maritime Provinces	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.3.2.1	The Mi'kmaq of Nova Scotia	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.3.2.2	Mi'kmaq of Prince Edward Island	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.3.2.3	Mi'kmaq of New Brunswick	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.3.3	Wolastoqiyik of New Brunswick (Maliseet)	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160,	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	**IRs/CLs**
		and therefore no new information is applicable or required.	
7.3.4	Peskotomuhkati Nation (Passamaquoddy)	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.3.5	Mi'kmaq and Innu of Québec	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.3.5.1	Mi'kmaq of Québec	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.3.5.2	Québec Innu	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.4	Other Aspects of the Human Environment	N/A – Heading	N/A - Heading
7.4.1	Rural and Urban Setting	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.4.2	Human Health	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
7.4.3	Physical and Cultural Heritage	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Table B.8 Chapter 8 – Marine Fish and Fish Habitat: Environmental Effects Assessment

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
8.1	Environmental Assessment Study Areas and Effects Evaluation Criteria	Information in the Flemish Pass EIS and CL response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	CL-04
8.2	Potential Environmental Changes, Effects, and Associated Parameters	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
8.3	Environmental Effects Assessment and Mitigation	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-18
8.3.1	Approach and Methods	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
8.3.2	Summary of Key Mitigation	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-14 IR-23 IR-23-2
8.3.3	Presence and Operation of Drilling Installations	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-01 IR-24
8.3.3.1	Underwater Noise and Vibrations	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-82 IR-82-2
8.3.3.2	Light Emissions and Other Environmental Discharges	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
8.3.3.3	Interaction with Benthic Environment	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-21 IR-23 IR-23-2
8.3.3.4	Aquatic Invasive Species	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
8.3.3.5	Summary	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
8.3.4	Drilling and Associated Marine Discharges	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-24
8.3.4.1	Water-Based Drilling Muds	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-20 IR-20-2
8.3.4.2	Synthetic-Based Drilling Muds	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
8.3.4.3	Sedimentation and Burial	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
8.3.4.4	Project-Specific Modelling of Drilling Discharges	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160. Water depths associated with ELs 1159 and 1160 range from approximately 40 m to 1,020 m. Water depths associated with drill cuttings dispersion modelling for the Flemish Pass EIS and ExxonMobil EL 1134 Addendum range from 89 m to 2,700 m, and therefore are suitable for this Project. Re-modelling drill cuttings is not required.	IR-21 IR-81
8.3.4.4.1	Project Area – Northern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
8.3.4.4.2	Project Area – Southern Section	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
8.3.4.5	Potential Biological Effects of Drill Cuttings Deposition	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-21

Evaluation of Planned Activities Associated with ELs 1159 and 1160 in Relation to the Flemish Pass Environmental Assessment

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
8.3.4.6	Recovery and Recolonization	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
8.3.4.7	Summary	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
8.3.5	Formation Flow Testing with Flaring	Information in the Flemish Pass EIS and IR/CL responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-12 IR-12-2 IR-24 CL-13
8.3.6	Wellhead Decommissioning	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
8.3.7	Project-related Surveys	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
8.3.7.1	Geophysical, Geohazard, Wellsite, Seabed and VSP Surveys	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-05 IR-05-2 IR-24 IR-82 IR-82-2
8.3.7.2	Geological, Geotechnical and Environmental Surveys	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
8.3.8	Supply and Servicing	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-13 IR-24
8.4	Species at Risk: Overview of Potential Effects and Key Mitigation	Information in the Flemish Pass EIS and IR/CL responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-37 CL-09 CL-23
8.4.1	Wolffish Species	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
8.4.2	Grenadiers, Plaice, Spiny Dogfish, and Skates	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
8.4.3	Atlantic Cod and Cusk	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
8.4.4	Atlantic Salmon and American Eel	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-16 and IR-16a IR-16 and IR-16a-2 IR-16 and IR-16a-2b IR-17
8.4.5	Redfish Species	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
8.4.6	Pelagic Species (Sharks and Tuna)	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
8.5	Significance of Residual Environmental Effects	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
8.5.1	Residual Environmental Effects Summary	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160. Refer to Appendix F for environmental effects summaries associated with ELs 1159 and 1160.	IR-19 IR-21 IR-24
8.5.2	Determination of Significance	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
8.6	Environmental Monitoring and Follow-up	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-15 IR-22

Table B.9 Chapter 9 – Marine and Migratory Birds: Environmental Effects Assessment

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
9.1	Environmental Assessment Study Areas and Effects Evaluation Criteria	Information in the Flemish Pass EIS and CL response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	CL-04
9.2	Potential Environmental Changes, Effects, and Associated Parameters	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-30 IR-30-2 IR-34
9.3	Environmental Effects Assessment and Mitigation	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
9.3.1	Approach and Methods	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
9.3.2	Summary of Key Mitigation	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-31
9.3.3	Presence and Operation of Drilling Installations	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-27 IR-29 IR-30 IR-30-2 IR-32
9.3.4	Drilling and Associated Marine Discharges	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
9.3.5	Formation Flow Testing with Flaring	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-28 IR-30 IR-30-2 IR-32
9.3.6	Wellhead Decommissioning	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
9.3.7	Project-related Surveys	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160,	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
		and therefore no new information is applicable or required.	
9.3.8	Supply and Servicing	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-30 IR-30-2
9.4	Species at Risk: Overview of Potential Effects and Key Mitigation	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
9.5	Significance of Residual Environmental Effects	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
9.5.1	Residual Environmental Effects Summary	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160. Refer to Appendix F for environmental effects summaries associated with ELs 1159 and 1160.	IR-30 IR-30-2
9.5.2	Determination of Significance	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
9.6	Environmental Monitoring and Follow-up	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-30 IR-30-2

Table B.10 Chapter 10 – Marine Mammals and Sea Turtles: Environmental Effects Assessment

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
10.1	Environmental Assessment Study Areas and Effects Evaluation Criteria	Information in the Flemish Pass EIS and CL response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	CL-04
10.2	Potential Environmental Changes, Effects, and Associated Parameters	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
10.3	Environmental Effects Assessment and Mitigation	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
10.3.1	Approach and Methods	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
10.3.2	Summary of Key Mitigation	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-14 IR-38
10.3.3	Presence and Operation of Drilling Installations	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-72
10.3.4	Drilling and Associated Marine Discharges	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
10.3.5	Formation Flow Testing with Flaring	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
10.3.6	Wellhead Decommissioning	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
10.3.7	Project-related Surveys	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
10.3.8	Supply and Servicing	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-25 IR-25-2 IR-26
10.4	Species at Risk: Overview of Potential Effects and Key Mitigation	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
10.4.1	Beluga Whale	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
10.4.2	Blue Whale	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
10.4.3	Bowhead Whale	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
10.4.4	Fin Whale	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
10.4.5	Harbour Porpoise	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
10.4.6	Killer Whale	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
10.4.7	North Atlantic Right Whale	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
10.4.8	Northern Bottlenose Whale	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
10.4.9	Sowerby's Beaked Whale	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
10.4.10	Leatherback Sea Turtle	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
10.4.11	Loggerhead Sea Turtle	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
10.5	Significance of Residual Environmental Effects	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-26
10.5.1	Residual Environmental Effects Summary	Information in the Flemish Pass EIS and CL response remains valid for ELs 1159 and 1160. Refer to Appendix F for environmental effects summaries associated with ELs 1159 and 1160.	CL-11
10.5.2	Determination of Significance	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
10.6	Environmental Monitoring and Follow-up	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-15

Table B.11 Chapter 11 – Special Areas: Environmental Effects Assessment

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
11.1	Environmental Assessment Study Areas and Effects Evaluation Criteria	Information in the Flemish Pass EIS and CL response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	CL-04
11.2	Potential Environmental Changes, Effects, and Associated Parameters	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
11.3	Environmental Effects Assessment and Mitigation	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
11.3.1	Approach and Methods	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
11.3.2	Summary of Key Mitigation	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
11.3.3	Environmental Effects Assessment (All Project Components and Activities)	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and refer to Section 8.5 for updated information.	IR-39 IR-39-2 IR-40 IR-40-2
11.4	Significance of Residual Environmental Effects	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
11.4.1	Residual Environmental Effects Summary	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160. Refer to Appendix F for environmental effects summaries associated with ELs 1159 and 1160.	No IRs/CLs received on this section.
11.4.2	Determination of Significance	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Evaluation of Planned Activities Associated with ELs 1159 and 1160 in Relation to the Flemish Pass Environmental Assessment

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
11.5	Environmental Monitoring and Follow-up	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Table B.12 Chapter 12 – Indigenous Communities and Activities: Environmental Effects Assessment

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
12.1	Environmental Assessment Study Areas and Effects Evaluation Criteria	Information in the Flemish Pass EIS and CL response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	CL-04
12.2	Potential Environmental Changes, Effects, and Associated Parameters	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
12.3	Environmental Effects Assessment and Mitigation	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
12.3.1	Approach and Methods	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
12.3.2	Environmental Effects Assessment (All Project Components and Activities)	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-84 IR-84-2
12.3.2.1	Health and Socioeconomic Conditions	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
12.3.2.2	Current Use of Lands and Resources for Traditional Purposes	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
12.3.2.2.1	Indigenous Commercial Fish Harvesting	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
12.3.2.2.2	Indigenous Subsistence Harvesting	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Evaluation of Planned Activities Associated with ELs 1159 and 1160 in Relation to the Flemish Pass Environmental Assessment

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
12.3.2.2.3	Atlantic Salmon	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-16 and IR-16a IR-16 and IR-16a-2 IR-16 and IR-16a-2b
12.3.2.2.4	Swordfish	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
12.3.2.3	Physical and Cultural Heritage, Including Structures, Sites or Things or Historical, Archaeological, Paleontological or Architectural Significance	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
12.4	Significance of Residual Environmental Effects	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
12.4.1	Residual Environmental Effects Summary	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160. Refer to Appendix F for environmental effects summaries associated with ELs 1159 and 1160.	No IRs/CLs received on this section.
12.4.2	Determination of Significance	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
12.5	Environmental Monitoring and Follow-up	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Table B.13 Chapter 13 – Commercial Fisheries and Other Ocean Users: Environmental Effects Assessment

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
13.1	Environmental Assessment Study Areas and Effects Evaluation Criteria	Information in the Flemish Pass EIS and CL response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	CL-04
13.2	Potential Environmental Changes, Effects, and Associated Parameters	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
13.3	Environmental Effects Assessment and Mitigation	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
13.3.1	Approach and Methods	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
13.3.2	Summary of Key Mitigation	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-84 IR-84-2 IR-85
13.3.3	Presence and Operation of Drilling Installation (Including Drilling and Associated Marine Discharges)	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-01
13.3.4	Formation Flow Testing	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
13.3.5	Wellhead Decommissioning	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-42

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Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
13.3.6	Project-Related Surveys	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
13.3.7	Supply and Servicing	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
13.4	Significance of Residual Environmental Effects	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
13.4.1	Residual Environmental Effects Summary	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160. Refer to Appendix F for environmental effects summaries associated with ELs 1159 and 1160.	No IRs/CLs received on this section.
13.4.2	Determination of Significance	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
13.5	Environmental Monitoring and Follow-up	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Table B.14 Chapter 14 – Cumulative Environmental Effects

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
14.1	Approach and Methods	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.1.1	Identification of Valued Components	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.1.2	Spatial and Temporal Boundaries	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.1.3	Sources of Potential Cumulative Effects	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.1.4	Assessing Cumulative Effects on Each VC	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.1.5	Mitigation	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.1.6	Determination of Significance	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.1.7	Follow-up	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.2	Marine Fish and Fish Habitat (including Species at Risk)	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90

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Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
14.2.1	Past and On-going Effects (Baseline)	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.2.2	Potential Project-Related Contributions to Cumulative Effects	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.2.3	Future Projects and Activities and Their Effects	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.2.4	Potential Cumulative Environmental Effects	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.2.5	Species at Risk	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.2.6	Cumulative Effects Summary and Evaluation	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.3	Marine and Migratory Birds (including Species at Risk)	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-86 IR-86-2 IR-90
14.3.1	Past and On-going Effects (Baseline)	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.3.2	Potential Project-Related Contributions to Cumulative Effects	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90

Evaluation of Planned Activities Associated with ELs 1159 and 1160 in Relation to the Flemish Pass Environmental Assessment

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
14.3.3	Future Projects and Activities and Their Effects	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.3.4	Potential Cumulative Environmental Effects	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.3.5	Species at Risk	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.3.6	Cumulative Effects Summary and Evaluation	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.4	Marine Mammals and Sea Turtles (including Species at Risk)	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-86 IR-90
14.4.1	Past and On-going Effects (Baseline)	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.4.2	Potential Project-Related Contributions to Cumulative Effects	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.4.3	Future Projects and Activities and Their Effects	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.4.4	Potential Cumulative Environmental Effects	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90

Evaluation of Planned Activities Associated with ELs 1159 and 1160 in Relation to the Flemish Pass Environmental Assessment

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
14.4.5	Species at Risk	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.4.6	Cumulative Effects Summary and Evaluation	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.5	Special Areas	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.5.1	Past and On-going Effects (Baseline)	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.5.2	Potential Project-Related Contributions to Cumulative Effects	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.5.3	Future Projects and Activities and Their Effects	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.5.4	Potential Cumulative Environmental Effects	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.5.5	Cumulative Effects Summary and Evaluation	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.6	Indigenous Communities and Activities	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90

Evaluation of Planned Activities Associated with ELs 1159 and 1160 in Relation to the Flemish Pass Environmental Assessment

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
14.6.1	Past and On-going Effects (Baseline)	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.6.2	Potential Project-Related Contributions to Cumulative Effects	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.5.3	Cumulative Effects Summary and Evaluation	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.7	Commercial Fisheries and Other Ocean Users	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.7.1	Past and On-going Effects (Baseline)	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.7.2	Potential Project-Related Contributions to Cumulative Effects	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.7.3	Future Projects and Activities and Their Effects	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.7.4	Potential Cumulative Environmental Effects	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90
14.7.5	Cumulative Effects Summary and Evaluation	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
14.8	Monitoring and Follow-up	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160. Section 9 contains cumulative environment effects associated with the addition of EL 1159 and 1160.	IR-90

Table B.15 Chapter 15 – Accidental Events

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
15.1	Spill Prevention and Response	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.1.1	Spill Prevention and Well Control	N/A – Heading	N/A – Heading
15.1.1.1	Spill Prevention	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.1.1.2	Well Control and Blowout Prevention	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.1.2	Contingency Planning and Emergency Response	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.1.2.1	Contingency Planning	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-63 IR-87 IR-87-2
15.1.2.2	Well Capping and Containment Plan	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-50 IR-59 IR-59-2 IR-60 IR-61 IR-76 IR-77
15.1.2.3	Spill Response	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.1.2.3.1	Incident Command System	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.1.2.3.2	Response Contractors and Agencies	Information in the Flemish Pass EIS and IR/CL responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-44 CL-15 CL-22

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
15.1.2.3.3	Spill Response Tactics and Spill Impact Mitigation Assessment	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-63
15.1.2.3.4	Chemical Dispersion	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.1.2.3.5	Shoreline Protection and Clean Up	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.1.2.3.6	Oiled Wildlife Response	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-45
15.1.2.3.7	Remediation	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.1.2.3.8	Financial	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.2	Potential Accidental Event Scenarios	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-48 IR-48-2
15.2.1	Local Conditions and Natural Hazards	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.2.2	Vessel Collision	N/A – Heading	N/A – Heading
15.2.2.1	Transit to and from Project Area	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-47 IR-47-2
15.2.2.2	Within the Project Area	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.2.3	Dropped Objects	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-49

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
15.2.4	Loss of Drilling Installation Stability or Structural Integrity	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.2.5	Loss of Well Control	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.2.6	Potential Spill Scenarios	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required. Refer to Section 10.2 for an overview of spill modelling completed in previous assessments that is applicable and valid for this Project.	No IRs/CLs received on this section.
15.2.6.1	Subsurface Blowout	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.2.6.2	Operational Batch Diesel Spill	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-52
15.3	Spill Risk and Probabilities	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required. It is noted the well count with the addition of ELs 1159 and 1160 will remain the same as the Flemish Pass EIS (i.e. 30).	No IRs/CLs received on this section.
15.3.1	Historical Spill Data - Canada-NL Offshore Area	N/A – Heading	N/A – Heading
15.3.1.1	Sources of Oil Inputs in Newfoundland and Labrador Offshore	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.3.1.2	Canada-Newfoundland and Labrador Offshore Spill Data	Information in the Flemish Pass EIS and CL response remains valid for ELs 1159 and 1160. However, information in the EIS included spill data up to 2015, and CL-18 up to 2016. Refer Appendix G for spill data up to 2018.	CL-18

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
15.3.2	Probabilities of Spills from the Project	N/A – Heading	N/A – Heading
15.3.2.1	Probability of Batch Spills	Information in the Flemish Pass EIS and CL response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	CL-17
15.3.2.2	Probability of Blowouts	Information in the Flemish Pass EIS and IR/CL responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-46 CL-17
15.3.3	Summary	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.4	Fate and Behaviour of Potential Spills	Information in the Flemish Pass EIS, Eastern Newfoundland EIS, EL 1134 Addendum and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-58 IR-73
15.4.1	Study Area and Scenarios	Information in the Flemish Pass EIS, Eastern Newfoundland EIS, EL 1134 Addendum and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-74
15.4.2	Overall Modelling Approach	Information in the Flemish Pass EIS, Eastern Newfoundland EIS, EL 1134 Addendum remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.4.2.1	Stochastic Approach	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-83
15.4.2.2	Deterministic Approach	Information in the Flemish Pass EIS, Eastern Newfoundland EIS, EL 1134 Addendum remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.4.3	Model Input Data	Information in the Flemish Pass EIS and IR/CL responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-51 CL-16 CL-19 CL-20

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
			CL-20-2 CL-24 CL-25
15.4.4	Model Results	Information in the Flemish Pass EIS, Eastern Newfoundland EIS, EL 1134 Addendum remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.4.4.1	Stochastic Results	Information in the Flemish Pass EIS, Eastern Newfoundland EIS, EL 1134 Addendum remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.4.4.2	Deterministic Results	Information in the Flemish Pass EIS, Eastern Newfoundland EIS, EL 1134 Addendum remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.4.4.2.1	Surface Oil Exposure Cases	Information in the Flemish Pass EIS, Eastern Newfoundland EIS, EL 1134 Addendum remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.4.4.2.2	Water Column Exposure Cases	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-64
15.4.4.2.3	Shoreline Exposure Case	Information in the Flemish Pass EIS, Eastern Newfoundland EIS, EL 1134 Addendum remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.4.4.3	Marine Diesel Batch Spills	Information in the Flemish Pass EIS, Eastern Newfoundland EIS, EL 1134 Addendum remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.4.4.4	Uncertainties	Information in the Flemish Pass EIS, Eastern Newfoundland EIS, EL 1134 Addendum remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.4.4.5	Summary of Modelling Results	Information in the Flemish Pass EIS and IR response remains valid for ELs 1159	IR-62

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
		and 1160, and therefore no new information is applicable or required.	
15.5	Environmental Effects Assessment	Information in the Flemish Pass EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required. Refer to Appendix H for residual environmental effects summaries for each VC.	IR-53 IR-54 IR-55
15.5.1	Marine Fish and Fish Habitat	N/A – Heading	N/A – Heading
15.5.1.1	Introduction	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.1.2	Potential Issues and Interactions	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.1.2.1	Effects of Hydrocarbons on Marine Fish and Fish Habitat	Information in the Flemish Pass EIS, Eastern Newfoundland EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-80 IR-88
15.5.1.2.2	Effects of Dispersants on Marine Fish and Fish Habitat	Information in the Flemish Pass EIS, Eastern Newfoundland EIS and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-56
15.5.1.2.3	Effect of a Drill Mud Spill on Marine Fish and Fish Habitat	Information in the Flemish Pass EIS and Eastern Newfoundland EIS valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.1.3	Residual Environmental Effects Assessment and Evaluation	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.1.3.1	Batch Spills	Information in the Flemish Pass EIS, Eastern Newfoundland EIS and CL response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	CL-09
15.5.1.3.2	Uncontrolled Well Event	Information in the Flemish Pass EIS, Eastern Newfoundland EIS and CL response remains valid for ELs 1159 and	CL-09

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
		1160, and therefore no new information is applicable or required.	
15.5.1.4	Summary	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.1.5	Determination of Significance	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.2	Marine and Migratory Birds	N/A – Heading	N/A – Heading
15.5.2.1	Introduction	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.2.2	Potential Issues and Interactions	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.2.2.1	Effects of Hydrocarbons on Marine and Migratory Birds	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.2.2.2	Effects of Dispersants on Marine and Migratory Birds	Information in the Flemish Pass EIS, Eastern Newfoundland EIS and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-57
15.5.2.3	Residual Environmental Effects Assessment and Evaluation	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.2.3.1	Batch Spills	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.2.3.2	Uncontrolled Well Event	Information in the Flemish Pass EIS, Eastern Newfoundland EIS and IR/CL responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-35 CL-23
15.5.2.4	Summary	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
		for ELs 1159 and 1160, and therefore no new information is applicable or required.	
15.5.2.5	Determination of Significance	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.3	Marine Mammals and Sea Turtles	N/A – Heading	N/A – Heading
15.5.3.1	Introduction	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.3.2	Potential Issues and Interactions	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.3.2.1	Effects of Hydrocarbons on Marine Mammals	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.3.2.2	Effects of Hydrocarbons on Sea Turtles	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.3.2.3	Effects of Dispersants on Marine Mammals and Sea Turtles	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.3.3	Residual Environmental Effects Assessment and Evaluation	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.3.3.1	Batch Spills	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.3.3.2	Uncontrolled Well Event	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.3.4	Summary	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Evaluation of Planned Activities Associated with ELs 1159 and 1160 in Relation to the Flemish Pass Environmental Assessment

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
15.5.3.5	Determination of Significance	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.4	Special Areas	N/A – Heading	N/A – Heading
15.5.4.1	Introduction	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.4.2	Potential Issues and Interactions	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.4.3	Environmental Effects Assessment and Evaluation	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.4.3.1	Batch Spills	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.4.3.2	Uncontrolled Well Event	Information in the Flemish Pass EIS, Eastern Newfoundland EIS and IR response remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-75
15.5.4.4	Summary	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.4.5	Determination of Significance	Information in the Flemish Pass EIS, Eastern Newfoundland EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-40 IR-40-2
15.5.5	Indigenous Communities and Activities	Information in the Flemish Pass EIS, Eastern Newfoundland EIS and IR responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	IR-89 IR-89-2
15.5.5.1	Potential Issues and Interactions	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
15.5.5.2	Residual Environmental Effects Assessment and Evaluation	Information in the Flemish Pass EIS, Eastern Newfoundland EIS and CL responses remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	CL-08 CL-08-2
15.5.5.2.1	Batch Spills	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.5.2.2	Uncontrolled Well Event	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.5.3	Summary	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.5.4	Determination of Significance	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.6	Commercial Fisheries and Other Ocean Users	N/A – Heading	N/A – Heading
15.5.6.1	Introduction	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.6.2	Potential Issues and Interactions	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.6.2.1	Effects of Hydrocarbons on Commercial Fisheries and Other Ocean Users	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.6.2.2	Effects of Dispersants on Commercial Fisheries and Other Ocean Users	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Evaluation of Planned Activities Associated with ELs 1159 and 1160 in Relation to the Flemish Pass Environmental Assessment

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
15.5.6.3	Residual Environmental Effects Assessment and Evaluation	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.6.3.1	Batch Spills	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.6.3.2	Uncontrolled Well Event	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.6.4	Summary	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
15.5.6.5	Determination of Significance	Information in the Flemish Pass EIS and Eastern Newfoundland EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Table B.16 Chapter 16 – Effects of the Environment on the Project

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
16.1	Key Environmental Considerations	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
16.1.1	Weather Conditions	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
16.1.2	Oceanographic Conditions	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
16.1.3	Sea Ice, Icebergs and Superstructure Icing	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
16.1.4	Geological Stability and Seismicity	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
16.2	Assessing and Mitigating Potential Effects of the Environment on the Project	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
16.2.1	16.2.1 Weather Conditions	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
16.2.2	Oceanographic Conditions	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
16.2.3	Sea Ice, Icebergs, and Superstructure Icing	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
16.2.4	Geological Stability and Seismicity	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
16.3	Residual Effects Summary	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160,	No IRs/CLs received on this section.

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
		and therefore no new information is applicable or required.	

Table B.17 Chapter 17 – Environmental Assessment and Summary and Conclusions

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
17.1	Summary of Potential Effects	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
17.2	Summary of Mitigation and Commitments	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160. Refer to Appendix I for an updated table that includes additional commitments made in IR/CL responses.	No IRs/CLs received on this section.
17.3	Residual Environmental Effects	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
17.4	Follow-up and Monitoring	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
17.4.1	Follow-up Programs	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
17.4.2	Environmental Monitoring and Observations	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
17.4.3	Adaptive Management Measures	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
17.5	Summary of Predicted Environmental Changes and Effects and Their Relationship to Federal Jurisdiction and Decisions	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
17.5.1	Changes to Environmental Components with Federal Jurisdiction	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

Evaluation of Planned Activities Associated with ELs 1159 and 1160 in Relation to the Flemish Pass Environmental Assessment

Flemish Pass EIS Section Number	Flemish Pass EIS Section Name	Implications of Applying the Flemish Pass EA to ELs 1159 and 1160	
		EIS	IRs/CLs
17.5.2	Changes to the Environment that Would Occur on Federal Lands, in Another Province, or Outside Canada	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
17.5.3	Changes to the Environment that are Directly Linked or Necessarily Incidental to Federal Decisions	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.
17.6	Conclusions	Information in the Flemish Pass EIS remains valid for ELs 1159 and 1160, and therefore no new information is applicable or required.	No IRs/CLs received on this section.

APPENDIX C

Updated Engagement Logs – Government Departments and Agencies, Indigenous Groups and Stakeholder Organizations

Table C.1 Meetings and Discussions with Government Departments and Agencies

Date	Department or Agency	Type of Engagement	Purpose and Focus
October 26, 2017	CEA Agency	Conference Call	Discuss timing of submission of EIS.
December 15, 2017	CEA Agency	Conference Call	Discuss status of conformance review.
February 7, 2018	C-NLOPB, Fisheries and Oceans Canada (DFO), Environment and Climate Change Canada (ECCC) and CEA Agency	Workshop	Spill modelling workshop hosted by Equinor Canada and ExxonMobil
February 16, 2018	CEA Agency	Incoming Email	CEA Agency provided submissions from various stakeholders (i.e. FFAW-Unifor, Newfoundland and Labrador Oil & Gas Industries Association [NOIA], members of the public) on the EIS.
February 20, 2018	CEA Agency	In Person Meeting	Discuss the overall timeline of the EA.
February 20, 2018	CEA Agency	Incoming Email	CEA Agency provided EIS review submissions from select Indigenous groups (i.e. Mi'gmawei Mawiomi Secretariat, Kwilmu'kw Maw-klusuaqn Negotiation Office, NunatuKavut Community Council, Nunatsiavut Government, Première Nation des Innus de Nutashkuan (Nutashkuan), Qalipu Mi'kmaq First Nation, Sipekne'katik First Nation, and Mi'gmawe'l Tplu'taqnn Inc.
February 20, 2018	CEA Agency	Incoming Email	CEA Agency provided EIS review submissions from select government departments and agencies (i.e. C-NLOPB, ECCC, Transport Canada and Natural Resources Canada).
February 22, 2018	CEA Agency	Outgoing Email	Equinor provided the CEA Agency with an updated engagement log.
March 1, 2018	CEA Agency	Incoming Email	CEA Agency provided amended EIS review submission from Nutashkuan on the EIS.
March 5, 2018	CEA Agency	Incoming Email	CEA Agency provided translations of the original and amended EIS review submissions from Nutashkuan.
March 8, 2018	CEA Agency	Incoming Email	CEA Agency provided EIS review submission from DFO.
March 9, 2018	CEA Agency	Incoming and Outgoing Phone Calls	Discuss the status of IRs and potential receival date.

Updated Engagement Logs – Government Departments and Agencies, Indigenous Groups and Stakeholder Organizations

Date	Department or Agency	Type of Engagement	Purpose and Focus
March 13, 2018	CEA Agency	Incoming Email / Letter	CEA Agency sent Round 1 (Part 1) IRs.
March 19, 2018	CEA Agency	Incoming Email	CEA Agency requested copies of documents outlined in comment ECCC-03.
March 20, 2018	CEA Agency	Incoming Email	CEA Agency provided EIS review submission from Elsipogtog.
March 22, 2018	CEA Agency	Incoming Email	CEA Agency provided notification that Round 1 (Part 1) IRs/CLs are posted on the CEA Registry website.
March 26, 2018	CEA Agency	Incoming Email	CEA Agency provided the EIS review submission from Wolastoqey Nation in New Brunswick.
March 29, 2018	CEA Agency	Incoming Email	CEA Agency provided an editorial comment regarding a draft document that was noted in DFO's EIS review submission.
April 3, 2018	CEA Agency	Incoming Email	CEA Agency provided the EIS review submission from Miawpukek First Nation.
April 16, 2018	CEA Agency	Incoming Email	CEA Agency provided the EIS review submission from Les Innus de Ekuanitshit.
April 24, 2018	CEA Agency	Incoming Email / Letter	CEA Agency sent Round 1 (Part 2) IRs.
April 25, 2018	CEA Agency	Incoming Email	CEA Agency provided updated Round 1 (Part 2) IRs.
May 1, 2018	CEA Agency	Conference Call	CEA Agency called a meeting to discuss logistics/formatting aspects associated with upcoming IR submittal.
May 1, 2018	CEA Agency	Incoming Email	CEA Agency requested permission to use or reproduce materials from the EIS for their Regional Environmental Assessment.
May 8, 2018	CEA Agency	Incoming Email	CEA Agency provided an example of a recent IR submission by another operator.
May 15, 2018	CEA Agency	Outgoing Email / Letter	Equinor Canada submitted responses to Round 1 (Part 1) IRs.
May 16, 2018	CEA Agency	Incoming Email	CEA Agency acknowledge receipt of the Round 1 (Part 1) responses.
May 22, 2018	CEA Agency	Incoming Email	CEA Agency contacted Equinor Canada regarding an upcoming request for information.
May 24, 2018	CEA Agency	Incoming Letter	CEA Agency sent a letter outlining a formal request for information regarding correspondence between Equinor Canada and CEA Agency regarding the Flemish Pass Exploration Drilling Program since January 1, 2017.

Updated Engagement Logs – Government Departments and Agencies, Indigenous Groups and Stakeholder Organizations

Date	Department or Agency	Type of Engagement	Purpose and Focus
June 1, 2018	CEA Agency	Incoming Email	CEA Agency provided a copy of the joint presentations and meeting summary notes from the consultation meeting that occurred in Moncton, New Brunswick on April 12, 2018, Québec City, Québec on April 18, 2018 and St. John's, Newfoundland and Labrador on April 20,2018.
June 7, 2018	CEA Agency	Incoming Email / Letter	CEA Agency provided a letter outlining the results of the conformity review of Round 1 (Part 1) IRs.
June 8, 2018	CEA Agency	Conference Call	CEA Agency and Equinor Canada held a conference call to discuss recent conformity review.
June 8, 2018	CEA Agency	Outgoing Phone Call	Equinor Canada requested that the CEA Agency provides written summary of the feedback that was provided in the June 8, 2018 conference call.
June 8, 2018	CEA Agency	Incoming Email	CEA Agency provided a written summary of key points from the June 8, 2018 conference call.
June 8, 2018	CEA Agency	Outgoing Email	Equinor Canada provided the CEA Agency with an updated engagement log.
June 13, 2018	CEA Agency	Outgoing Email	Equinor Canada responded to the CEA Agency information request from May 24, 2018.
June 17, 2018	CEA Agency	Incoming Email	CEA Agency emailed Equinor Canada regarding specific information associated with coral and sponge surveys.
June 26, 2018	CEA Agency	Conference Call	CEA Agency and Equinor Canada held a conference call to discuss coral and sponge surveys, and the request emailed from CEA Agency on June 17, 2018.
July 5, 2018	CEA Agency	Outgoing Email / Letter	Equinor Canada submitted responses to Round 1 (Parts 1 and 2) IRs.
July 6, 2018	CEA Agency	Incoming Email	CEA Agency acknowledged receipt of Round 1 (Parts 1 and 2) IRs.
July 16, 2018	C-NLOPB	In Person Meeting	Equinor Canada provided the C-NLOPB an IR status update.
July 20, 2018	CEA Agency	Incoming Phone Call	CEA Agency left a voice message for Equinor Canada regarding the conformity review of Round 1(Parts 1 and 2) IRs, and that IR responses would be provided to Indigenous groups for review.
July 20, 2018	CEA Agency	Incoming Email / Letter	CEA Agency provided a letter outlining the results of the conformity review of Round 1 (Parts 1 and 2) IRs.

Updated Engagement Logs – Government Departments and Agencies, Indigenous Groups and Stakeholder Organizations

Date	Department or Agency	Type of Engagement	Purpose and Focus
July 23, 2018	CEA Agency	Outgoing Phone Call	Equinor Canada contacted CEA Agency to obtain clarification regarding IR review notification by Indigenous groups and stakeholders.
August 14, 2018	CEA Agency	Outgoing Phone Call	Equinor Canada contacted CEA Agency for a general update regarding status of IRs.
August 27, 2018	CEA Agency	Incoming Email / Letter	CEA Agency provided Round 2 (Part 1) IRs.
September 5, 2018	C-NLOPB, DFO, ECCC, Health Canada, CEA Agency, Natural Resources Canada, Transport Canada and CEA Agency	Workshop	Spill modelling workshop hosted by Equinor Canada, ExxonMobil and Nexen.
September 11, 2018	CEA Agency	Incoming Email	CEA Agency provided IR review submissions from Indigenous groups.
September 12, 2018	CEA Agency	Incoming Email	CEA Agency provided IR review submissions from government departments and agencies.
September 21, 2018	CEA Agency	Incoming Email	CEA Agency requested a number of areas requiring confirmation/clarification, as well as graphics, for the draft EA Report.
October 3, 2018	CEA Agency	Outgoing Email	Equinor Canada responded to CEA Agency's request from September 21, 2018.
October 3, 2018	CEA Agency	Outgoing Email / Letter	Equinor Canada submitted responses to Round 2 (Part 1) IRs.
October 3, 2018	CEA Agency	Incoming Email	CEA Agency acknowledged receipt of Round 2 (Part 1) IRs.
October 9, 2018	CEA Agency	Incoming Email / Letter	CEA Agency provided Round 2 (Part 2) IRs.
October 12, 2018	CEA Agency	Outgoing Phone Call	Equinor Canada contacted CEA Agency to obtain clarification on Round 2 (Part 2) IRs.
October 17, 2018	CEA Agency	In Person Meeting	Equinor Canada met with CEA Agency for a general EA discussion and update, and also specifically discussed recent Round 2 (Part 2) IRs.
October 18, 2018	CEA Agency	Incoming Email / Letter	CEA Agency provided a letter outlining the results of the conformity review of Round 2 (Part 1) IRs.
October 22, 2018	CEA Agency	Conference Call	Equinor Canada and CEA Agency had a conference call to obtain clarification on Round 2 (Part 2) IRs.

Updated Engagement Logs – Government Departments and Agencies, Indigenous Groups and Stakeholder Organizations

Date	Department or Agency	Type of Engagement	Purpose and Focus
October 25, 2018	C-NLOPB	In Person Meeting	Equinor Canada provided the C-NLOPB an EA status update.
October 25, 2018	CEA Agency	Incoming Email	CEA Agency requested a number of areas requiring confirmation/clarification for the draft EA Report.
November 2, 2018	CEA Agency	Incoming Email	CEA Agency requested a number of areas requiring confirmation/clarification for the draft EA Report.
November 5, 2018	CEA Agency	Outgoing Email	Equinor Canada responded to CEA Agency's request from October 25, 2018.
November 5, 2018	CEA Agency	Incoming Phone Call	CEA Agency indicated that response provided on November 5, 2018 required revision.
November 9, 2018	CEA Agency	Incoming Email	CEA Agency requested a number of areas requiring confirmation/clarification for the draft EA Report.
November 9, 2018	CEA Agency	Incoming Email	CEA Agency provided IR review submissions from Nunatsiavut Government and Wolastoqey Nation in New Brunswick.
November 9, 2018	CEA Agency	Outgoing Email	Equinor Canada responded to CEA Agency's request from November 2, 2018.
November 12, 2018	CEA Agency	Outgoing Email	Equinor Canada provided updated responses to file emailed on November 9, 2018.
November 13, 2018	CEA Agency	Outgoing Email	Equinor Canada provided updated responses to file emailed on November 5, 2018.
November 16, 2018	CEA Agency	Outgoing Email	Equinor Canada responded to CEA Agency's request from November 9, 2018.
November 19, 2018	CEA Agency	Outgoing Email / Letter	Equinor Canada submitted responses to Round 2 (Part 2) IRs.
November 20, 2018	CEA Agency	Incoming Email	CEA Agency acknowledged receipt of Round 2 (Part 2) IRs.
November 20, 2018	CEA Agency	Incoming Email	CEA Agency requested a number of areas requiring confirmation/clarification for the draft EA Report.
November 21, 2018	CEA Agency	Outgoing Phone Call	Equinor Canada contacted CEA Agency to discuss two new ELs that were awarded and EA options.
November 23, 2018	CEA Agency	Outgoing Phone Call	Follow-up phone call from November 21, 2018.
November 25, 2018	CEA Agency	Outgoing Email	Equinor Canada responded to CEA Agency's request from November 20, 2018.

Updated Engagement Logs – Government Departments and Agencies, Indigenous Groups and Stakeholder Organizations

Date	Department or Agency	Type of Engagement	Purpose and Focus
November 25, 2018	CEA Agency	Incoming Email / Letter	CEA Agency provided a letter outlining the results of the conformity review of Round 2 (Part 2) IRs.
December 4, 2018	CEA Agency	Incoming Email	CEA Agency requested a number of areas requiring confirmation/clarification for the draft EA Report.
December 17, 2018	CEA Agency	Outgoing Email	Equinor Canada responded to CEA Agency's request from December 4, 2018.
December 19, 2018	CEA Agency	Incoming Email	CEA Agency provided IR review submissions from Kwilmu'kw Maw-klusuaqn Negotiation Office and Wolastoqey Nation in New Brunswick.
January 8, 2019	CEA Agency	Incoming Email	CEA Agency requested figures for draft EA report.
January 22, 2019	CEA Agency	Outgoing Email	Equinor Canada provided figures to CEA Agency requested on January 8, 2019.
January 23, 2019	CEA Agency and C-NLOPB	In Person Meeting	Equinor Canada met with CEA Agency and C-NLOPB to discuss EA approval options for recently awarded ELs 1159 and 1160.
January 24, 25 and 29, 2019	CEA Agency	Incoming and Outgoing Emails	CEA Agency requested clarification regarding spill modelling probabilities, and Equinor Canada responded.
February 14, 2019	CEA Agency	Incoming Email	CEA Agency informed Equinor Canada that joint comment period on the draft EA Report (Flemish Pass) and potential conditions has been announced.
March 29, 2019	CEA Agency	Outgoing Phone Call	Equinor Canada contacted the CEA Agency regarding the French Project Description Summary submittal. The CEA Agency indicated that they would accept the French Project Description Summary within 10 days of submitting the Project Description and English Project Description Summary.
March 29, 2019	C-NLOPB	In Person Meeting	Equinor Canada provided the C-NLOPB an overview of the Central Ridge Project Description.
March 29, 2019	CEA Agency	Outgoing Letter / Email	Equinor Canada submitted a cover letter, Project Description, and English Project Description Summary for the Central Ridge Area to the CEA Agency.
March 29, 2019	CEA Agency	Incoming Email	CEA Agency acknowledged receipt of the Project Description, and English Project Description Summary for the Central Ridge Area. The CEA Agency indicated they would contact Equinor Canada by April 8, 2019.

Updated Engagement Logs – Government Departments and Agencies, Indigenous Groups and Stakeholder Organizations

Date	Department or Agency	Type of Engagement	Purpose and Focus
April 1, 2019	CEA Agency	Outgoing Email	Equinor Canada provided the CEA Agency with a copy of the pre-Project Description letters that were submitted to Indigenous Groups.
April 1, 2019	C-NLOPB	Outgoing Email	Equinor Canada provided the C-NLOPB with a copy of the pre-Project Description letters that were submitted to Indigenous Groups.
April 2, 2019	CEA Agency	Outgoing Email	Equinor Canada submitted the French Project Description Summary for the Central Ridge Area to the CEA Agency.
April 2, 2019	CEA Agency	Incoming Email	The CEA Agency acknowledged receipt of the French Project Description Summary for the Central Ridge Area.
April 5, 2019	CEA Agency	Incoming Email	The CEA Agency provided feedback regarding the Central Ridge Area Project Description and Project Description Summary.
April 17, 2019	CEA Agency	Incoming Letter / Email	The CEA Agency provided a letter and decision statement associated with the Flemish Pass Exploration Drilling Program to Equinor Canada.
April 26, 2019	CEA Agency	Outgoing Phone Call	Equinor Canada contacted the CEA Agency to determine if the CEA Agency has received any correspondence and/or feedback from Indigenous Groups regarding the pre-Project Description notification letters that were sent. The CEA Agency indicated they would check and get back to Equinor Canada.

Table C.2 Engagement with Indigenous Groups – Newfoundland and Labrador

Date	Type of Engagement	Purpose and Focus
Nunatsiavut Government (NG)		
January 5, 2018	Outgoing Email	Equinor Canada provided notification of EIS review period.
January 25, 2018	Outgoing Email	Equinor Canada requested phone meeting to discuss any outstanding information needs, and follow-up on potential meeting with Equinor Canada and other offshore operators.
January 26, 2018	Incoming Email	NG responded to January 26, 2018 email and indicating that EIS review was in progress and no requirement to meet at this time.
January 31, 2018	Outgoing Email	Equinor Canada provided a table of exploration projects for various offshore operators and indicated EA status. Also informed that offshore operators are open to meeting to discuss any questions of concern regarding the projects, including any Indigenous Knowledge for consideration of the environmental assessment.
April 20, 2018	Workshop	Equinor Canada (and four other operators) participated in CEA Agency organized workshop with Indigenous groups in St. John's to discuss project details including emergency preparedness and response, environmental monitoring, well control measures and well abandonment, as well as concerns of Indigenous groups.
May 25, 2018	Outgoing Email	Follow-up information requested at workshops – providing presentations and responding to a question about temporal scope of exploration licences.
June 5, 2018	Outgoing Email	Equinor Canada (along with ExxonMobil, Husky, BP and Nexen) provided a table of exploration projects for various offshore operators and indicated EA status. Also informed that offshore operators are open to meeting to discuss any questions of concern regarding the projects, including any Indigenous Knowledge for consideration of the environmental assessment.
August 27, 2018	Outgoing Email	Joint workshop invitation sent to all 41 Indigenous groups - workshops in St. John's (October 10-11), Québec City (October 15-16) and Moncton (October 18-19). Equinor to pay costs of travel.
August 27, 2018	Incoming Email	NG to attend St. John's workshop – two participants.
September 28, 2018	Outgoing Email	Follow-up information for St. John's workshop.
October 3, 2018	Outgoing Email	Follow-up information for St. John's workshop.
October 10, 2018	Workshop	Information exchange and dialogue on: project updates; follow-up from April 2018 workshops; environmental effects monitoring; emergency prevention; emergency response - oil spill response planning, source control, response options; well abandonment.
October 25, 2018	Outgoing Email	Provided presentations from St. John's workshop and oil modeling fact sheet.

Updated Engagement Logs – Government Departments and Agencies, Indigenous Groups and Stakeholder Organizations

Date	Type of Engagement	Purpose and Focus
November 15, 2018	Outgoing Email	Provided update on EA status for all offshore eastern NL projects.
December 13, 2018	Outgoing Email	Provided summaries from all three October workshops.
March 28, 2019	Outgoing Email / Letter	Provided advanced letter notification regarding the Project Description that will be submitted to the CEA Agency.
Innu Nation		
January 25, 2018	Outgoing Email	Equinor Canada requested phone meeting to discuss any outstanding information needs, and follow-up on potential meeting with Equinor Canada and other offshore operators.
January 31, 2018	Outgoing Email	Equinor Canada provided a table of exploration projects for various offshore operators and indicated EA status. Also informed that offshore operators are open to meeting to discuss any questions of concern regarding the projects, including any Indigenous Knowledge for consideration of the environmental assessment.
April 20, 2018	Workshop	Innu Nation attended a CEA Agency organized meeting in St. John's, NL that included Indigenous groups, offshore operators and select government departments and agencies. Topics discussed included - project details, emergency preparedness and response, environmental monitoring, well control measures and well abandonment, as well as concerns raised by Indigenous groups.
May 25, 2018	Outgoing Email	Follow-up information requested at workshops – providing presentations and responding to a question about temporal scope of exploration licences.
June 5, 2018	Outgoing Email	Equinor Canada (along with ExxonMobil, Husky, BP and Nexen) provided a table of exploration projects for various offshore operators and indicated EA status. Also informed that offshore operators are open to meeting to discuss any questions of concern regarding the projects, including any Indigenous Knowledge for consideration of the environmental assessment.
August 27, 2018	Outgoing Email	Joint workshop invitation sent to all 41 Indigenous groups - workshops in St. John's (October 10-11), Québec City (October 15-16) and Moncton (October 18-19). Equinor to pay costs of travel.
September 28, 2018	Incoming Email	Innu Nation to attend Moncton workshop – two participants.
September 28, 2018	Outgoing Email	Follow-up information for Moncton workshop.
October 3, 2018	Outgoing Email	Follow-up information for Moncton workshop.
October 10, 2018	Workshop	Information exchange and dialogue on: project updates; follow-up from April 2018 workshops; environmental effects monitoring; emergency prevention; emergency response - oil spill response planning, source control, response options; well abandonment

Updated Engagement Logs – Government Departments and Agencies, Indigenous Groups and Stakeholder Organizations

Date	Type of Engagement	Purpose and Focus
October 25, 2018	Outgoing Email	Provided presentations from Moncton workshop and oil modeling fact sheet.
November 15, 2018	Outgoing Email	Provided update on EA status for all offshore eastern NL projects.
December 13, 2018	Outgoing Email	Provided summaries from all three October workshops.
March 28, 2019	Outgoing Email / Letter	Provided advanced letter notification regarding the Project Description that will be submitted to the CEA Agency.
NunatuKavut Community Council (NCC)		
January 25, 2018	Outgoing Email	Equinor Canada requested phone meeting to discuss any outstanding information needs, and follow-up on potential meeting with Equinor Canada and other offshore operators.
January 31, 2018	Outgoing Email	Equinor Canada provided a table of exploration projects for various offshore operators and indicated EA status. Also informed that offshore operators are open to meeting to discuss any questions of concern regarding the projects, including any Indigenous Knowledge for consideration of the environmental assessment.
February 1, 2018	Outgoing Email	Equinor Canada sent NCC a follow-up email requesting potential meeting dates.
February 12, 2018	Incoming Email	NCC requested to meet with Equinor Canada to discuss potential effects of Flemish Pass Exploration Drilling Program and benefits.
March 28, 2018	In Person Meeting	NCC and Equinor Canada, along with ExxonMobil, participated in a meeting in Halifax, NS. Discussion focused on current stages of the projects, potential for economic development, interest in Indigenous Knowledge study and engagement support.
April 4, 2018	Incoming Email	NCC provided information to Equinor Canada regarding their businesses for future opportunities.
April 20, 2018	Workshop	NCC attended a CEA Agency organized meeting in St. John’s, NL that included Indigenous groups, offshore operators and select government departments and agencies.
May 25, 2018	Outgoing Email	Follow-up information requested at workshops – providing presentations and responding to a question about temporal scope of exploration licences.
June 5, 2018	Outgoing Email	Equinor Canada (along with ExxonMobil, Husky, BP and Nexen) provided a table of exploration projects for various offshore operators and indicated EA status. Also informed that offshore operators are open to meeting to discuss any questions of concern regarding the projects, including any Indigenous Knowledge for consideration of the environmental assessment.
August 27, 2018	Outgoing Email	Joint workshop invitation sent to all 41 Indigenous groups - workshops in St. John's (October 10-11), Québec City (October 15-16) and Moncton (October 18-19). Equinor to pay costs of travel.

Updated Engagement Logs – Government Departments and Agencies, Indigenous Groups and Stakeholder Organizations

Date	Type of Engagement	Purpose and Focus
August 27, 2018	Incoming Email	NCC confirmed participation at St. John's workshop – two participants.
September 28, 2018	Outgoing Email	Follow-up for St. John's workshop.
October 3, 2018	Outgoing Email	Follow-up for St. John's workshop.
October 10, 2018	Workshop	Information exchange and dialogue on: project updates; follow-up from April 2018 workshops; environmental effects monitoring; emergency prevention; emergency response - oil spill response planning, source control, response options; well abandonment
October 25, 2018	Outgoing Email	Provided presentations from St. John's workshop and oil modeling fact sheet.
November 15, 2018	Outgoing Email	Provided update on EA status for all offshore eastern NL projects.
December 13, 2018	Outgoing Email	Provided summaries from all three October workshops.
March 28, 2019	Outgoing Email / Letter	Provided advanced letter notification regarding the Project Description that will be submitted to the CEA Agency.
Miawpukek First Nation (MFN)		
January 10, 2018	Incoming Email	MFN emailed the Operators regarding offshore EAs associated with Husky, Nexen, ExxonMobil and Statoil, preparing a consultation and engagement work plan, and to suspend the EA process until MFN has signed an agreement with the offshore operators to support the consultation and engagement plan.
January 25, 2018	Outgoing Email	Equinor Canada emailed MFN and requested phone meeting to discuss any outstanding information needs, and follow up on potential meeting with Equinor Canada and other operators.
January 31, 2018	Outgoing Email	Equinor Canada provided a table of exploration projects for various offshore operators and indicated EA status. Also informed that offshore operators are open to meeting to discuss any questions of concern regarding the projects, including any Indigenous Knowledge for consideration of the environmental assessment.
February 1, 2018	Outgoing and Incoming Emails	Equinor Canada emailed MFN (follow up to January 25, 2018 email) offering to meet in March with Nexen, ExxonMobil and Statoil and requesting potential meeting dates. MFN responded back and indicated they would provide dates.
February 9, 2018	Incoming Email / Letter	Received a letter from MFN, dated January 31, 2018, regarding capacity funding, salmon, impacts to Aboriginal rights, etc.
March 15, 2018	Outgoing Email	Provided email to MFN regarding MFN's email to CEA Agency on March 13, 2018 regarding consultation concerns. Email indicated that all four operators (i.e. Equinor Canada, ExxonMobil, BP and Nexen) are interested in meeting with MFN, and will wait on MFN to suggest a suitable meeting date.

Updated Engagement Logs – Government Departments and Agencies, Indigenous Groups and Stakeholder Organizations

Date	Type of Engagement	Purpose and Focus
March 22, 2018	Incoming Email	Received an email from MFN's consultant, Shared Valued Solutions, indicating potential meeting dates of May 10, 2018 or May 11, 2018 in Gander or Conne River. A copy of the Miawpukek Aboriginal Traditional Knowledge Guidebook was attached as well.
April 5, 2018	Outgoing Email	Provided an email to MFN regarding MFN's email to CEA Agency on March 13, 2018 regarding consultation concerns, and further to the email on March 15, 2018.
April 20, 2018	Workshop	MFN attended a CEA Agency organized meeting in St. John's, NL that included Indigenous groups, offshore operators and select government departments and agencies.
April 24, 2018	Incoming Email	Received an email from MFN's consultant, Shared Valued Solutions, with a request to meet and provided a budget for the meeting.
April 25, 2018	Outgoing Email	Equinor Canada emailed MFN and proposed new meeting dates of May 24, 2018 or May 25, 2018, or the week of June 4, 2018.
April 26, 2018	Outgoing Email	Equinor Canada emailed MFN and requested draft agenda items.
April 28, 2018	Outgoing Email	Equinor Canada emailed MFN and provided the presentation from the April 20, 2018 meeting in St. John's that the CEA Agency organized.
May 1, 2018	Incoming and Outgoing Emails	MFN emailed Equinor Canada and provided draft agenda items. Equinor Canada emailed back MFN and clarified the location of the meeting (i.e. Gander).
May 3, 2018	Outgoing Email	Provided an email response to MFN's email from April 24, 2018 and expressed interested in participating in a joint meeting with the operators, provided dates, and indicated that limited funding is available for travel costs for MFN.
May 17, 2018	Incoming Email / Letter	Equinor Canada received a letter from MFN, dated May 16, 2018, regarding scheduling a meeting in June, budget for the meeting, aspects that need to be completed prior to the meeting (e.g. MFN to review EIS, engage with community members, fishers and elders, collecting traditional knowledge, etc.).
May 31, 2018	Outgoing Email	Equinor Canada emailed MFN proposing a meeting.
June 5, 2018	Outgoing Email	Equinor Canada (along with ExxonMobil, Husky, BP and Nexen) provided a table of exploration projects for various offshore operators and indicated EA status. Also informed that offshore operators are open to meeting to discuss any questions of concern regarding the projects, including any Indigenous Knowledge for consideration of the environmental assessment.

Updated Engagement Logs – Government Departments and Agencies, Indigenous Groups and Stakeholder Organizations

Date	Type of Engagement	Purpose and Focus
July 3, 2018	Incoming Email / Letter	Received a letter from MFN, dated June 28, 2018, regarding a meeting in Conne River for July 17, 2018 (note: letter states July 10 but correct date was confirmed by email). Purpose of the meeting is to provide an update on offshore projects, the regulatory process, and planned mitigation and monitoring. MFN clearly stated that they are not prepared to discuss the impacts to their rights and interests, and will not be able to share traditional ecological knowledge at the time, and that this meeting is not considered consultation.
July 17, 2018	In Person Meeting	Equinor Canada, along with other operators, delivered the same presentation from the April 20, 2018 workshop in Conne River.
July 17, 2018	Outgoing Email	Shared draft meeting summary from July 17 for comments.
August 6, 2018	Incoming Email / Letter	Follow-up letter from July 17 meeting in Conne River – outlining a workplan and timeline.
August 9, 2018	Outgoing Email / Letter	Offer from Equinor Canada, and four other operators, to support engagement participation, an Indigenous Knowledge study, and community investment.
August 27, 2018	Outgoing Email	Joint workshop invitation sent to all 41 Indigenous groups - workshops in St. John's (October 10-11), Québec City (October 15-16) and Moncton (October 18-19). Equinor to pay costs of travel.
August 27, 2018	Incoming Email	MFN confirmed participation at St. John’s workshop - one participant.
August 28, 2018	Incoming Email	MFN’s consultant, Shared Valued Solutions, expressed interest in attending fall workshops with MFN community member.
August 30, 2018	Incoming Email / Letter	Received counter-offer from MFN regarding Equinor Canada/four other operators’ offer to support engagement participation, an Indigenous Knowledge study, and community investment.
September 10, 2018	Incoming Email/Letter	MFN’s consultant, Shared Valued Solutions, provided edits to draft meeting summary sent July 17.
September 11, 2018	Outgoing Email/Letter	Equinor Canada and four other operators reiterated their offer to support engagement participation, an Indigenous knowledge study, and community investment.
September 28, 2018	Outgoing Email	Follow-up for St. John’s workshop
October 3, 2018	Outgoing Email / Letter	Request for MFN to advance the offers made on August 9 and September 11.
October 9, 2018	Outgoing Email	Follow-up for St. John’s workshop
October 10, 2018	Workshop	Information exchange and dialogue on: project updates; follow-up from April 2018 workshops; environmental effects monitoring; emergency prevention; emergency response - oil spill response planning, source control, response options; well abandonment

Updated Engagement Logs – Government Departments and Agencies, Indigenous Groups and Stakeholder Organizations

Date	Type of Engagement	Purpose and Focus
October 10, 2018	Incoming Email	MFN's consultant, Shared Valued Solutions, email reiterated lack of meaningful consultation, need for funding, threatening to leave the process if needs are not met.
October 25, 2018	Outgoing Email	Provided presentations from St. John's workshop and oil modeling fact sheet.
November 13, 2018	Outgoing Email / Letter	Equinor and four other operators reiterated their offer to support engagement participation, an Indigenous Knowledge study, and community investment.
November 15, 2018	Outgoing Email	Provided update on EA status for all offshore NL projects.
December 7, 2018	Phone Call	Equinor discussion with MFN regarding offer from five operators regarding supporting engagement, Indigenous Knowledge study, community investment.
December 13, 2018	Outgoing Email	Provided summaries from all three October workshops.
March 28, 2019	Outgoing Email / Letter	Provided advanced letter notification regarding the Project Description that will be submitted to the CEA Agency.
Qalipu Mi-kmaq First Nation Band (QMFNB)		
January 31, 2018	Outgoing Email	Equinor Canada provided a table of exploration projects for various offshore operators and indicated EA status. Also informed that offshore operators are open to meeting to discuss any questions of concern regarding the projects, including any Indigenous Knowledge for consideration of the environmental assessment.
February 6, 2018	Outgoing Email	Equinor Canada emailed QMFNB with an offer to meet to discuss the project.
February 9, 2018	Incoming Email / Letter	Equinor Canada received a letter from QMFNB regarding capacity funding.
April 20, 2018	Workshop	QMFNB attended a CEA Agency organized meeting in St. John's, NL that included Indigenous groups, offshore operators and select government departments and agencies.
May 25, 2018	Outgoing Email	Follow-up information requested at workshops – providing presentations and responding to a question about temporal scope of exploration licences.
June 5, 2018	Outgoing Email	Equinor Canada (along with ExxonMobil, Husky, BP and Nexen) provided a table of exploration projects for various offshore operators and indicated EA status. Also informed that offshore operators are open to meeting to discuss any questions of concern regarding the projects, including any Indigenous Knowledge for consideration of the environmental assessment.
August 27, 2018	Outgoing Email	Joint workshop invitation sent to all 41 Indigenous groups - workshops in St. John's (October 10-11), Québec City (October 15-16) and Moncton (October 18-19). Equinor to pay costs of travel.
September 4, 2018	Incoming Email	QMFNB confirmed participation at St. John's workshop - two participants.

Updated Engagement Logs – Government Departments and Agencies, Indigenous Groups and Stakeholder Organizations

Date	Type of Engagement	Purpose and Focus
September 28, 2018	Outgoing Email	Follow-up for St. John's workshop.
October 3, 2018	Outgoing Email	Follow-up for St. John's workshop.
October 10, 2018	Workshop	Information exchange and dialogue on: project updates; follow-up from April 2018 workshops; environmental effects monitoring; emergency prevention; emergency response - oil spill response planning, source control, response options; well abandonment
October 25, 2018	Outgoing Email	Provided presentations from St. John's workshop and oil modeling fact sheet.
November 15, 2018	Outgoing Email	Provided update on EA status for all offshore NL projects.
December 13, 2018	Outgoing Email	Provided summaries from all three October workshops.
March 28, 2019	Outgoing Email / Letter	Provided advanced letter notification regarding the Project Description that will be submitted to the CEA Agency.
Northern Peninsula (Meksap'sk) Mi'kmaq Band *Note: This community was not included in the EIS Guidelines for the Flemish Pass Exploration Drilling Program provided by the CEA Agency*		
December 4, 2017	Incoming Email / Letter	Information exchange and dialogue on: project updates; follow-up from April 2018 workshops; environmental effects monitoring; emergency prevention; emergency response - oil spill response planning, source control, response options; well abandonment
December 14, 2017	Outgoing Email / Letter	Provided presentations from October workshop and oil modeling fact sheet.
May 17, 2018	Incoming Email / Letter	Provided update on EA status for all offshore NL projects.
June 8, 2018	Outgoing Email / Letter	Provided summaries from all three October workshops.

Table C.3 Engagement with Indigenous Groups – Nova Scotia

Date	Type of Engagement	Purpose and Focus
Kwilmu'kw Maw-Klusuaqn Negotiation Office (KMKNO): representing the Nova Scotia Mi'kmaw communities of Acadia, Bear River, Annapolis Valley, Glooscap, Pictou Landing, Paq'tnkek, Potlotek, We'koqma'q, Membertou, Eskasoni, Wagmatcook		
November 7, 2018	Incoming Email	KMKNO emailed Equinor Canada and raised concerns that there was not enough information on tagging and migration route research.
January 11, 2018	Outgoing Email	Email to confirm if any addition information is available regarding commercial communal licences as per original request on October 19, 2017.
January 15, 2018	Conference Call	Equinor Canada and KMKNO discussed salmon report review, commercial-communal licences and EIS review.
January 31, 2018	Outgoing Email	Equinor Canada provided a table of exploration projects for various offshore operators and indicated EA status. Also informed that offshore operators are open to meeting to discuss any questions of concern regarding the projects, including any Indigenous Knowledge for consideration of the environmental assessment.
February 9, 2018	Incoming Phone Call	KMKNO called Equinor Canada and requested to meet to discuss the UINR review of the salmon report.
February 13, 2018	Incoming Email	KMKNO provided UINR review of salmon report to Equinor Canada.
February 14, 2018	Incoming Email	KMKNO provided Equinor Canada a revised copy of the salmon report.
February 15, 2018	Conference Call	KMKNO and Equinor Canada had a conference call to discuss findings and conclusions/recommendations of UINR salmon report.
April 12, 2018	Workshop	KMKNO attended a CEA Agency organized meeting in Moncton, NB that included Indigenous groups, offshore operators and select government departments and agencies.
May 28, 2018	Outgoing Email	Provided presentation from the April 12 workshop.
June 5, 2018	Outgoing Email	Provided update on EA status for all offshore eastern NL projects.
August 27, 2018	Outgoing Email	Joint workshop invitation sent to all 41 Indigenous groups - workshops in St. John's (October 10-11), Québec City (October 15-16) and Moncton (October 18-19). Equinor to pay costs of travel.
September 21, 2018	Incoming Email	KMKNO confirmed participation at Moncton workshop - two participants.
September 28, 2018	Outgoing Email	Follow-up for Moncton workshop.
October 3, 2018	Outgoing Email	Follow-up for Moncton workshop.
October 18, 2018	Workshop	Information exchange and dialogue on: project updates; follow-up from April 2018 workshops; environmental effects monitoring; emergency prevention; emergency response - oil

Date	Type of Engagement	Purpose and Focus
		spill response planning, source control, response options; well abandonment
October 25, 2018	Outgoing Email	Provided presentations from Moncton workshop and oil modeling fact sheet.
November 15, 2018	Outgoing Email	Provided update on EA status for all offshore NL projects.
December 13, 2018	Outgoing Email	Provided summaries from all three October workshops.
March 28, 2019	Outgoing Email / Letter	Provided advanced letter notification regarding the Project Description that will be submitted to the CEA Agency. In addition to providing a letter to KMKNO, letters were also provided to each Indigenous group represented by KMKNO.
Sipekne'katik First Nation		
October 24, 2017	Outgoing Email	Equinor Canada emailed Sipekne'katik First Nation to determine if the community was exercising its commercial-communal licences in relation to the proposed project.
January 31, 2018	Outgoing Email	Equinor Canada provided a table of exploration projects for various offshore operators and indicated EA status. Also informed that offshore operators are open to meeting to discuss any questions of concern regarding the projects, including any Indigenous Knowledge for consideration of the environmental assessment.
May 28, 2018	Outgoing Email	Provided presentation from April 12 workshop.
June 5, 2018	Outgoing Email	Provided update on EA status for all offshore NL projects.
June 11, 2018 to July 26, 2018	Incoming and Outgoing Emails	Series of emails between Equinor Canada and Consultation Coordinator to plan a meeting in July between Sipekne'katik First Nation, Equinor Canada and other operators in September.
August 27, 2018	Outgoing Email	Joint workshop invitation sent to all 41 Indigenous groups - workshops in St. John's (October 10-11), Québec City (October 15-16) and Moncton (October 18-19). Equinor to pay costs of travel.
September 9, 2018	Outgoing Email	Follow-up on Moncton workshop.
September 29, 2018	Incoming Email	Sipekne'katik Firs Nation unable to attend Moncton workshop due to scheduling conflicts.
October 25, 2018	Outgoing Email	Provided presentations from Moncton workshop and oil modeling fact sheet.
November 15, 2018	Outgoing Email	Provided update on EA status for all offshore NL projects.
December 13, 2018	Outgoing Email	Provided summaries from all three October workshops.
March 28, 2019	Outgoing Email / Letter	Provided advanced letter notification regarding the Project Description that will be submitted to the CEA Agency.

Updated Engagement Logs – Government Departments and Agencies, Indigenous Groups and Stakeholder Organizations

Date	Type of Engagement	Purpose and Focus
Millbrook First Nation		
November 10, 2017	Incoming Email	Millbrook First Nation responded to Equinor Canada's email indicating interest in meeting to discuss the project, consultation and funding.
November 15, 2017	Outgoing Email	Equinor Canada provided an email update regarding the project status, as well as contact information for CEA Agency funding and suggested times to meet.
December 8, 2017	Conference Call	Millbrook First Nation and Equinor Canada participated in conference call to discuss engagement. Millbrook First Nation to bring forward potential meeting times.
December 8, 2017	Outgoing Email	Various items emailed to Millbrook First Nation including project overview letters, salmon report and request for commercial-communal licence activity.
January 31, 2018	Outgoing Email	Equinor Canada provided a table of exploration projects for various offshore operators and indicated EA status. Also informed that offshore operators are open to meeting to discuss any questions of concern regarding the projects, including any Indigenous Knowledge for consideration of the environmental assessment.
April 20, 2018	Workshop	Millbrook First Nation attended a CEA Agency organized meeting in St. John's, NL that included Indigenous groups, offshore operators and select government departments and agencies.
May 28, 2018	Outgoing Email	Provided presentation from April 20 workshop in St. John's.
June 5, 2018	Outgoing Email	Provided update on EA status for all offshore NL projects.
August 27, 2018	Outgoing Email	Joint workshop invitation sent to all 41 Indigenous groups - workshops in St. John's (October 10-11), Québec City (October 15-16) and Moncton (October 18-19). Equinor to pay costs of travel.
August 29, 2018	Incoming Email	Millbrook First Nation confirmed participation in Moncton workshop - two participants.
September 28 and October 3, 2018	Outgoing Email	Follow-up for Moncton workshop.
October 18, 2018	Workshop	Information exchange and dialogue on: project updates; follow-up from April 2018 workshops; environmental effects monitoring; emergency prevention; emergency response - oil spill response planning, source control, response options; well abandonment
October 25, 2018	Outgoing Email	Provided presentations from Moncton workshop and oil spill modelling fact sheet.
November 15, 2018	Outgoing Email	Provided update on EA status for all offshore NL projects.
December 13, 2018	Outgoing Email	Provided summaries from all three October workshops.
March 28, 2019	Outgoing Email / Letter	Provided advanced letter notification regarding the Project Description that will be submitted to the CEA Agency.

Table C.4 Engagement with Indigenous Groups – New Brunswick

Date	Type of Engagement	Purpose and Focus
Mi'gmawe'l Tplu'taqnn Inc. (MTI): representing the New Brunswick Mi'kmaw communities of Amlamgog (Fort Folly), Natoaganeg (Eel Ground), Oinpegitjoig (Pabineau), Esgenoôpetitj (Burnt Church), Tjipõgtõtjg (Bouctouche), L'nui Menikuk (Indian Island), Ugpi'ganjig (Eel River Bar) and Metepenagiag (Red Bank)		
January 15, 2018	Outgoing Email	Equinor Canada emailed MTI and indicated the capacity funding agreement and Indigenous Knowledge study are being reviewed and proposed a conference call for January 19, 2018.
January 19, 2018	Conference Call	MTI and Equinor Canada participated in a conference call to discuss capacity funding and budget.
January – April 2018	Ongoing discussions	Capacity funding and Indigenous Knowledge study discussions (joint with ExxonMobil)
January 31, 2018	Outgoing Email	Equinor Canada provided a table of exploration projects for various offshore operators and indicated EA status. Also informed that offshore operators are open to meeting to discuss any questions of concern regarding the projects, including any Indigenous Knowledge for consideration of the environmental assessment.
April 12, 2018	Workshop	MTI attended a CEA Agency organized meeting in Moncton, NB that included Indigenous groups, offshore operators and select government departments and agencies.
May 28, 2018	Outgoing Email	Provided presentation from workshop in Moncton.
June 5, 2018	Outgoing Email	Provided update on EA status for all offshore NL projects.
June 4-29/19	Various Emails	Correspondence with MTI regarding progress of the Indigenous Knowledge study.
August 14, 2018	Incoming Email	Received Indigenous Knowledge study from MTI.
August 27, 2018	Outgoing Email	Joint workshop invitation sent to all 41 Indigenous groups - workshops in St. John's (October 10-11), Québec City (October 15-16) and Moncton (October 18-19). Equinor to pay costs of travel.
August 28, 2018	Incoming Email	MTI confirmed participation in Moncton workshop - three participants.
September 14, 2018	Outgoing Email / Letter	Letter to MTI acknowledging receipt of Indigenous Knowledge study, and providing copy to CEAA.
September 28, 2018	Outgoing Email	Follow-up for Moncton workshop.
October 3, 2018	Outgoing Email	Follow-up for Moncton workshop.
October 18, 2018	Workshop	Information exchange and dialogue on: project updates; follow-up from April 2018 workshops; environmental effects monitoring; emergency prevention; emergency response - oil spill response planning, source control, response options; well abandonment
October 25, 2018	Outgoing Email	Provided presentations from Moncton workshop and oil spill modelling fact sheet

Updated Engagement Logs – Government Departments and Agencies, Indigenous Groups and Stakeholder Organizations

Date	Type of Engagement	Purpose and Focus
November 15, 2018	Outgoing Email	Provided update on EA status for all offshore NL projects.
December 13, 2018	Outgoing Email	Provided summaries from all three October workshops.
March 28, 2019	Outgoing Email / Letter	Provided advanced letter notification regarding the Project Description that will be submitted to the CEA Agency. In addition to providing a letter to MTI, letters were also provided to each Indigenous group represented by MTI.
Wolastoqey Nation in New Brunswick (WNNB): representing Madawaska Maliseet First Nation, Tobique First Nation, Kingsclear First Nation, St. Mary's First Nation and Oromocto First Nation		
January 31, 2018	Outgoing Email	Equinor Canada provided a table of exploration projects for various offshore operators and indicated EA status. Also informed that offshore operators are open to meeting to discuss any questions of concern regarding the projects, including any Indigenous Knowledge for consideration of the environmental assessment.
April 12, 2018	Workshop	WNNB attended a CEA Agency organized meeting in Moncton, NB that included Indigenous groups, offshore operators and select government departments and agencies.
May 28, 2018	Outgoing Email	Provided presentation from April workshop.
June 5, 2018	Outgoing Email	Provided update on EA status for all offshore NL projects.
August 27, 2018	Outgoing Email	Joint workshop invitation sent to all 41 Indigenous groups - workshops in St. John's (October 10-11), Québec City (October 15-16) and Moncton (October 18-19). Equinor to pay costs of travel.
September 28, 2018	Outgoing Email	Follow-up for Moncton workshop.
October 2, 2018	Incoming Email	WNNB confirms participation at Moncton workshop - two participants.
October 3, 2018	Outgoing Email	Follow-up for Moncton workshop.
October 18, 2018	Workshop	Information exchange and dialogue on: project updates; follow-up from April 2018 workshops; environmental effects monitoring; emergency prevention; emergency response - oil spill response planning, source control, response options; well abandonment
October 25, 2018	Outgoing Email	Provided presentations from Moncton workshop and oil spill modelling fact sheet.
November 15, 2018	Outgoing Email	Provided update on EA status for all offshore NL projects.
December 13, 2018	Outgoing Email	Provided summaries from all three October workshops.
March 28, 2019	Outgoing Email / Letter	Provided advanced letter notification regarding the Project Description that will be submitted to the CEA Agency. In addition to providing a letter to WNNB, letters were also provided to each Indigenous group represented by WNNB.

Updated Engagement Logs – Government Departments and Agencies, Indigenous Groups and Stakeholder Organizations

Date	Type of Engagement	Purpose and Focus
Peskotomuhkati Nation at Skutik (Passamaquoddy)		
January 5, 2018	Outgoing Email	Notification of EIS review.
January 31, 2018	Outgoing Email	Equinor Canada provided a table of exploration projects for various offshore operators and indicated EA status. Also informed that offshore operators are open to meeting to discuss any questions of concern regarding the projects, including any Indigenous Knowledge for consideration of the environmental assessment.
April 12, 2018	Workshop	Passamaquoddy attended a CEA Agency organized meeting in Moncton, NB that included Indigenous groups, offshore operators and select government departments and agencies.
May 28, 2018	Outgoing Email	Provided presentation from April workshop.
June 5, 2018	Outgoing Email	Provided update on EA status for all offshore NL projects.
August 27, 2018	Outgoing Email	Joint workshop invitation sent to all 41 Indigenous groups - workshops in St. John's (October 10-11), Québec City (October 15-16) and Moncton (October 18-19). Equinor to pay costs of travel.
September 28, 2018	Incoming Email	Passamaquoddy confirms participation at Moncton workshop - two participants.
September 28, 2018	Outgoing Email	Follow-up for Moncton workshop.
October 3, 2018	Outgoing Email	Follow-up for Moncton workshop.
October 18, 2018	Workshop	Information exchange and dialogue on: project updates; follow-up from April 2018 workshops; environmental effects monitoring; emergency prevention; emergency response - oil spill response planning, source control, response options; well abandonment
October 25, 2018	Outgoing Email	Provided presentations from Moncton workshop and oil spill modelling fact sheet.
November 15, 2018	Outgoing Email	Provided update on EA status for all offshore NL projects.
December 13, 2018	Outgoing Email	Provided summaries from all three October workshops.
March 28, 2019	Outgoing Email / Letter	Provided advanced letter notification regarding the Project Description that will be submitted to the CEA Agency.
Woodstock First Nation (see WNNB above) *Note: For the purposes of exploration drilling, Woodstock First Nation works with the WNNB*		
January 5, 2018	Outgoing Email	Notification of EIS review.
January 11, 2018	Outgoing Phone Call	Equinor Canada called Woodstock First Nation, who confirmed that review of EIS is in progress.
January 31, 2018	Outgoing Email	Equinor Canada provided a table of exploration projects for various offshore operators and indicated EA status. Also informed that offshore operators are open to meeting to discuss any questions of concern regarding the projects,

Date	Type of Engagement	Purpose and Focus
		including any Indigenous Knowledge for consideration of the environmental assessment.
March 28, 2019	Outgoing Email / Letter	Provided advanced letter notification regarding the Project Description that will be submitted to the CEA Agency.
Elsipogtog First Nation		
June 13, 2017	Outgoing Email / Letter	Equinor Canada contacted Elsipogtog First Nation and provided a letter providing an overview of the project, and seeking input by July 12, 2017.
June 29, 2017	Outgoing Phone Call	Equinor Canada left a voice message regarding confirmation of receipt of June 13, 2017 letter.
January 5, 2018	Outgoing Email	Notification of EIS review.
January 15, 2018	Outgoing Phone Call	Equinor Canada contacted Elsipogtog to confirm that emails have been received, and offered to set up a meeting.
January 16, 2018	Outgoing Email	Equinor Canada provided links to project information.
January 31, 2018	Outgoing Email	Equinor Canada provided a table of exploration projects for various offshore operators and indicated EA status. Also informed that offshore operators are open to meeting to discuss any questions of concern regarding the projects, including any Indigenous Knowledge for consideration of the environmental assessment.
March 6, 2018	Incoming Email	Request to meet Equinor Canada, as well as other operators.
March 8, 2018	Outgoing Email	Equinor Canada confirmed a meeting date of April 11, 2018.
March 13, 2018	Incoming Email / Letter	Confirmed meeting date and attached letter indicating statement of claim and map of title request, and also requested advance funding for the meeting.
March 19, 2018	Outgoing Email	Equinor Canada responded with funding available and requested a cost estimate / breakdown.
March 28, 2018	Outgoing Email	Equinor Canada sent email regarding offer to meet, meeting expenses, legal counsel attendance by teleconference, and provided the April 12, 2018 CEA Agency workshop invitation.
March 29, 2018	Incoming Email	Confirmed meeting date and provided cost estimate for meeting expenses. Costs associated with legal counsel attendance in person and travel were also provided.
April 2, 2018	Outgoing Email	Equinor Canada emailed Elsipogtog and indicated that funds are not available for legal counsel and travel cost for the April 11, 2018 meeting, and suggested for legal counsel to join via teleconference.
April 2, 2018	Incoming Email	Elsipogtog confirmed legal counsel attendance by phone, and ongoing discussion regarding meeting arrangements.
April 3, 2018	Incoming Email	Elsipogtog emailed Equinor Canada to confirm various meeting details (e.g. conference number for legal counsel, meeting payment, length of presentation, etc.).
April 3, 2018	Outgoing Email	Equinor Canada responded to Elsipogtog and attached a draft meeting agenda for comment.

Updated Engagement Logs – Government Departments and Agencies, Indigenous Groups and Stakeholder Organizations

Date	Type of Engagement	Purpose and Focus
April 4, 2018	Incoming Email	Elsipogtog emailed Equinor Canada and indicated that it is standard practice for legal counsel to attend, and original request remains unchanged. Also indicated that the meeting funds were insufficient.
April 5, 2018	Outgoing Email	Equinor Canada emailed Elsipogtog and indicated that funds will not be available for legal counsel and associated travel costs, as CEA Agency is providing participant funding for the April 12, 2018 meeting. Equinor Canada offered additional funds for elder participation.
April 9, 2018	Incoming Email	Elsipogtog emailed Equinor Canada and indicated that they are unable to meet on April 11, 2018 due to lack of capacity.
April 10, 2018	Outgoing Email	Equinor Canada emailed Elsipogtog and indicated that they respect their decision to not proceed with the meeting and remain open for future opportunities to meet, and mentioned that there is still time to participate in the CEA Agency workshop on April 12, 2018.
June 5, 2018	Outgoing Email	Provided update on EA status for all offshore NL projects.
August 27, 2018	Outgoing Email	Joint workshop invitation sent to all 41 Indigenous groups - workshops in St. John's (October 10-11), Québec City (October 15-16) and Moncton (October 18-19). Equinor to pay costs of travel.
September 29, 2018	Outgoing Email	Equinor re-sent the invitation to the joint workshops occurring in October.
October 2, 2018	Incoming Email	Elsipogtog confirmed that they would not be attending the October workshops.
October 25, 2018	Outgoing Email	Provided presentations from Moncton workshop and oil spill modelling fact sheet.
November 15, 2018	Outgoing Email	Provided update on EA status for all offshore NL projects.
December 13, 2018	Outgoing Email	Provided summaries from all three October workshops.
March 28, 2019	Outgoing Email / Letter	Provided advanced letter notification regarding the Project Description that will be submitted to the CEA Agency.
April 1, 2019	Incoming and Outgoing Emails	Elsipogtog contacted Equinor Canada regarding the advanced letter notification associated with the Project Description and requested clarification to the section of the letter that mentioned Equinor Canada engaging with Indigenous groups, including Elsipogtog. Equinor Canada responded to Elsipogtog and provided clarification on the purpose of the letter.

Table C.5 Engagement with Indigenous Groups – Prince Edward Island

Date	Type of Engagement	Purpose and Focus
Mi'kmaq Confederacy of Prince Edward Island (MCPEI): represents the PEI Mi'kmaw communities of Lennox Island and Abegweit.		
January 31, 2018	Outgoing Email	Equinor Canada provided a table of exploration projects for various offshore operators and indicated EA status. Also informed that offshore operators are open to meeting to discuss any questions of concern regarding the projects, including any Indigenous Knowledge for consideration of the environmental assessment.
April 12, 2018	Workshop	MCPEI attended a CEA Agency organized meeting in Moncton, NB that included Indigenous groups, offshore operators and select government departments and agencies.
May 28, 2018	Outgoing Email	Provided presentation from April 12 workshop.
June 5, 2018	Outgoing Email	Provided update on EA status for all offshore NL projects.
August 27, 2018	Outgoing Email	Joint workshop invitation sent to all 41 Indigenous groups - workshops in St. John's (October 10-11), Québec City (October 15-16) and Moncton (October 18-19). Equinor to pay costs of travel.
September 26, 2018	Incoming Email	MCPEI confirms participation at Moncton workshop - one participant.
September 28, 2018	Outgoing Email	Follow-up for Moncton workshop.
October 3, 2018	Outgoing Email	Follow-up for Moncton workshop.
October 18, 2018	Workshop	Information exchange and dialogue on: project updates; follow-up from April 2018 workshops; environmental effects monitoring; emergency prevention; emergency response - oil spill response planning, source control, response options; well abandonment
October 25, 2018	Outgoing Email	Provided presentations from Moncton workshop and oil spill modelling fact sheet.
November 15, 2018	Outgoing Email	Provided update on EA status for all offshore NL projects.
December 13, 2018	Outgoing Email	Provided summaries from all three October workshops.
March 28, 2019	Outgoing Email / Letter	Provided advanced letter notification regarding the Project Description that will be submitted to the CEA Agency. In addition to providing a letter to MCPEI, letters were also provided to each Indigenous group represented by MCPEI.

Table C.6 Engagement with Indigenous Groups – Québec

Date	Type of Engagement	Purpose and Focus
Les Innus de Ekuanitshit (Ekuanitshit)		
January 31, 2018	Outgoing Email	Equinor Canada provided a table of exploration projects for various offshore operators and indicated EA status. Also informed that offshore operators are open to meeting to discuss any questions of concern regarding the projects, including any Indigenous Knowledge for consideration of the environmental assessment.
April 18, 2018	Workshop	Ekuanitshit attended a CEA Agency organized meeting in Québec City, Québec that included Indigenous groups, offshore operators and select government departments and agencies.
May 28, 2018	Outgoing Email	Provided response to question from Québec City workshop and presentations in French and English.
June 5, 2018	Outgoing Email	Provided update on EA status for all offshore NL projects.
August 27, 2018	Outgoing Email	Joint workshop invitation sent to all 41 Indigenous groups - workshops in St. John's (October 10-11), Québec City (October 15-16) and Moncton (October 18-19). Equinor to pay costs of travel.
September 28 and October 3, 2018	Outgoing Email	Follow-up for Québec City workshop.
October 4, 2018	Outgoing Email	Inquiring whether or not Innu translation is required or not for the workshop.
October 5, 2018	Incoming Email	Ekuanitshit confirmed that Chief Pietacho will not be attending, however, two community members will participate in the workshop.
October 12, 2018	Incoming Email	Ekuanitshit community members unable to attend workshop.
October 25, 2018	Outgoing Email	Provided presentations from Québec workshop and oil spill modelling fact sheet.
November 15, 2018	Outgoing Email	Provided update on EA status for all offshore NL projects.
December 13, 2018	Outgoing Email	Provided summaries from all three October workshops.
March 28, 2019	Outgoing Email / Letter	Provided advanced letter notification regarding the Project Description that will be submitted to the CEA Agency.
Première Nation des Innus de Nutashkuan (Nutashkuan)		
January 8, 2018	Incoming Email	Nutashkuan requested hard copies of EIS and extension of review period.
January 18, 2018	Outgoing Email	Provided notification that hardcopies of the EIS were sent.
January 31, 2018	Outgoing Email	Equinor Canada provided a table of exploration projects for various offshore operators and indicated EA status. Also informed that offshore operators are open to meeting to discuss any questions of concern regarding the projects, including any Indigenous Knowledge for consideration of the environmental assessment.

Updated Engagement Logs – Government Departments and Agencies, Indigenous Groups and Stakeholder Organizations

Date	Type of Engagement	Purpose and Focus
April 18, 2018	Workshop	Nutashkuan attended a CEA Agency organized meeting in Québec City that included Indigenous groups, offshore operators and select government departments and agencies.
May 28, 2018	Outgoing Email	Provided response to question from Québec City workshop and presentations in French and English.
June 5, 2018	Outgoing Email	Provided update on EA status for all offshore NL projects.
August 27, 2018	Outgoing Email	Joint workshop invitation sent to all 41 Indigenous groups - workshops in St. John's (October 10-11), Québec City (October 15-16) and Moncton (October 18-19). Equinor to pay costs of travel.
August 28, 2018	Incoming Email	Nutashkuan confirms attendance at Québec workshop. Also inquired if two representatives from IDDPNQL / FNQLSDI can attend (affirmative).
September 28, 2018	Outgoing Email	Follow-up for Québec City workshop.
October 3, 2018	Outgoing Email	Follow-up for Québec City workshop.
October 15, 2018	Workshop	Information exchange and dialogue on: project updates; follow-up from April 2018 workshops; environmental effects monitoring; emergency prevention; emergency response - oil spill response planning, source control, response options; well abandonment
October 25, 2018	Outgoing Email	Provided presentations from Québec workshop and oil spill modelling fact sheet.
November 15, 2018	Outgoing Email	Provided update on EA status for all offshore NL projects.
December 13, 2018	Outgoing Email	Provided summaries from all three October workshops.
March 28, 2019	Outgoing Email / Letter	Provided advanced letter notification regarding the Project Description that will be submitted to the CEA Agency.
April 4, 2019	Incoming Email	Nutashkuan contacted Equinor Canada and acknowledged receipt of the advanced letter associated with the Project Description. Nutashkuan inquired whether there will be a new EA for the Central Ridge Area, and if that is the case then more justification is required due to the distance of ELs 1159 and 1160 from the ELs associated with the Flemish Pass EA.
April 17, 2019	Outgoing Email	Equinor Canada responded to Nutashkuan by email and clarified the intent of the letter, and that Nutashkuan will have the opportunity to comment and express their views once the Project Description is posted on the CEA Registry.
Mi'gmawei Mawiomi Secretariat (MMS): represents the Gaspe Mi'kmaw communities of Listiguj, Gespeg and Gesgapegiag		
January 24, 2018	Incoming Email	MMS emailed Equinor Canada to set up a date to review files, and meeting to be after February 5, 2018.
January 31, 2018	Outgoing Email	Equinor Canada provided a table of exploration projects for various offshore operators and indicated EA status. Also informed that offshore operators are open to meeting to discuss any questions of concern regarding the projects, including any

Updated Engagement Logs – Government Departments and Agencies, Indigenous Groups and Stakeholder Organizations

Date	Type of Engagement	Purpose and Focus
		Indigenous Knowledge for consideration of the environmental assessment.
April 18, 2018	Workshop	MMS attended a CEA Agency organized meeting in Québec City that included Indigenous groups, offshore operators and select government departments and agencies.
May 28, 2018	Outgoing Email	Provided response to question from Québec City workshop and presentations in French and English.
June 5, 2018	Outgoing Email	Provided update on EA status for all offshore NL project.
July 23, 2018	Outgoing Phone Call	Equinor Canada contacted MMS with a general status update on all offshore exploration projects.
August 27, 2018	Outgoing Email	Joint workshop invitation sent to all 41 Indigenous groups - workshops in St. John's (October 10-11), Québec City (October 15-16) and Moncton (October 18-19). Equinor to pay costs of travel.
September 4, 2018	Incoming Email	MMS confirms attendance at Québec workshop - two participants.
September 28, 2018	Outgoing Email	Follow-up for Québec workshop.
October 3, 2018	Outgoing Email	Follow-up for Québec workshop.
October 15, 2018	Workshop	Information exchange and dialogue on: project updates; follow-up from April 2018 workshops; environmental effects monitoring; emergency prevention; emergency response - oil spill response planning, source control, response options; well abandonment
October 25, 2018	Outgoing Email	Provided presentations from Québec workshop and oil spill modelling fact sheet.
November 15, 2018	Outgoing Email	Provided update on EA status for all offshore NL projects.
December 13, 2018	Outgoing Email	Provided summaries from all three October workshops.
March 28, 2019	Outgoing Email / Letter	Provided advanced letter notification regarding the Project Description that will be submitted to the CEA Agency. In addition to providing a letter to MMS, letters were also provided to each Indigenous group represented by MMS.

Table C.7 Meetings and Discussions with Stakeholder Organizations

Stakeholder Organizations			
Date	**Organization**	**Type of Engagement**	**Purpose and Focus**
December 12, 2017	FFAW-Unifor and One Ocean	In Person Meeting	Review of EIS submittal. Seeking to gather feedback from the participants.
January 8, 2018	FFAW-Unifor and One Ocean	Outgoing Email	Notification of EIS review.
February 5, 2018	FFAW-Unifor and One Ocean	Incoming Email	FFAW-Unifor and One Ocean requested hard copies of EIS and appendices.
March 29, 2019	One Ocean	Outgoing Email	Provided advanced email notification regarding the Project Description that will be submitted to the CEA Agency.
March 29, 2019	FFAW-Unifor	Outgoing Email	Provided advanced email notification regarding the Project Description that will be submitted to the CEA Agency.
March 29, 2019	ASP	Outgoing Email	Provided advanced email notification regarding the Project Description that will be submitted to the CEA Agency.
March 29, 2019	GEAC	Outgoing Email	Provided advanced email notification regarding the Project Description that will be submitted to the CEA Agency.
March 29, 2019	OCI	Outgoing Email	Provided advanced email notification regarding the Project Description that will be submitted to the CEA Agency.
March 29, 2019	CPAWS	Outgoing Email	Provided advanced email notification regarding the Project Description that will be submitted to the CEA Agency.
March 29, 2019	Nature NL	Outgoing Email	Provided advanced email notification regarding the Project Description that will be submitted to the CEA Agency.
March 29, 2019	PAAN	Outgoing Email	Provided advanced email notification regarding the Project Description that will be submitted to the CEA Agency.
March 29, 2019	Sierra Club (NL Chapter)	Outgoing Email	Provided advanced email notification regarding the Project Description that will be submitted to the CEA Agency.
March 29, 2019	WWF	Outgoing Email	Provided advanced email notification regarding the Project Description that will be submitted to the CEA Agency.
March 29, 2019 and April 1, 2019	FFAW-Unifor	Incoming and Outgoing Emails	March 29, 2019: FFAW-Unifor contacted Equinor Canada and inquired whether the Project Description will include fisheries catch data. April 1, 2019: Equinor Canada responded to the FFAW-Unifor's email and indicated that Appendix E of the

Table C.7 Meetings and Discussions with Stakeholder Organizations

Stakeholder Organizations			
Date	**Organization**	**Type of Engagement**	**Purpose and Focus**
			Project Description will include domestic catch data.

APPENDIX D

Updated Information – Existing Biological Environment

1 MARINE FISH AND FISH HABITAT

1.1 Corals and Sponges

Section 6.1.6.5 of the Flemish Pass EIS provides an overview of corals and sponges occurring within the Project Area and adjacent marine environments (i.e., tables 6.8 and 6.9 and figures 6-9 to 6-14), which are also applicable and valid for ELs 1159 and 1160. Table 6.10 of the Flemish Pass EIS provides a summary of known or potential coral and sponge distributions for ELs 1134, 1135, 1137, 1139, 1140, 1141, 1142; Table D.1 below has been updated to include ELs 1159 and 1160. Coral distribution is illustrated in Figure D-1 below. Sponge distribution is illustrated in Figure D-2 below. Sea pen distribution is illustrated in Figure D-3 below. Large gorgonian distribution is illustrated in Figure D-4 below. Small gorgonian distribution is illustrated in Figure D-5 below.

Table D.1 Summary of Known and Potential Coral / Sponge Occurrence in ELs 1159 and 1160

Exploration License	Known Presence and Distribution Based on Existing Information	Data Source(s)	Summary of Known or Potential Presence and Distribution
EL 1159 (90 m to 930 m)	Sponges: • Unidentified species Corals: • Seas pens • Gorgonian corals	Canadian RV Data Knudby et al (2013) Murillo et al (2012)	• Regional datasets indicate presence of sponges, sea pens with few observations of gorgonian corals.
EL1160 (40 m to 1,120 m)	Sponges: • Unidentified species Corals: • Seas pens • Gorgonian corals	Canadian RV Data Knudby et al (2013) Murillo et al (2012)	• Regional datasets indicate presence of sponges, sea pens with few observations of gorgonian corals.

1.2 Finfish (Demersal and Pelagic Species)

Section 6.1.7 of the Flemish Pass EIS describes key fish species in the Project Area an identifies species groups by depth zones / habits, both within Canadian waters and beyond. This section and applicable subsections summarize data from Canadian research vessel (RV) surveys up to 2012, however, data is available for up to 2016 and the Tables D.2 to D.5 and Figures D-6 to D-205 below have been updated to reflect the most current data available.

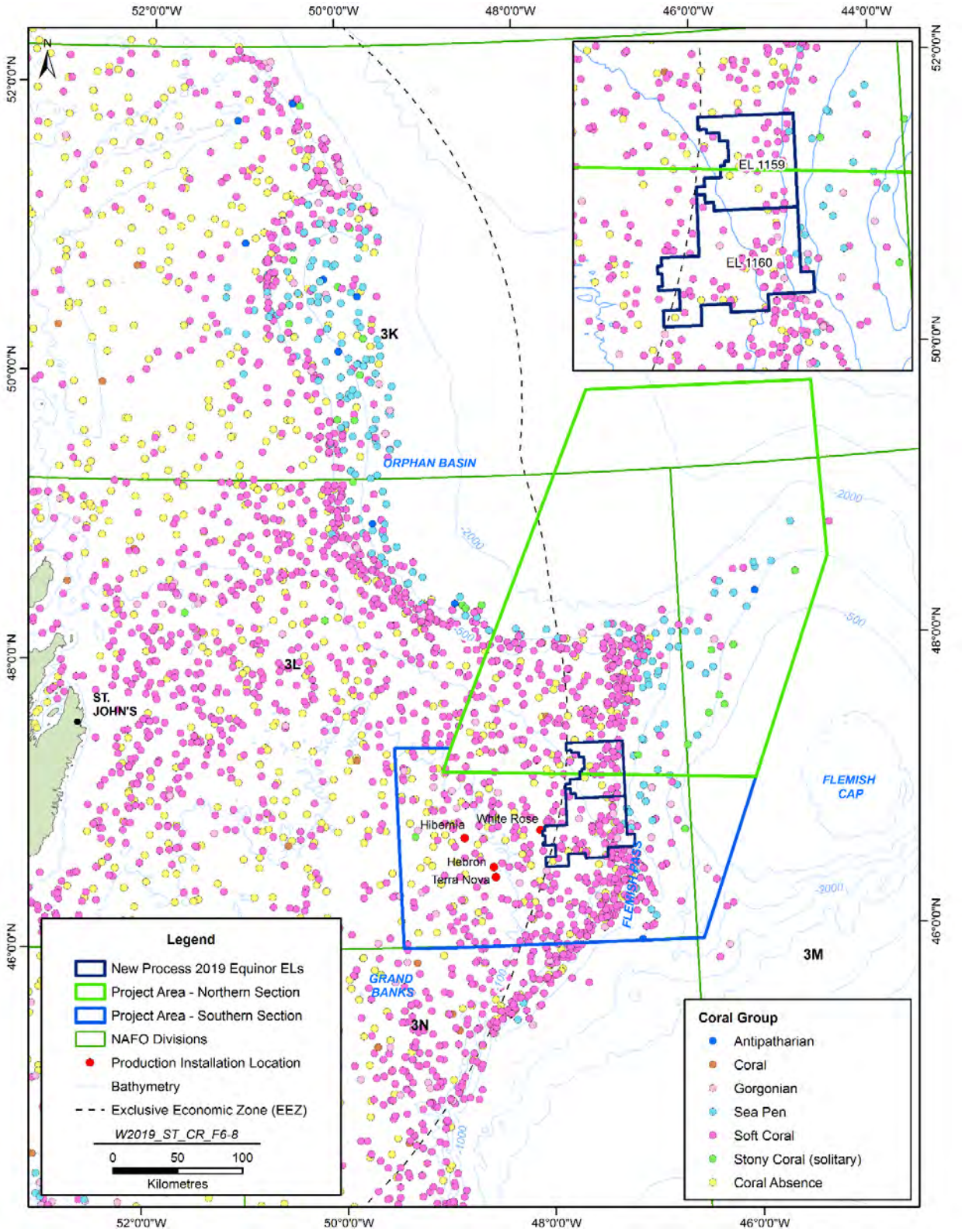


Figure D-1 Summary of Coral Distributions in and Around the Project Area Compiled from Canadian RV Data and Literature Sources

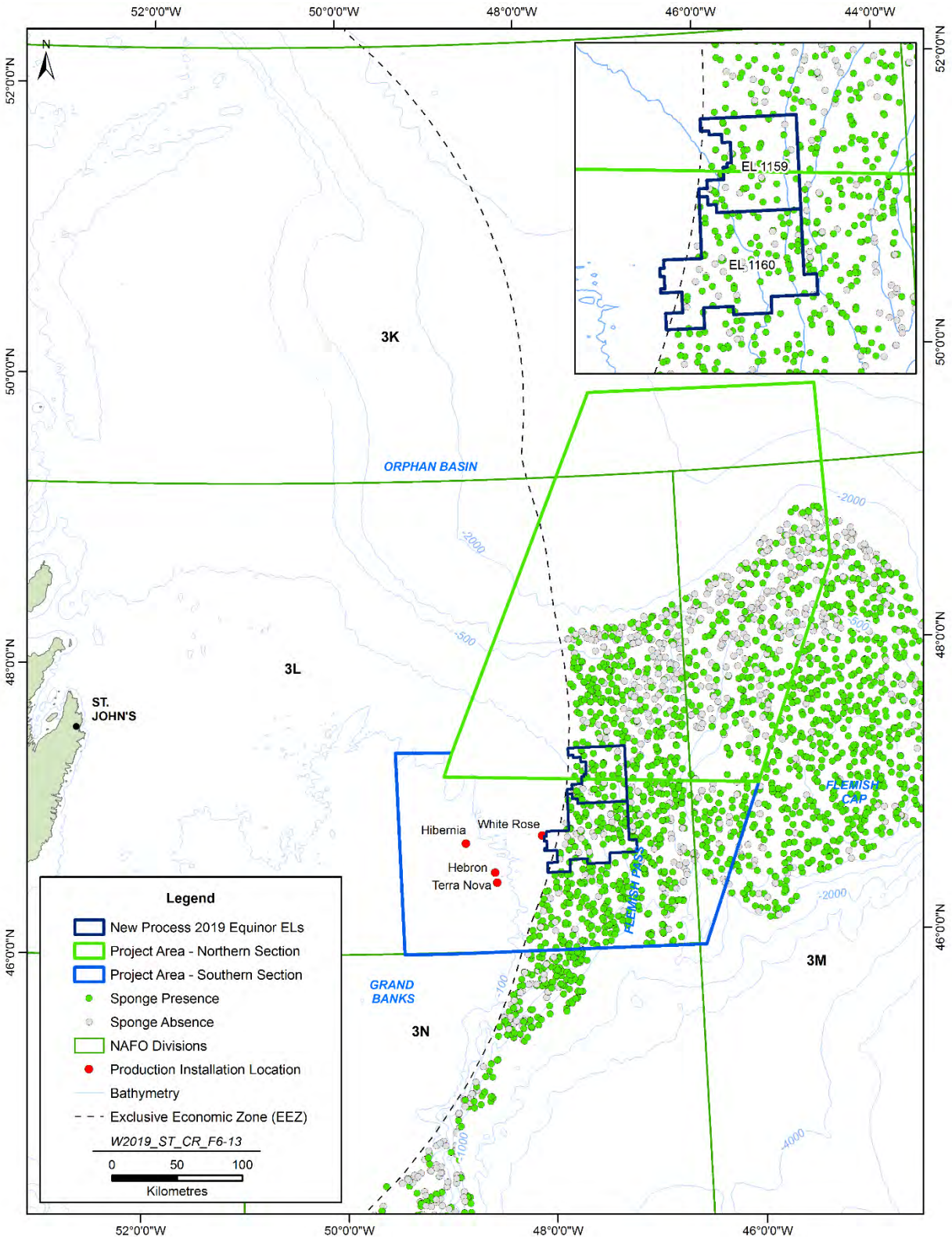


Figure D-2 Summary of Sponge Distributions in and Around the Project Area Compiled from Canadian RV Data and Literature Sources

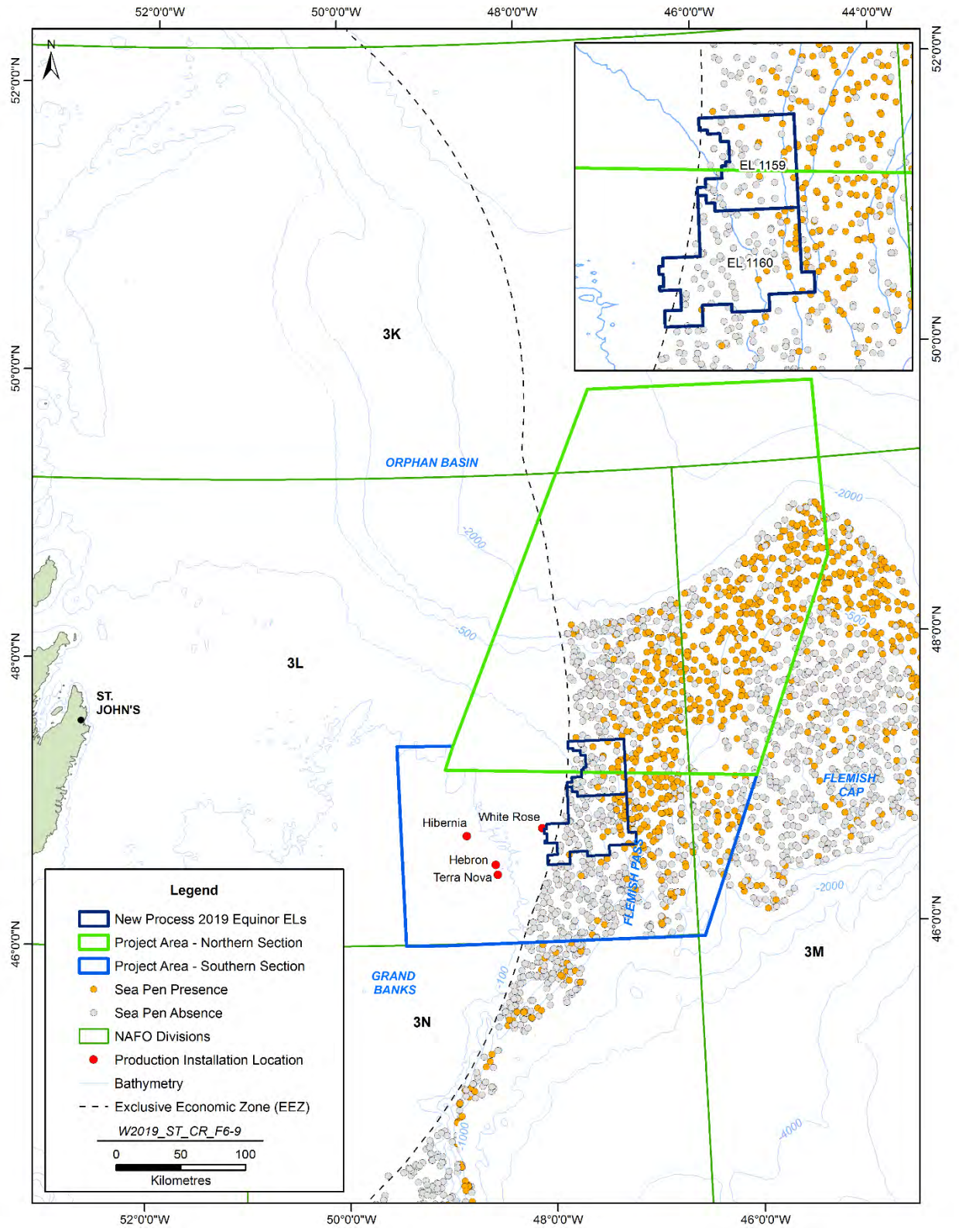


Figure D-3 Summary of Sea Pen Distributions in and Around the Project Area Compiled from Canadian RV Data and Literature Sources

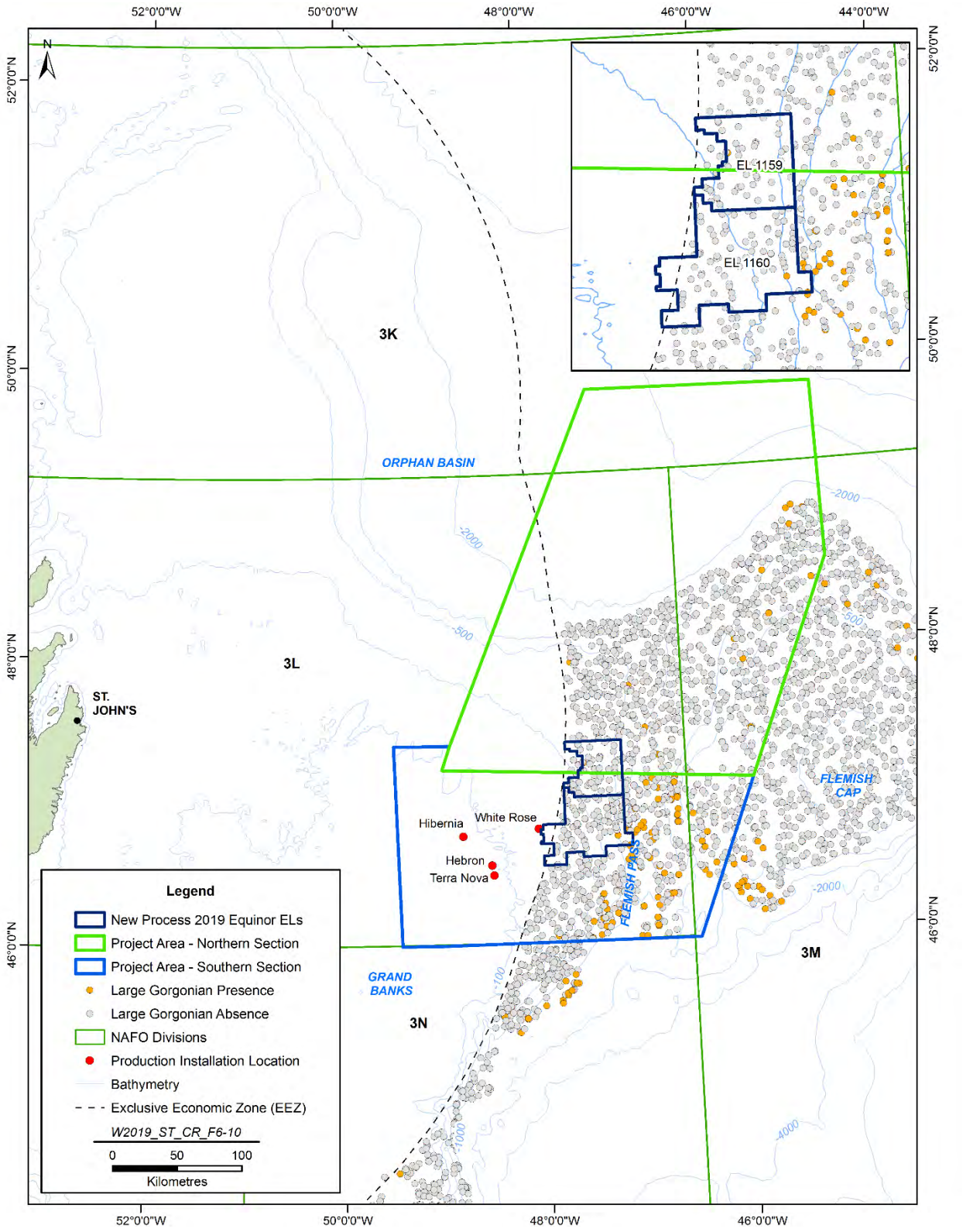


Figure D-4 Summary of Large Gorgonian Distributions in and Around the Project Area Compiled from Canadian RV Data and Literature Sources

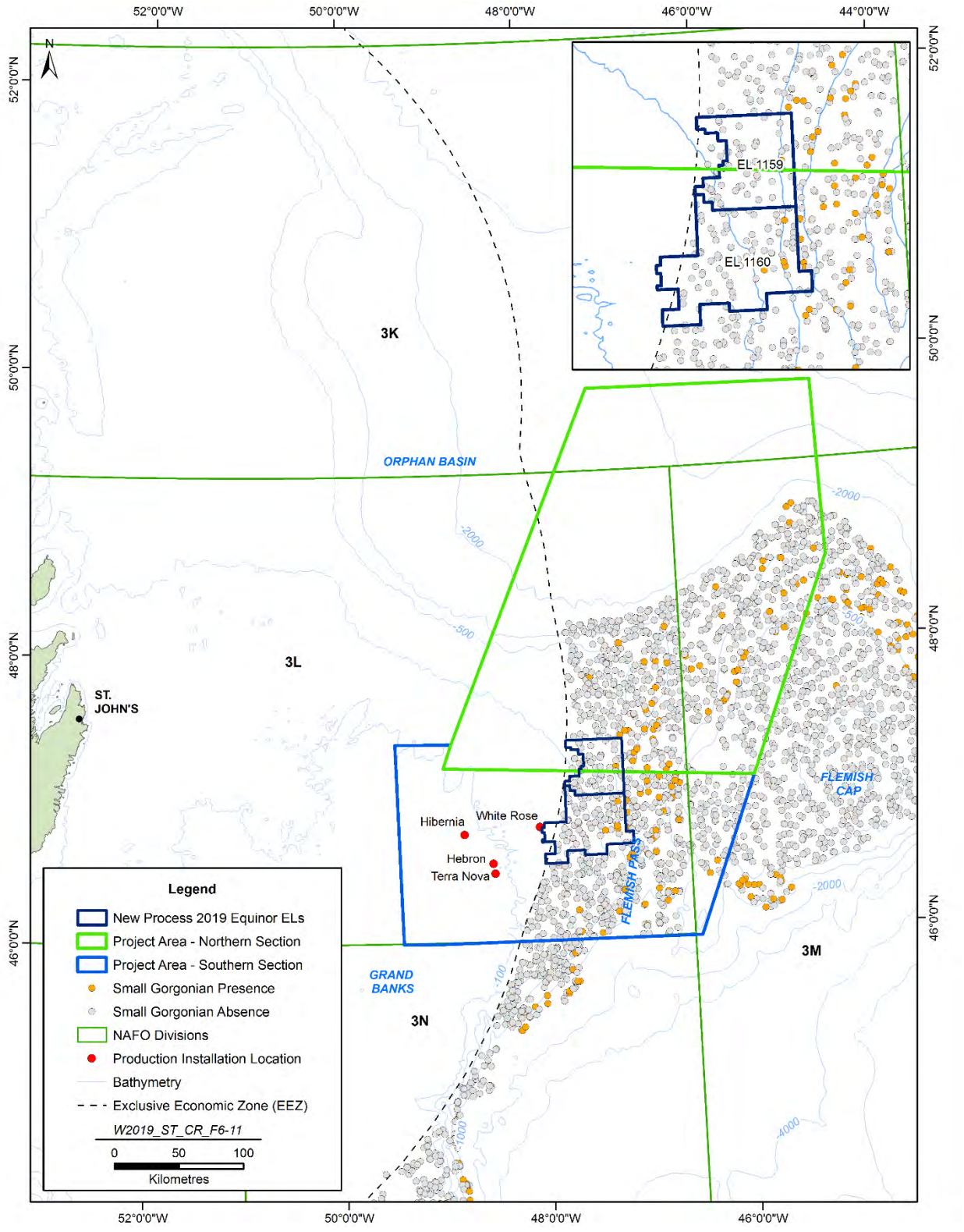


Figure D-5 Summary of Small Gorgonian Distributions in and Around the Project Area Compiled from Canadian RV Data and Literature Sources

Table D.2 Summary of Depth Categories used to Present Canadian RV Survey Data (2001 to 2016)

Project Area	Depth Zone	Area / Proportion of Survey	Mean Abundance/Tow	Number of Species to make up 95% of catch	Dominant Species (% of Total Catch)
Project Area – Northern Section (203 tows)	Shelf / Slope Edge (0-250 m)	8.8	232	5	Capelin (46.9%)
	Shallow Slope (251-600 m)	18.7	395	8	Deepwater redfish (70.6%)
	Middle Slope (601-1,000 m)	10.0	30	12	Lanternfish (44.1%)
	Middle-Deep Slope (1,001-1,300 m)	13.9	<1	4	Roughhead grenadier (43.2%)
	Deep Slope (1,301-1,450 m)	1.25	<1	4	Roughhead grenadier (60.9%)
Project Area – Southern Section (338 tows)	Shelf / Slope Edge (0-250 m)	62.4	1,242	4	Sand Lance (67.8%)
	Shallow Slope (251-600 m)	15.2	352	5	Deepwater Redfish (86.6%)
	Middle Slope (601-1,000 m)	19.6	8	10	Deepwater Redfish (30.7%)
	Middle-Deep Slope (1,001-1,300 m)	0.22	<1	5	Roughhead Grenadier (45.1%)
	Deep Slope (1,301-1,450 m)	2.56	<1	5	Roundnose Grenadier (43.5%)

Table D.3 Summary of Key Fish Species from all Canadian RV Survey Sets Collected within the Project Area (2011 to 2016) (includes Shelf and Slope Species)

Project Area	Common Name	Scientific Name	Mean Abundance / Tow	Contribution to Total Catch
Project Area – Northern Section (203 tows)	Deepwater redfish	*Sebastes mentella*	421	37.4%
	Capelin	*Mallotus villosus*	262	23.2%
	American plaice	*Hippoglossoides platessoides*	192	17.0%
	Lanternfish	Myctophidae (F)	89	7.9%
	Sand lance	*Ammodytes dubius*	41	3.6%
	Greenland halibut	*Reinhardtius hippoglossoides*	20	1.8%
	Atlantic cod	Gadus morhua	15	1.4%
	Roughhead grenadier	*Macrourus berglax*	14	1.2%
	Roundnose grenadier	*Coryphaenoides rupestris*	8	0.7%
	Thorny skate	*Amblyraja radiata*	6	0.6%

Table D.3 Summary of Key Fish Species from all Canadian RV Survey Sets Collected within the Project Area (2011 to 2016) (includes Shelf and Slope Species)

Project Area	Common Name	Scientific Name	Mean Abundance / Tow	Contribution to Total Catch
	Longnose eel	*Synaphobranchus kaupii*	6	0.5%
Project Area – Southern Section (338 tows)	Sand lance	*Ammodytes dubius*	1,247	55.0%
	Capelin	*Mallotus villosus*	385	17.0%
	Deepwater redfish	*Sebastes mentella*	373	16.5%
	American plaice	*Hippoglossoides platessoides*	107	4.7%
	Yellowtail flounder	*Pleuronectes ferruginea*	26	1.2%
	Lanternfish	Myctophidae (F)	20	0.9%

Table D.4 Numerically Dominant Fish Species (95% of Overall Abundance) in the Project Area – Northern Section by Depth Zone (Canadian RV Surveys, 2011 to 2016)

Depth Zone	Common Name	Scientific Name	Mean Abundance / Tow	Contribution to Total Catch
Shelf/Slope Edge (0-250 m)	Capelin	*Mallotus villosus*	232	46.9%
	American plaice	*Hippoglossoides platessoides*	175	35.4%
	Sand lance	*Ammodytes dubius*	41	8.2%
	Deepwater redfish	*Sebastes mentella*	19	3.9%
	Greenland halibut	*Reinhardtius hippoglossoides*	6	1.2%
Shallow Edge (251-600 m)	Deepwater redfish	*Sebastes mentella*	395	70.6%
	Lanternfish	Myctophidae (F)	58	10.4%
	Capelin	*Mallotus villosus*	28	5.0%
	American plaice	*Hippoglossoides platessoides*	15	2.8%
	Atlantic cod	Gadus morhua	14	2.6%
	Greenland halibut	*Reinhardtius hippoglossoides*	11	2.0%
	Roughhead grenadier	*Macrourus berglax*	7	1.3%
	Common grenadier	*Nezumia bairdii*	3	0.6%
Middle Slope (601-1,000 m)	Lanternfish	Myctophidae (F)	30	44.1%
	Roundnose grenadier	*Coryphaenoides rupestris*	7	10.1%
	Deepwater redfish	*Sebastes mentella*	7	9.6%
	Roughhead grenadier	*Macrourus berglax*	6	8.5%
	Blue hake	*Antimora rostrata*	4	6.3%
	Longnose eel	*Synaphobranchus kaupii*	3	4.6%
	Greenland halibut	*Reinhardtius hippoglossoides*	3	4.1%
	Common grenadier	*Nezumia bairdii*	2	3.1%

Table D.4 Numerically Dominant Fish Species (95% of Overall Abundance) in the Project Area – Northern Section by Depth Zone (Canadian RV Surveys, 2011 to 2016)

Depth Zone	Common Name	Scientific Name	Mean Abundance / Tow	Contribution to Total Catch
	American plaice	*Hippoglossoides platessoides*	1	1.6%
	Capelin	*Mallotus villosus*	1	1.5%
	Witch flounder	Glyptocephalus cynoglossus	1	1.3%
	Scaled lancetfish	*Notolepis rissoi kroyeri*	1	0.8%
Middle-Deep Slope (1,001-1,300 m)	Roughhead grenadier	*Macrourus berglax*	<1	43.2%
	Roundnose grenadier	*Coryphaenoides rupestris*	<1	25.5%
	Greenland halibut	*Reinhardtius hippoglossoides*	<1	23.7%
	Black dogfish	*Centroscyllium fabricii*	<1	3.2%
Deep Slope (1,301-1,450 m)	Roughhead grenadier	*Macrourus berglax*	<1	60.9%
	Greenland halibut	*Reinhardtius hippoglossoides*	<1	23.2%
	Roundnose grenadier	*Coryphaenoides rupestris*	<1	10.1%
	Jensen's skate	*Raja jenseni*	<1	2.9%

Table D.5 Numerically Dominant Fish Species (95% of Overall Abundance) in the Project Area – Southern Section by Depth Zone (Canadian RV Surveys, 2011 to 2016)

Depth Zone	Common Name	Scientific Name	Mean Abundance / Tow	Contribution to Total Catch
Shelf/Slope Edge (0-250 m)	Sand lance	*Ammodytes dubius*	1,242	67.8%
	Capelin	*Mallotus villosus*	376	20.5%
	American plaice	*Hippoglossoides platessoides*	100	5.5%
	Yellowtail flounder	*Pleuronectes ferruginea*	26	1.4%
Shallow Edge (251-600 m)	Deepwater redfish	*Sebastes mentella*	352	86.6%
	Lanternfishes (NS)	Myctophidae (F)	14	3.4%
	Capelin	*Mallotus villosus*	9	2.2%
	American plaice	*Hippoglossoides platessoides*	6	1.6%
	Roughhead grenadier	*Macrourus berglax*	6	1.5%
Middle Slope (601-1,000 m)	Deepwater redfish	*Sebastes mentella*	8	30.7%
	Lanternfishes (NS)	Myctophidae (F)	6	25.3%
	Roughhead Grenadier	*Macrourus berglax*	5	19.2%
	Blue hake	*Antimora rostrata*	2	8.5%

Table D.5 Numerically Dominant Fish Species (95% of Overall Abundance) in the Project Area – Southern Section by Depth Zone (Canadian RV Surveys, 2011 to 2016)

Depth Zone	Common Name	Scientific Name	Mean Abundance / Tow	Contribution to Total Catch
	Roundnose grenadier	*Coryphaenoides rupestris*	1	3.4%
	Longnose eel	*Synaphobranchus kaupii*	1	2.6%
	Greenland halibut	*Reinhardtius hippoglossoides*	<1	1.8%
	Common grenadier	*Nezumia bairdii*	<1	1.5%
	Black dogfish	*Centroscyllium fabricii*	<1	1.3%
	Blacksmelt goitre	*Bathylagus euryops*	<1	1.2%
Middle-Deep Slope (1,001-1,300 m)	Roughhead Grenadier	*Macrourus berglax*	<1	51.7%
	Roundnose grenadier	*Coryphaenoides rupestris*	<1	30.0%
	Greenland halibut	*Reinhardtius hippoglossoides*	<1	11.3%
	Black dogfish	*Centroscyllium fabricii*	<1	2.9%
	Deepsea Cat Shark	*Apristurus profundorum*	<1	51.7%
Deep Slope (1,301-1,450 m)	Roughhead Grenadier	*Macrourus berglax*	<1	51.7%
	Roundnose grenadier	*Coryphaenoides rupestris*	<1	30.0%
	Greenland halibut	*Reinhardtius hippoglossoides*	<1	11.3%
	Black dogfish	*Centroscyllium fabricii*	<1	2.9%

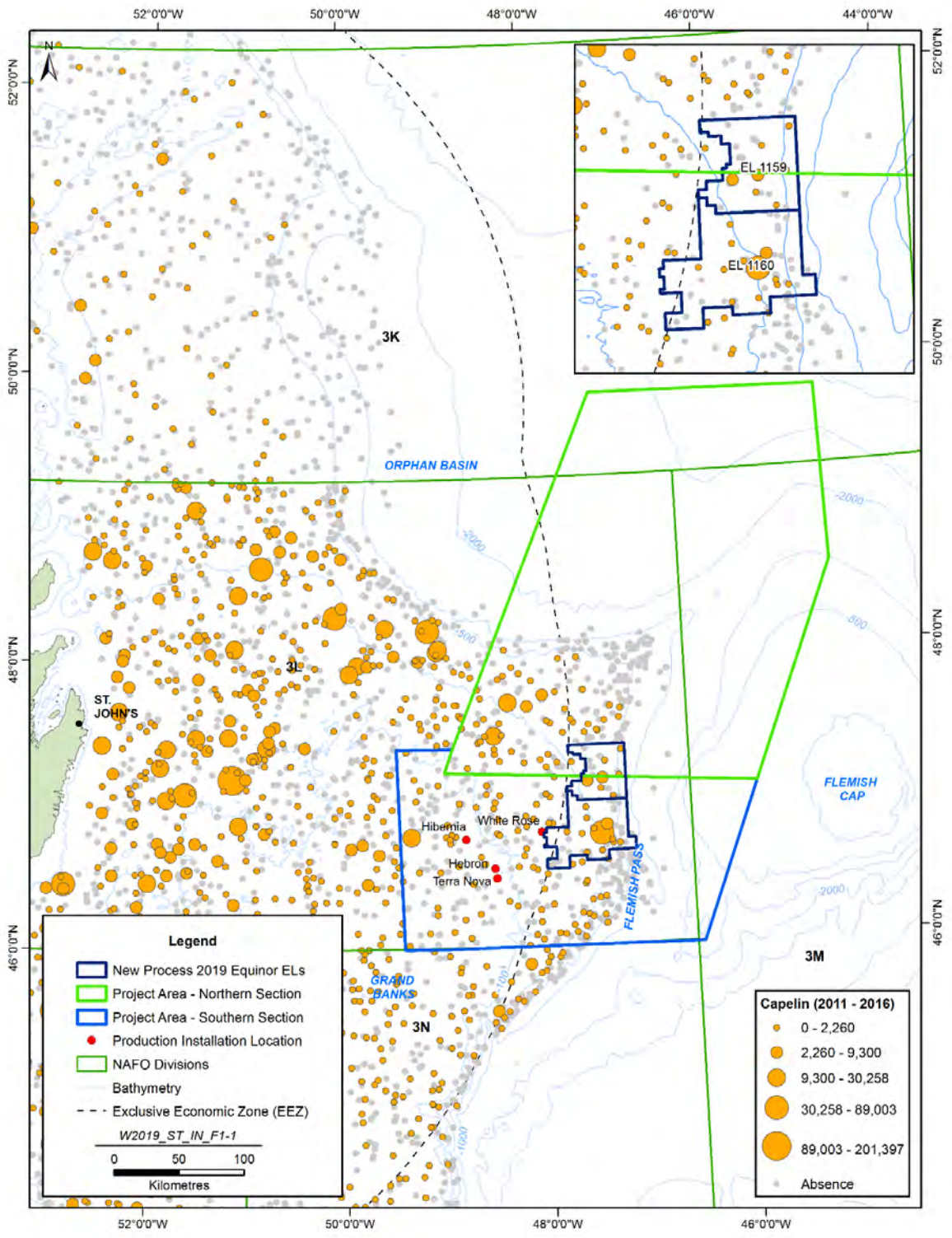


Figure D-6 Capelin Distribution and Abundance as Compiled from Canadian RV Trawl Survey Data (2011 to 2016)

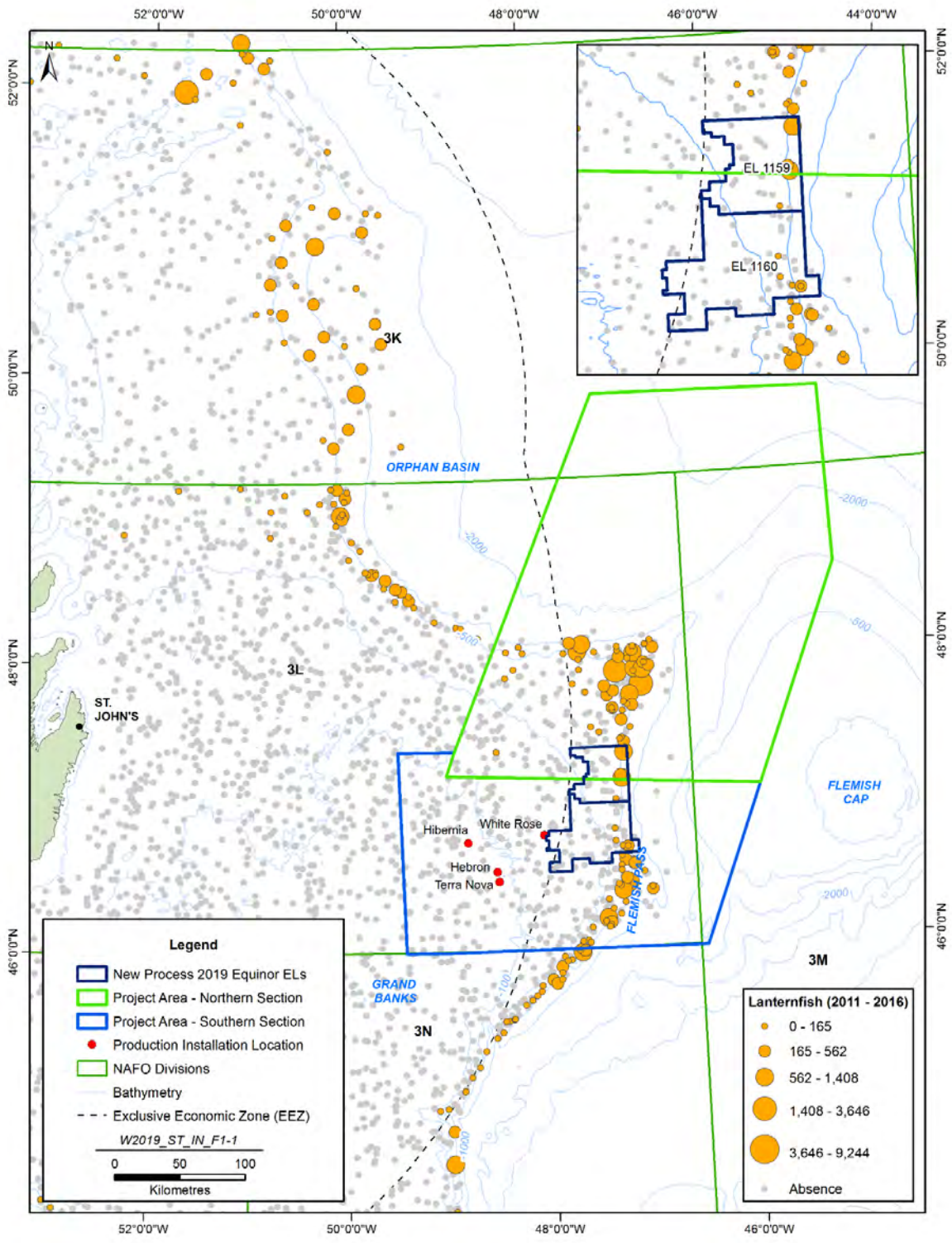


Figure D-7 Lanternfish Distribution and Abundance as Compiled from Canadian RV Trawl Survey Data (2011 to 2016)

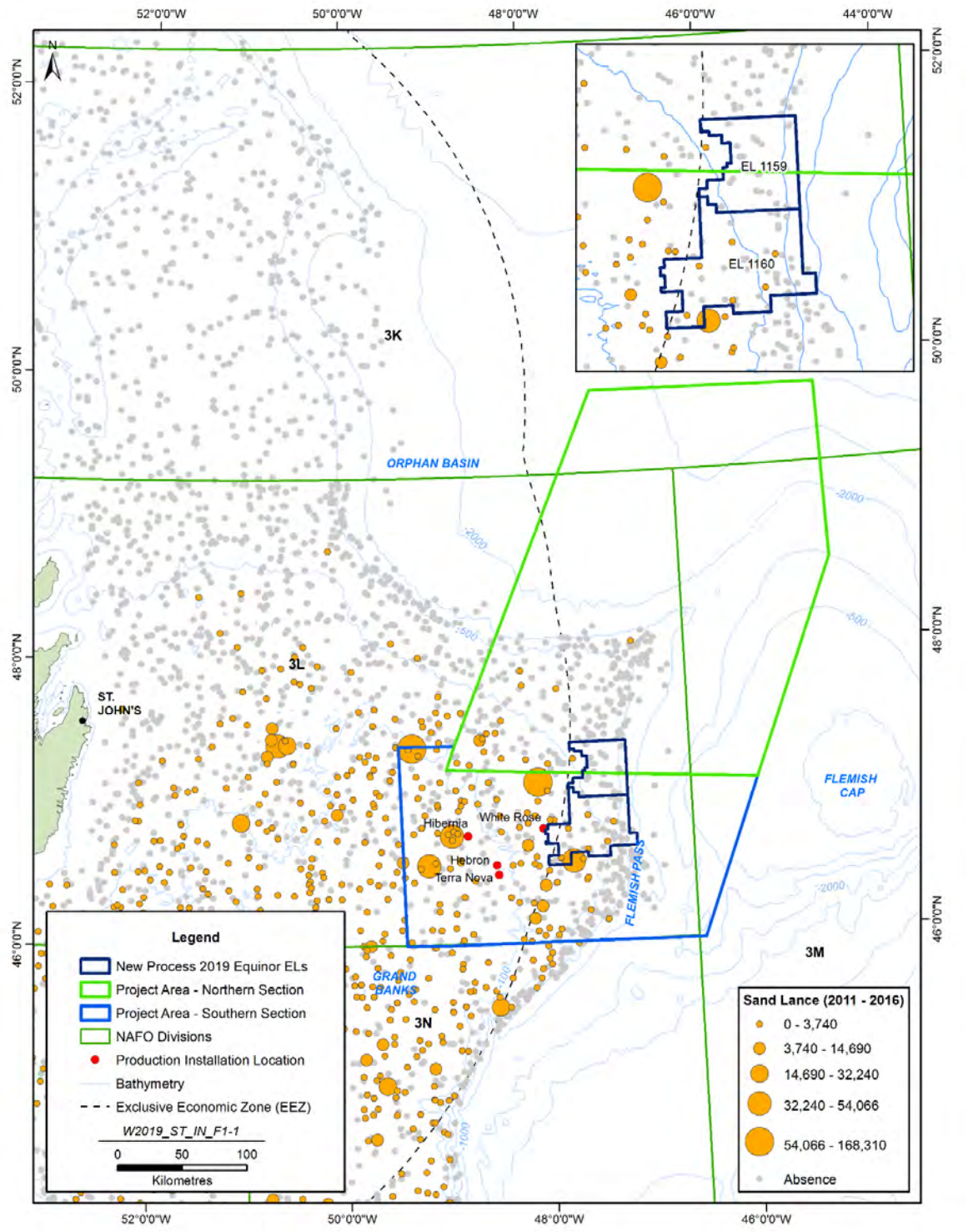


Figure D-8 Sand Lance Distribution and Abundance as Compiled from Canadian RV Trawl Survey Data (2011 to 2016)

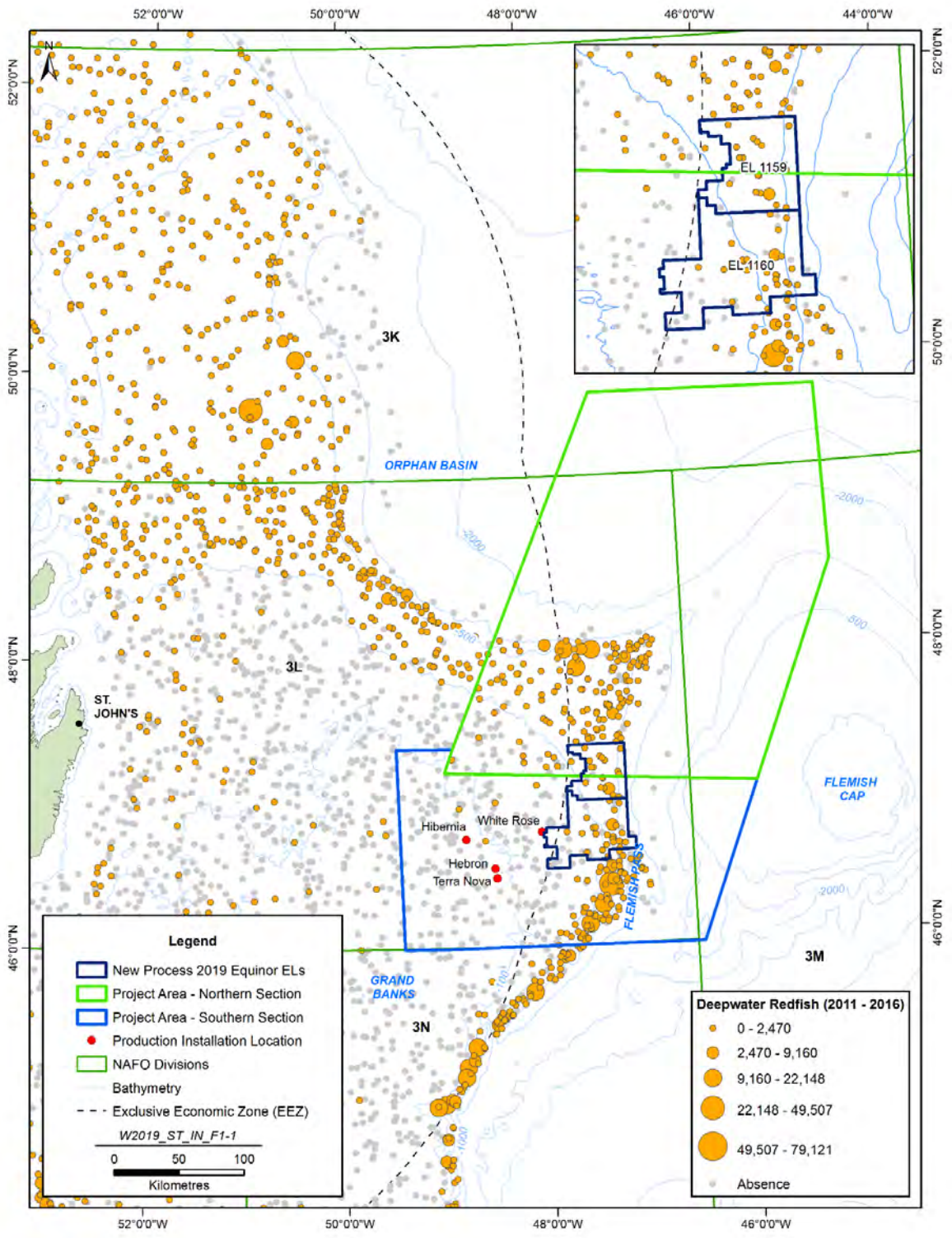


Figure D-9 Deepwater Redfish Distribution and Abundance as Compiled from Canadian RV Trawl Survey Data (2011 to 2016)

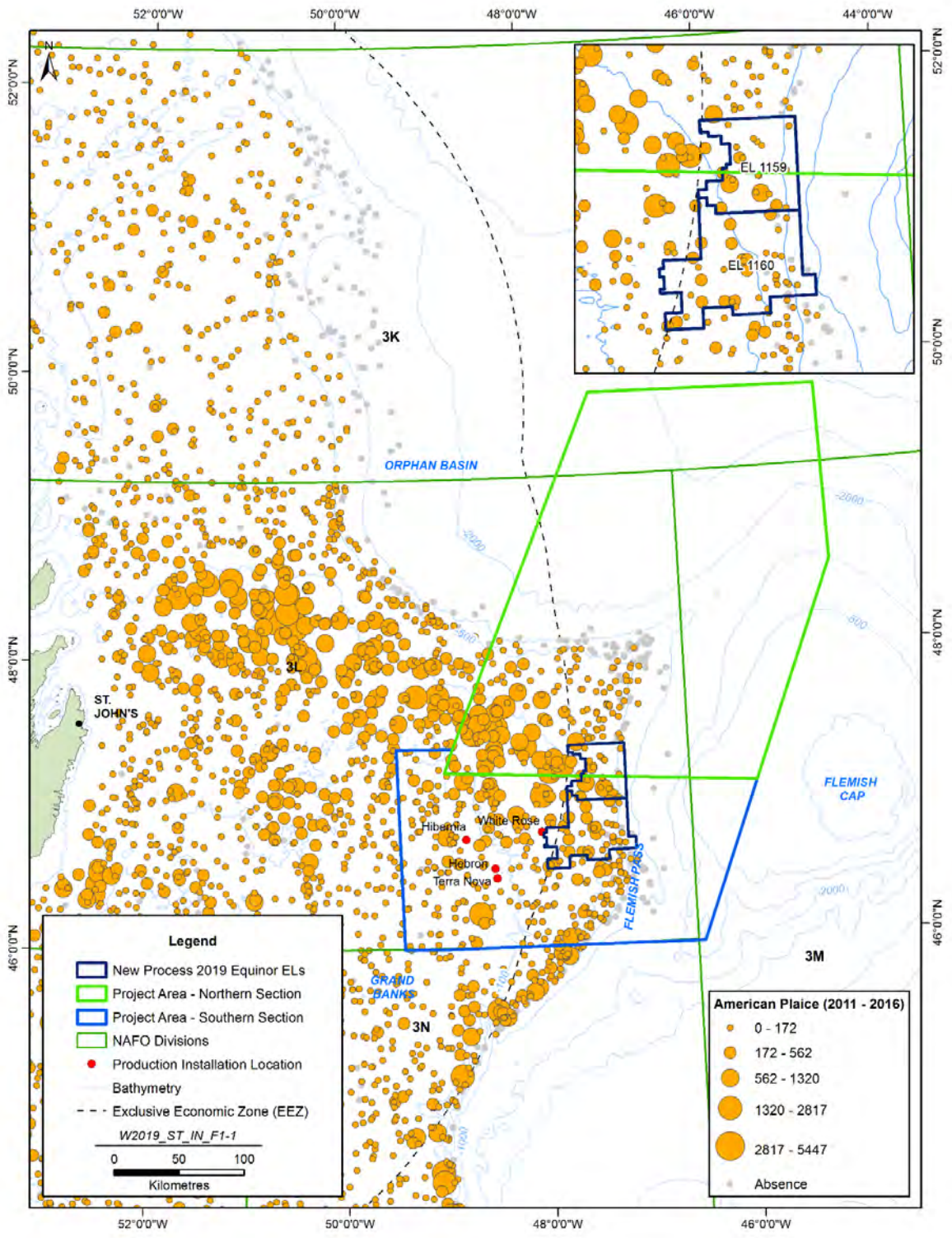


Figure D-10 American Plaice Distribution and Abundance as Compiled from Canadian RV Trawl Survey Data (2011 to 2016)

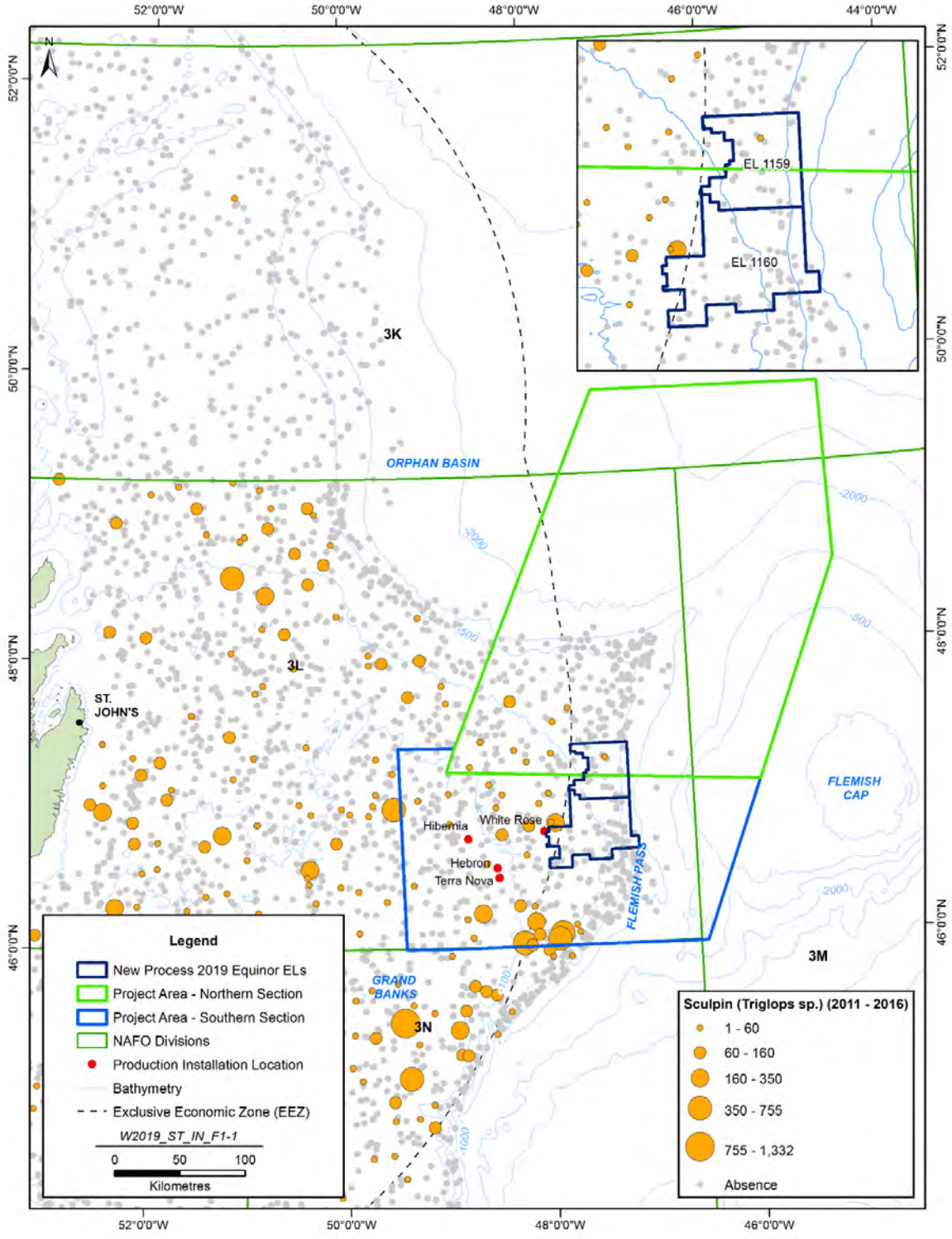


Figure D-11 Sculpin (*Triglops* sp.) Distribution and Abundance as Compiled from Canadian RV Trawl Survey Data (2011 to 2016)

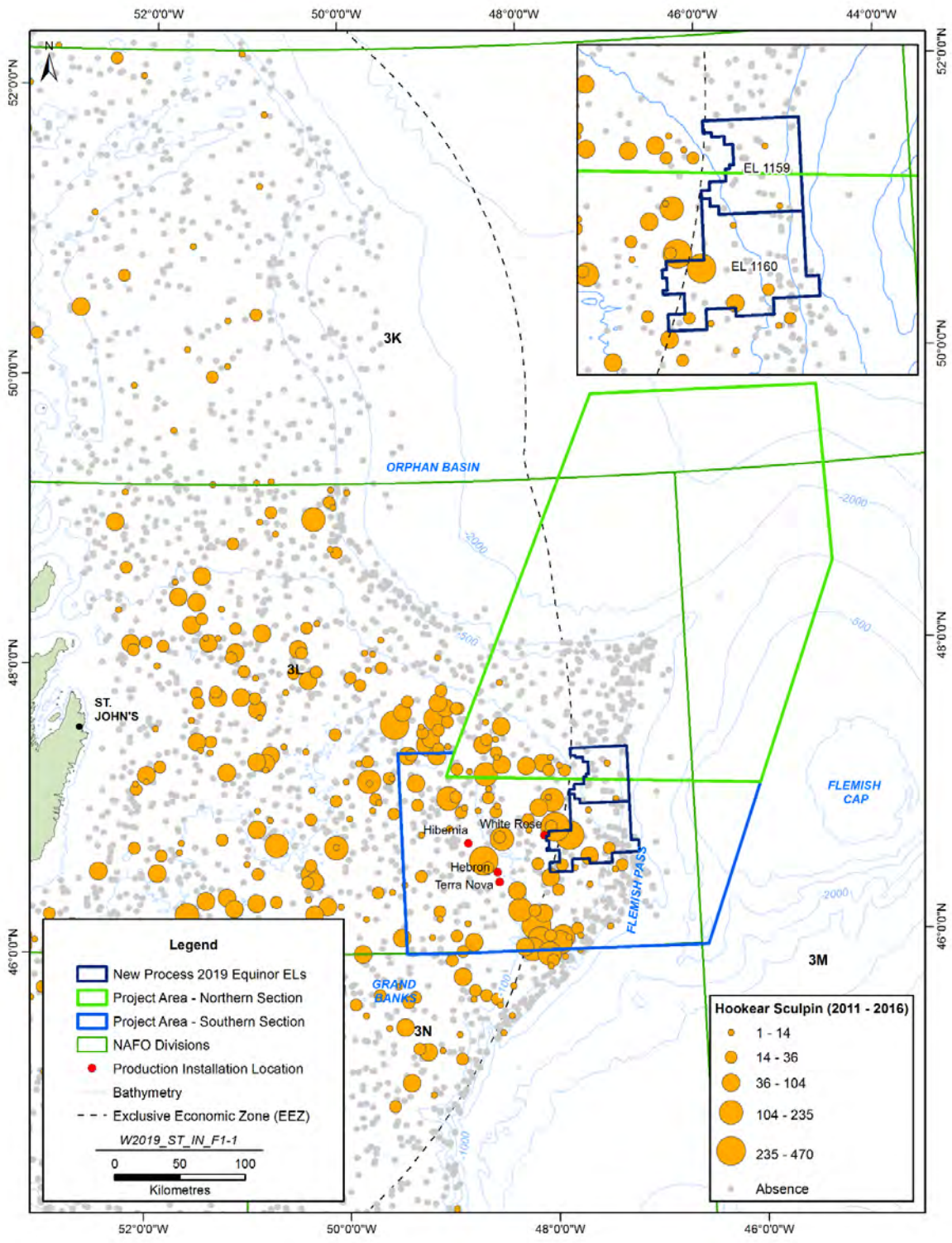


Figure D-12 Hookear Sculpin Distribution and Abundance as Compiled from Canadian RV Trawl Survey Data (2011 to 2016)

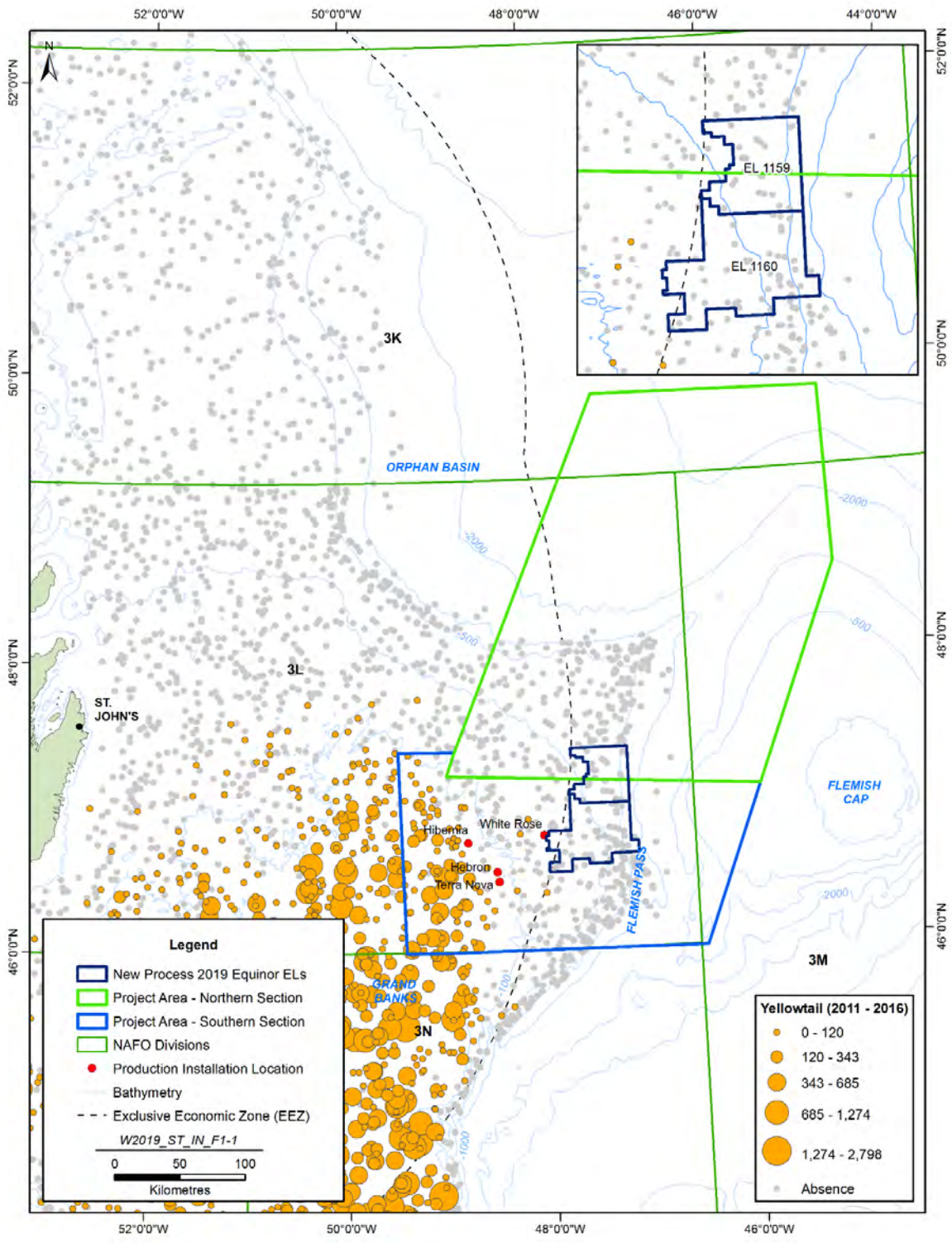


Figure D-13 Yellowtail Flounder Distribution and Abundance as Compiled from Canadian RV Trawl Survey Data (2011 to 2016)

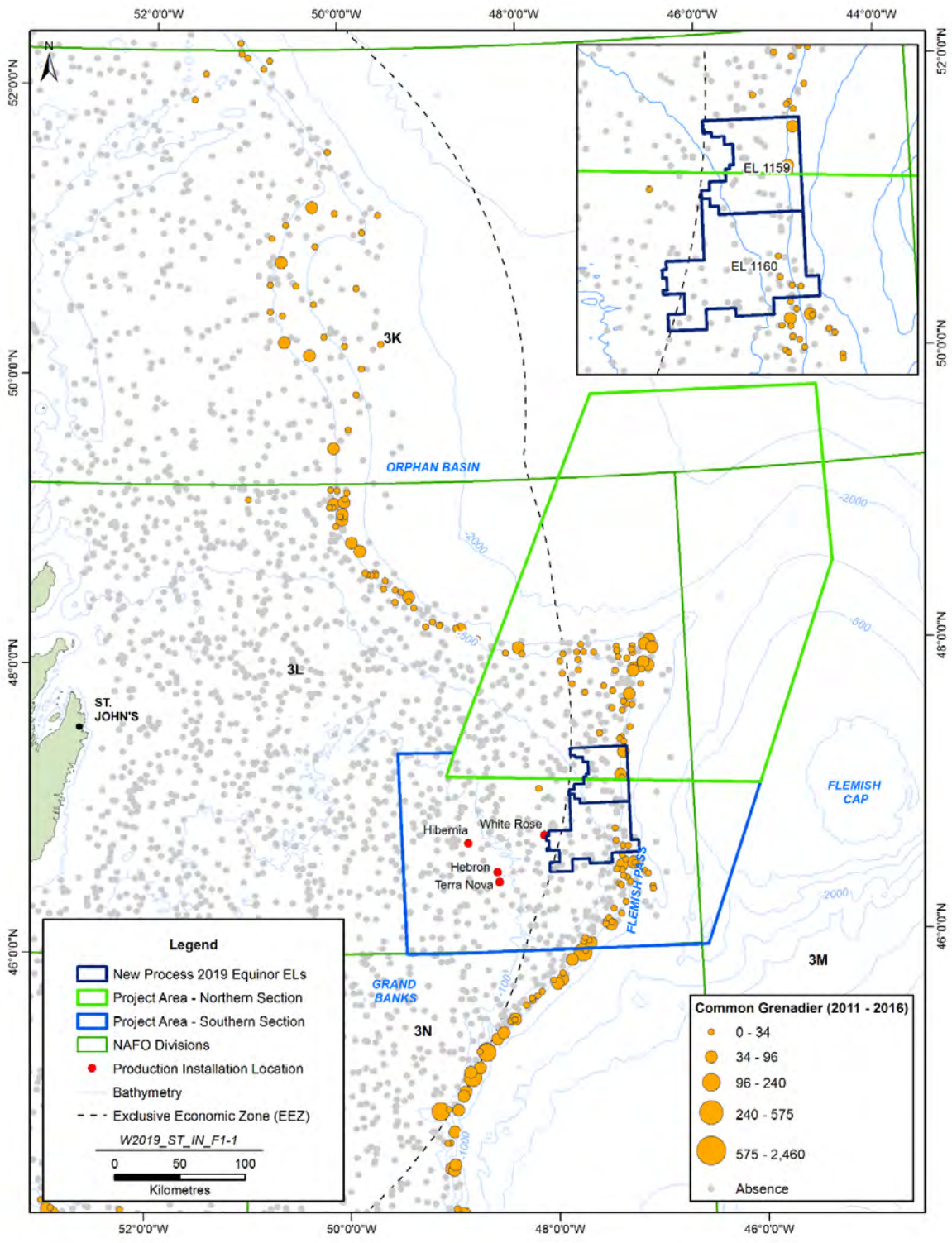


Figure D-14 Common Grenadier Distribution and Abundance as Compiled from Canadian RV Trawl Survey Data (2011 to 2016)

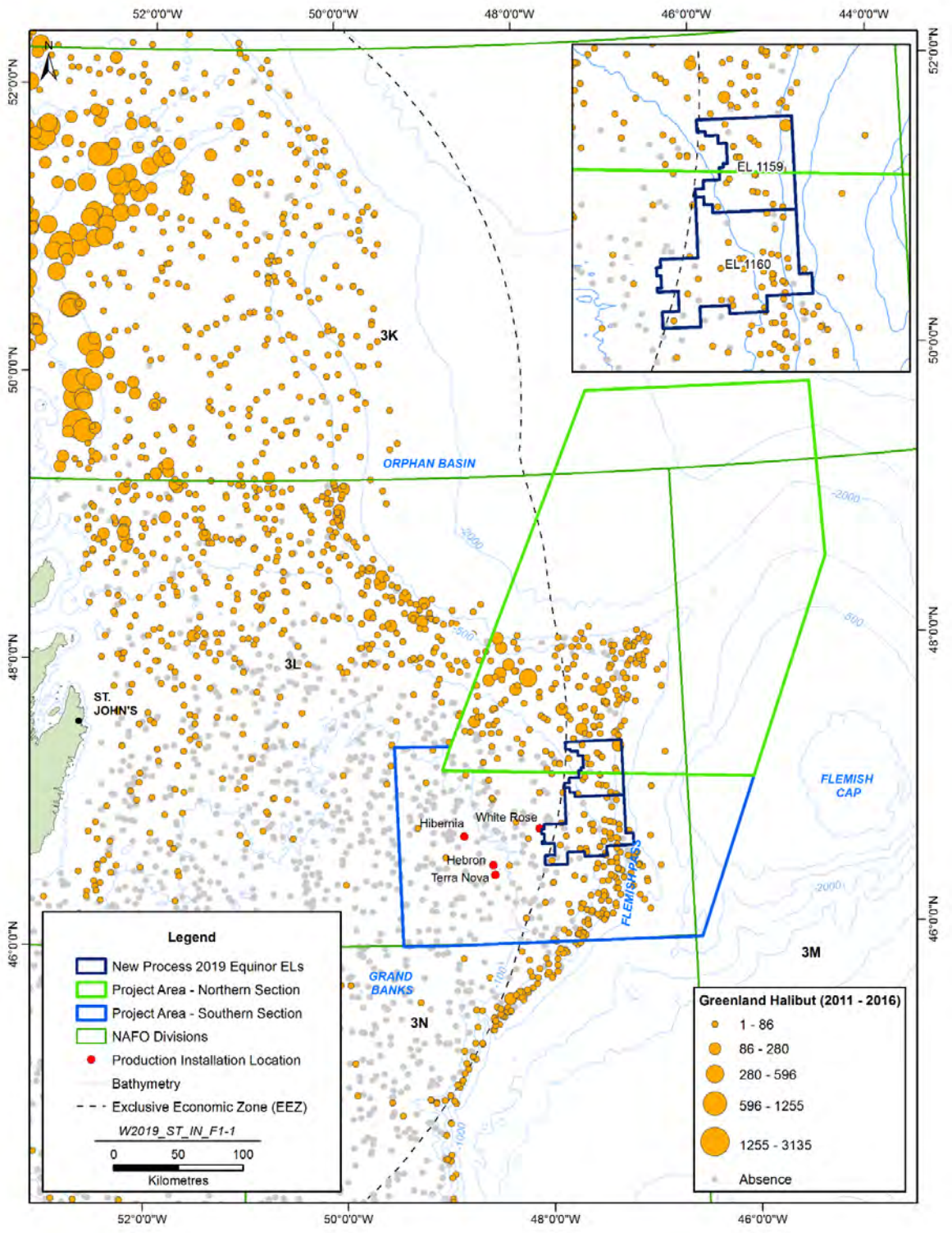


Figure D-15 Greenland Halibut Distribution and Abundance as Compiled from Canadian RV Trawl Survey Data (2011 to 2016)

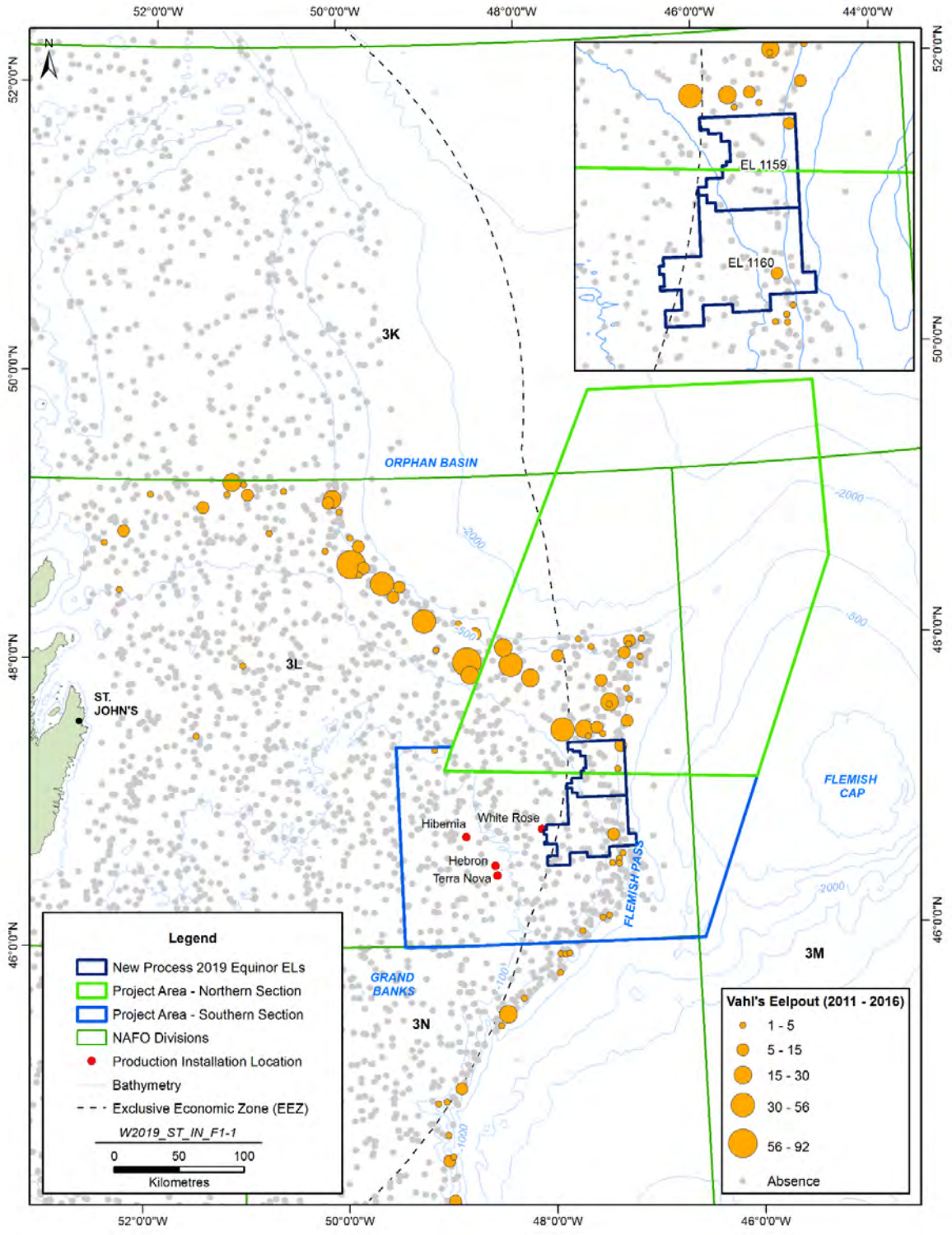


Figure D-16 Vahl's Eelpout Distribution and Abundance as Compiled from Canadian RV Trawl Survey Data (2011 to 2016)

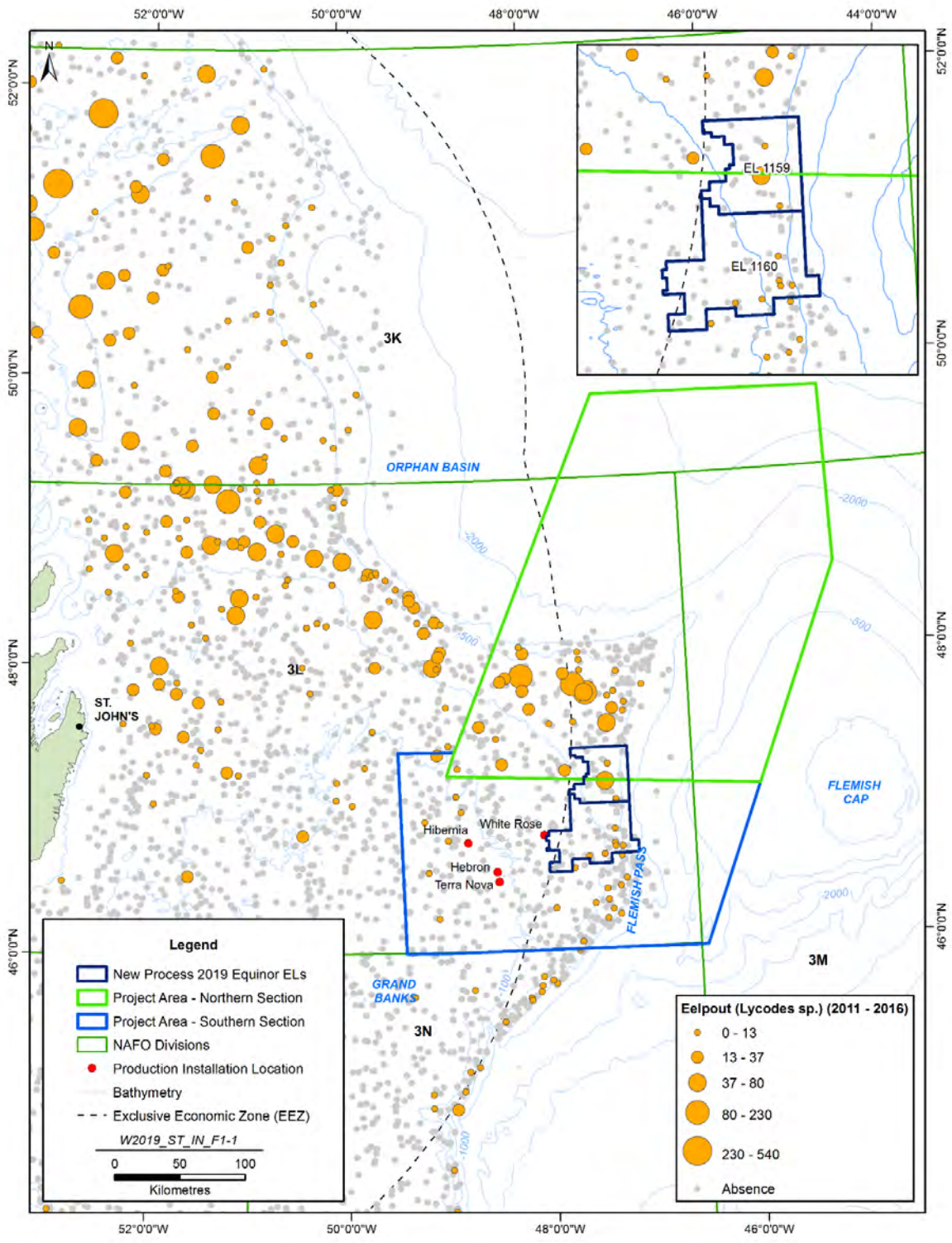


Figure D-17 Eelpout (*Lycodes* sp.) Distribution and Abundance as Compiled from Canadian RV Trawl Survey Data (2011 to 2016)

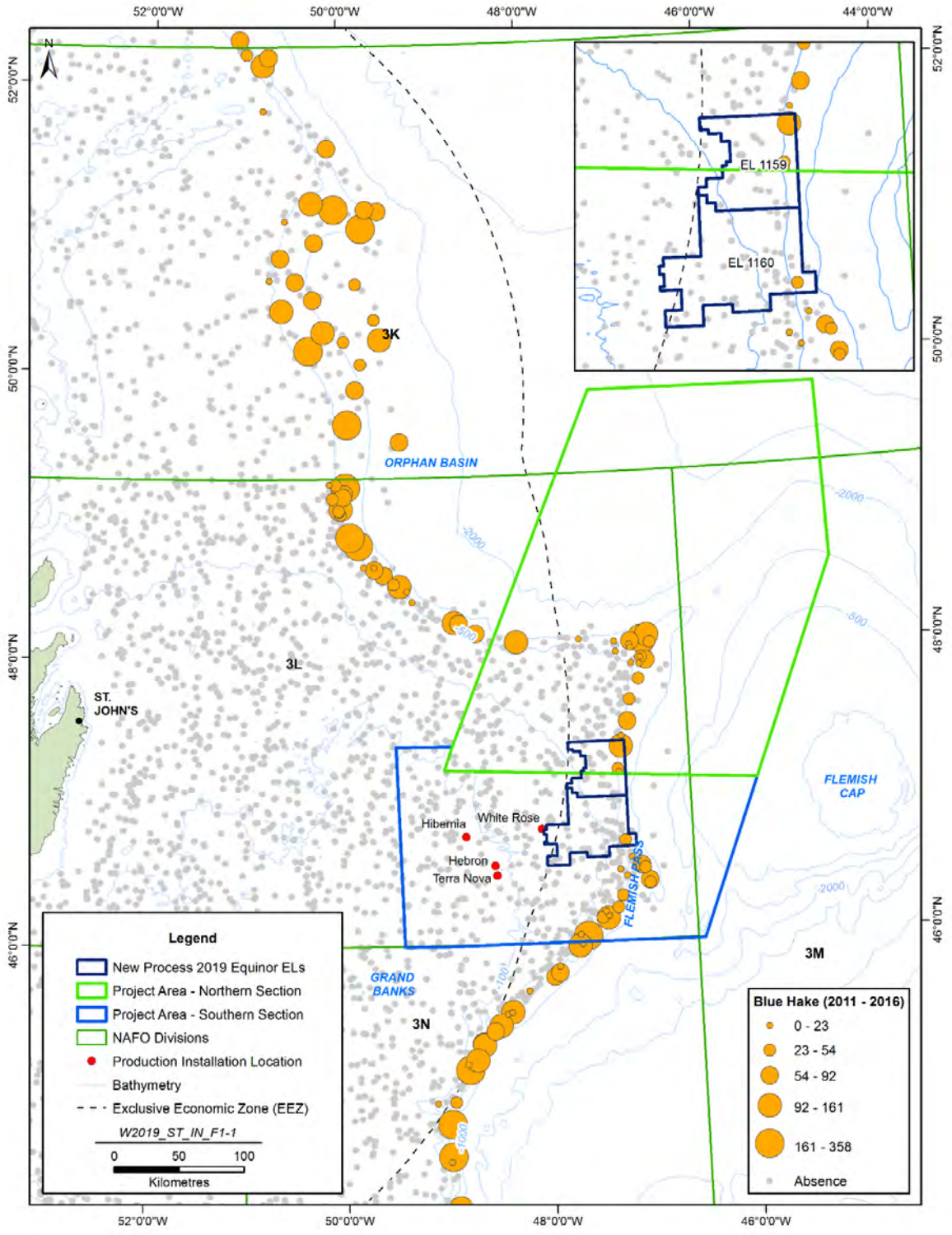


Figure D-18 Blue Hake Distribution and Abundance as Compiled from Canadian RV Trawl Survey Data (2011 to 2016)

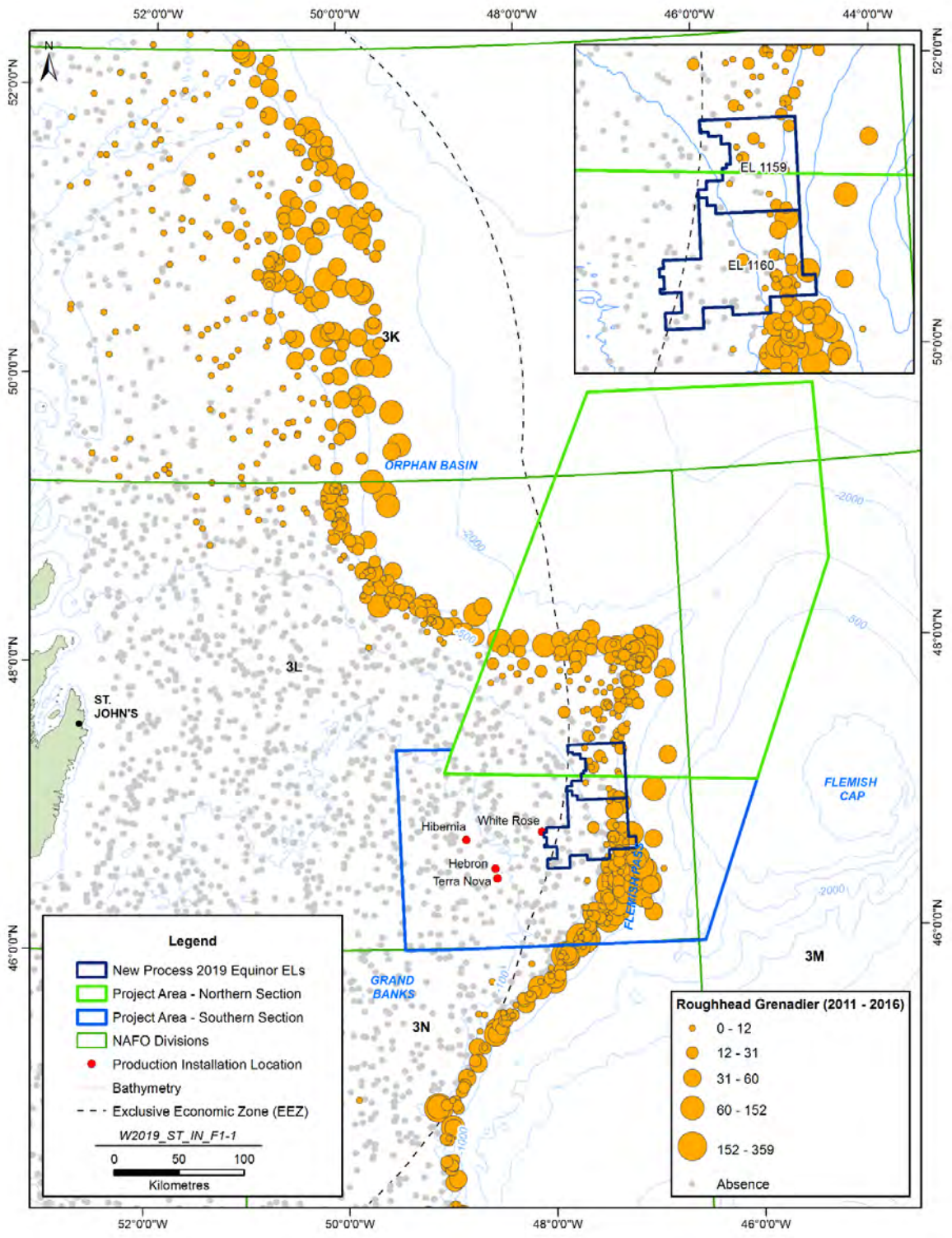


Figure D-19 Roughhead Grenadier Distribution and Abundance as Compiled from Canadian RV Trawl Survey Data (2011 to 2016)

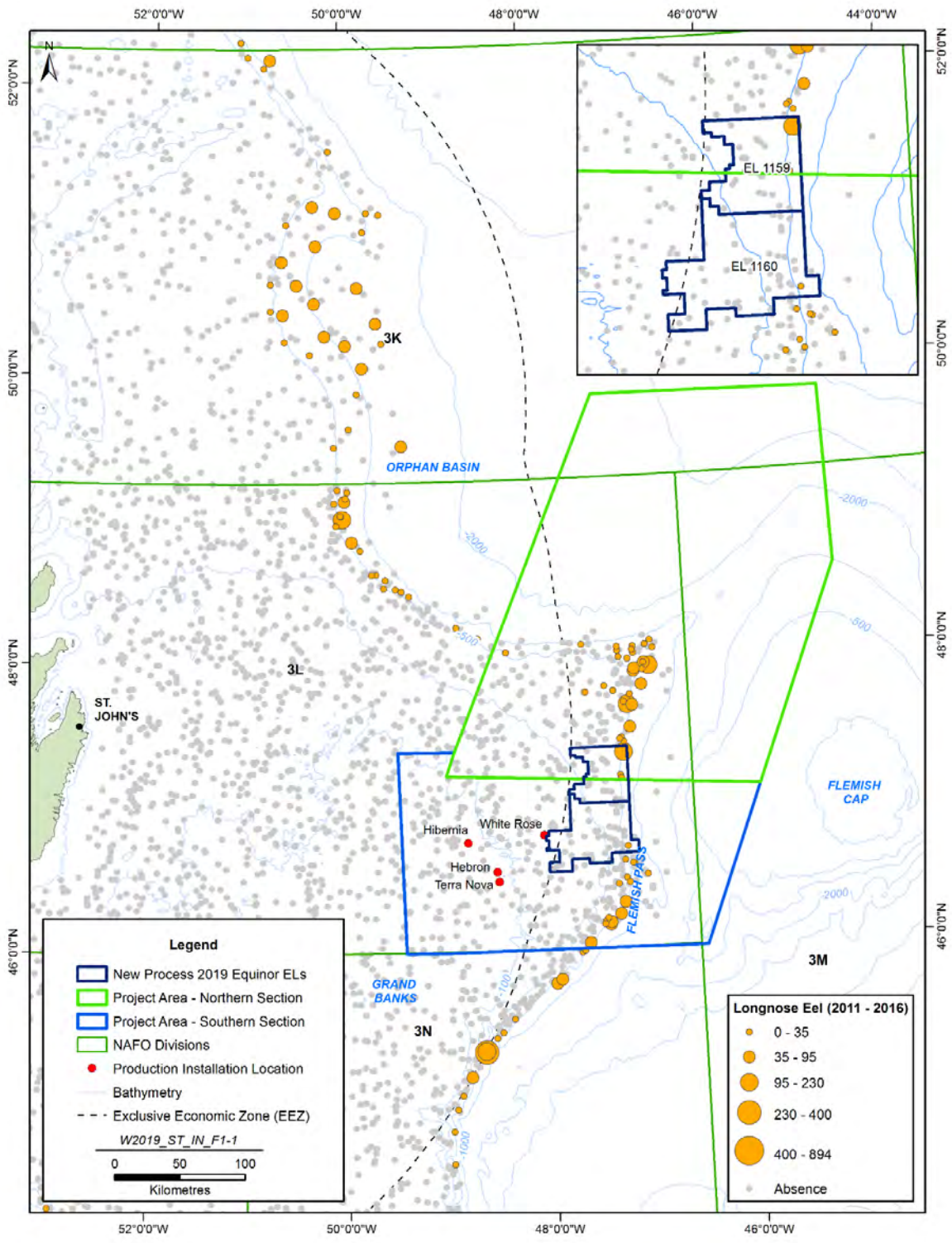


Figure D-20 Longnose Eel Distribution and Abundance as Compiled from Canadian RV Trawl Survey Data (2011 to 2016)

1.3 Species at Risk

Section 6.1.8 of the Flemish Pass EIS discusses marine fish species at risk, and information in those sections remains applicable and valid for ELs 1159 and 1160. Figures D-21 to D-25 below have been updated to reflect the most current data available regarding the distribution and abundance figures for Striped wolfish, Spotted wolffish, Northern wolfish, Atlantic cod and Thorny skate based on the most current Canadian RV trawl survey data.

There are no new Schedule 1 *Species at Risk Act* (SARA)-listed species since the Flemish Pass EIS was submitted.

Fisheries and Oceans Canada (DFO) is currently conducting consultations on the potential listing white hake (Atlantic and Northern Gulf of St. Lawrence population) and winter skate (Eastern Scotian Shelf and Newfoundland population) on the List of Wildlife Species at Risk pursuant to the SARA, however, they have not been formally added at this time.

Common lumpfish (Threatened) and white hake (Threatened) were assessed as at risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) since the Flemish Pass EIS. Haddock (vulnerable), little skate (near-threatened), and albacore tuna (near-threatened) were added to the International Union for Conservation of Nature (IUCN's) Red List since the Flemish Pass EIS.

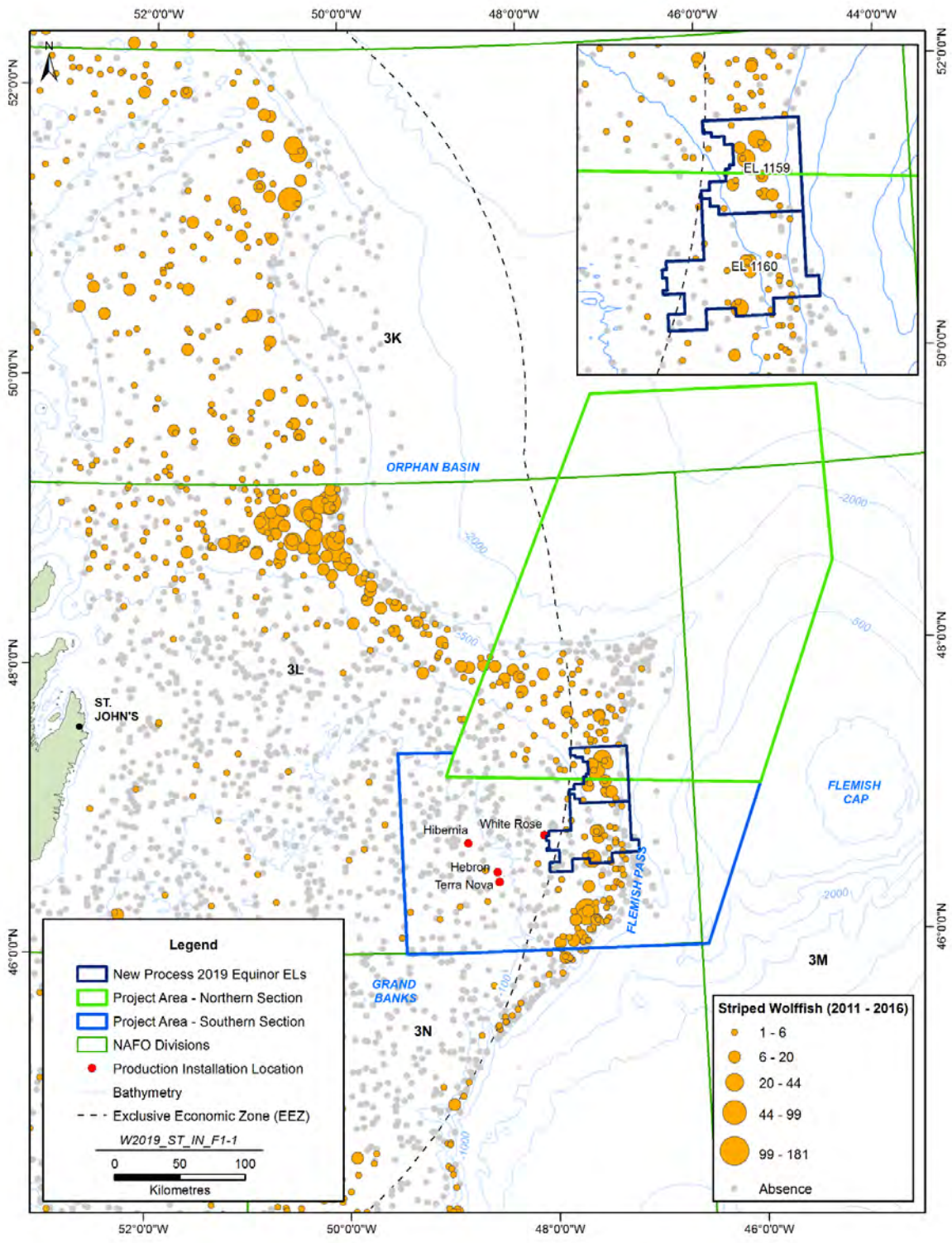


Figure D-21 Striped Wolffish Distribution and Abundance as Compiled from Canadian RV Trawl Survey Data (2011 to 2016)

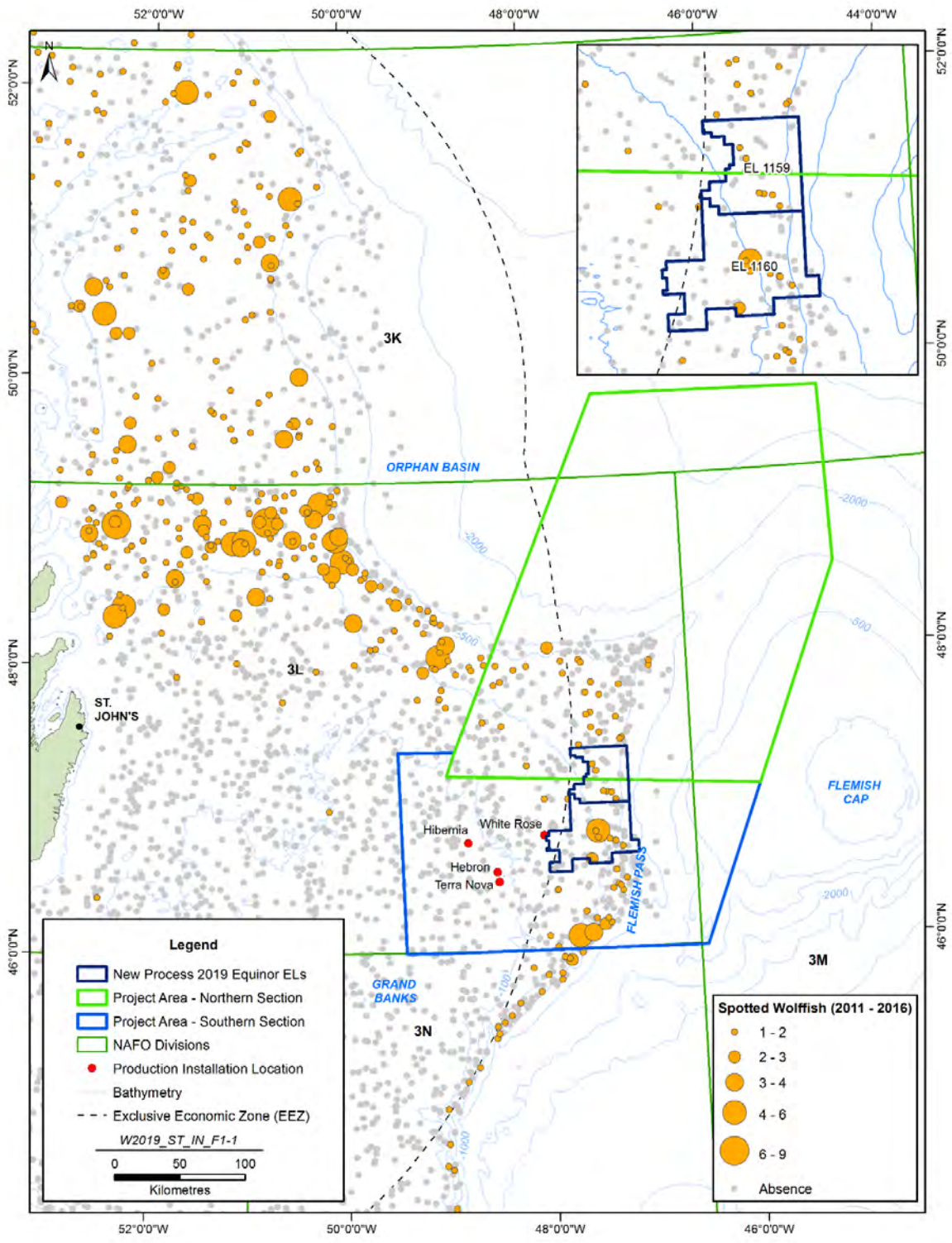


Figure D-22 Spotted Wolffish Distribution and Abundance as Compiled from Canadian RV Trawl Survey Data (2011 to 2016)

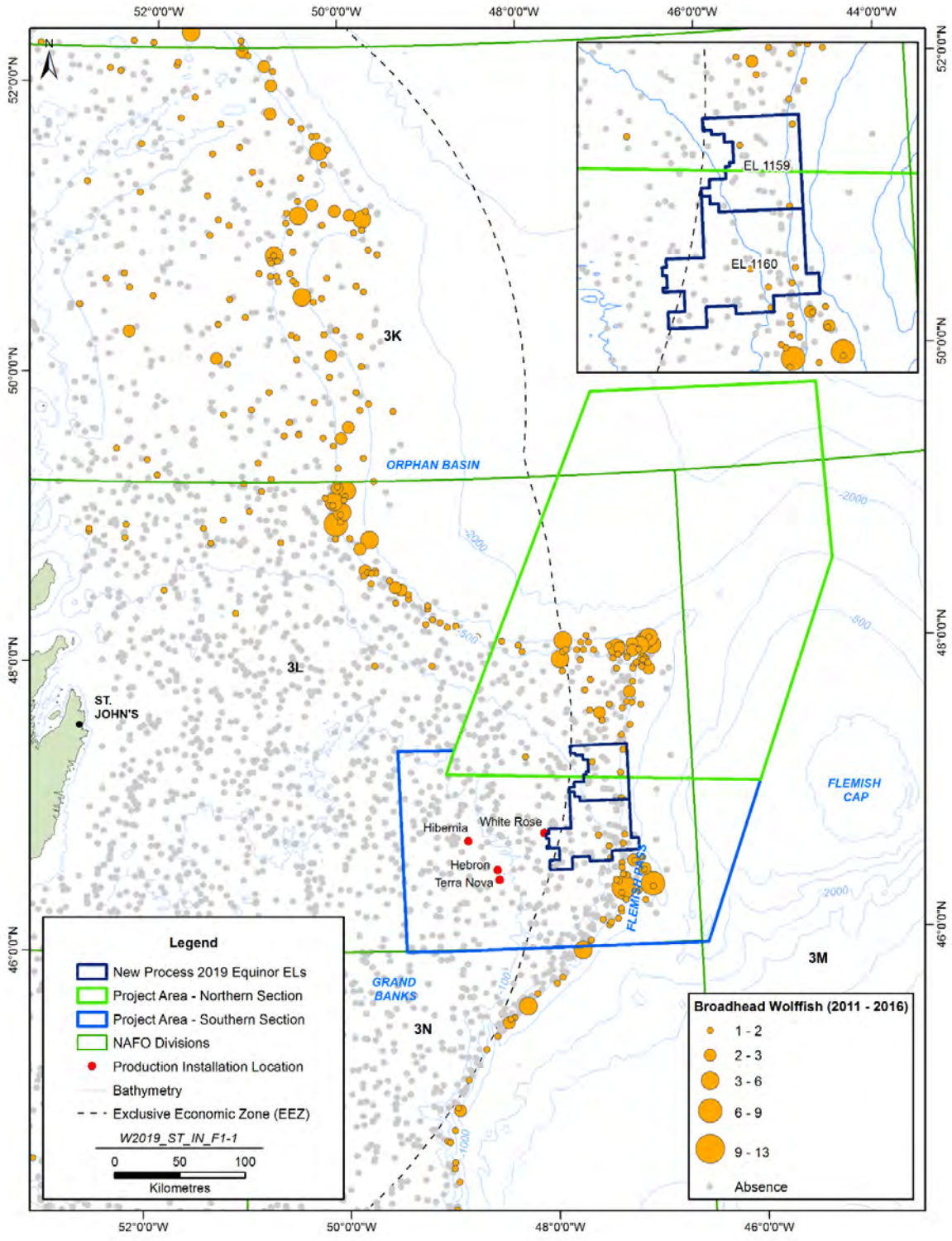


Figure D-23 Broadhead (or Northern) Wolffish Distribution and Abundance as Compiled from Canadian RV Trawl Survey Data (2011 to 2016)

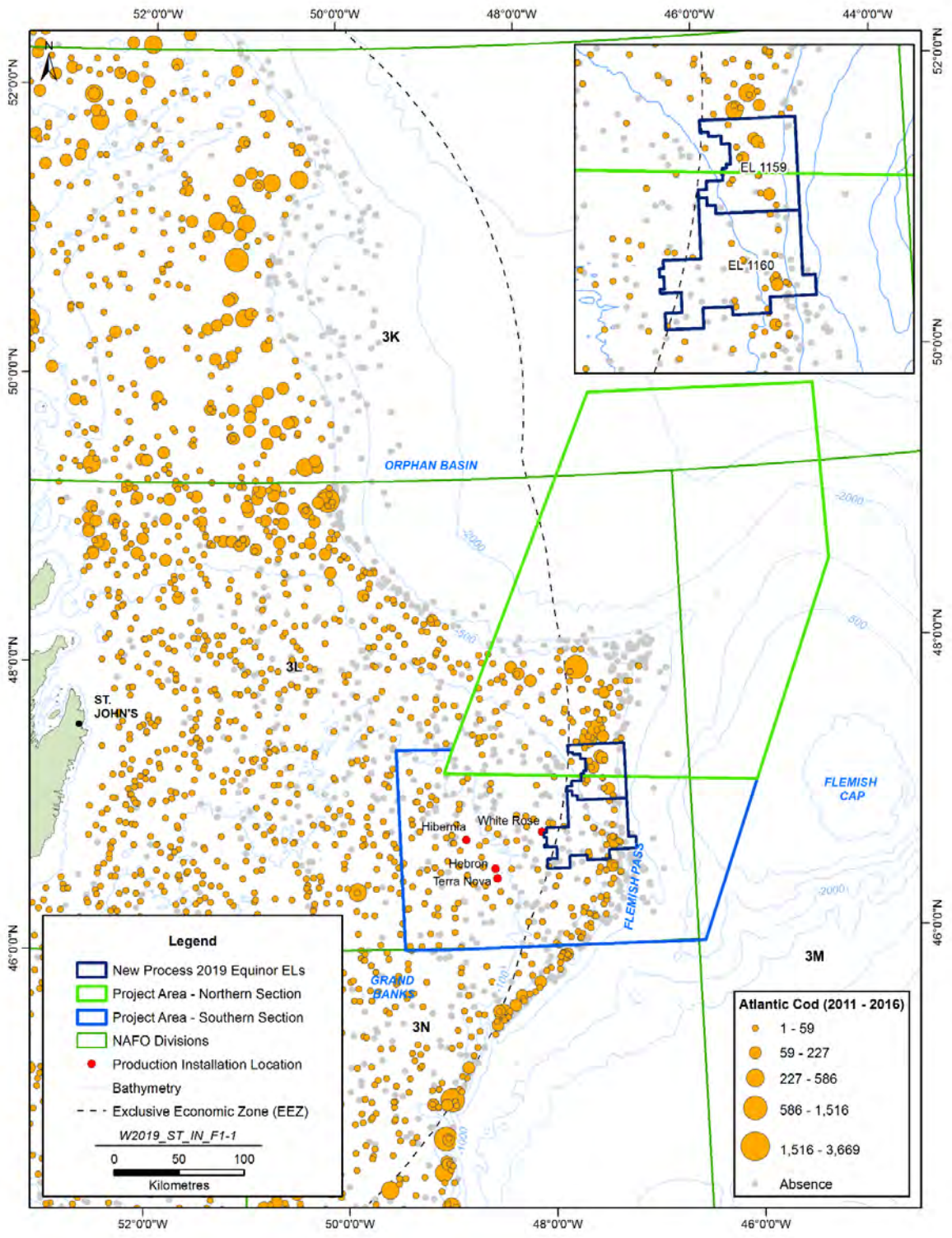


Figure D-24 Atlantic Cod Distribution and Abundance as Compiled from Canadian RV Trawl Survey Data (2011 to 2016)

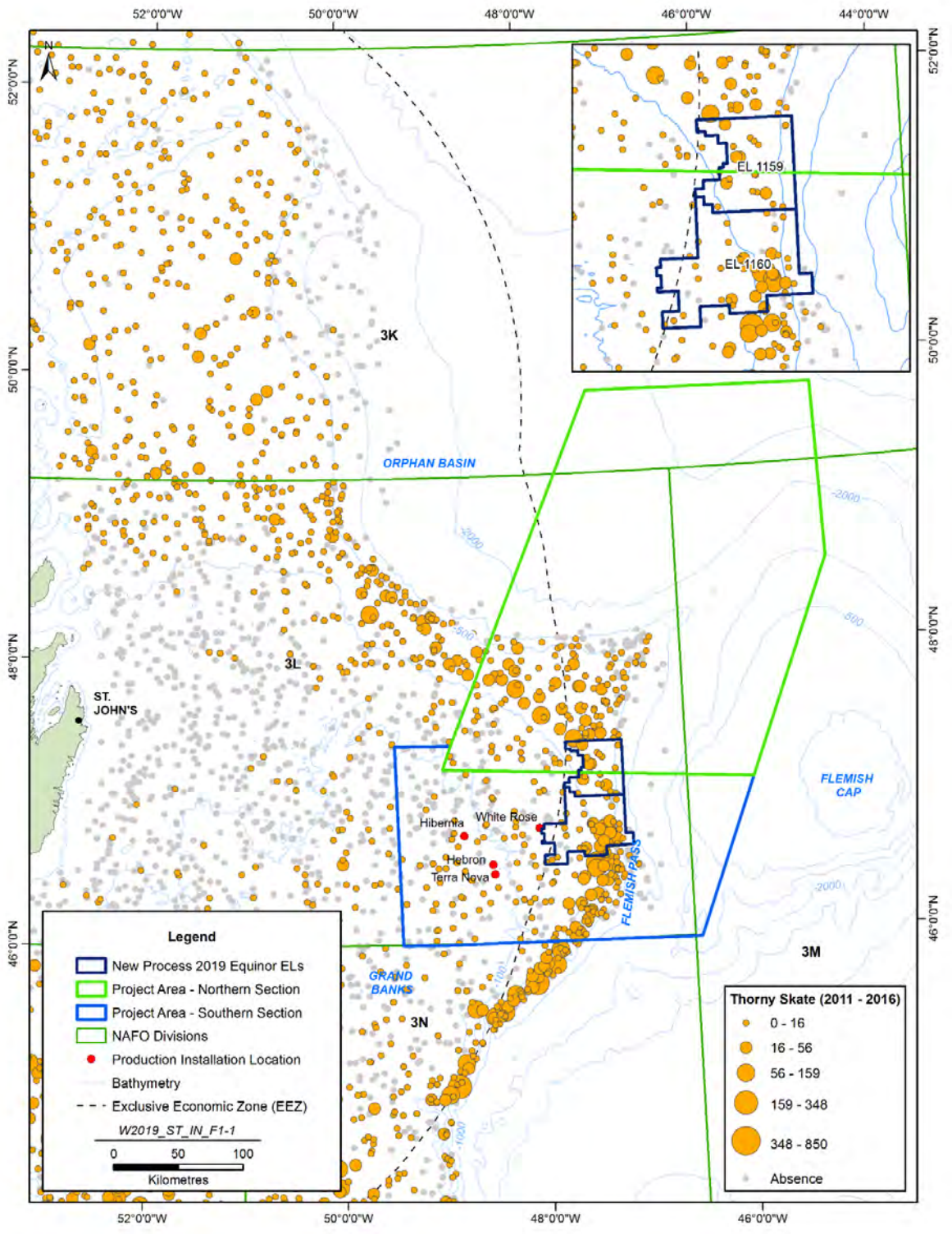


Figure D-25 Thorny Skate Distribution and Abundance as Compiled from Canadian RV Trawl Survey Data (2011 to 2016)

1.4 Summary of Key Areas and Times

Information in section 6.1.9 of the Flemish Pass EIS remains valid for ELs 1159 and 1160, however, Figures D-26 to D-28 have been updated to take into consideration the most recent RV survey data.

Based on the information and analysis related to marine fish and fish habitat in the preceding sections, Table D.6 presents a summary of some key regional and seasonal considerations related to the various parts of the Project Area, including ELs 1159 and 1160.

Table D.6 Summary of Some Key Regional and Seasonal Considerations Relevant to Marine Fish and Fish Habitat within the Project Area

Project Area Sub-Region	Key Regional and Seasonal Considerations
Project Area – Northern Section (Including EL 1159 [partial] and surrounding areas)	• Slope areas contain relatively high densities of habitat forming sponges and corals. • VMEs Northern and Northwest Flemish Cap and Sackville Spur in this area. • Greenland halibut and “threatened” spotted wolffish aggregate in this area in the spring. • Seasonal phytoplankton blooms in the spring and fall coincide with presence in pelagic areas of early life history stages of various fish and invertebrate species. • Area of relatively high fish species richness. • Aggregation area for Atlantic cod, thorny skate and wolffish species.
Project Area – Southern Section (Including EL 1159 [partial] and EL 1160)	• Slope areas contain habitat forming sponges and corals. • Seasonal phytoplankton blooms in the spring and fall coincide with presence in pelagic areas of early life history stages of various fish and invertebrate species. • Area of relatively high abundance and richness of fish and invertebrate species on slope areas.

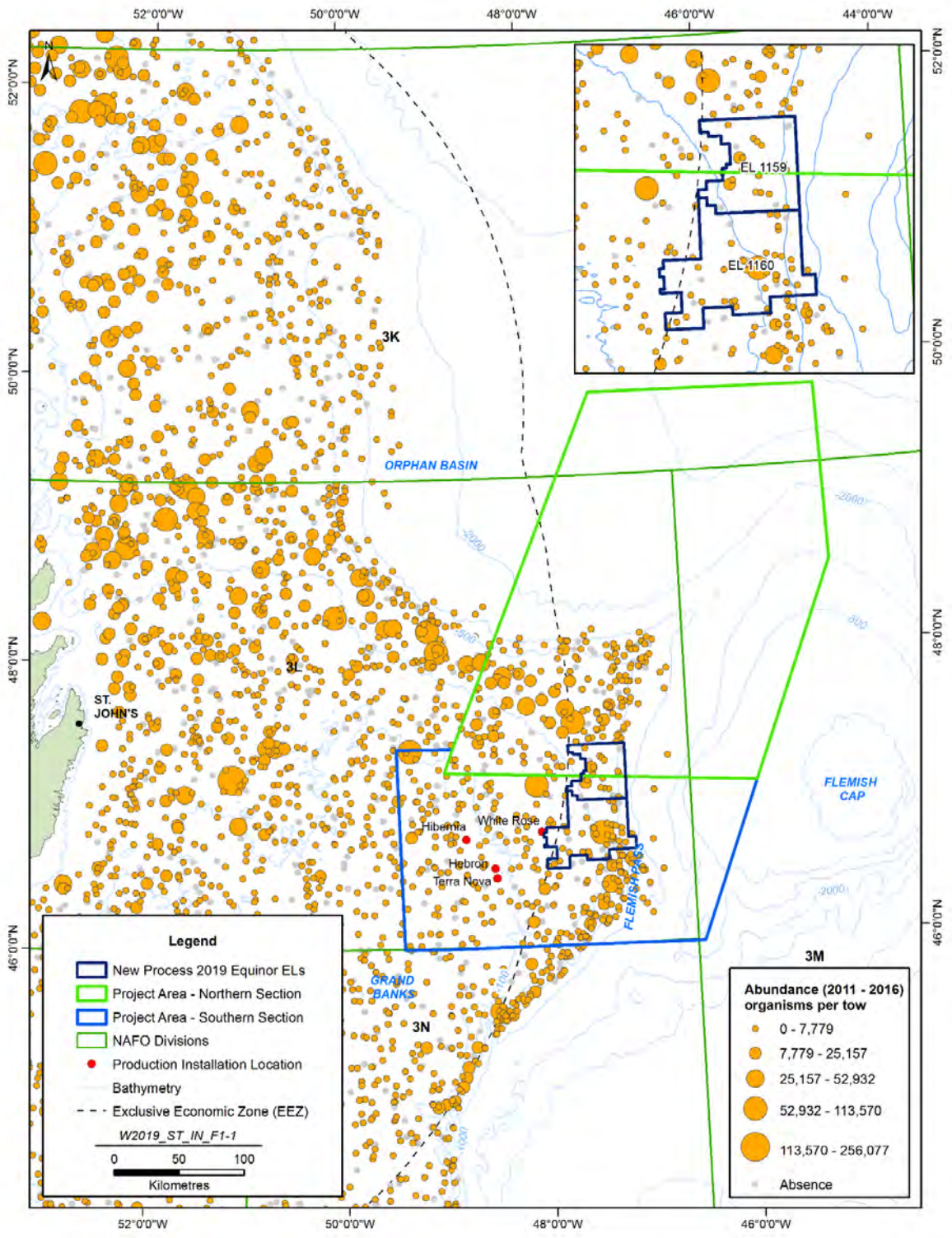


Figure D-26 Overall Abundance of Organisms (Fish and Commercially Important Invertebrate Species) Inventoried from Canadian RV Trawl Survey Data (2011 to 2016)

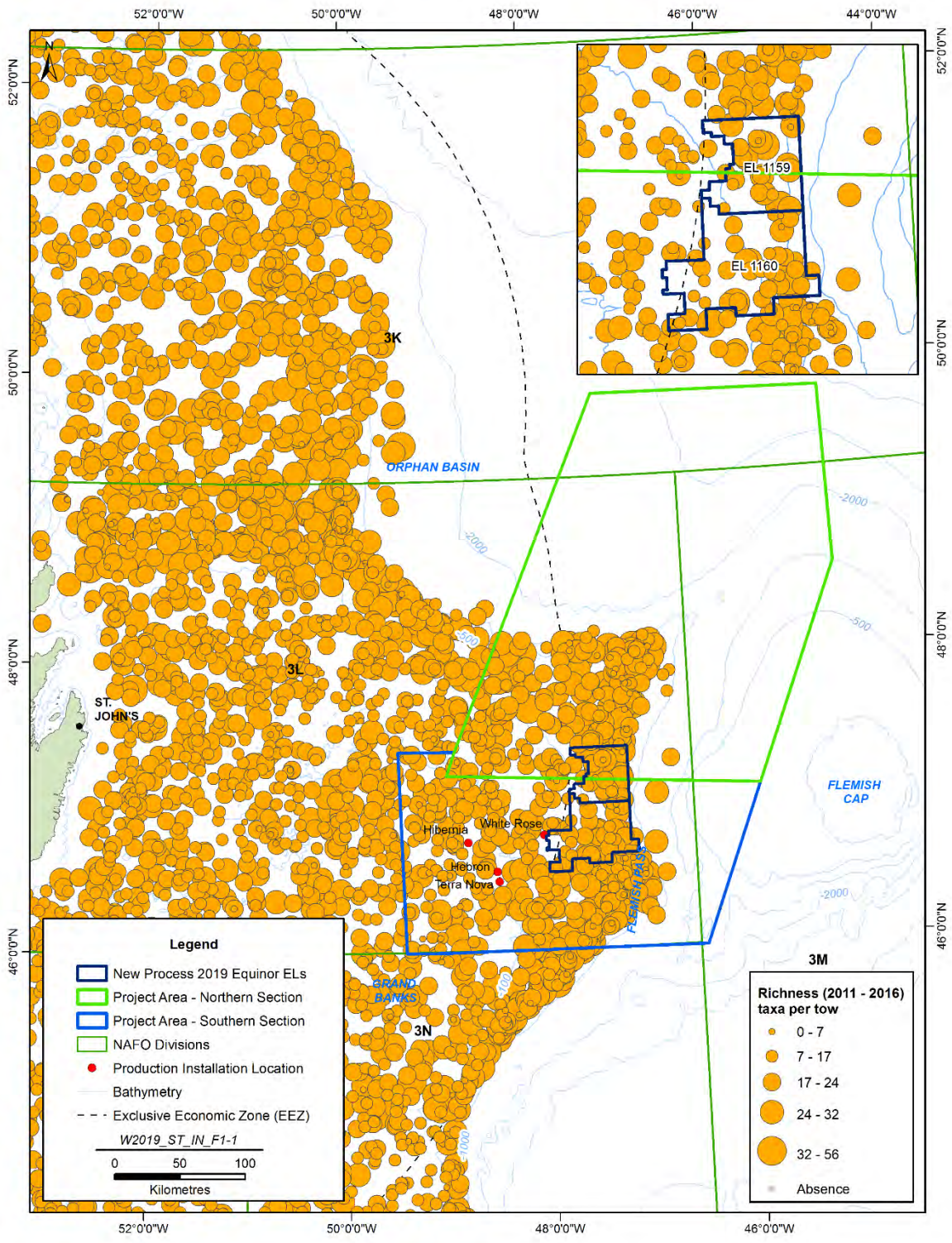


Figure D-27 Total Species Richness (Fish and Commercially Important Invertebrate Species) Inventoried from Canadian RV Trawl Survey Data (2011 to 2016)

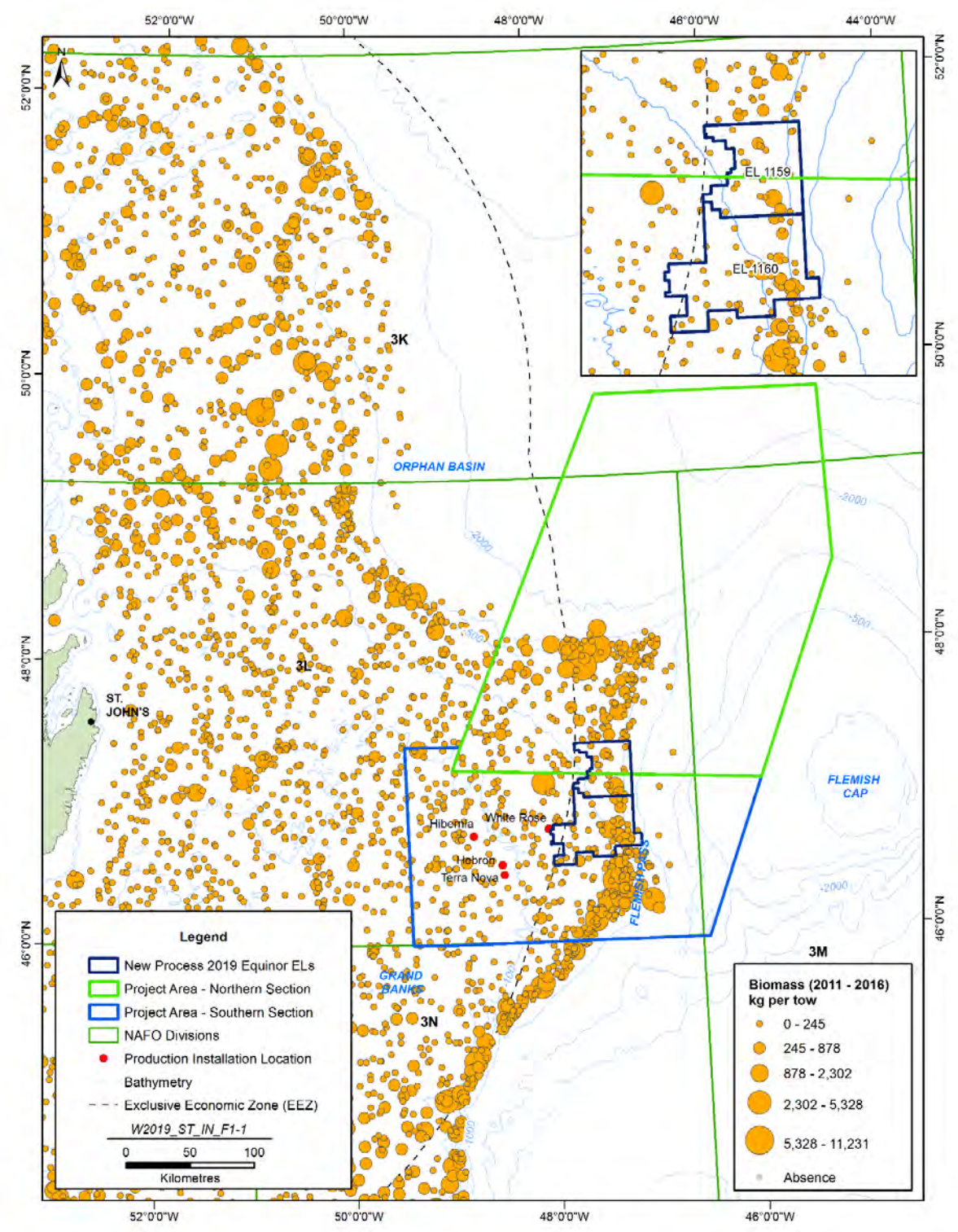


Figure D-28 Total Biomass (Fish and Commercially Important Invertebrate Species) Inventoried from Canadian RV Trawl Survey Data (2011 to 2016)

1.5 Special Areas of Importance to Marine Fish

A number of areas of importance for marine fish and habitat have been protected through regulatory processes or identified as being special or sensitive by relevant agencies, and some special areas have received recognition or protection through one or more of such processes. Table D.7 describes those special areas of importance to marine fish and fish habitat that overlap with the Regional Study Area (RSA). These include Marine Protected Areas (MPAs) and an Area of Interest (AOI), Marine Refuges, federal Fisheries Closure Areas (FCAs), Ecologically and Biologically Significant Areas (EBSAs), Preliminary Representative Marine Areas (RMAs), United Nations Convention on Biological Diversity (UNCBD) EBSAs, Vulnerable Marine Ecosystems (VMEs) and NAFO FCAs. These are described further in Section 6.4.

Table D.7 Special Areas in the RSA and their Importance to Marine Fish and Fish Habitat

Special Areas	Name	Importance to Marine Fish and Fish Habitat
MPAs and AOI	Eastport-Duck Islands MPA	• A wide range of groundfish, pelagic fish, shellfish
	Eastport-Round Island MPA	
	Laurentian Channel AOI	• Concentration and breeding area for black dogfish, nursing and feeding area for variety of species including porbeagle shark, and smooth skate. Species at risk (i.e., northern wolffish) found in area. One of the highest concentrations of sea pens (soft feather-shaped corals) in the NL Shelves Bioregion
Marine Refuges	Northeast NL Slope Closure (formerly known as Tobin's Point)	• Dense aggregations of large, structure-forming cold-water corals.
	Funk Island Deep Closure	• Seafloor habitat important to Atlantic cod.
Federal FCAs	Eastport Peninsula Lobster Management Area	• Species present include lobster, cod, capelin, herring, mackerel, crab, lumpfish, flounder, squid, sea urchin, whelk, scallops, clams, blue mussels, horse mussels, anemone, sea cucumbers, sea stars, jellyfish, polychaetes, wolffish and Atlantic salmon
	Funk Island Deep Box	• Northern shrimp habitat
	Hawke Box	• Snow crab habitat and area of cod aggregation
Snow Crab Stewardship Exclusion Zones	Crab Fishing Area 5A	• Refuge areas for snow crab.
	Crab Fishing Area 6A	
	Crab Fishing Area 6B	
	Crab Fishing Area 6C	
	Crab Fishing Area 8A	
	Crab Fishing Area 9A	
	Near Shore	

Table D.7 Special Areas in the RSA and their Importance to Marine Fish and Fish Habitat

Special Areas	Name	Importance to Marine Fish and Fish Habitat
Lobster Area Closures	Gooseberry Island	• Lobster spawning habitat
	Glovers Harbour	
	Mouse Island	
	Gander Bay	
EBSAs	Northeast Slope	• High aggregations of Greenland halibut and spotted wolffish. Concentrations of corals
	Virgin Rocks	• High aggregations of capelin and other spawning groundfish such as Atlantic cod, American plaice and yellowtail flounder
	Orphan Spur	• High concentrations of corals. Densities of sharks and species of conservation concern (e.g., northern, spotted and striped wolffish, skates, roundnose grenadier, American plaice, redfish)
	Lilly Canyon-Carson Canyon	• Concentration, reproduction and feeding area for Iceland scallops.
	Southeast Shoal	• Highest benthic biomass in the Grand Banks; aggregation, feeding, breeding and/or nursery habitats for capelin, yellowtail flounder, American plaice, Atlantic cod/ 3NO cod and sand lance. Greatest concentration area of yellowtail flounder and single nursery area for the entire stock. Shallowest groundfish area. Reproduction area for, and densest concentration of, striped wolffish. Highest density of American plaice. Unique relict populations of blue mussel, wedge clam and capelin associated with beach habitats from the last glacial advance. The bivalve species are typically found in inshore areas. Capelin normally spawn on beaches and as this is the only known offshore spawning site, it could be genetically separate
	Haddock Channel Sponges	• Description not available.
	Smith Sound	• Atlantic Cod use the area for spawning and nursery grounds and as an overwintering refuge
	Fogo Shelf	• Abundance of beach and sub-tidal capelin spawning areas
	Labrador Slope	• High diversity of corals, sponges, rare or endangered species, core species and fish functional groups. Rare or endangered species: Atlantic, spotted and northern wolffish. Significant concentrations of roundnose grenadier, skates, northern shrimp, Greenland halibut, redfish, Atlantic cod and American plaice

Table D.7 Special Areas in the RSA and their Importance to Marine Fish and Fish Habitat

Special Areas	Name	Importance to Marine Fish and Fish Habitat
	Labrador Marginal Trough	• High densities of shrimp, snow crab, Greenland halibut, American plaice, witch flounder and capelin. Potential corridor for several fish species. Aggregations of planktivores, piscivores, and small and medium benthivores
Preliminary RMAs	Virgin Rocks	• Important spawning habitat for Atlantic cod, American plaice and yellowtail flounder. Congregation area for capelin
	South Grand Bank Area	• Relatively high coral species richness. High fish species richness. Significant groundfish biomass
	Northwestern Conception Bay	• Capelin spawn in high concentrations
UNCBD EBSAs	Orphan Knoll	• Fragile and long-lived corals and sponges have been observed and a Taylor Cone circulation provides a mechanism for retention of larvae.
	Slopes of the Flemish Cap and Grand Bank	• A high diversity of marine taxa, including Threatened and listed species. Includes NAFO closures to protect corals and sponges.
VMEs	Northern Flemish Cap	• High density of sea pens, soft corals and black corals and, to a lesser extent, solitary stony corals and small gorgonians. Vulnerable fish species: northern wolffish and spiny dogfish
	Northeast Shelf and Slope (within Canadian EEZ)	• Abundance of gorgonian and antipatharian corals
	Southern Flemish Pass to Eastern Canyons	• Large gorgonians and high density of sponges. Vulnerable fish species: striped wolffish, redfish, spiny tailed skate, northern wolffish, some black dogfish, deep sea cat shark
	Beothuk Knoll	• Abundant gorgonian corals and high density of sponges. Vulnerable fish species: northern wolffish, spiny tailed skate, roundnose grenadier, deep sea cat shark, black dogfish
	Deep Water Coral Area	• An area where deep-water coral VMEs are considered likely
	Flemish Cap East	• Large gorgonians and high density of sponges. Vulnerable fish species: black dogfish and smooth skate
	South East Shoal and Adjacent Shelf Edge/Canyons	• Unique spawning grounds on South East Shoal, long-lived and relict bivalve populations in sandy shoal habitat. Vulnerable fish species: spawning capelin, northern wolffish, redfish, striped and spotted wolffish, roundnose grenadier and black dogfish

Table D.7 Special Areas in the RSA and their Importance to Marine Fish and Fish Habitat

Special Areas	Name	Importance to Marine Fish and Fish Habitat
	Division 3O Coral Area Closure	• Existing closure based on coral concentrations. High bycatch of pennatulaceans and solitary scleractinian corals. Vulnerable fish species: white hake, redfish, black dogfish, smooth skate and deep-sea cat shark
NAFO FCAs	Tail of the Bank (1)	• Closed to protect high coral and sponge concentrations • Deep-sea sponge grounds are aggregations of large sponges that develop under certain geological, hydrological and biological conditions to form structural habitat. More recent studies to the south identified significant concentrations of erect bryozoans, large sea squirts (*Boltenia ovifera*) and small gorgonian VME indicator species, along with crinoids and cerianthids
	Flemish Pass/Eastern Canyon (2)	• Closed to protect extensive sponge grounds. • Area was expanded to protect large gorgonian corals in the Flemish Pass • Biological composition is similar to the Sackville Spur. These sponge grounds have been shown to house high species diversity compared with non-sponge ground habitat at similar depths. Some sponge, large gorgonians and seapen VMEs have also been identified outside the FCA
	Beothuk Knoll (3)	• Closed to protect high coral and sponge concentrations • Sponge and large gorgonian VMEs have been identified outside this FCA
	Eastern Flemish Cap (4)	• Closed to protect high coral and sponge concentrations • See Northern, Northwest and Northeast Flemish Cap. High densities of the stalked crinoids *Gephyrocrinus grimaldii* together with several structure-forming sponges inside the FCA. A sponge and large gorgonian VME indicator element have been identified outside the FCA. Crinoids and cerianthids have also been found in this area
	Northeast Flemish Cap (5)	• Closed to protect high coral and sponge concentrations • Similar habitat to Northern and Northwest Flemish Cap • Encompasses a gradient of benthic communities, transitioning from coral dominated communities at ~2,450 m depth, corals intermixed with sponges around 2,000 m, sponge dominated grounds at 1,500 m, and a diverse community of corals, sponges and other benthic taxa at approximately 1,300 m depth

Table D.7 Special Areas in the RSA and their Importance to Marine Fish and Fish Habitat

Special Areas	Name	Importance to Marine Fish and Fish Habitat
	Sackville Spur (6)	• Closed to protect high coral and sponge concentrations • Dominant sponge species are demosponges of the order Astrophorida. Geodiids (mostly *Geodia barretti*), *Stelletta normani* and *Stryphnus ponderosus* occur in the deeper water. These large-sized sponges sometimes grow to more than 25 cm in diameter. The upper limit of the sponges is at about 1,300 m depth and extending down to about 1,800 m. These sponge grounds host a high diversity and abundance of associated megafaunal species
	Northern Flemish Cap (7), Northern Flemish Cap (8), Northern Flemish Cap (9), Northwest Flemish Cap (10), Northwest Flemish Cap (11), Northwest Flemish Cap (12)	• Closed to protect high coral and sponge concentrations • Sea pens are key biophysical components of soft-bottom VME indicator elements in the NAFO regulatory area. Aggregations of sea pens, known as “fields”, provide important structure in low-relief sand and mud habitats where there is little physical habitat complexity. Fields provide refuge for small planktonic and benthic invertebrates that may be preyed upon by fish. A system of sea pen VME indicator species has been identified extending around the edge of the Flemish Cap. Crinoids and cerianthids and black corals have been found associated with this sea pen system. Sponges, sea pens, cerianthids and crinoids are also found outside the FCA
	Beothuk Knoll (13)	• Closed to protect high coral and sponge concentrations
	Eastern Flemish Cap (14)	• Closed due to significant concentrations of sea pens, a VME indicator species
	3O Coral Area Closure	• Closed to protect corals • Sea pen and small gorgonian VME indicator species have been identified near the FCA and species distribution models indicate a high probability of sea pens
	Orphan Knoll Seamount	• Closed to protect seamounts • The Orphan Basin-Orphan Knoll region is biologically rich and complex. Corals, including stony corals, and sponges observed on the flanks of the seamount. Near-bottom anti-cyclonic circulation could have important implications for the benthic community
	Newfoundland Seamounts	• Closed to protect seamounts • In general, seamounts tend to support endemic populations and unique faunal assemblages

Table D.7 Special Areas in the RSA and their Importance to Marine Fish and Fish Habitat

Special Areas	Name	Importance to Marine Fish and Fish Habitat
	Fogo Seamounts (1)	• Closed as seamounts are VME indicator elements with high probability of containing VME indicator species
Sources: Templeman (2007); DFO (2007a, 2013, 2014, 2015, 2016a, 2016b, 2017a, 2017b, 2018a, 2018b); WG-EAFM (2008); CPAWS (2009); EMPAAC (2013); NAFO (2015, 2016a, 2016b); UNFAO (2016); N. Wells (2018); CBD (2017)		

2 MARINE AND MIGRATORY BIRDS

2.1 Seabirds

Information in section 6.2.2 of the Flemish Pass EIS) is valid for ELs 1159 and 1160. An overview of seabird colony locations in eastern Newfoundland is illustrated in Figure D-29. The Flemish Pass EIS included Eastern Canadian Seabirds at Sea (ECSAS) data up to 2016, which was obtained from Canadian Wildlife Service (CWS), however, information is available for 2017 and the seabird colony-specific tables and figures originally provided in the Flemish Pass EIS have been updated in Tables D.8 to D.14 and Figures D-30 to D-43.

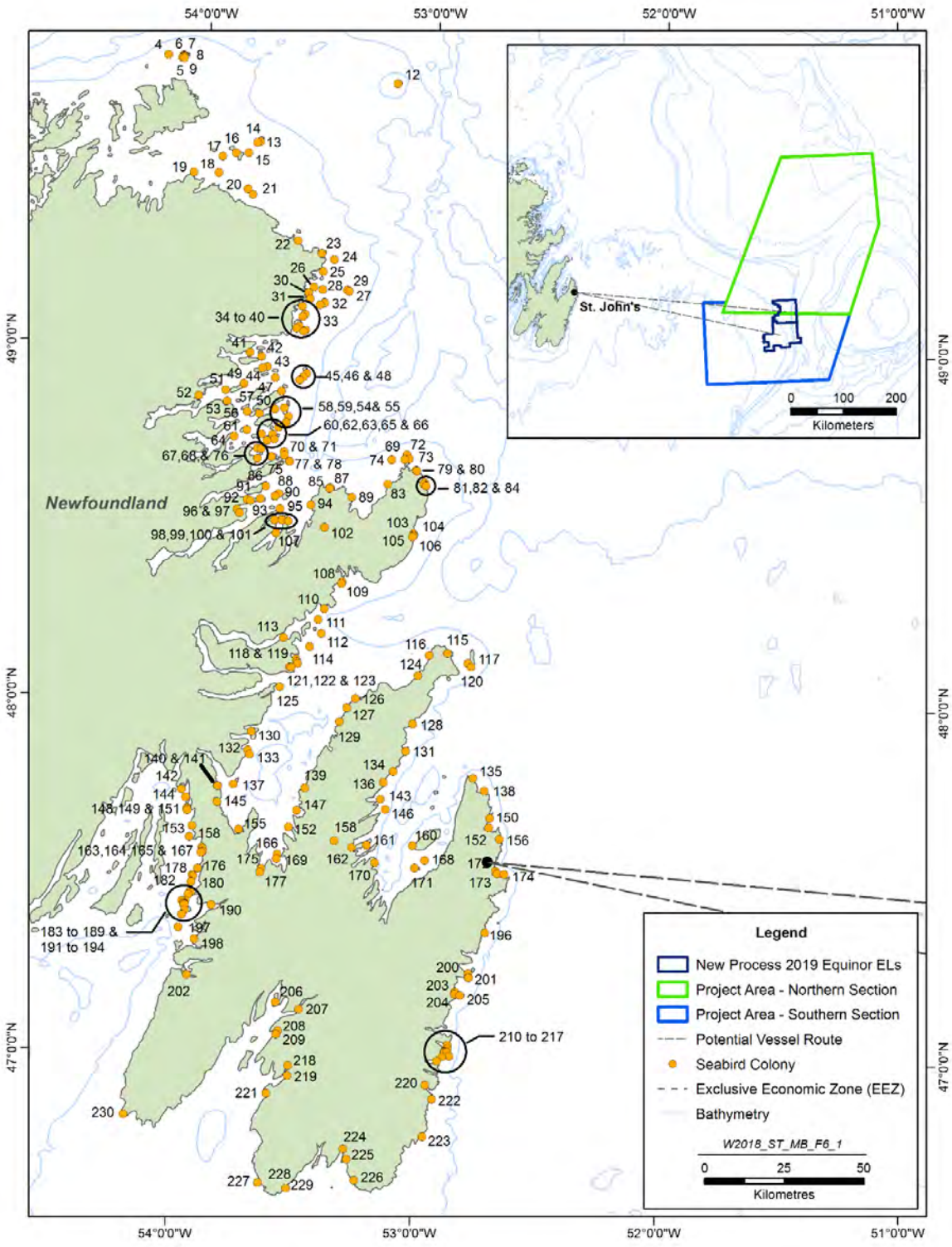


Figure D-29 Seabird Colony Locations Eastern Newfoundland

Table D.8 Cormorant Colony Locations in Eastern Newfoundland

Colony Name	Colony #[1]	Colony Size	Survey Unit	Year Surveyed
Penguin Island, South	21	60	Pairs	2005
Little Shag Rock	35	12	Pairs	2005
Big Shag Rock	36	50	Pairs	2005
Brown Store Islet	67	300	Individuals	2005
Gull Island, Cape Bonavista	69	50	Individuals	2005
Harbour Grace Islands	146	50	Individuals	2005
Green Island (CB)	199	50	Individuals	2005
Renews Island	222	50	Individuals	2005
Cape St. Mary's	230	20	Individuals	2015

Note:
1. Refer to Figure D-24 for colony locations corresponding to each Colony #.
Source: Data obtained from Atlantic Canada Colonial Waterbird Database (CWS 2017).

Table D.9 Northern Gannet Colony Locations in Eastern Newfoundland

Colony Name	Colony #1	Colony Size	Survey Unit	Year Surveyed
Funk Island	12	10,198	Pairs	2014
Baccalieu Island	120	3,241	Pairs	2014
Cape St. Mary's	230	13,515	Pairs	2013

Note:
1. Refer to Figure D-24 for colony locations corresponding to each Colony #.
Source: Data obtained from Atlantic Canada Colonial Waterbird Database (CWS 2017).

Table D.10 Gull Colony Locations in Eastern Newfoundland

Common Name	Colony Name	Colony #[1]	Colony Size	Survey Unit	Year Surveyed
Black-legged Kittiwake	Funk Island	12	118	Pair	2017
	Gull Island, Cape Freels	24	300	Individual	2005
	Grassy Shag Rock, Offer Gooseberry	46	750	Individual	2005
	Double Shag Island	48	50	Individual	2005
	Gull Island, Cape Bonavista	69	750	Individual	2015
	Stone Island	74	300	Individual	2005
	Little Denier Island	78	300	Individual	2005
	South of Spillars Point	79	750	Individual	2005
	North Bird Island	81	50	Individual	2015
	Black Head	83	300	Individual	2005

Table D.10 Gull Colony Locations in Eastern Newfoundland

Common Name	Colony Name	Colony #[1]	Colony Size	Survey Unit	Year Surveyed
	Bird, South	84	50	Individual	2015
	Unnamed I. in from Ragged rocks	103	300	Individual	2005
	Ragged Islands, North	104	300	Individual	2005
	Ragged Islands, Middle	105	50	Individual	2005
	Green Island	108	50	Individual	2005
	Unnamed I. inside Green Island (off Salvage Head)	109	300	Individual	2005
	Maiden Island	110	208	Pair	2005
	Green Island, Trinity Bay	112	51	Pair	2005
	Cliff west of Red Head	115	50	Individual	2005
	Baccalieu Island	120	5,096	Pair	2012
	Copper Island, south of Verge Island	121	300	Individual	2005
	Green Islands, north of Long Island	125	50	Individual	2005
	Unnamed I. in St. Jones Harbour	130	750	Individual	2005
	Bradley's Cove	131	1001	Individual	2005
	Copper Island, Trinity Bay	133	300	Individual	2005
	Spout Cove	134	50	Individual	2005
	West Shag Islands, Bull Arm	140	43	Pair	2005
	East Shag Islands, Bull Arm	141	300	Individual	2005
	Goose Island, south	142	788	Pair	2005
	Carbonear Island	143	300	Individual	2005
	Unnamed I. in Rantem Harbour	145	300	Individual	2005
	Harbour Grace Islands	146	1001	Individual	2005
	Red Rocks	147	300	Individual	2005
	Church Cove	150	1333	Pair	2012
	Torbay, Sculpin Point	152	218	Pair	2012
	Hopeall Island	153	50	Individual	2005
	Brigus Lookout cliff	170	300	Individual	2005
	Freshwater Bay	172	820	Pair	2006
	Deadmans Bay	173	2866	Pair	2006
	Blackhead	174	350	Individual	2005
	Miners Point	196	1001	Individual	2005
	Gull Island	200	4,658	Pair	2017
	Green Island	201	2,188	Pair	2007
	Great Island	205	6,547	Pair	2015
	Goose Island, Ferryland	211	50	Individual	2005

Table D.10 Gull Colony Locations in Eastern Newfoundland

Common Name	Colony Name	Colony #[1]	Colony Size	Survey Unit	Year Surveyed
	Cape Ballard	223	50	Individual	2005
	The Drook/Mistaken Point	226	4,170	Pair	2009
	Cape Pine	228	575	Pair	2005
	Cape St. Mary's	230	10,000	Pair	10,000
Herring Gull	Funk Island	12	150	Pair	2011
	Penguin Island, North	20	50	Individual	2005
	Penguin Island, South	21	300	Individual	2005
	Southern Cat Island	22	300	Individual	2005
	Middle Bill Island	23	300	Individual	2005
	Gull Island, Cape Freels	24	50	Individual	2005
	Cape Island	25	5	Individual	2005
	Cabot Island, North	27	50	Individual	2005
	Pouch Island	28	250	Individual	2015
	Butterfly Islets	33	50	Individual	2005
	Bennetts Low Island	34	50	Individual	2005
	Little Shag Rock	35	50	Individual	2005
	Big Shag Rock	36	300	Individual	2005
	Southwest Island	42	50	Individual	2005
	Small unnamed I. northeast of Deer Island	43	300	Individual	2005
	Double Shag Island	48	50	Individual	2005
	Small unnamed I. west of Lockers Flat Island	51	50	Individual	2005
	Great Black Island, unnamed I. north and west of Gulch Island	54	50	Individual	2005
	Black Island, St. Brendan's	58	50	Individual	2005
	Puffin Island	59	50	Individual	2005
	Shag Rock, Varket Channel	60	50	Individual	2005
	Brown Store Islet	67	300	Individual	2005
	Gull Island, Cape Bonavista	69	50	Individual	2005
	Green Island, Cape Bonavista	73	750	Individual	2005
	Unnamed I. east of Sailors Island	75	300	Individual	2005
	Little Denier Island	78	50	Individual	2005
	North Bird Island	81	70	Individual	2015
	Elliston Point Island	82	33	Individual	2015
	Bird, South	84	24	Individual	2015

Table D.10 Gull Colony Locations in Eastern Newfoundland

Common Name	Colony Name	Colony #[1]	Colony Size	Survey Unit	Year Surveyed
	North unnamed I. in Castle Cove	85	300	Individual	2005
	South unnamed I. in Castle Cove	87	300	Individual	2005
	South of Fish Point Gulch	89	50	Individual	2005
	Middle Long Island	90	50	Individual	2005
	Copper Island	91	50	Individual	2005
	Red Cliff Island	94	300	Individual	2005
	Mouse Island, Sweet Bay	98	50	Individual	2005
	Lakeman Island	101	50	Individual	2005
	Unnamed I. in from Ragged Rocks	103	50	Individual	2005
	Ragged Islands, North	104	50	Individual	2005
	Unnamed I. northeast of Wolf Island	107	50	Individual	2005
	Green Island	108	50	Individual	2005
	Unnamed I. inside Green Island (off Salvage Head)	109	300	Individual	2005
	Ragged Islands, west	111	300	Individual	2005
	Green Island, Trinity Bay	112	1,001	Individual	2005
	Duck Island (TB)	114	2	Individual	2005
	Verge Island	119	1,001	Individual	2005
	Baccalieu Island	120	46	Pair	2012
	Perlican Island	124	750	Individual	2005
	Green Islands, N of Long Island	125	50	Individual	2005
	Hants Head	126	50	Individual	2005
	Unnamed I. rock off of Kings Head	127	50	Individual	2005
	Sugar Loaf	129	50	Individual	2005
	Unnamed I. in St. Jones Harbour	130	50	Individual	2005
	Copper Island, Trinity Bay	133	300	Individual	2005
	Pigeon Island	135	300	Individual	2005
	Stack in Shoe Cove	138	50	Individual	2005
	Goose Island, South	142	300	Individual	2005
	Carbonear Island	143	750	Individual	2005
	Duck Island, East	144	300	Individual	2005
	Harbour Grace Islands	146	1,001	Individual	2005
	Unnamed I. east of Grassy Island	148	50	Individual	2005
	Grassy Island	149	300	Individual	2005
	Woody Island, Southern Harbour	151	300	Individual	2005
	Hopeall Island	153	300	Individual	2005

Table D.10 Gull Colony Locations in Eastern Newfoundland

Common Name	Colony Name	Colony #[1]	Colony Size	Survey Unit	Year Surveyed
	Salls Island	154	5	Individual	2005
	Unnamed I. off Bellevue Beach PP	155	300	Individual	2005
	Logy Bay	156	50	Individual	2005
	Stearin Island (off Corbin Head)	158	50	Individual	2007
	Little Harbour Island	159	300	Individual	2005
	The Bell	160	50	Individual	2005
	Fergus Island	161	750	Individual	2005
	Dildo Islands, north	166	1	Pair	2005
	Shag Roost	167	1	Pair	2005
	Little Bell Island	168	750	Individual	2005
	Kelly's Island	171	50	Individual	2005
	Freshwater Bay	172	3	Individual	2010
	Deadmans Bay	173	21	Individual	2010
	Fair Haven Island	176	50	Individual	2005
	Trinny Cove Islands, off Trinny Cove [1]	178	300	Individual	2005
	Trinny Cove Islands, off Trinny Cove [2]	180	50	Individual	2005
	Grassy Islands, Brine Islands, West	183	50	Individual	2006
	Unnamed I. west of Woody	185	50	Individual	2005
	North Green Island	187	300	Individual	2005
	Harbour Island	188	750	Individual	2005
	Graves Island	189	300	Individual	2005
	Harbour Island, Iona Islands	191	750	Individual	2005
	Unnamed I. off Graves Island	192	50	Individual	2005
	Hole in the Wall Island	194	50	Individual	2005
	Fox Island	197	750	Individual	2005
	Green Island (CB)	199	5	Individual	2005
	Gull Island	200	1,881	Pair	2011
	Green Island	201	100	Pair	2011
	Ship Island	203	175	Individual	2015
	Pee Pee Island	204	300	Individual	2005
	Pee Pee Island	204	77	Pair	2012
	Great Island	205	1,640	Pair	2012
	Goose Island, Ferryland	211	300	Individual	2005
	Wrens Island	212	50	Individual	2005
	Costellos Island	213	50	Individual	2005

Table D.10 Gull Colony Locations in Eastern Newfoundland

Common Name	Colony Name	Colony #[1]	Colony Size	Survey Unit	Year Surveyed
	Bois Island	214	300	Individual	2005
	Crow Island, near Ferryland Head	216	300	Individual	2005
	South Head	217	50	Individual	2005
	The Drook/Mistaken Point	226	12	Pair	2005
	Cape Pine Head	229	7	Pair	2005
	Cape St. Mary's	230	39	Pair	2011
Great Black-backed Gull	Funk Island	12	75	Direct count	2011
	Small Island	14	50	Individual	2006
	Coleman Island	15	50	Individual	2006
	Penguin Island, North	20	50	Individual	2005
	Penguin Island, South	21	50	Individual	2005
	Southern Cat Island	22	300	Individual	2005
	Middle Bill Island	23	5	Individual	2005
	Gull Island, Cape Freels	24	50	Individual	2005
	Cape Island	25	5	Individual	2005
	Honey Pot Island	26	5	Individual	2005
	Cabot Island, North	27	50	Individual	2005
	Pouch Island	28	300	Individual	2005
	Green Island, Wesleyville	31	50	Individual	2015
	Butterfly Islets	33	23	Individual	2005
	Big Shag Rock	36	50	Individual	2005
	Main Rock, Greenspond	38	50	Individual	2005
	Horse Island	39	5	Individual	2005
	Copper Island	40	50	Individual	2005
	Small unnamed I. NE of Deer Island	43	5	Individual	2005
	Grassy Shag Rock, Offer Gooseberry	46	50	Individual	2005
	Deer Shag Islets	47	5	Individual	2005
	Flat Rock, Lockers Reach	49	50	Individual	2005
	Unnamed Is. inside Inner Gooseberry Islands, East	50	50	Individual	2005
	Small unnamed I. west of Lockers Flat Island	51	5	Individual	2005
	Small unnamed I. outside Great Content Cove	53	50	Individual	2005
	Unnamed I. north of Great Black Island and west of Gulch Island	54	5	Individual	2005

Table D.10 Gull Colony Locations in Eastern Newfoundland

Common Name	Colony Name	Colony #[1]	Colony Size	Survey Unit	Year Surveyed
	Unnamed I. south of Lakeman Island	56	5	Individual	2005
	Black Island, St. Brendan's	58	50	Individual	2005
	Puffin Island	59	50	Individual	2005
	Shag Rock, Varket Channel	60	50	Individual	2005
	Lackington Rock	62	50	Individual	2005
	Unnamed I. northeast of Long Reach Island	64	5	Individual	2005
	Unnamed I. southwest of Ship Island	65	5	Individual	2005
	Brown Store Islet	67	50	Individual	2005
	Gull Island, Cape Bonavista	69	51	Individual	2015
	Green Island, Cape Bonavista	73	2	Individual	2015
	Unnamed I. east of Sailors Island	75	50	Individual	2005
	Little Denier Island	78	50	Individual	2005
	Bird, South	84	1	Individual	2015
	North unnamed I. in Castle Cove	85	50	Individual	2005
	Long Island, Middle	90	50	Individual	2005
	Copper Island	91	50	Individual	2005
	Red Cliff Island	94	50	Individual	2005
	Unnamed I. north of Chance Head	95	50	Individual	2005
	Southern Den	96	50	Individual	2005
	Mouse Island, Sweet Bay	98	50	Individual	2005
	Gull Island, Sweet Bay	100	5	Individual	2005
	Unnamed I. in from Ragged Rocks,	103	50	Individual	2005
	Ragged Islands, North	104	50	Individual	2005
	Ragged Islands, South	106	50	Individual	2005
	Unnamed I. northeast of Wolf Island	107	50	Individual	2005
	Green Island	108	5	Individual	2005
	Unnamed I. inside Green Island (off Salvage Head)	109	50	Individual	2005
	Ragged Islands, West	111	300	Individual	2005
	Green Island, Trinity Bay	112	50	Individual	2005
	Duck Island	114	5	Individual	2005
	Red Head, cliff west of	115	50	Individual	2005
	Verge Island	119	50	Individual	2005
	Baccalieu Island	120	2	Boat estimate	2012
	Perlican Island	124	50	Individual	2005

Table D.10 Gull Colony Locations in Eastern Newfoundland

Common Name	Colony Name	Colony #[1]	Colony Size	Survey Unit	Year Surveyed
	Green Islands, north of Long Island	125	300	Individual	2005
	Copper Island, Trinity Bay	133	5	Individual	2005
	Spout Cove	134	5	Individual	2005
	Goose Island, South	142	50	Individual	2005
	Duck Island, East	144	50	Individual	2005
	Unnamed I. east of Grassy Island	148	5	Individual	2005
	Woody Island, Southern Harbour	151	50	Individual	2005
	Hopeall Island	153	50	Individual	2005
	Salls Island	154	5	Individual	2005
	Unnamed I. off Bellevue Beach PP	155	300	Individual	2005
	Stearin Island (off Corbin Head)	158	50	Individual	2007
	Little Harbour Island	159	50	Individual	2005
	The Bell	160	50	Individual	2005
	Fergus Island	161	50	Individual	2005
	Little Bell Island	168	50	Individual	2005
	Freshwater Bay	172	6	Individual	2005
	Deadmans Bay	173	6	Individual	2005
	Fair Haven Island	176	5	Individual	2005
	Trinny Cove Islands, off Trinny Cove [1]	178	5	Individual	2005
	Trinny Cove Islands, off Trinny Cove [2]	180	5	Individual	2005
	Grassy Islands, Brine Islands, West	183	50	Individual	2006
	Unnamed I. west of Woody	185	50	Individual	2005
	East Green Island	186	300	Individual	2005
	North Green Island	187	300	Individual	2005
	Unnamed I. off Graves Island	192	50	Individual	2005
	Little Island (Iona Islands)	193	1	Pair	2005
	Hole in the Wall Island	194	50	Individual	2005
	Green Island (CB)	199	50	Individual	2005
	Gull Island	200	33	Ground count	2011
	Green Island	201	20	Estimate	2011
	Ship Island	203	50	Individual	2005
	Pee Pee Island	204	3	Ground count	2012
	Great Island	205	9	Ground count	2012
	Kerwan Point, Newbridge	207	2	Pair	2005
	Goose Island, Ferryland	211	50	Individual	2005

Table D.10 Gull Colony Locations in Eastern Newfoundland

Common Name	Colony Name	Colony #[1]	Colony Size	Survey Unit	Year Surveyed
	Wrens Island	212	5	Individual	2005
	Bois Island	214	50	Individual	2005
	Crow Island, near Ferryland Head	216	50	Individual	2005
	Cape Pine Head	229	1	Pair	2005
	Cape St. Mary's	230	7	Pair	2011
Ring-billed Gull	Coleman Island	15	300	Individual	2006
	Pouch Island	28	50	Individual	2005
	Tinker Rocks	30	148	Pair	2005
	Bennetts Low Island	34	300	Individual	2005
	Unnamed I. in Willis Reach	55	300	Individual	2005
	Green Island, Cape Bonavista	73	350	Individual r	2015
	Red Cliff Island	94	17	Pair	2005
	Mustard Bowl Island	99	50	Individual	2005
	Goose Island, South	142	304	Pair	2005
	Grassy Islands, Brine Islands, West	183	300	Individual	2006
	Crawley Island	190	992	Pair	2005
	The Neck at Isaac Heads	198	300	Individual	2005
	Kerwan Point (Newbridge)	207	2	Pair	2005
	O'Donnells	209	321	Pair	2005
	Biscay Bay Pond	224	23	Pair	2005

Note:
1. Refer to Figure D-24 for colony locations corresponding to each Colony #.
Source: Data obtained from Atlantic Canada Colonial Waterbird Database (CWS 2017).

Table D.11 Tern Colony Locations in Eastern Newfoundland

Colony Name	Colony #1	Colony Size	Survey Unit	Year Surveyed
Wadham Island, Offer	13	63	Individual	2006
Coleman Island	15	85	Pair	2006
Pigeon Island	16	28	Pair	2006
Duck Island, N (near Fogo)	17	20	Pair	2006
Muddy Shag Island	18	12	Pair	2006
Penguin Island, South	21	80	Pair	2005
Pouch Island	28	1	Pair	2005
Tinker Rocks	30	476	Pair	2005

Table D.11 Tern Colony Locations in Eastern Newfoundland

Colony Name	Colony #1	Colony Size	Survey Unit	Year Surveyed
Bennetts Low Island	34	10	Pair	2005
Unnamed I. in Greenspond Harbour	37	100	Pair	2005
Horse Island	39	8	Pair	2005
Unnamed I. southwest of Goodwithy Harbour	41	60	Pair	2005
Southwest Island	42	155	Pair	2005
Small unnamed I, north of Deer Island	44	70	Pair	2005
Deer Shag Islets	47	30	Pair	2005
Unnamed Is. inside Inner Gooseberry Islands, East	50	260	Pair	2005
Small unnamed I. west of Lockers Flat Island	51	105	Pair	2005
Unnamed I. off Hare Bay	52	45	Pair	2005
Unnamed I. in Willis Reach	55	25	Pair	2005
Unnamed I. rock southwest of Cottel Island	57	18	Pair	2005
Small unnamed I. 1 km east of Hare Island	61	20	Pair	2005
Unnamed I. northeast of Morris Island	63	198	Pair	2005
Unnamed I. northeast of Long Reach Island	64	78	Pair	2005
Unnamed I. southeast of Shoe Island	66	13	Pair	2005
Shag Islands, Outer	70	200	Pair	2005
Green Island, Cape Bonavista	73	565	Pair	2005
Unnamed I. north of Baldric Head	76	65	Pair	2005
North unnamed I. in Castle Cove	85	2	Pair	2005
Swale Island Shag Rock	86	23	Pair	2005
Long Island	88	225	Pair	2005
Little Harbour Gull Rock	92	175	Pair	2005
Mermaid Rock	93	35	Pair	2005
Red Cliff Island	94	115	Pair	2005
Unnamed Is. in Lion’s Den, Terra Nova NP	97	125	Pair	2005
Mustard Bowl Island	99	100	Pair	2005
Unnamed I. northeast of Wolf Island	107	50	Pair	2005
Maiden Island	110	3250	Pair	2005
Long Harbour, unnamed I. west of	113	15	Pair	2005
Sgeir Island	116	325	Pair	2005
Grassy Island North of Verge Island	118	9	Pair	2005
Copper Island, South of Verge Island	121	2	Pair	2005
Rocks northeast of East Random Head	122	10	Pair	2005
Unnamed I. in Random Head Harbour	123	15	Pair	2005

Table D.11 Tern Colony Locations in Eastern Newfoundland

Colony Name	Colony #1	Colony Size	Survey Unit	Year Surveyed
Gull Island, Conception Bay	128	105	Pair	2005
Harbour Rocks, Shoal Bay	132	49	Pair	2005
Spout Cove	134	15	Pair	2005
Unnamed I. in Salmon Cove	136	83	Pair	2005
Bull Island	137	38	Pair	2005
Unnamed I. off Islington	139	130	Pair	2005
Unnamed I. in Rantem Harbour	145	80	Pair	2005
Salls Island	154	3	Pair	2005
Spaniards Bay Spit	162	14	Pair	2005
Grassy Island, Little Pinchgut	164	4	Pair	2005
Rock southwest of Dildo Islands	169	1	Pair	2005
Upper Island, Chapel Arm	175	1	Pair	2005
Inside Chapel Arm	177	8	Pair	2005
Trinny Cove Islands, off Trinny Cove [2]	180	9	Pair	2005
Trinny Cove Islands, off Trinny Cove Head	182	51	Pair	2005
Phillips Island, southeast Placentia	202	10	Pair	2005
Point in Pinchgut Tickle	206	58	Pair	2005
Kerwan Point (Newbridge)	207	82	Pair	2005
Small unnamed I. in O'Donnells lagoon	208	111	Pair	2005
O'Donnells	209	41	Pair	2005
Stone Islands	210	25	Pair	2005
Hares Ears	215	18	Pair	2005
Riverhead	218	13	Pair	2005
Coote Pond	219	90	Pair	2005
Renews Harbour	220	125	Pair	2005
Point La Haye	221	2	Pair	2005
Biscay Bay Pond	224	1	Pair	2005
Unnamed I. in Portugal Cove Pond	225	10	Pair	2005

Note:
1. Refer to Figure D-24 for colony locations corresponding to each Colony #.
Source: Data obtained from Atlantic Canada Colonial Waterbird Database (CWS 2017).

Table D.12 Alcid Colony Locations in Eastern Newfoundland

Common Name	Colony Name	Colony #[1]	Colony Size	Survey Unit	Year Surveyed
Atlantic Puffin	Funk Island	12	2,000	Pair	1988
	Small Island	14	6,190	Pair	2001
	Coleman Island	15	950	Pair	1984
	Pigeon Island	16	20	Pair	1973
	Penguin Island, South	21	755	Pair	2013
	Unnamed I. east of Cape Bonavista	72	350	Pair	2011
	Little Denier	77	1,000	Pair	2011
	Spillars Point	80	250	Pair	1985
	North Bird Island	81	1,000	Pair	1987
	Elliston Point Island	82	400	Pair	1985
	Bird, South	84	1,000	Pair	1985
	Green Island, Trinity Bay	102	1,277	Pair	2005
	Duck Island, Trinity Bay	114	3,000	Pair	2005
	Baccalieu Island	120	75,000	Pair	2005
	Gull Island	200	118,401	Pair	2012
	Green Island	201	9,300	Pair	1979
	Pee Pee Island	204	1,850	Pair	2010
	Great Island	205	174,491	Pair	2011
	The Drook/Mistaken Point	226	79	Pair	2005
	Cape Pine Head	229	259	Pair	2005
Common Murre	Funk Island	12	472,259	Pair	2009
	Cabot Island, South	29	9,897	Pair	2009
	Baccalieu Island	120	1,441	Individual	2012
	Gull Island	200	11,795	Individual	2016
	Green Island	201	250,000	Pair	2007
	Great Island	205	1,037	Pair	2015
	The Drook/Mistaken Point	226	84	Pair	2009
	Western Head	227	27	Pair	1985
	Cape Pine Head	229	9	Pair	2005
	Cape St. Mary's	230	15,484	Pair	2007
Thick-billed Murre	Funk Island	12	250	Pair	1980
	Baccalieu Island	120	73	Individual	2012
	Gull Island	200	1	Pair	2012

Table D.12 Alcid Colony Locations in Eastern Newfoundland

Common Name	Colony Name	Colony #[1]	Colony Size	Survey Unit	Year Surveyed
	Green Island	201	242	Pair	2004
	Cape St. Mary's	230	1,000	Pair	2012
Razorbill	Funk Island	12	200	Pair	1980
	Small Island	14	273	Pair	2001
	Coleman Island	15	10	Pair	1984
	Cabot Island, South	29	4	Pair	2017
	Puffin Island	117	50	Pair	2012
	Baccalieu Island	120	406	Pair	2012
	Gull Island	200	159	Individual	2017
	Green Island	201	170	Pair	1979
	Ship Island	203	12	Individual	2015
	Pee Pee Island	204	31	Individual	2015
	Great Island	205	201	Pair	2015
	The Drook/Mistaken Point	226	72	Pair	2009
	Western Head	227	7	Pair	1985
	Cape Pine Head	229	189	Pair	1985
	Cape St. Mary's	230	100	Pair	1979
Black Guillemot	Funk Island	12	1	Pair	1988
	Coleman Island	15	25	Pair	1984
	Offer Gooseberry Island	45	13	Pair	1945
	Brown Store Islet	67	2	Pair	1989
	Unnamed I. east of Brown Store Islet	68	3	Pair	1989
	Shag Islands	71	20	Pair	1974
	South of Spillars Point	79	25	Pair	1985
	Puffin Island	117	30	Pair	2012
	Baccalieu Island	120	113	Pair	2012
	Bull Island	137	8	Pair	1945
	Grassy Island	149	4	Pair	1974
	Tinker Islet	163	1	Pair	1974
	Unnamed I., Little Pinchgut,	165	10	Pair	1974
	Little Bell Island	168	125	Pair	1984
	Kelly's Island	171	100	Pair	1984
	Freshwater Bay	172	30	Individual	2006

Table D.12 Alcid Colony Locations in Eastern Newfoundland

Common Name	Colony Name	Colony #[1]	Colony Size	Survey Unit	Year Surveyed
	Deadmans Bay	173	10	Individual	2005
	Trinny Cove Islands, off Trinny Cove	178	36	Individual	2015
	Trinny Cove Islands, off Trinny Cove Head	182	2	Pair	1974
	Grassy Islands, Brine Islands, East	184	1	Pair	1974
	Gull Island	200	6	Pair	2017
	Ship Island	203	11	Individual	2015
	Pee Pee Island	204	1	Pair	2015
	Great Island	205	1	Pair	2015
	Bois Island	214	20	Pair	1984
	The Drook/Mistaken Point	226	17	Individual	2009
	Western Head	227	20	Pair	1985
	Cape Pine Head	228	5	Pair	2005

Note:
1. Refer to Figure D-24 for colony locations corresponding to each Colony #.
Source: Data obtained from Atlantic Canada Colonial Waterbird Database (CWS 2017).

Table D.13 Northern Fulmar Colony Locations in Eastern Newfoundland

Colony Name	Colony #[1]	Colony size	Survey Unit	Year Surveyed
Funk Island	12	40	Pair	2017
Baccalieu Island	120	13	Pair	2003
Gull Island	200	12	Pair	2016
Green Island	201	1	Pair	1988
Ship Island	203	42	Pair	2015
Great Island	205	5	Pair	2015
Cape St. Mary's	230	9	Pair	1998

Note:
1. Refer to Figure D-24 for colony locations corresponding to each Colony #.
Source: Data obtained from Atlantic Canada Colonial Waterbird Database (CWS 2017).

Table D.14 Leach's Storm-petrel Colony Locations in Eastern Newfoundland

Colony Name	Colony #[1]	Colony Size	Survey Unit	Year Surveyed
White Islands	1	400	Pair	1943
Rouge Island	2	1,000	Pair	1943
Isle Aux Canes	3	300	Pair	1986
Storehouse Islets	4	100	Pair	1984
Single Turr Cliff	5	1,523	Pair	2014
Double Turr Cliff	6	2,444	Pair	2014
Hennessey Island	7	9	Pair	2014
Bakeapple Island	8	2,317	Pair	2014
Little Bakeapple	9	113	Pair	2014
Wadhams Harbour Island	10	200	Pair	2012
Puffin Island (Little Fogo Islands)	11	396	Pair	2014
Small Island	14	1,038	Pair	2001
Coleman Island	15	5,000	Pair	1984
Ladle Island	19	20	Pair	1985
Penguin Island, North	20	200	Pair	1984
Penguin Island, South	21	7,800	Pair	1979
Cabot Island, North	27	100	Pair	1945
Flower Island	32	75	Pair	1945
Butterfly Islets	33	200	Pair	1967
Big Shag Rock	36	1,000	Pair	1980
Offer Gooseberry Island	45	100	Pair	1945
Shag Islands	71	1,700	Pair	1974
Green Island, Cape Bonavista	73	10	Pair	1945
Little Denier Island	78	1,300	Pair	1975
Bird, South	84	50	Pair	1985
Copper Island	91	10	Pair	1987
Green Island, Trinity Bay	112	1	Pair	2005
Baccalieu Island	120	1,977,692	Pair	2013
Wreck Island, Garia Bay	157	100	Pair	1944
Ramea Columbier Island	179	1,000	Pair	1989
Pass Island	181	100	Pair	1978
Penguin Islands	195	100	Pair	1978
Gull Island	200	179,743	Pair	2012
Green Island	201	20	Pair	1979
Great Island	205	134,139	Pair	2011

Table D.14 Leach's Storm-petrel Colony Locations in Eastern Newfoundland

Colony Name	Colony #[1]	Colony Size	Survey Unit	Year Surveyed
Note: 1. Refer to Figure D-24 for colony locations corresponding to each Colony #. Source: Data obtained from Atlantic Canada Colonial Waterbird Database (CWS 2017).				

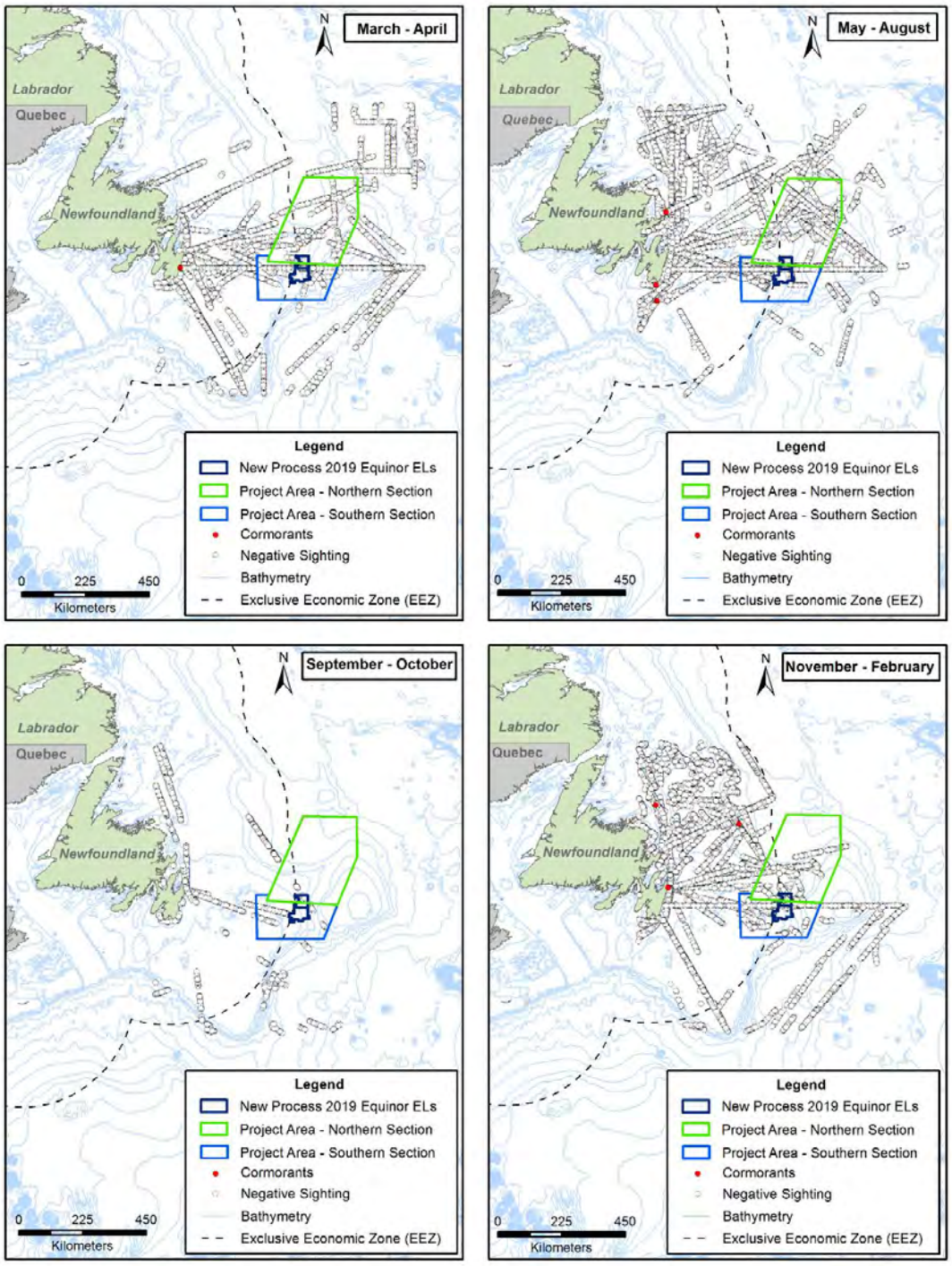


Figure D-30 Seasonal Distribution of ECSAS Cormorant Observations in the Waters off Eastern Newfoundland (2001 to 2016)

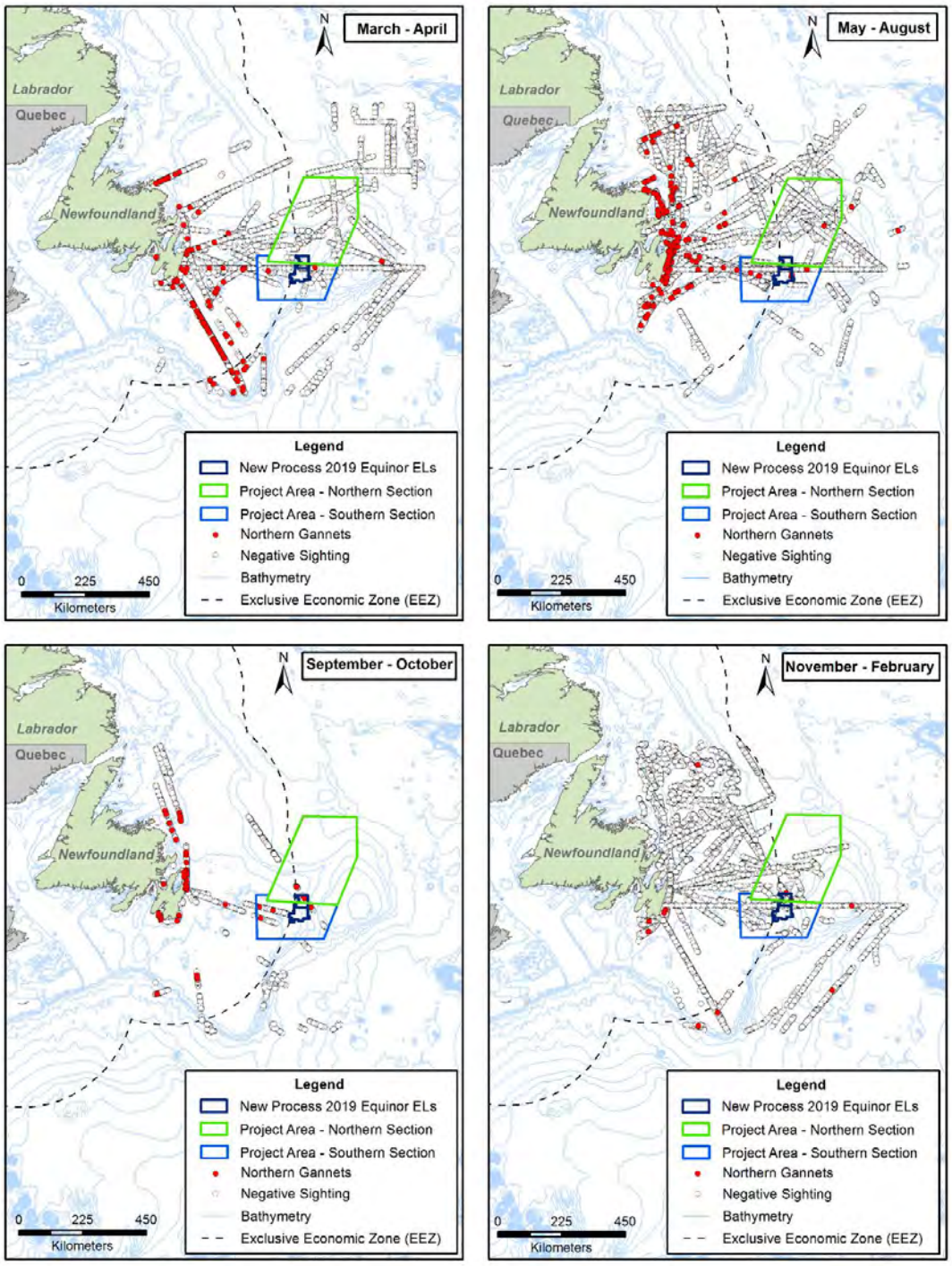


Figure D-31 Seasonal Distribution of ECSAS Northern Gannet Observations in the Waters off Eastern Newfoundland (2001 to 2016)

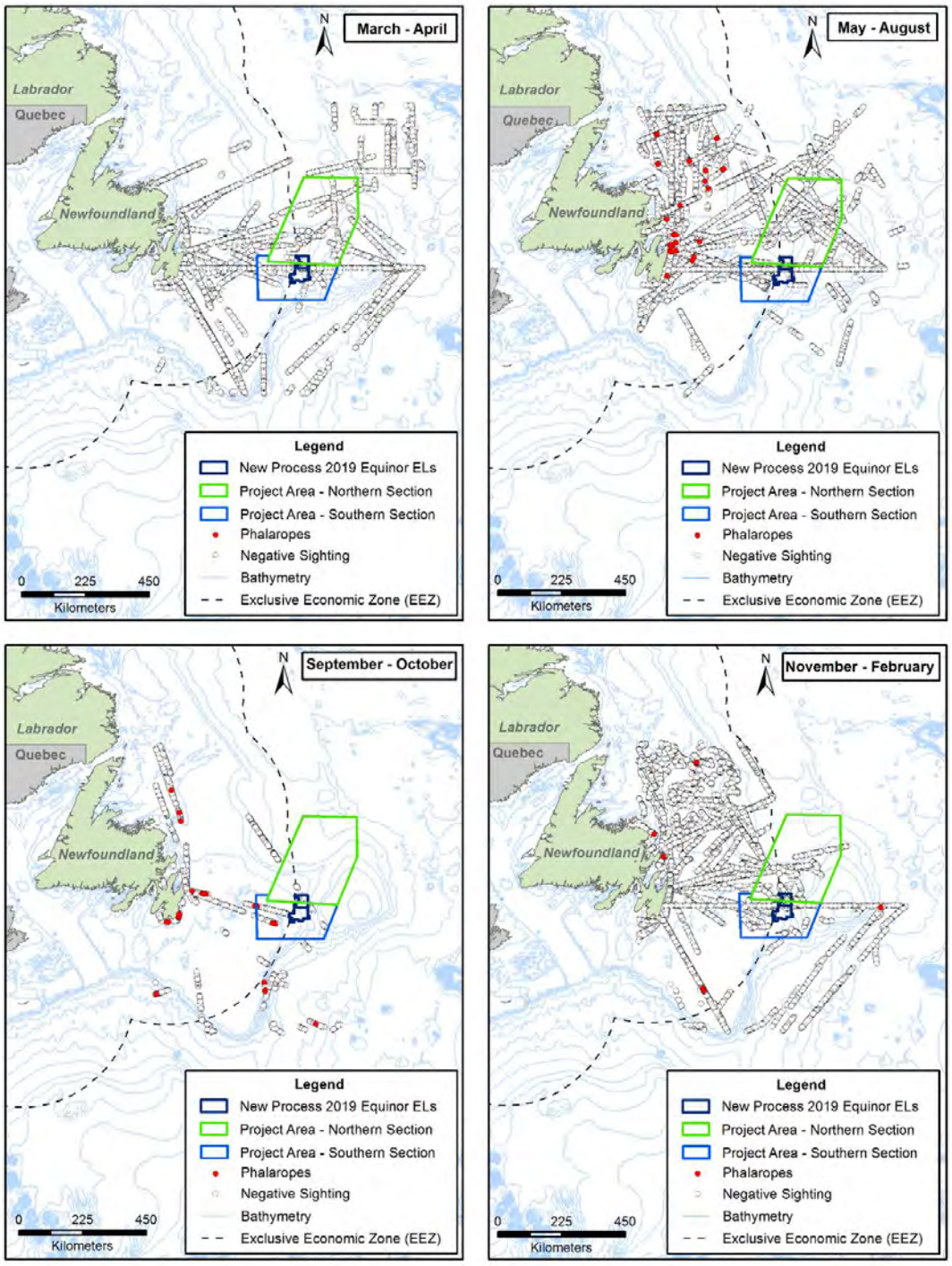


Figure 32 Seasonal Distribution of ECSAS Phalarope Observations in the Waters off Eastern Newfoundland (2001 to 2016)

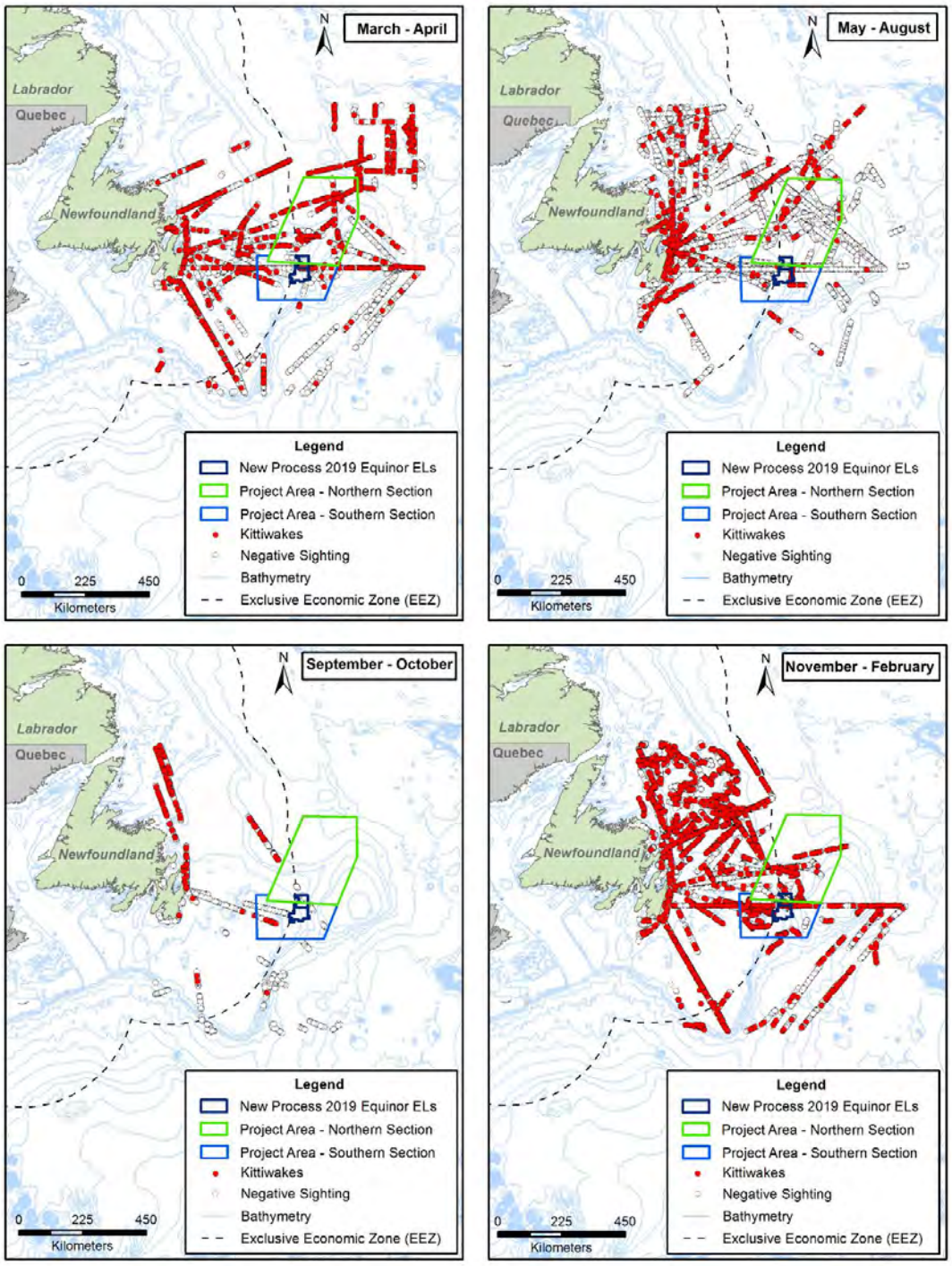


Figure D-33 Seasonal Distribution of ECSAS Black-legged Kittiwake Observations in the Waters off Eastern Newfoundland (2001 to 2016)

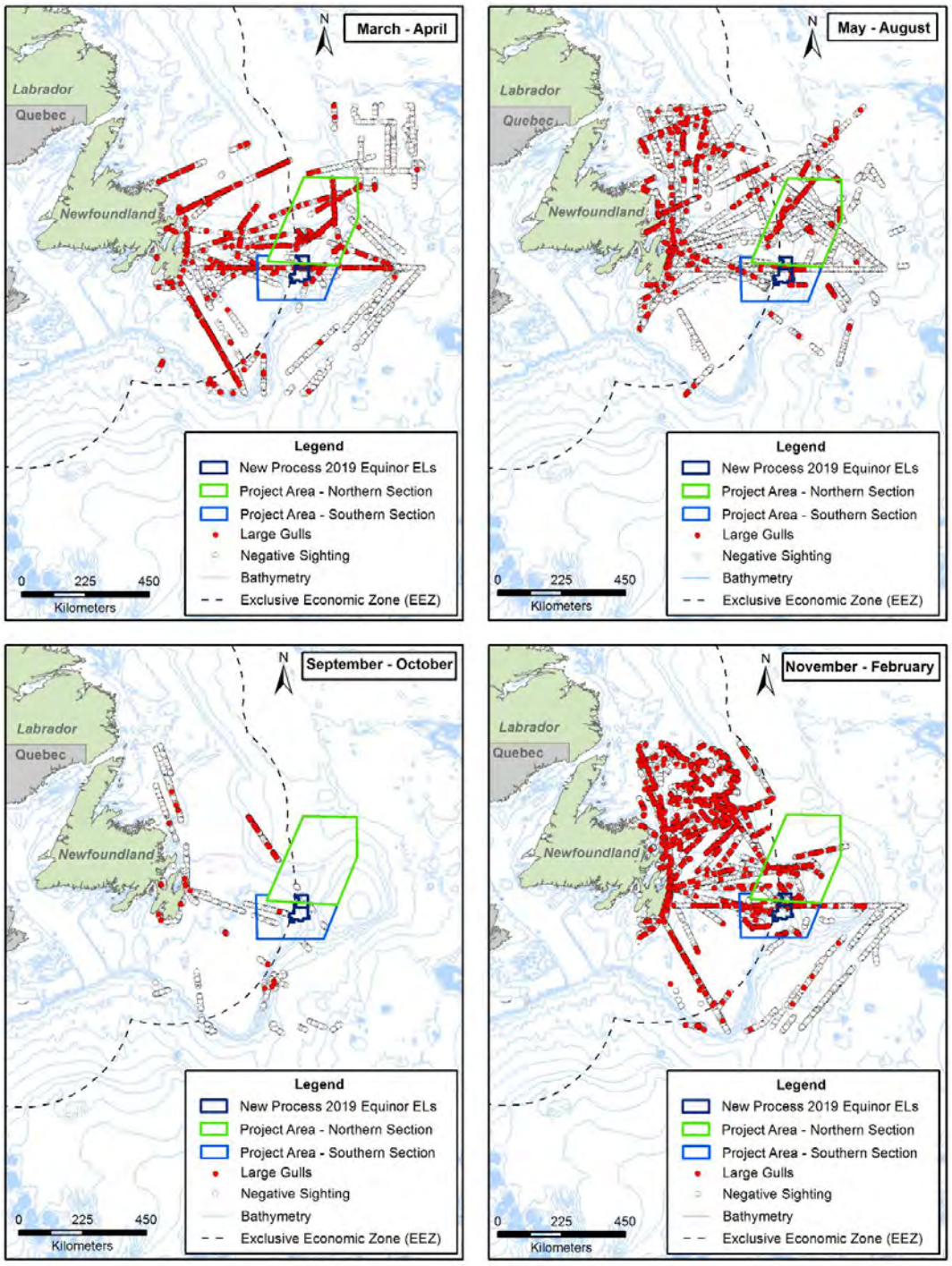


Figure D-34 Seasonal Distribution of ECSAS Large Gull Observations in the Waters off Eastern Newfoundland (2001 to 2016)

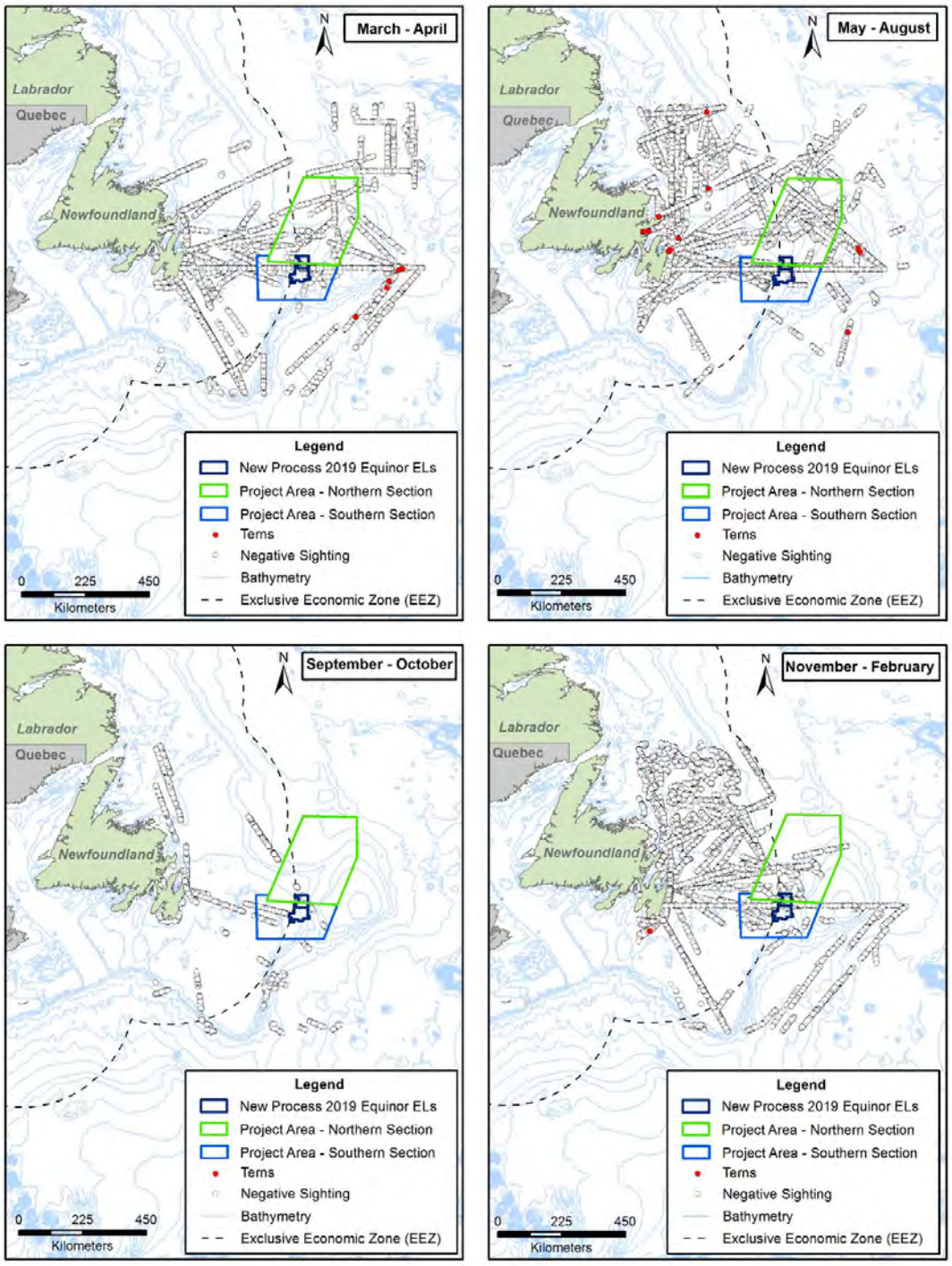


Figure D-35 Seasonal Distribution of ECSAS Tern Observations in the Waters off Eastern Newfoundland (2001 to 2016)

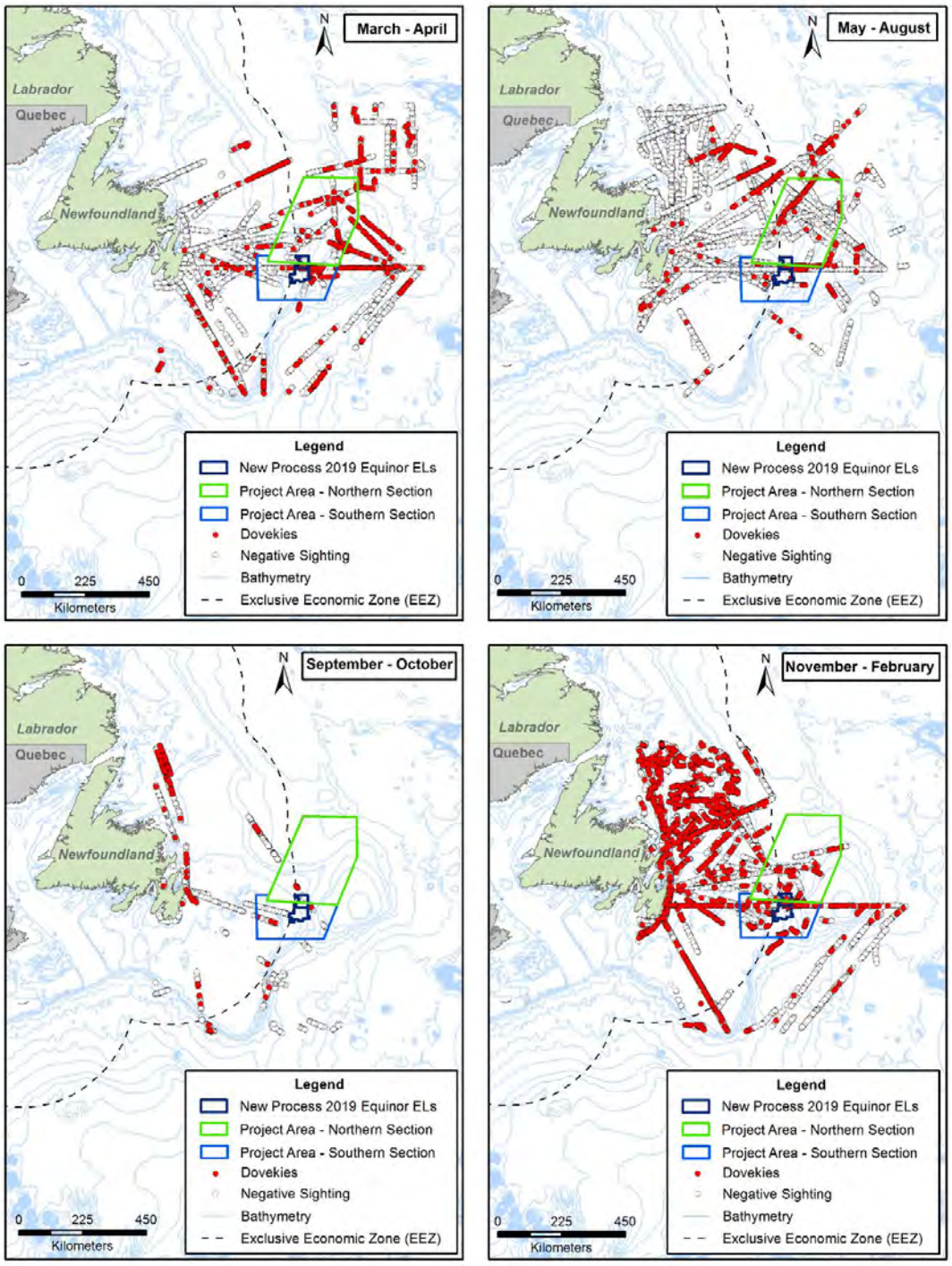


Figure D-36 Seasonal Distribution of ECSAS Dovekie Observations in the Waters off Eastern Newfoundland (2001 to 2016)

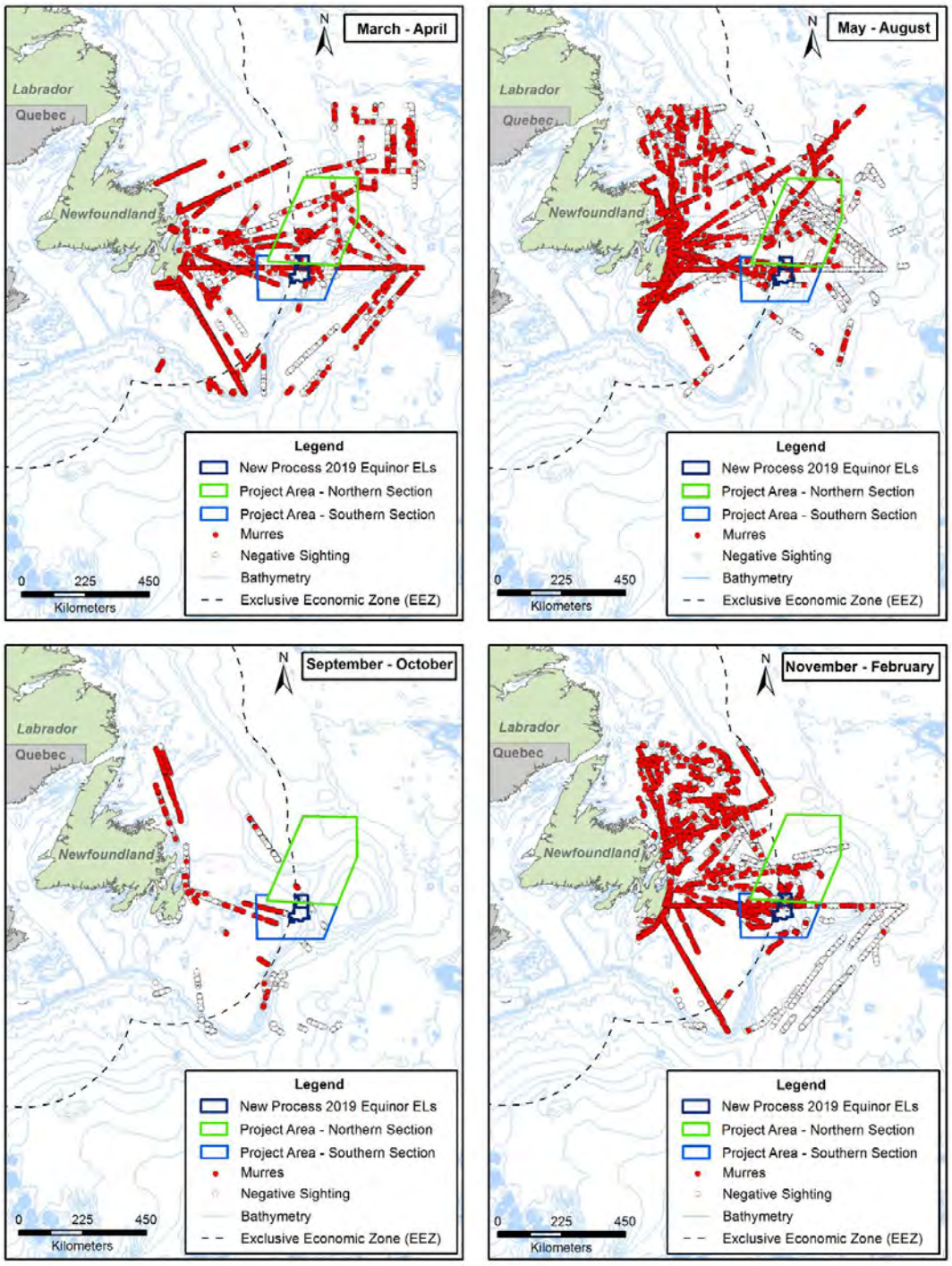


Figure D-37 Seasonal Distribution of ECSAS Murre Observations in the Waters off Eastern Newfoundland (2001 to 2016)

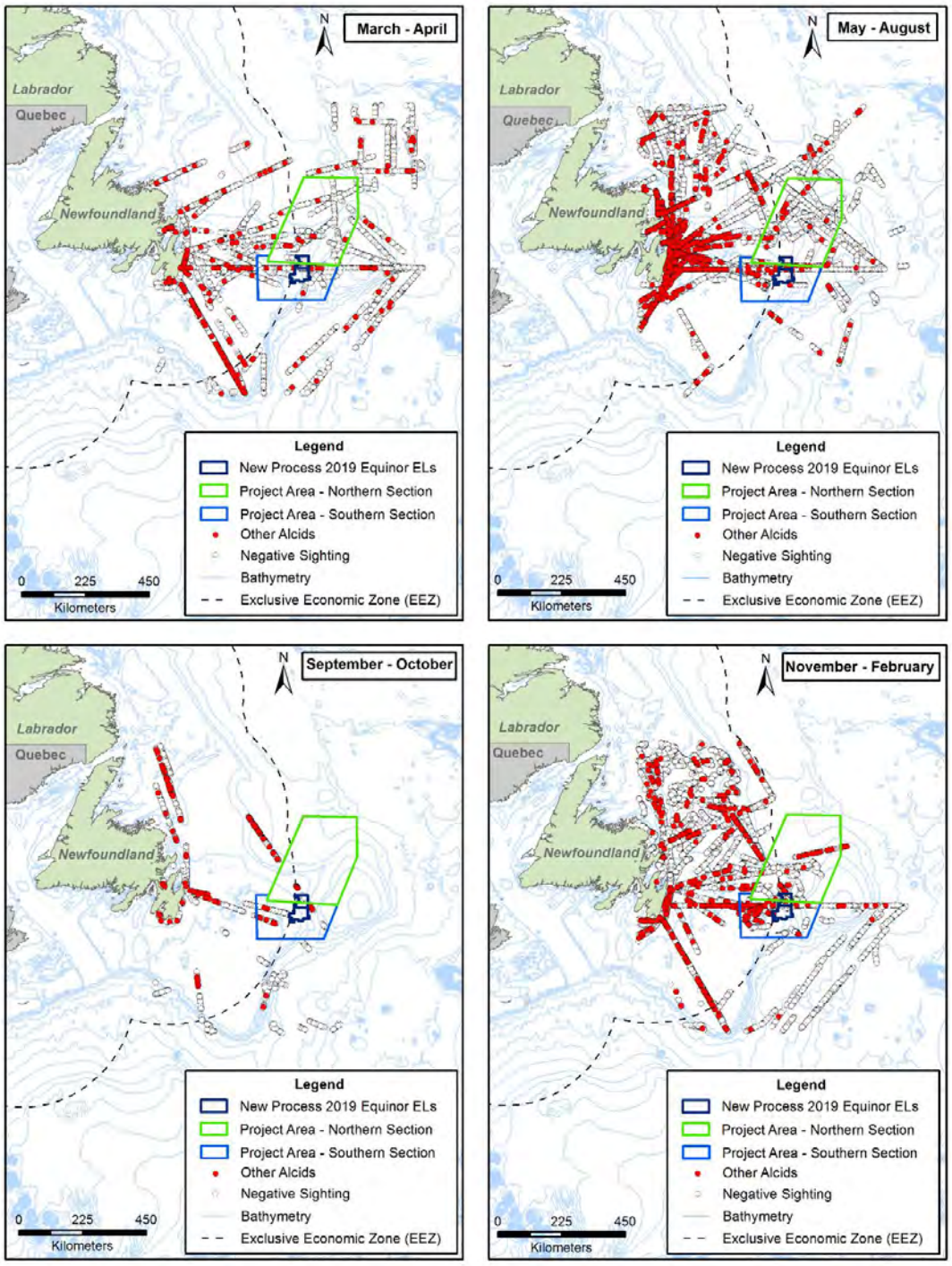


Figure D-38 Seasonal Distribution of ECSAS Other Alcid Observations in the Waters off Eastern Newfoundland (2001 to 2016)

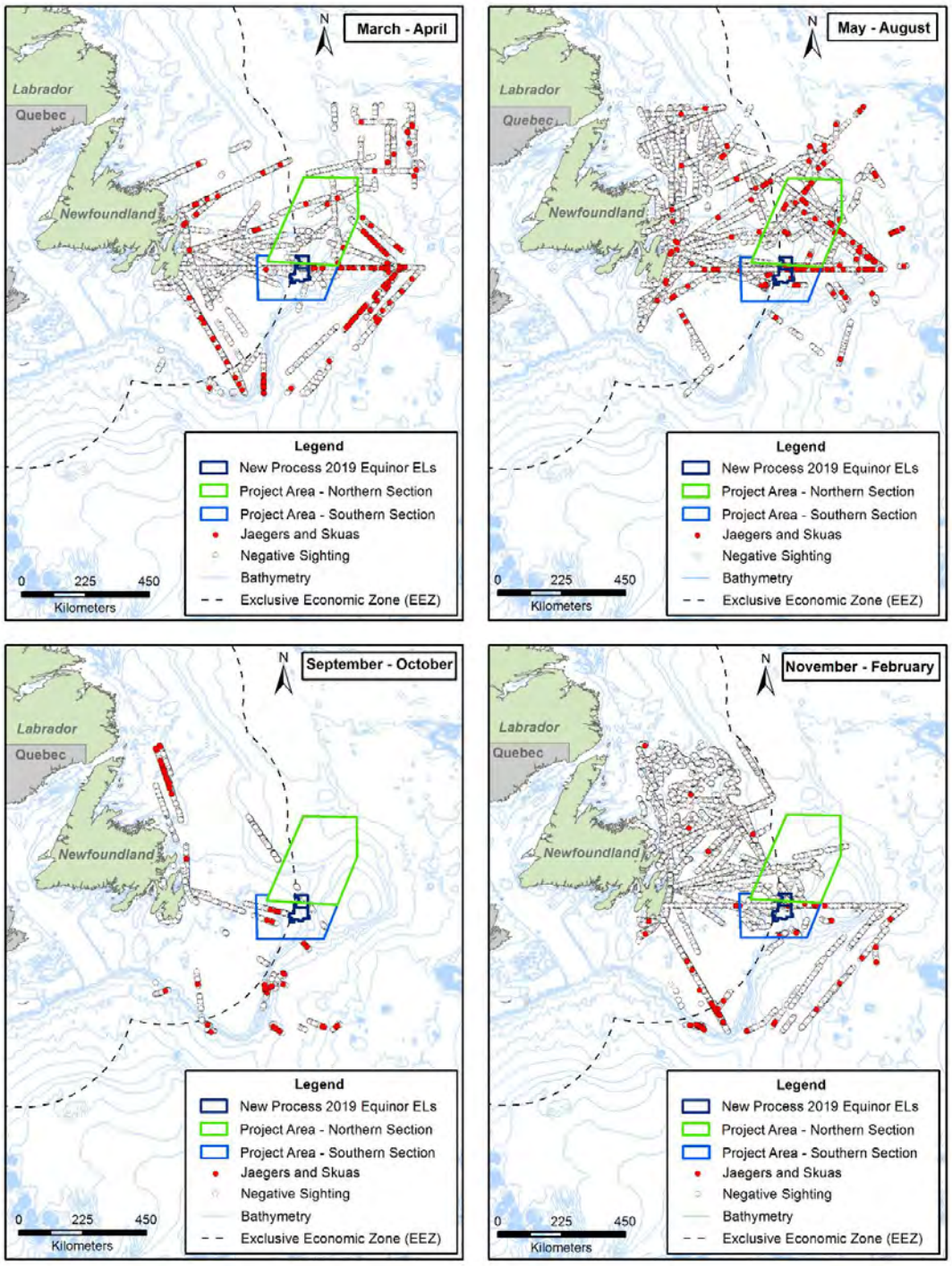


Figure D-39 Seasonal Distribution of ECSAS Jaeger and Skua Observations in the Waters off Eastern Newfoundland (2001 to 2016)

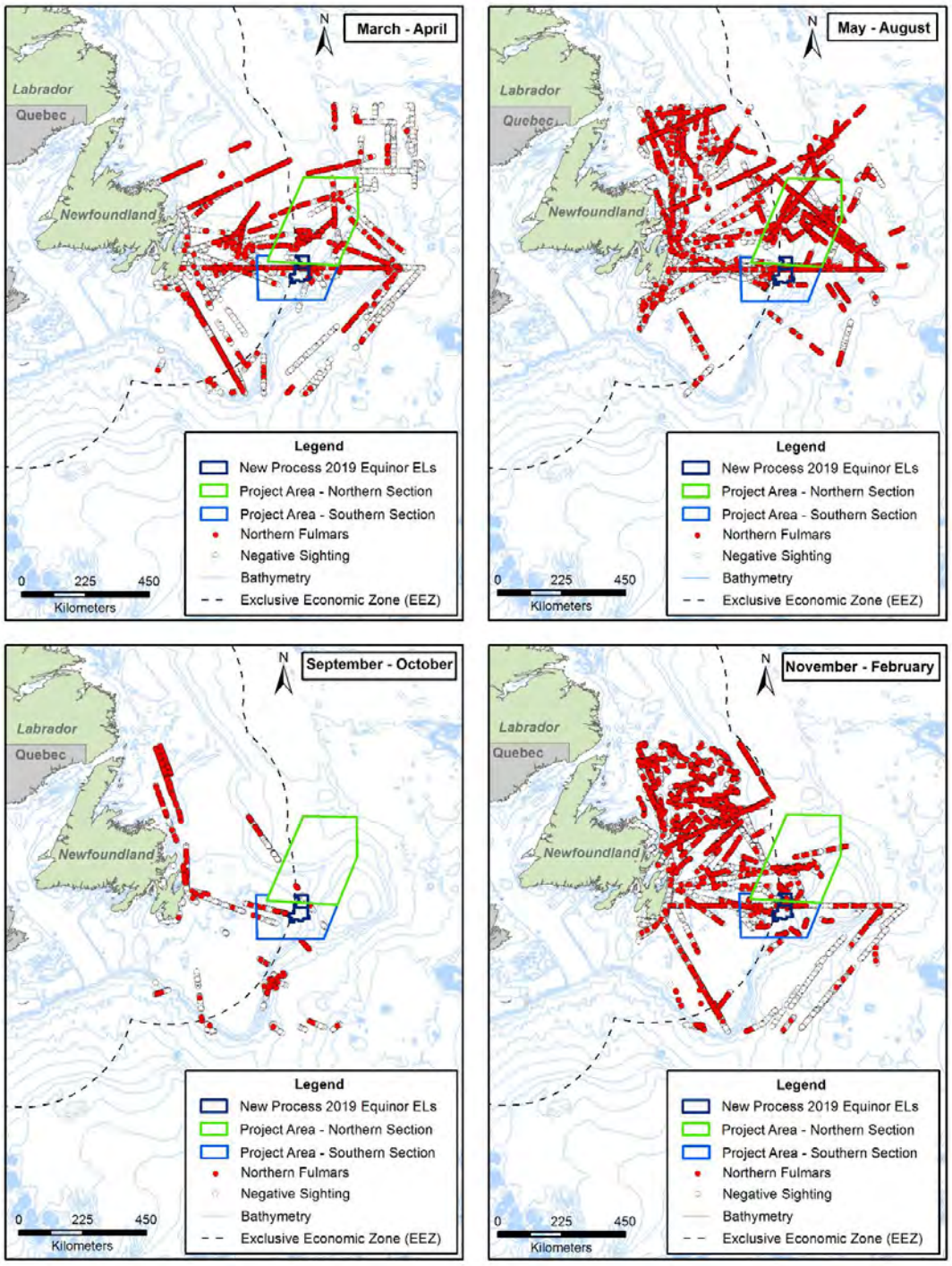


Figure D-40 Seasonal Distribution of ECSAS Northern Fulmar Observations in the Waters off Eastern Newfoundland (2001 to 2016)

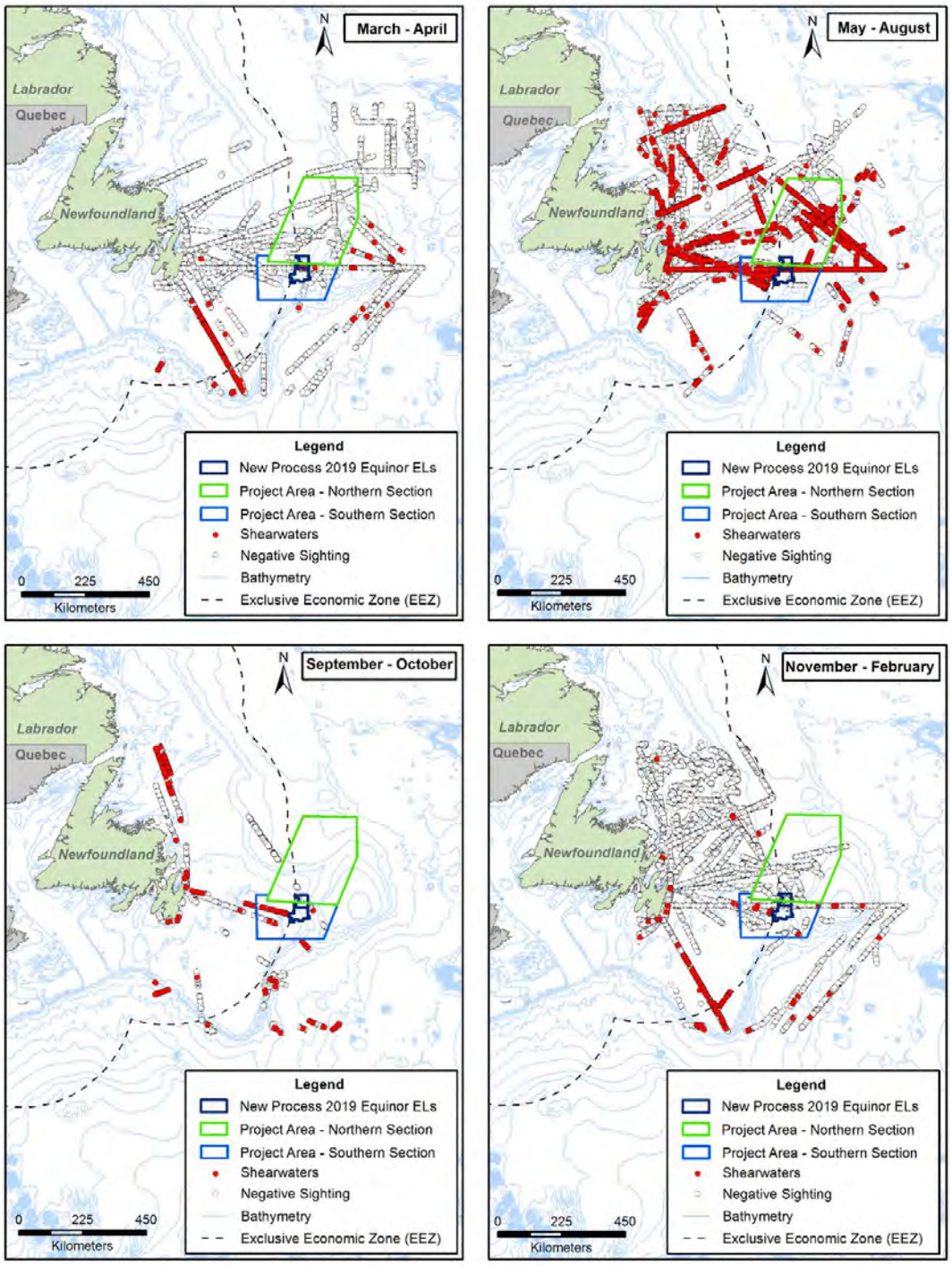


Figure D-41 Seasonal Distribution of ECSAS Shearwater Observations in the Waters off Eastern Newfoundland (2001 to 2016)

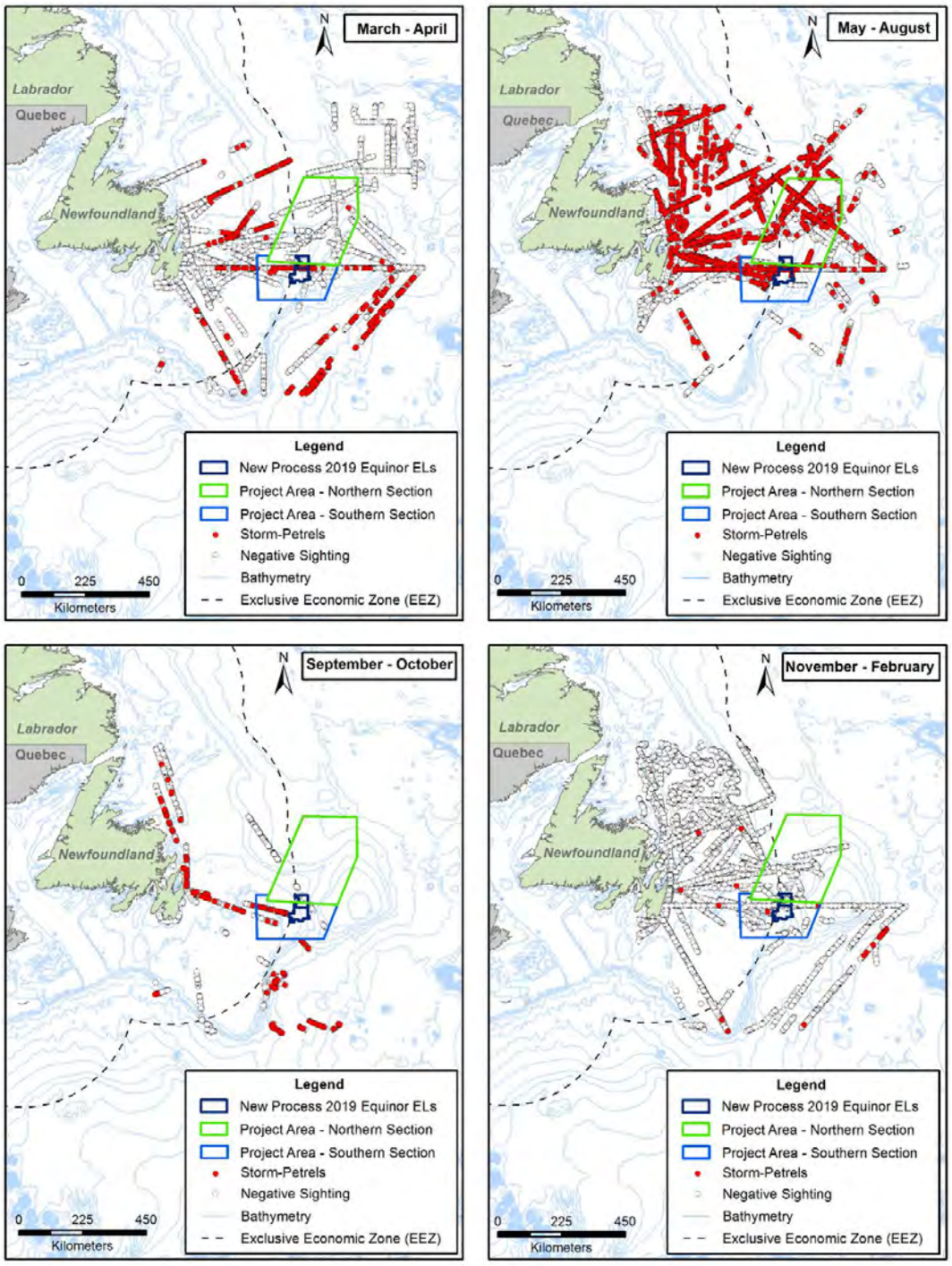


Figure D-42 Seasonal Distribution of ECSAS Storm-petrel Observations in the Waters Off Eastern Newfoundland (2001 to 2016)

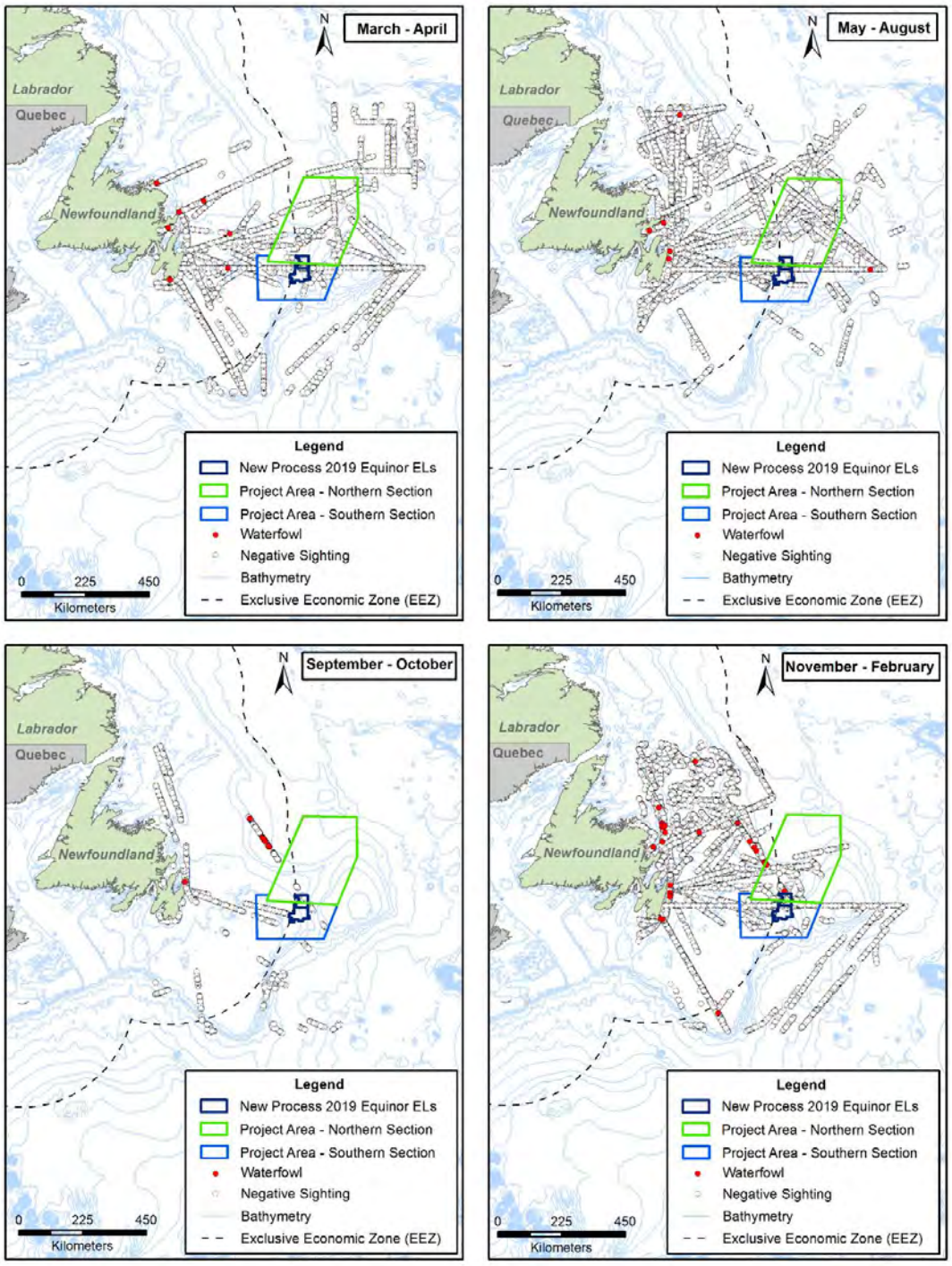


Figure D-43 Seasonal Distribution of ECSAS Waterfowl Observations in the Waters off Eastern Newfoundland (2001 to 2016)

2.2 Species at Risk

Section 6.2.4 of the Flemish Pass EIS discusses species at risk, and information in those sections remains applicable and valid for ELs 1159 and 1160. Additional information is provided below.

There are no new Schedule 1 *Species at Risk Act* (SARA)-listed species since the Flemish Pass EIS was submitted.

There is a potential for Ross's gull (SARA Schedule 1 - Threatened; COSEWIC - Threatened) to occur offshore in the Project Area. Migratory bird species at risk that are unlikely to occur offshore include chimney swift (SARA Schedule 1 - Threatened; COSEWIC - Threatened), barn swallow (SARA Schedule 1 - Threatened; COSEWIC - Threatened), rusty blackbird (SARA Schedule 1 - Special Concern; COSEWIC - Special Concern), and Newfoundland red crossbill (SARA Schedule 1 - Threatened; COSEWIC - Endangered). There are marine bird species that are designated as at risk on the IUCN Red List but are not designated as at risk either federally or provincially; only two have high potential for presence in around the Project Area (Leach's storm-petrel and black-legged kittiwake) (see Table D.15).

Table D.15 Marine Bird Species Designated at Risk on the IUCN Red List but not Federally or Provincially

Common Name	IUCN Red List Status[1]	Habitat and Distribution in Newfoundland	Potential Presence in or Around Project Area
Long-tailed Duck	Vulnerable	Coastal waters	Low
Bermuda Petrel	Endangered	Grand Banks and waters to the south and east[2]	Low
Zino's Petrel	Endangered	Warm waters off the continental shelf[3]	Low
Desertas (Bugio) Petrel	Vulnerable	Warm waters off the continental shelf[3,4]	Low
Leach's Storm-Petrel	Vulnerable	Continental shelf and adjacent waters	High
Black-legged Kittiwake	Vulnerable	Continental shelf and adjacent waters	High
Atlantic Puffin	Vulnerable	Continental shelf	Low

[1] BirdLife International (2018), [2] Madeiros et al. (2014), [3] Ramos et al. 2016, [4] Ramirez et al. 2013.

2.3 Special Areas of Importance to Bird Species

The Important Bird Areas (IBAs) in eastern Newfoundland outlined in section 6.2.5 of the Flemish Pass EIS remain applicable and valid and are outlined in Table D.16. below.

Table D.16 Important Bird Areas in Eastern Newfoundland

IBA Name	Area (km³)	Location	Importance to Marine and Migratory Birds
Funk Island (NF004)	135.18	An island off northeastern Newfoundland, situated approximately 60 km from shore.	• Major concentration of nesting seabirds • Globally significant Common Murre population • Large numbers of Northern Gannets • Provincially protected Seabird Ecological Reserve; as such, access to the island is restricted to scientific researchers. Overlaps with Fogo Shelf EBSA.
Wadham Islands and adjacent Marine Area (NF013)	159.23	Located near Fogo Island, approximately 40 km offshore, this IBA includes 7 main islands and several smaller rocks and shoals.	• Globally significant number of wintering Common Eider (approximately 25,000 counted in a 1995 survey) • Large numbers of nesting Atlantic Puffin, Leach's Storm-Petrel and Razorbill. • Overlaps with Fogo Shelf EBSA.
Cape Freels Coastline and Cabot Island (NF025)	334.48	Located at the head of Bonavista Bay, this IBA includes several small islands and shoals.	• Up to 25,000 wintering Common Eiders have been reported between the Cape Freels coastline and Wadham Islands • Large numbers of nesting Common Murres, as well as some pairs of Razorbills • Historic records of breeding Atlantic Puffins, although none were recorded in recent EC-CWS surveys.
Terra Nova National Park (NF017)	655.56	Situated on the inner reaches of Bonavista Bay. Much of the area is forested, but there are numerous lakes and wetlands, as well as a significant coastal component.	• Numerous forest species nest here, including two subspecies with restricted ranges: the federally-listed Red Crossbill (*percna* ssp.) and Ovenbird (*furvoir* ssp.). • Shorebirds, gulls and waterfowl can be seen on the flats at the outlet of Big Brook, as well as Newman Sound. • At least six tern colonies (Common and Arctic Tern), totaling between 1000 and 1500 pairs. • Also a federally designated Migratory Bird Sanctuary (MBS) and National Park.
Grates Point (NF019)	66.55	The northern tip of the Bay de Verde Peninsula, which separates Trinity Bay from Conception Bay.	• Large number of wintering Common Eiders (up to 12,000 individuals, but typically around 2,800) • Other wintering species include Black-legged Kittiwake, Thick-billed Murre and Dovekie • Atlantic Puffin and Northern Gannet are present in the summer months.
Baccalieu Island (NF003)	45.22	Located 5.5 km from the northern tip of the Avalon Peninsula.	• Greatest seabird abundance and diversity in Eastern North America • World's largest colony of Leach's Storm-petrels, including 70 percent of the North American population. • Significant numbers of breeding Atlantic Puffin, Black-legged Kittiwake and Northern Gannet

IBA Name	Area (km^3)	Location	Importance to Marine and Migratory Birds
			• Smaller numbers of nesting Common Murre, Thick-billed Murre, Razorbill, Black Guillemot, Northern Fulmar, Herring Gull and Great Black-backed Gull • Like Funk Island, a provincially designated Seabird Ecological Reserve
Cape St. Francis (NF021)	70.21	Located at the northern tip of the Avalon Peninsula.	• Winter congregating area for Common Eiders; up to 5000 individuals recorded • Purple Sandpipers regularly observed along the rocky shoreline in the winter
Quidi Vidi Lake (NF022)	7.0	Situated within St. John's city limits, and fed by the Virginia River and Rennies River.	• Important daytime resting site for gulls from late fall to early spring, including significant numbers of Herring, Great Black-backed, Iceland, Glaucous and Common Black-headed Gulls. • Locally rare Ring-billed Gull, Mew Gull and Lesser Black-backed Gull occasionally reported. • Waterfowl including American Black Ducks, Mallards and Northern Pintails are common here in the winter, subsisting on food handouts from people.
Witless Bay Islands (NF002)	62.08	Composed of four small islands off the east coast of the Avalon Peninsula.	• Provincially designated Seabird Ecological Reserve • Globally significant numbers of breeding seabirds, including more than half of the eastern North American population of Atlantic Puffins and almost 10% of the global Leach's Storm-petrel population • Large numbers of nesting Common Murres, Black-legged Kittiwakes and Herring Gulls • Great Black-back Gulls, Northern Fulmars, Thick-billed Murres, Razorbills and Black Guillemots nest in smaller numbers • During the fall migration, surrounding marine area is important to sea ducks including White-winged Scoter, Surf Scoter, Long-tailed Duck and Common Eider
Mistaken Point (NF024)	102.77	Located near the southeastern corner of the Avalon Peninsula.	• Important wintering area for up to 12,000 Common Eiders • Continentally significant numbers of wintering Purple Sandpiper (> 1% of North American population) • Small numbers of overwintering Ruddy Turnstone, far north of its usual wintering range • Nesting Black-legged Kittiwake, Common Murre and Razorbill • Designated as a Provincial Ecological Reserve and UNESCO World Heritage Site because of its rich fossil deposits

IBA Name	Area (km^3)	Location	Importance to Marine and Migratory Birds
Cape St. Mary's (NF001)	329.39	Located at the entrance to Placentia Bay on the southwestern Avalon Peninsula.	• Significant numbers of nesting Northern Gannet (> 2% of global population) • Large numbers of Common Murre and Black-legged Kittiwake, and smaller numbers of nesting Thick-billed Murre, Razorbill, Great Cormorant and Double-crested Cormorant • Herring Gull, Great Black-backed Gull and Black Guillemot historically reported nesting • In the winter, large numbers of migrating sea ducks including scoters, Common Eider, Long-tailed Duck and the endangered Harlequin Duck • Small numbers of Harlequin Duck during summer, moulting season in some years. • Designated as a provincial Seabird Ecological Reserve. Overlaps with Placentia Bay EBSA.
Placentia Bay (NF028)	1398.05	Includes the eastern half of Placentia Bay in southeastern Newfoundland (between the Avalon and Burin peninsulas), and extends out 25 km from shore	• Exceptional feeding area for seabirds during the summer capelin spawning season • More than 100,000 shearwaters recorded in a single survey (mostly Greater and Sooty Shearwater, some Manx Shearwater) • Large numbers of other species breeding at Cape St. Mary's feed here, including Northern Gannet, Black-legged Kittiwake, Atlantic Puffin, Thick-billed Murre and Common Murre • Large numbers of feeding Pomarine and Parasitic Jaegers • More than 1,000 wintering Common Eiders • Overlaps with Placentia Bay EBSA.
Cape Pine and St. Shotts Barren (NF015)	57.4	Located on the southern tip of the Avalon Peninsula.	• Large, possibly globally significant numbers of American Golden-Plover during their fall migration (August to mid-October) • Dozens of Whimbrel during fall migration
Source: Important Bird Areas of Canada (Bird Studies Canada 2016); Atlantic Canada Colonial Waterbird database (CWS 2016)			

3 MARINE MAMMALS AND SEA TURTLES

Information in section 6.3 of the Flemish Pass EIS is valid for ELs 1159 and 1160. The Flemish Pass EIS included opportunistic sightings from DFO, Ocean Biogeographic Information System (OBIS) and/or previous Equinor Canada programs up to 2015. However, more current data is available and is incorporated into the Tables D.17 and D.18 and Figures D-44 to D-55 below. It is noted that there are a number of species that did not have any additional sightings in 2016 and 2017, and therefore updated figures are not required.

Table D.17 Opportunistic Sightings of Non-Species at Risk Mysticetes Reported in the Project Area

Common Name	Project Area – Northern Section	Project Area – Southern Section
Humpback whale	163	644
Minke whale	92	104
Sei whale	17	38
Unidentified mysticetes	115	239
Source: DFO, OBIS, Statoil (records span 1952 to 2015); C-NLOPB records (2016, 2017)		

Table D.18 Opportunistic Sightings of Non-Species at Risk Odontocetes Reported in the Project Area

Common Name	Project Area – Northern Section	Project Area – Southern Section
Atlantic spotted dolphin	0	0
Atlantic white-sided dolphin	8	1
Common bottlenose dolphin	10	7
False killer whale	0	0
Long-finned pilot whale	342	357
Risso’s dolphin	0	0
Short-beaked common dolphin	11	6
Sperm whale	163	22
Spinner dolphin	0	0
Striped dolphin	4	0
White-beaked dolphin	22	76
Unidentified odontocete	258	197
Source: DFO, OBIS, Statoil (records span 1958 to 2015); C-NLOPB records (2016, 2017)		

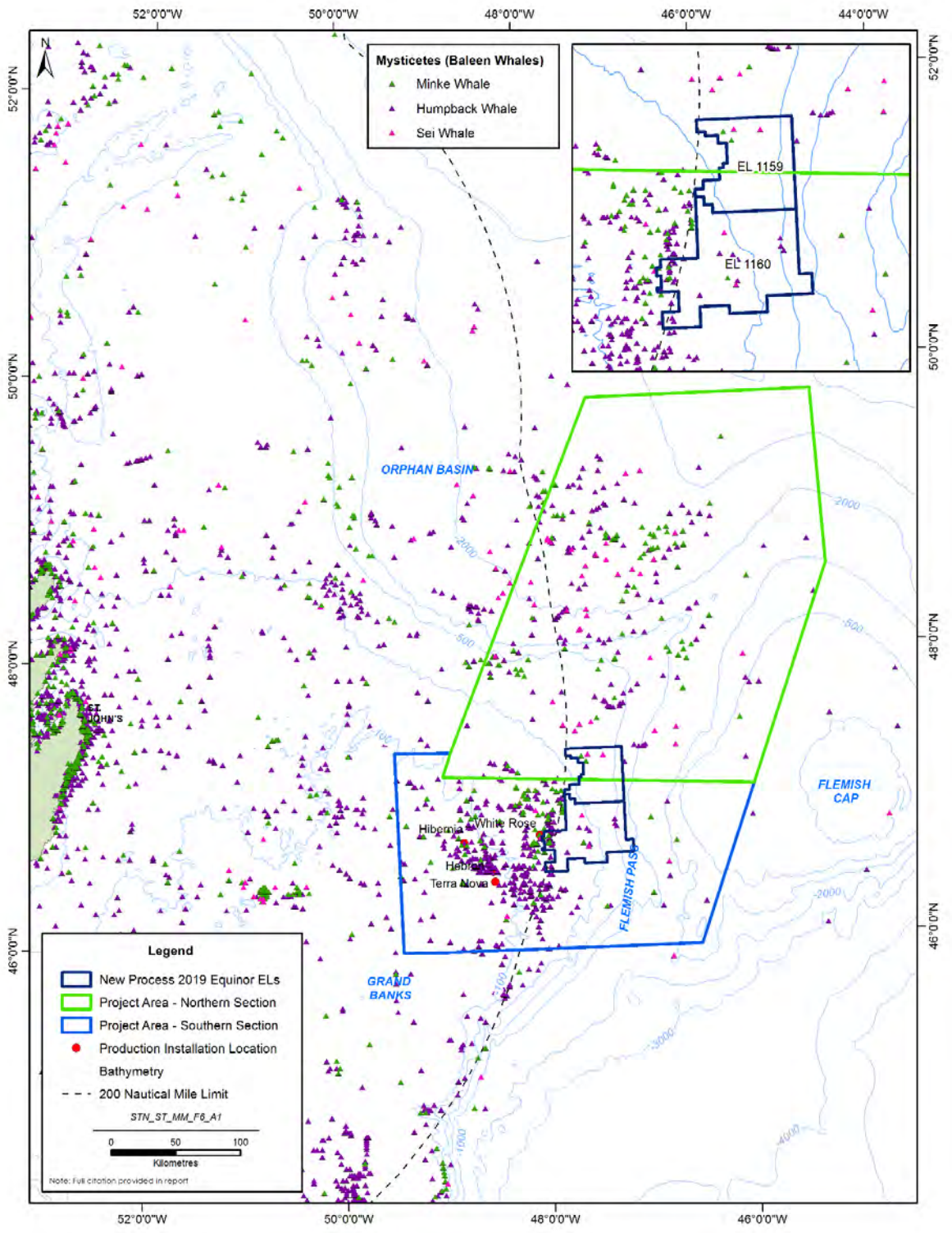


Figure D-44 Opportunistic Sightings of Non-Species at Risk Mysticetes (1952 to 2017)

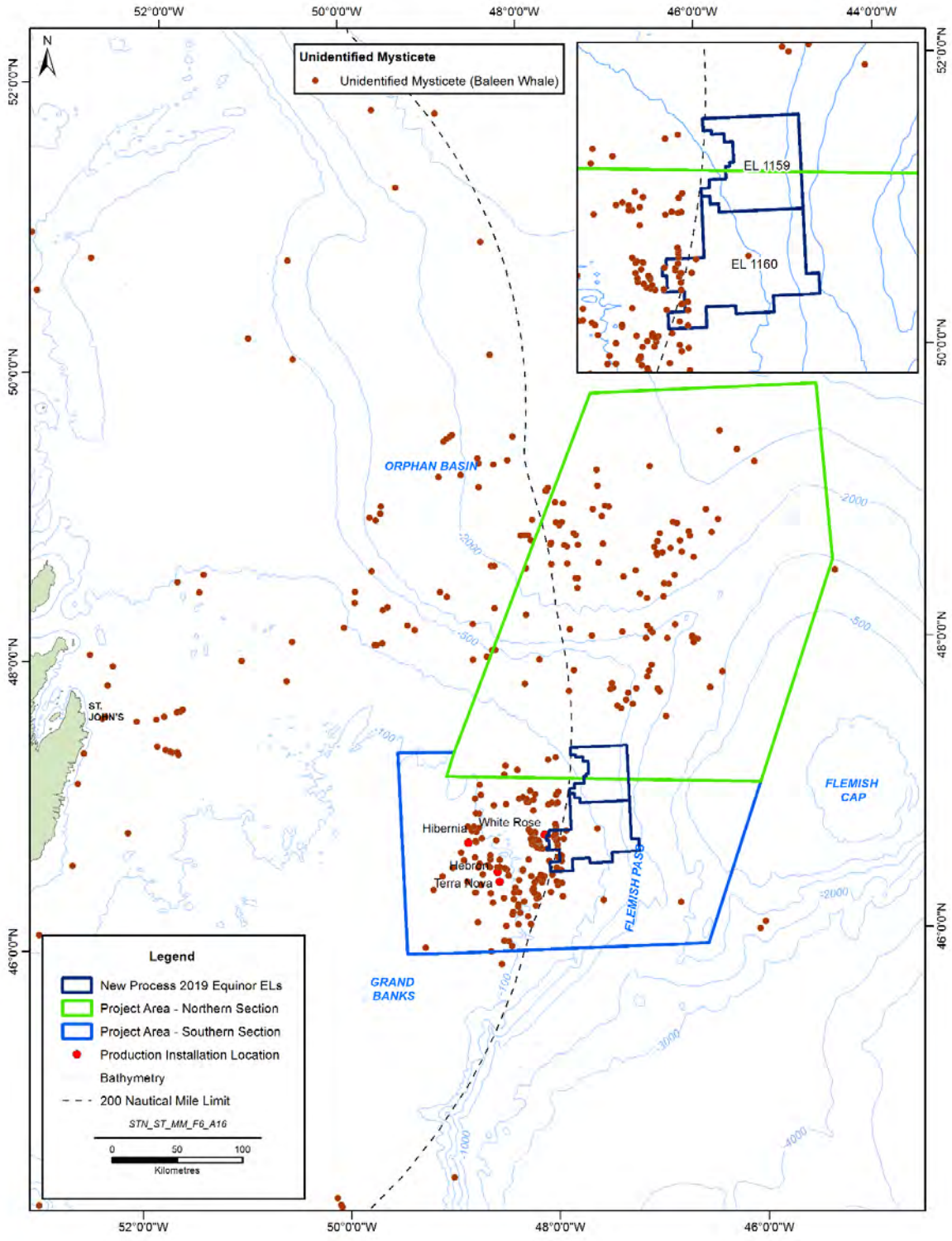


Figure D-45 Opportunistic Sightings of Unidentified Mysticetes (1980 to 2017)

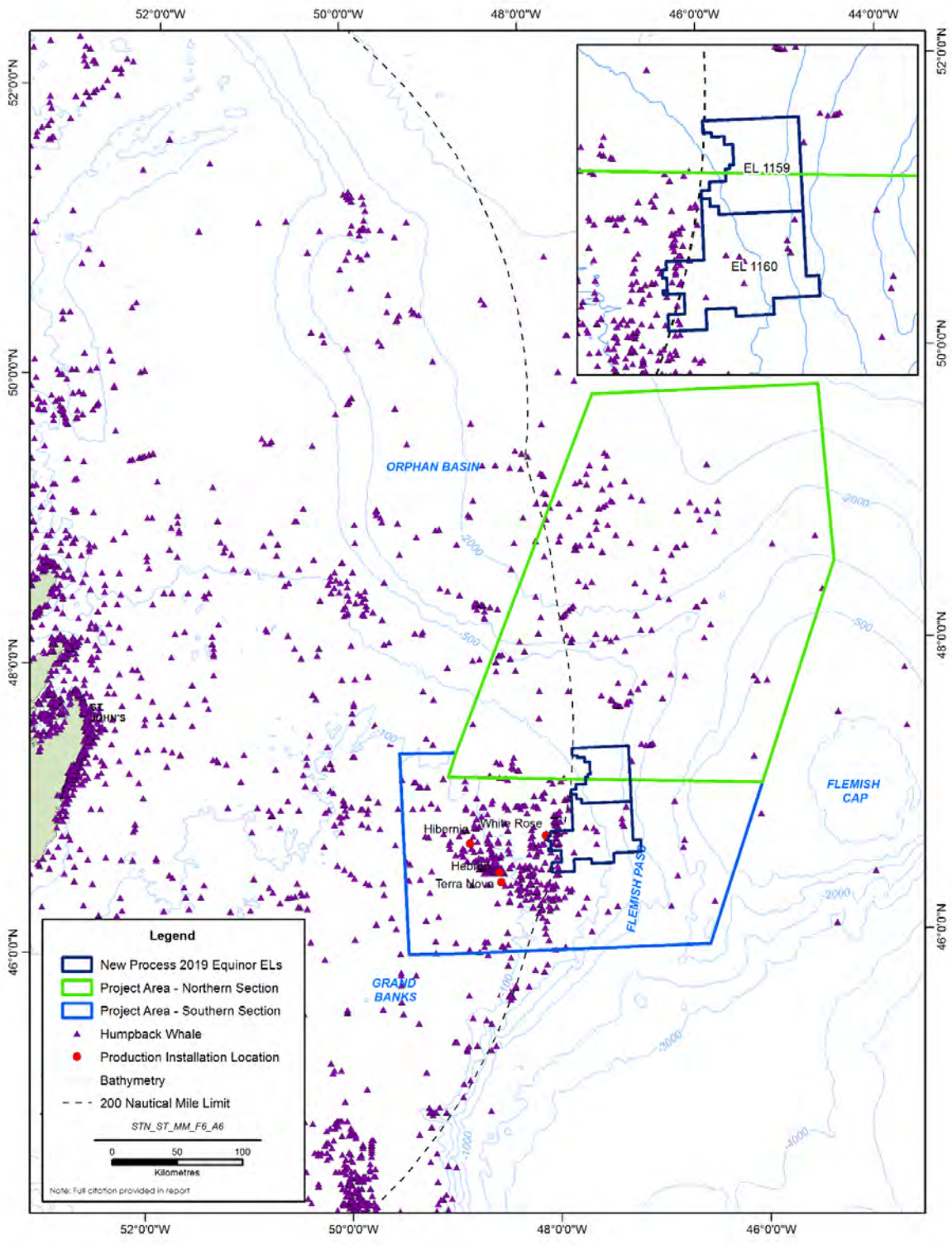


Figure D-46 Humpback Whale Sightings in Eastern NL Offshore Area

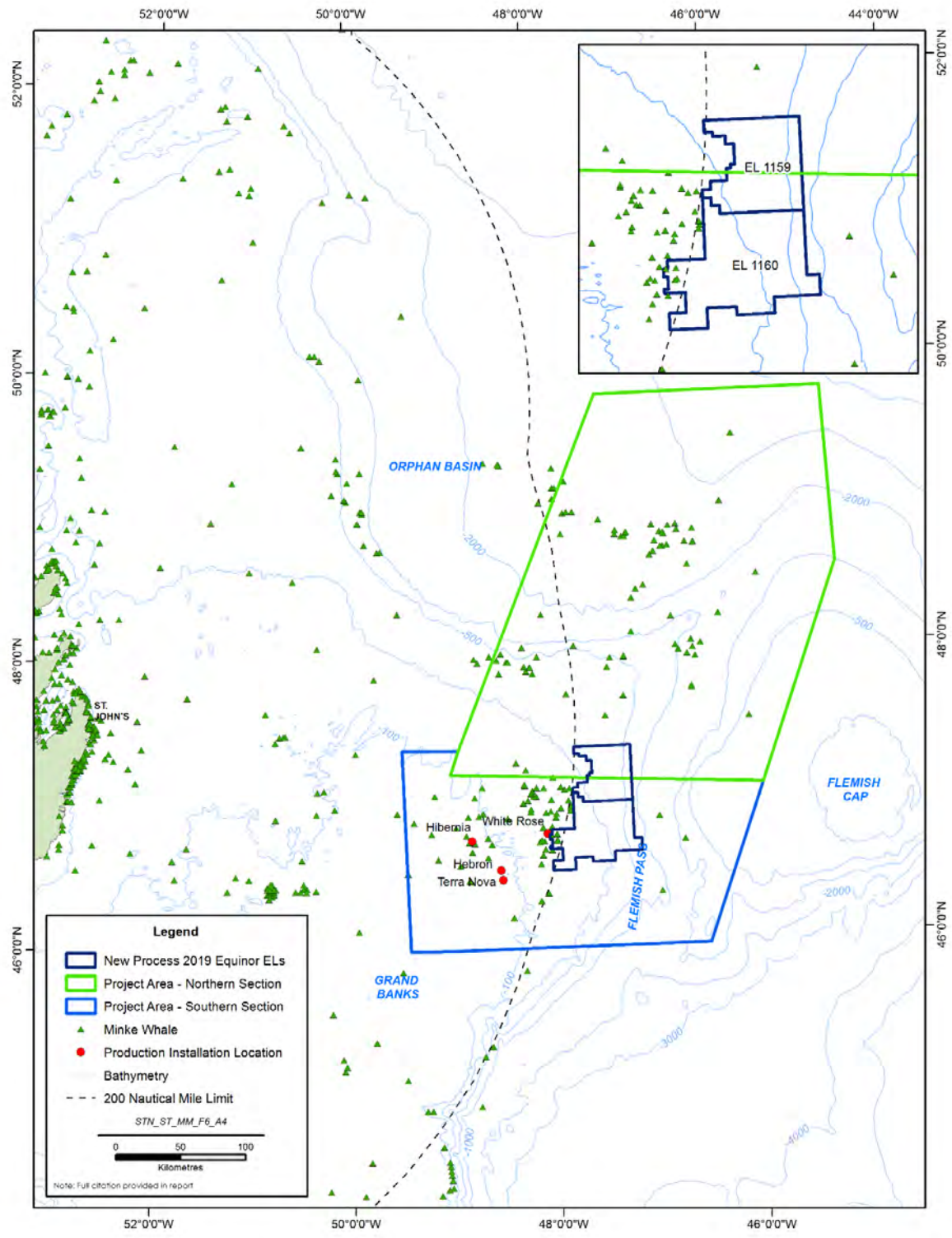


Figure D-47 Minke Whale Sightings in Eastern NL Offshore Area

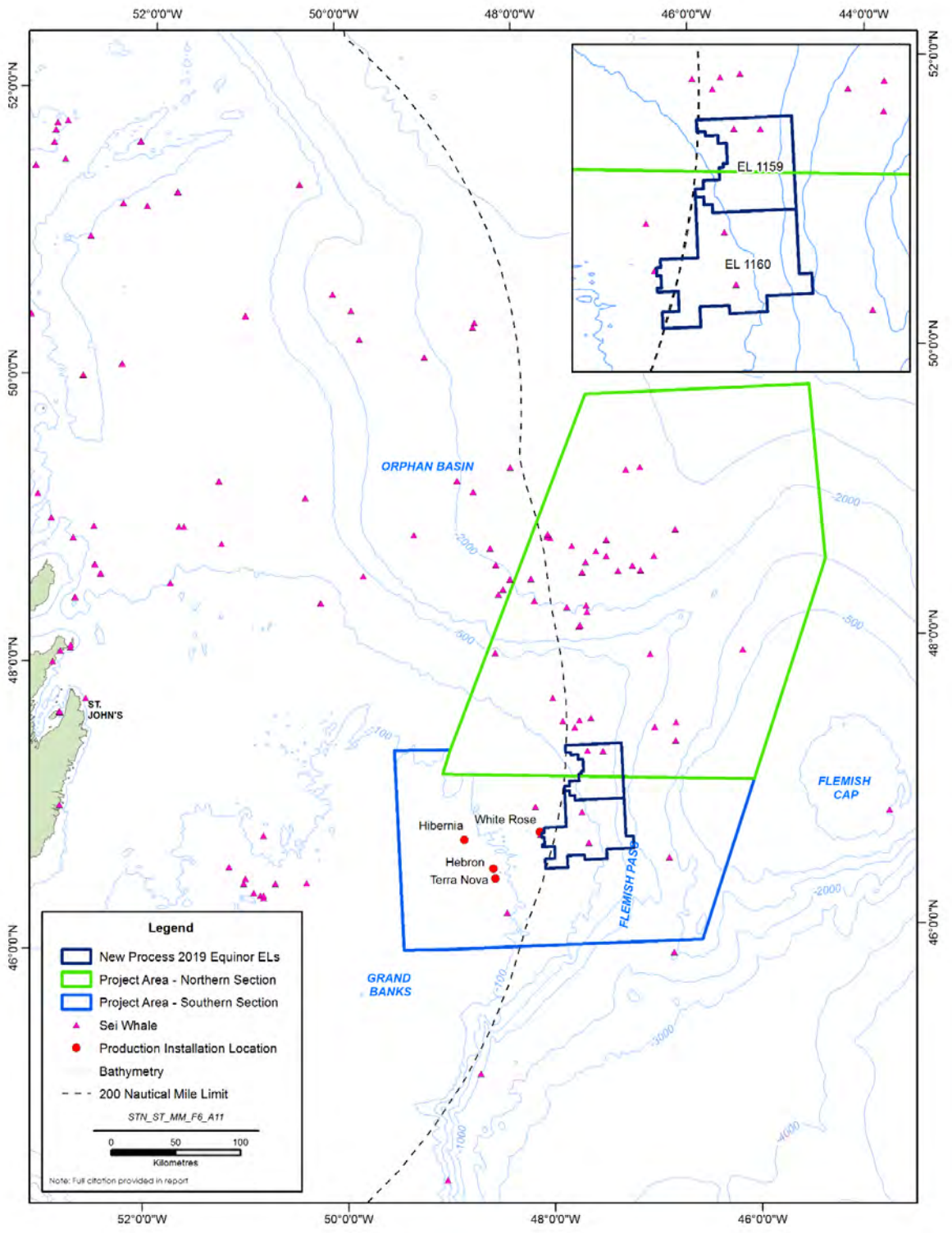


Figure D-48 Sei Whale Sightings in Eastern NL Offshore Area

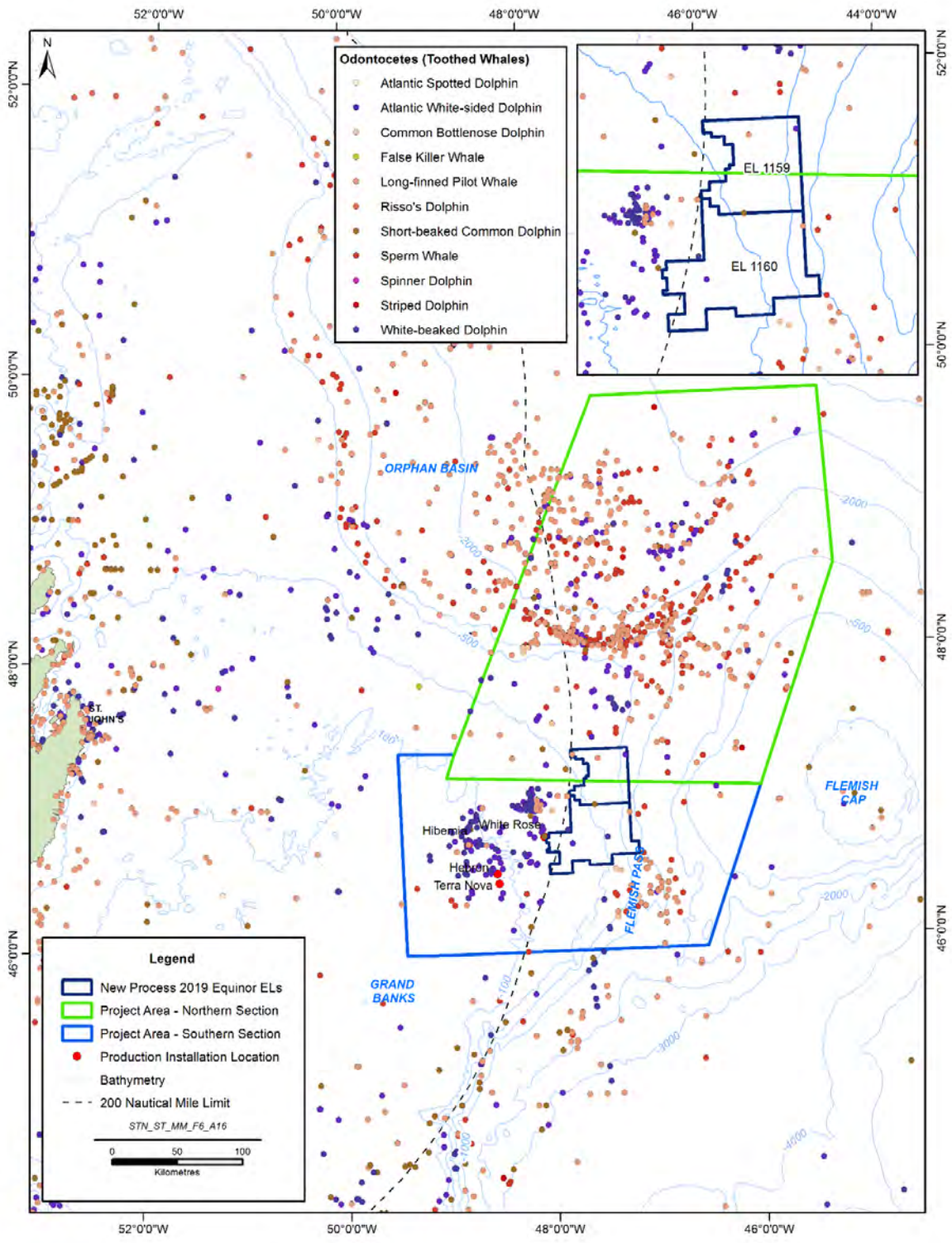


Figure D-49 Opportunistic Sightings of Non-Species at Risk Odontocetes (1958 to 2017)

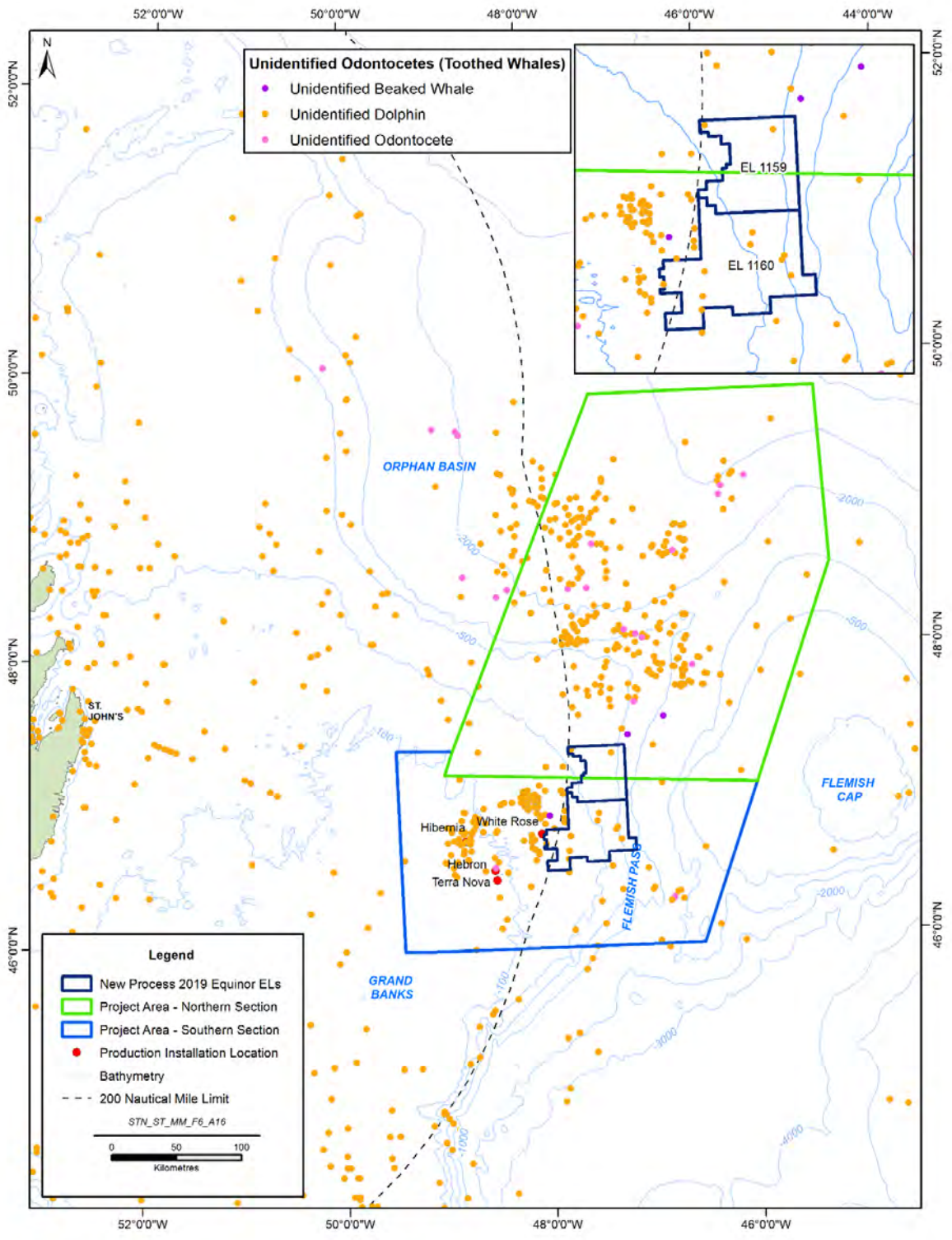


Figure D-50 Opportunistic Sightings of Unidentified Odontocetes (1958 to 2017)

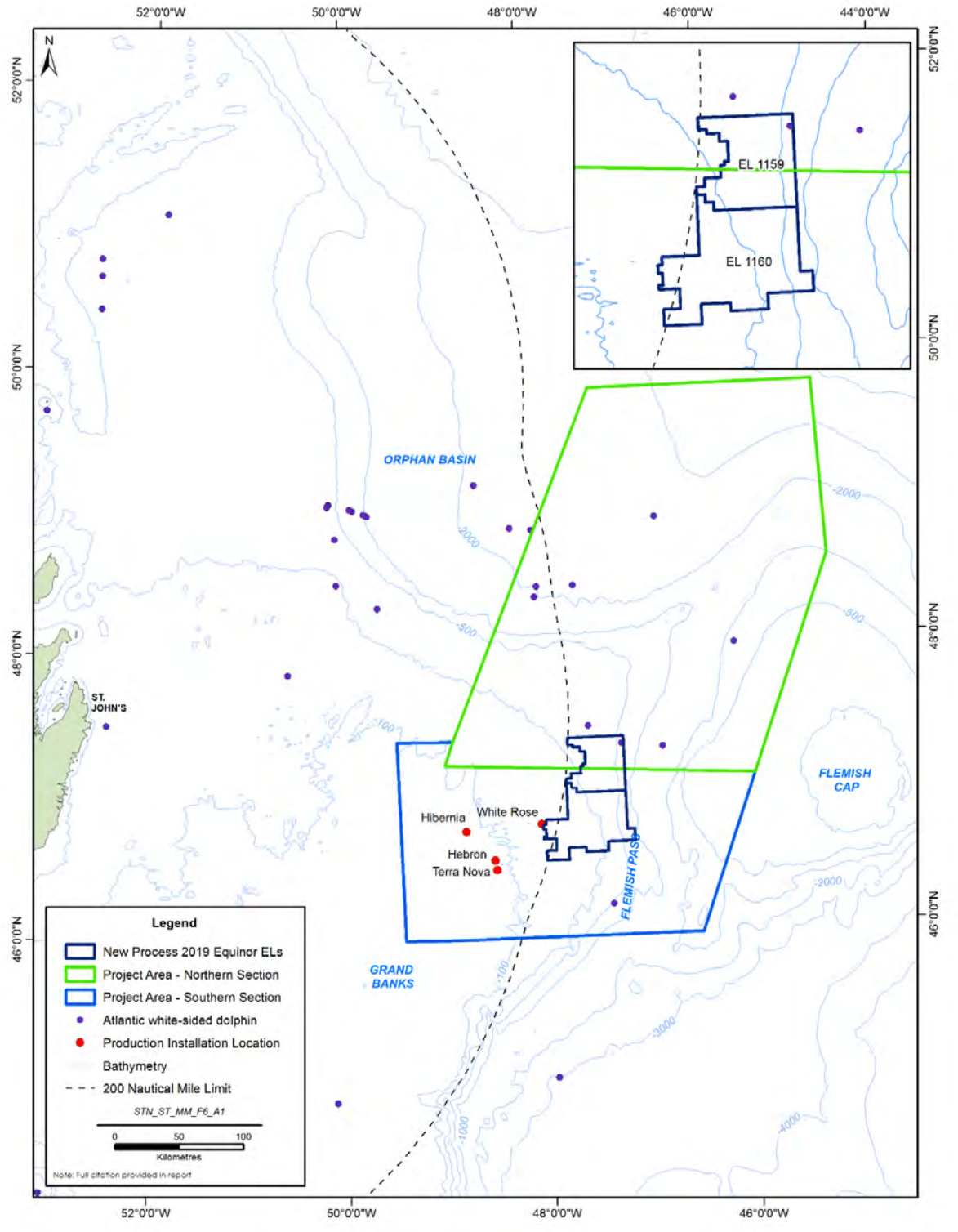


Figure D-51 Atlantic White-sided Dolphin Sightings in Eastern NL Offshore Area

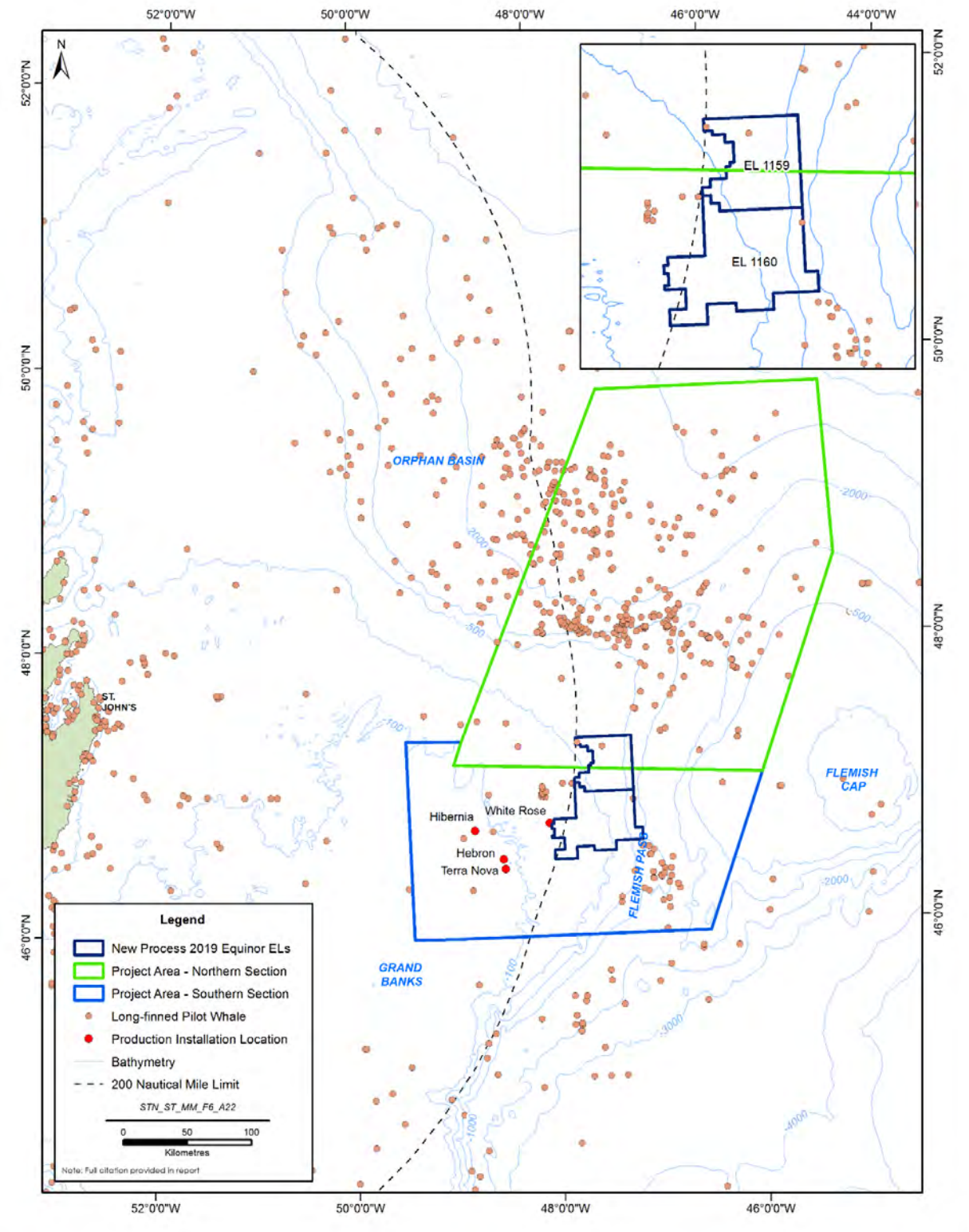


Figure D-52 Long-finned Pilot Whale Sightings in Eastern NL Offshore Area

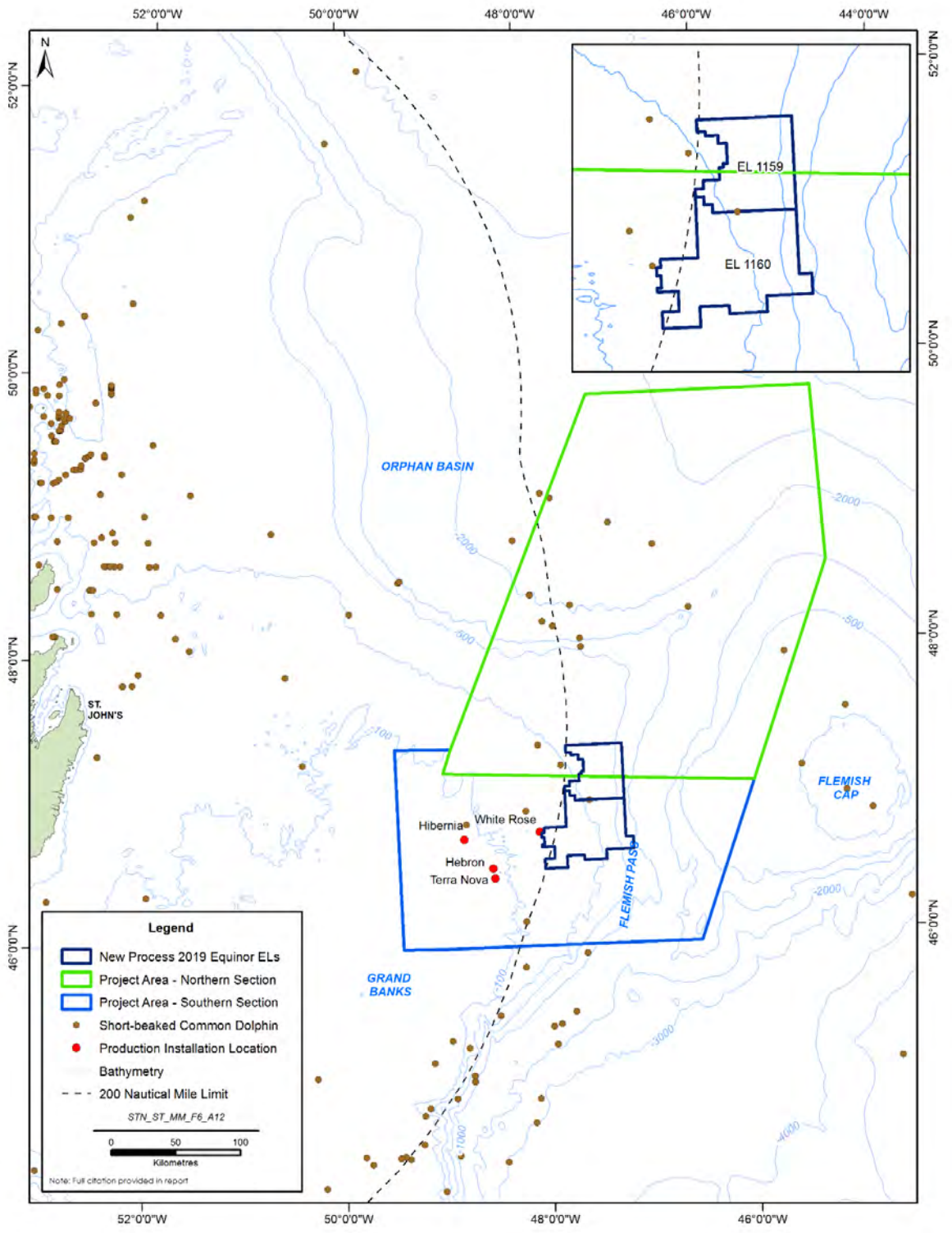


Figure D-53 Short-beaked Common Dolphin Sightings in Eastern NL Offshore Area

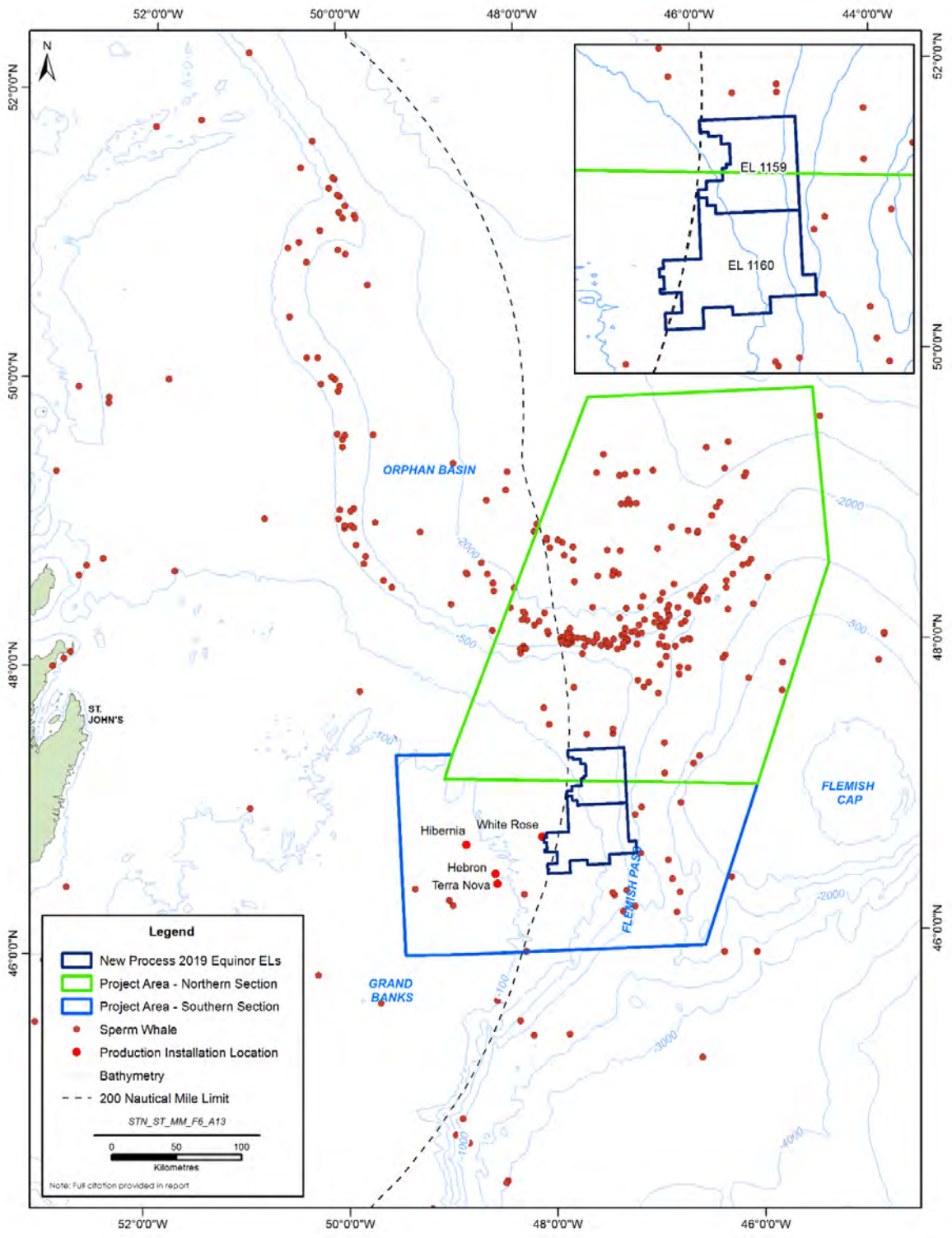


Figure D-54 Sperm Whale Sightings in Eastern NL Offshore Area

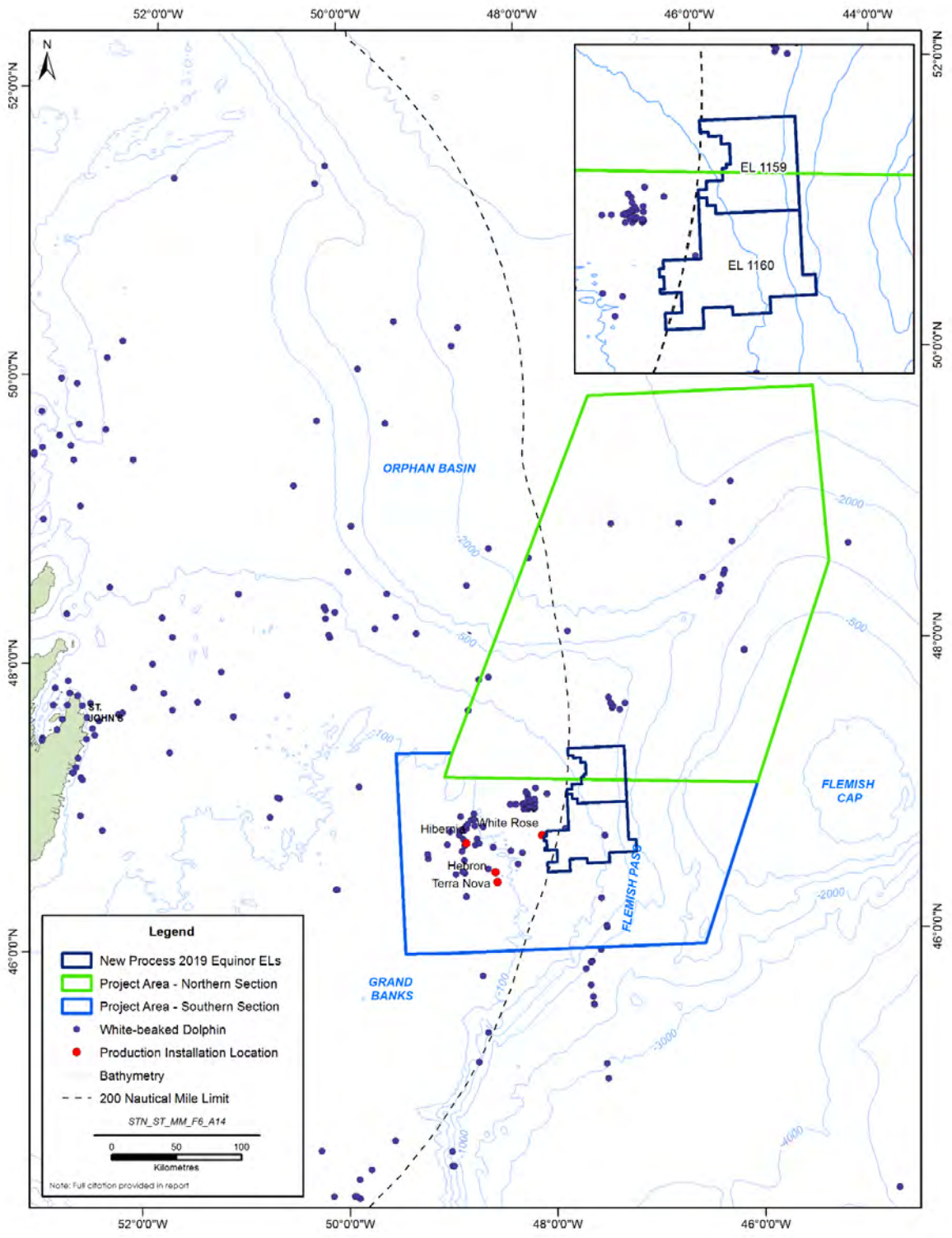


Figure D-55 White-beaked Dolphin Sightings in Eastern NL Offshore Area

3.1 Species at Risk

Section 6.3.7 of the Flemish Pass EIS discusses species at risk, and information in those sections remains applicable and valid for ELs 1159 and 1160. The Flemish Pass EIS included opportunistic sightings from DFO, OBIS and/or previous Equinor Canada programs up to 2015. However, more current data is available and is incorporated into the Table D.19 and Figures D-56 to D-60 below. It is noted that there are a number of species that did not have any additional sightings in 2016 and 2017, and therefore updated figures are not required.

There are no new Schedule 1 *Species at Risk Act* (SARA)-listed species since the Flemish Pass EIS was submitted.

There are no new marine mammals or sea turtles considered at risk since the Flemish Pass EIS.

Table D.19 Opportunistic Sightings of Listed Marine Mammals and Sea Turtles Reported in the Project Area (1758 to 2017)

Common Name	Project Area – Northern Section	Project Area – Southern Section
Beluga whale	1	0
Blue whale	0	0
Bowhead whale	0	0
Fin whale	86	83
Harbour porpoise	29	7
Killer whale	8	16
North Atlantic right whale	1	0
Northern bottlenose whale	54	12
Sowerby's beaked whale	1	0
Unidentified beaked whale	2	2
Loggerhead sea turtle	0	2
Leatherback sea turtle	0	1

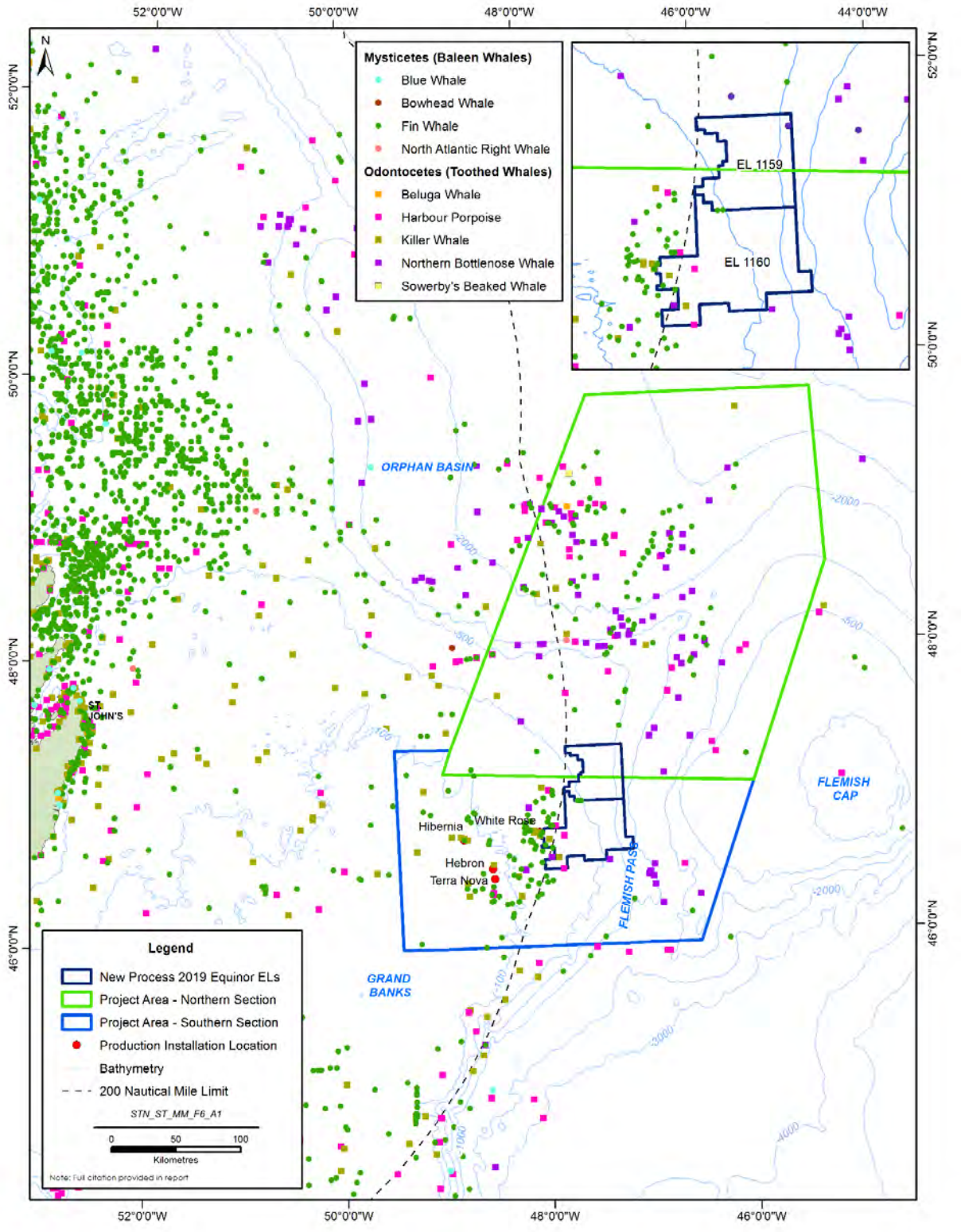


Figure D-56 Opportunistic Sightings of Listed Marine Mammals (1867 to 2017)

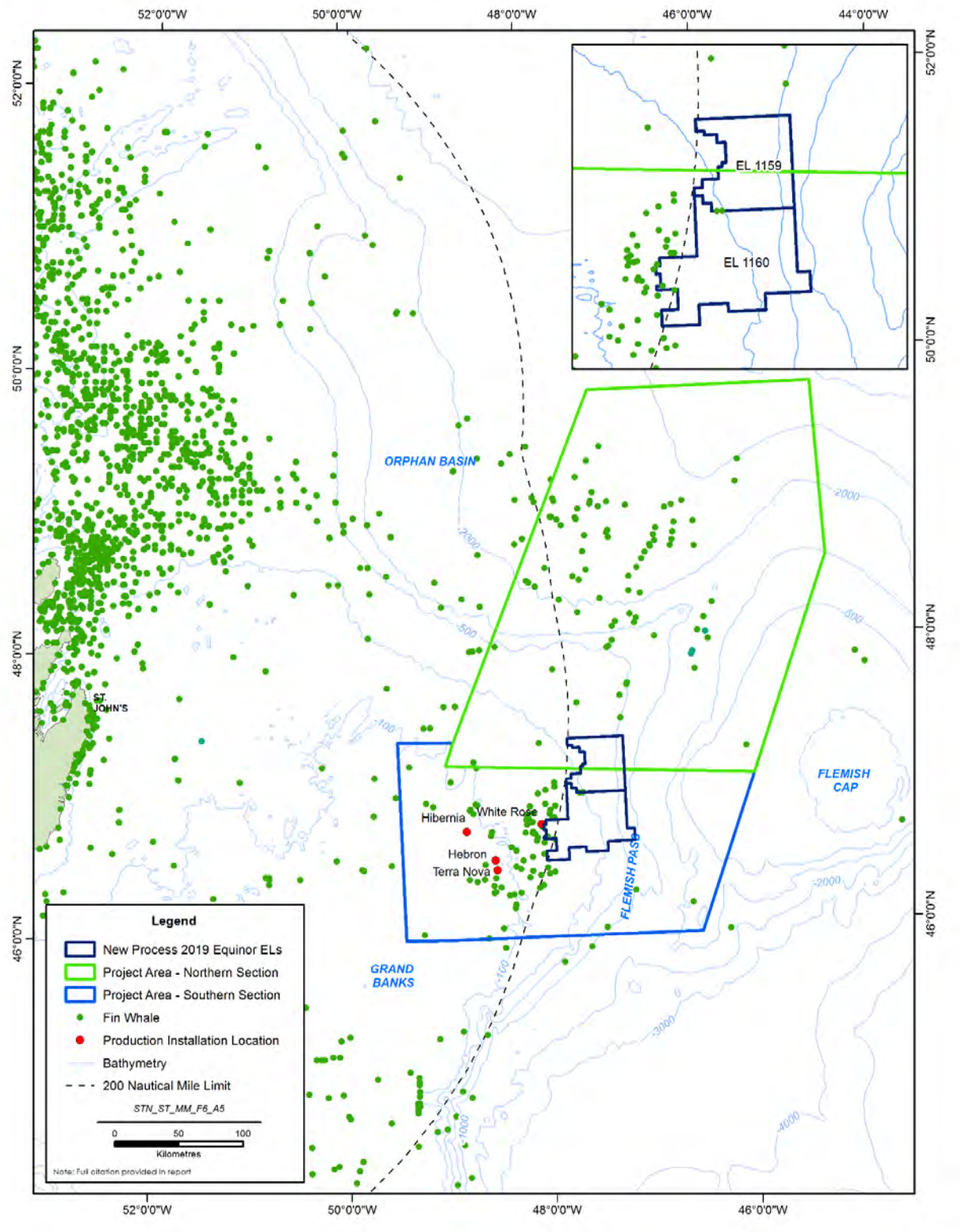


Figure D-57 Fin Whale Sightings in Eastern NL Offshore Area

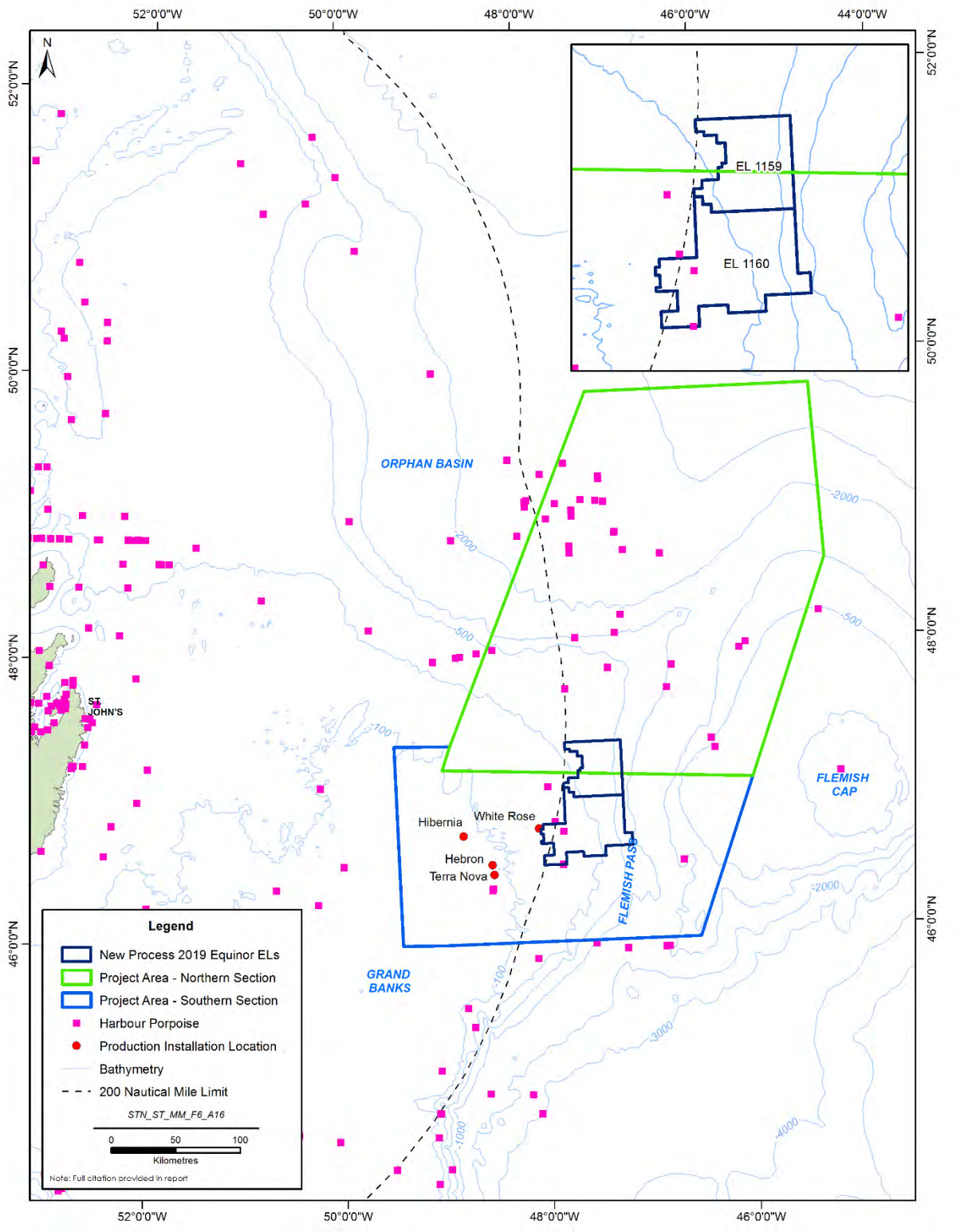


Figure D-58 Harbour Porpoise Sightings in Eastern NL Offshore Area

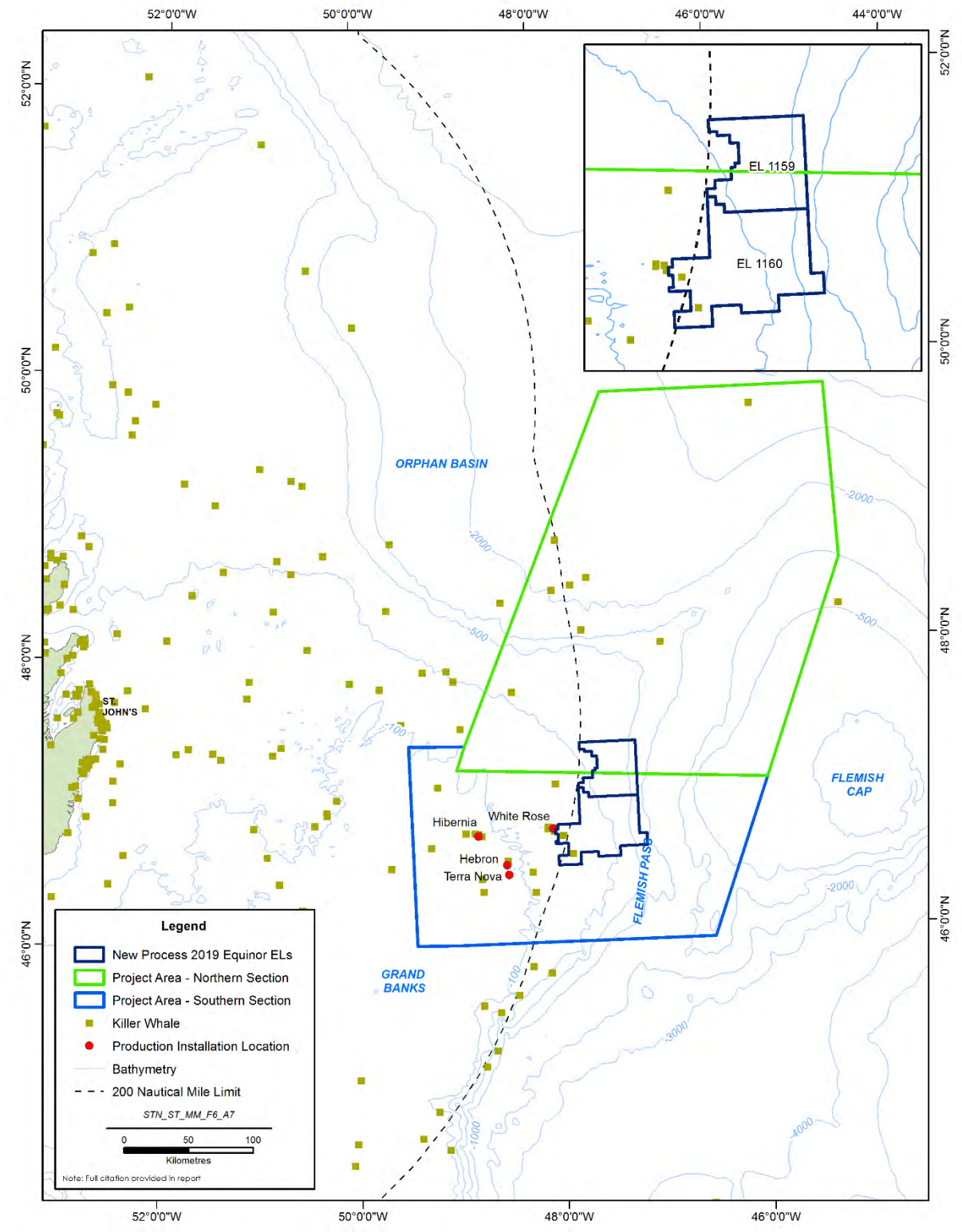


Figure D-59 Killer Whale Sightings in Eastern NL Offshore Area

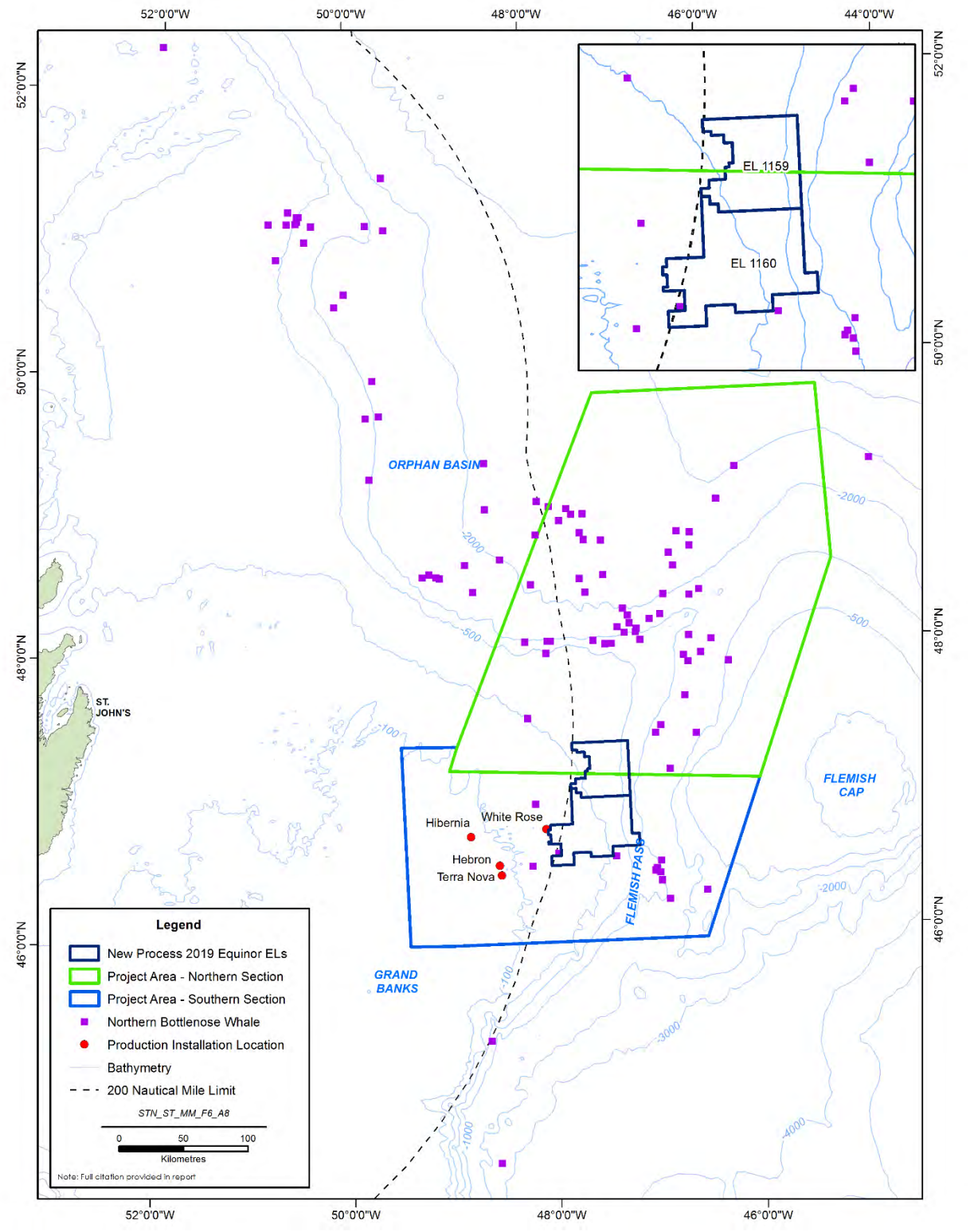


Figure D-60 Northern Bottlenose Whale Sightings in Eastern NL Offshore Area

3.2 Special Areas of Importance to Marine Mammals and Sea Turtles

Table 6.42 of the Flemish Pass EIS outlines the EBSAs off eastern Newfoundland and their relevance to marine mammals and sea turtles. Information in table 6.42 remains applicable and valid, and outlined in Table D.20 below.

Table D.20 Proximity of Ecologically and Biologically Significant Areas off Eastern Newfoundland and their Relevance to Marine Mammals and Sea Turtles

Special Areas	Name	Relevance / Importance to Marine Mammals or Sea Turtles	Area
EBSAs	Northeast Shelf and Slope	Concentrations of cetaceans and pinnipeds.	13,885 km²
	Lilly Canyon-Carson Canyon	Aggregation and refuge / overwintering area for cetaceans and pinnipeds.	1,145 km²
	Eastern Avalon Coast	Cetaceans, leatherback sea turtles and seals feed in the area from spring to fall.	1,683 km²
	Southeast Shoal and Tail of the Banks	Highest benthic biomass in the Grand Banks; aggregation and feeding habitat for cetaceans.	30,935 km²
	Notre Dame Channel	Recognized for cetacean feeding and migration. Harp seals feed in the area during winter.	6,222 km²
	Fogo Shelf	Important cetacean feeding areas. Several areas of marine mammal presence.	9,403 km²
	Placentia Bay Extension	High level of biodiversity. Supports a high biomass of marine mammals. High aggregation of cetaceans and leatherback sea turtles in the spring and summer. Harbour seals use area year-round. Important feeding area from spring to fall for many cetaceans (especially humpback whales and porpoises). Important for reproduction of harbour seals. Possible migratory path for leatherback sea turtles.	7,693 km²
	Southwest Shelf Edge and Slope	Many marine mammals and leatherback sea turtles aggregate here in summer.	16,644 km²
	Labrador Marginal Trough	Potential corridor for several marine mammal species. Part of the highest probability of use for harp seal whelping and feeding. Aggregations of cetaceans in summer and fall.	16,952 km²
	St. Pierre Bank	Feeding areas for cetaceans.	5,482 km²
	Laurentian Channel and Slope	Used by cetaceans moving in and out of the Gulf of St. Lawrence.	17,140 km²
	Hamilton Inlet	Harp seals whelp on pack ice in the area. Fall and winter-feeding area for ringed seals.	11,038 km²
	Southern Pack Ice	Seasonal pack ice is recognized for its importance to marine mammals.	N/A

Table D.20 Proximity of Ecologically and Biologically Significant Areas off Eastern Newfoundland and their Relevance to Marine Mammals and Sea Turtles

Special Areas	Name	Relevance / Importance to Marine Mammals or Sea Turtles	Area
Preliminary RMA	South Grand Bank Area	Feeding area for aggregations of cetaceans and leatherback turtles. Area overlaps with Southeast Shoal and Tail of the Banks EBSA.	18,201 km²
Sources: Templeman (2007); CPAWS (2009); DFO (2013, 2016a)			

4 SPECIAL AREAS

Section 6.4 of the Flemish Pass EIS, and the response to IR-39, provides an overview of special areas in the Regional Study Area (RSA). This information remains applicable and valid for ELs 1159 and 1160. However, an additional United Nations Convention on Biological Diversity (CBD) Ecologically and Biologically Significant Area (EBSA) has been designated since submission of the Flemish Pass EIS and response to IR-39. The Southeast Shoal and Adjacent Areas on the Tail of the Grand Bank CBD EBSA extends from the Exclusive Economic Zone in the area of the southern Grand Banks to the 100 m contour of the shelf. The shoal is a very productive ecosystem, providing a shallow, relatively warm, sandy habitat. The shoal is an ancient beach relic that provides an offshore capelin-spawning ground and spawning area for Atlantic wolffish, Atlantic cod, and American plaice, as well as a yellowtail flounder nursery. The shoal is also home to unique populations of blue mussels and wedge clams. The Tail provides an important feeding area for humpback and fin whales and large numbers of seabirds (CBD 2019).

Figure D-61 below outlines the special areas in eastern Newfoundland.

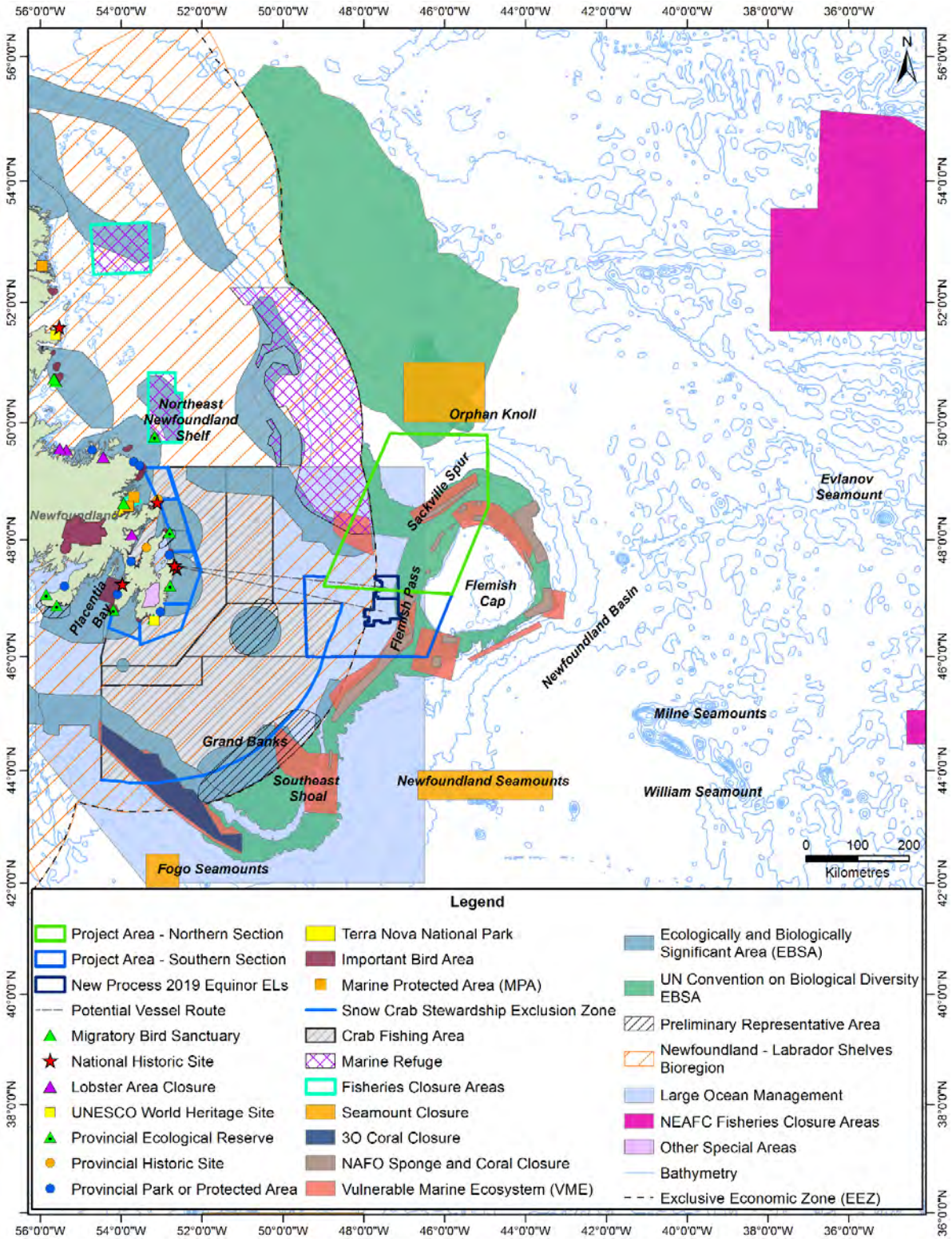


Figure D-61 Special Areas in Eastern Newfoundland and Labrador

APPENDIX E

Updated Information – Existing Human Environment

1 Commercial Fisheries

ELs 1159 and 1160 are within Northwest Atlantic Fisheries Organization (NAFO) Division 3L. General fishing distribution and activity for most species has remained consistent since the Flemish Pass EIS. Quotas for fisheries typically change annually. Shrimp Fishing Area 7 (NAFO Division 3L) has been under a moratorium since 2015, both within the 200 nautical mile (NM) Exclusive Economic Zone (EEZ) and outside the EEZ (which is regulated by NAFO). There is no commercial northern shrimp fishery in NAFO 3L planned for 2019 (NAFO 2017; DFO 2019).

The fisheries quotas allocated to NAFO vessels for 2019 are described in NAFO/COM Doc 19/01 (NAFO 2019). This document indicates total allowable catches (TAC) of 12,242 tonnes (t) for Greenland halibut and 46,600 t for redfish. Of these amounts, 1,836 t of Greenland halibut TAC and 14,210 t of redfish TAC have been allocated to Canadian vessels. Domestically, the most recent fisheries management decision for snow crab has set the current TAC for the 2018 fishing season in NAFO Divisions 3LNO at 18,840 t (DFO 2018c); no quote has been set for 2019 at time of this writing. For international fishing operations, the data cannot provide definitive information as to what extent quota allocations will be taken in the Project Area. It does indicate that there will be a need to coordinate Equinor Canada's offshore operations with both domestic and foreign fishing vessels in the Project Area using the measures committed to in the Flemish Pass EIS that govern its activities.

Domestic (i.e. Canadian) geospatial catch data, as obtained from Fisheries and Oceans Canada (DFO), for all species (and all gear types over all months) from 2011 to 2016 are illustrated in Figure E-1. Harvest data for snow crab, northern shrimp, and Greenland Halibut is illustrated in Figures E-2 to E-4. The general fishing distribution and pattern of fishing activity is consistent with that documented in the Flemish Pass EIS. While quotas for fisheries change from [fishing] season to season, the harvest locations and general fishing trends remain consistent.

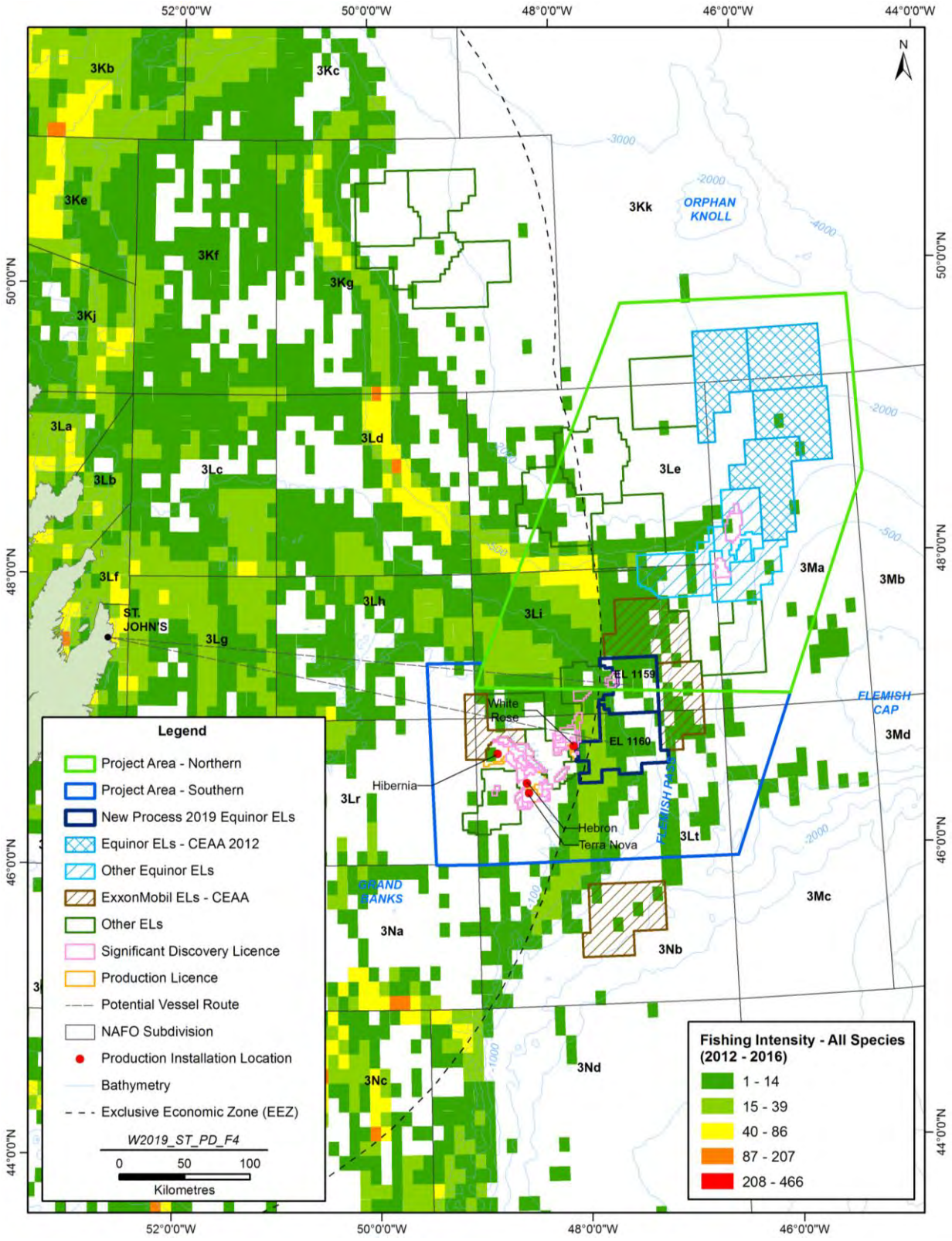


Figure E-1 Domestic Commercial Harvesting Locations and Intensity, All Species, All Gear Types, All Months 2011 to 2016

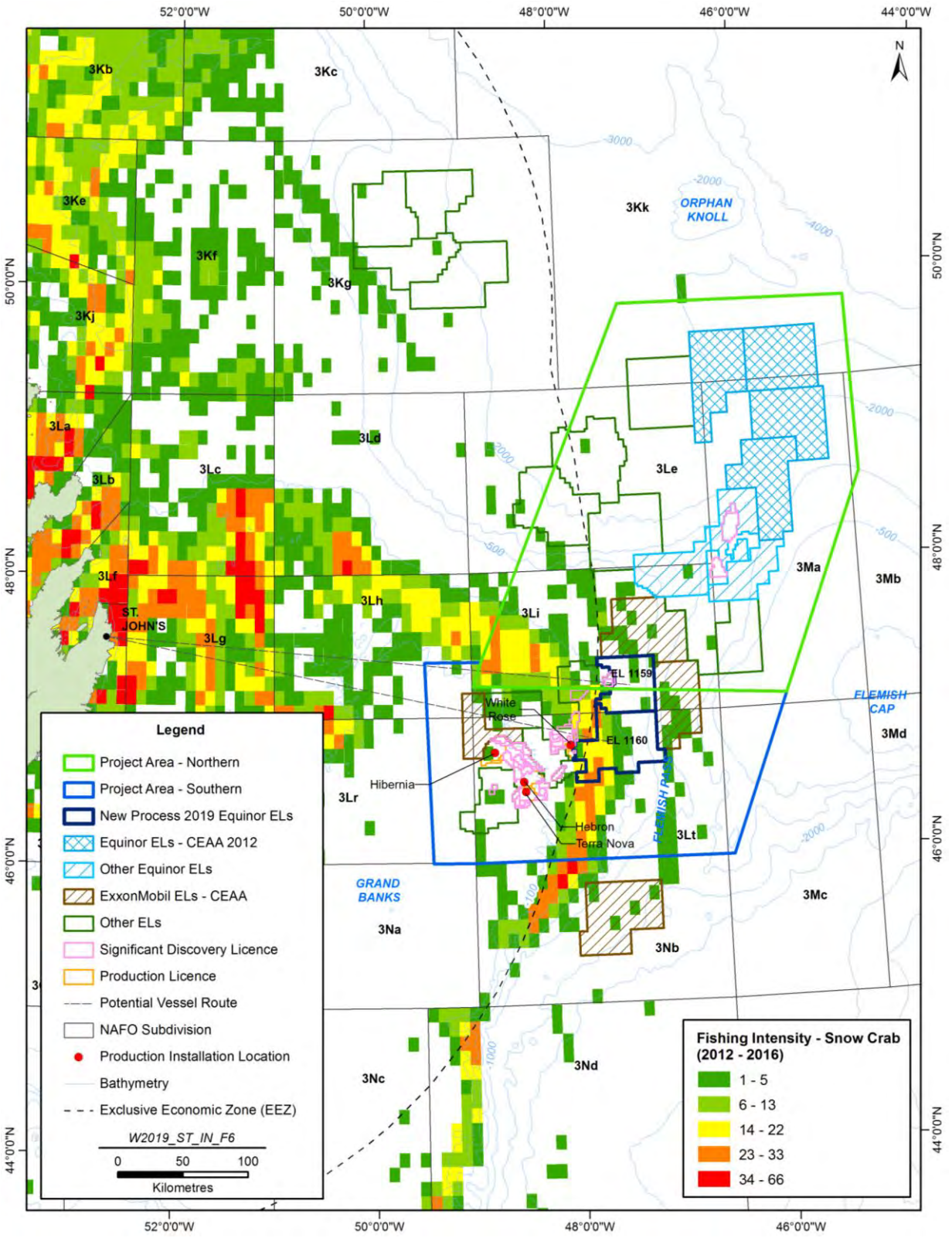


Figure E-2 Domestic Commercial Harvesting Locations and Intensity, Snow Crab, All Months 2011 to 2016

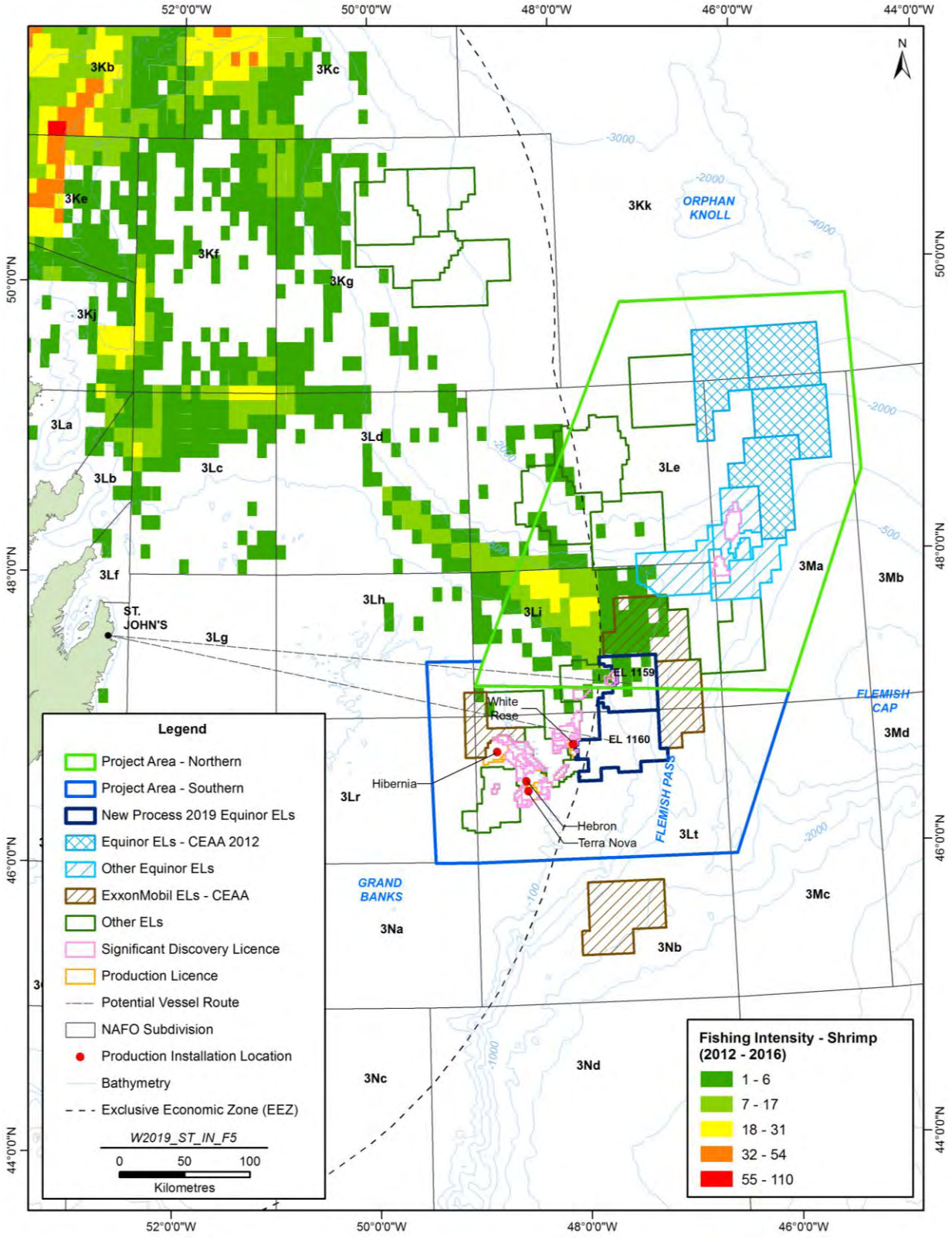


Figure E-3 Domestic Commercial Harvesting Locations and Intensity, Northern Shrimp, All Months 2011 to 2016

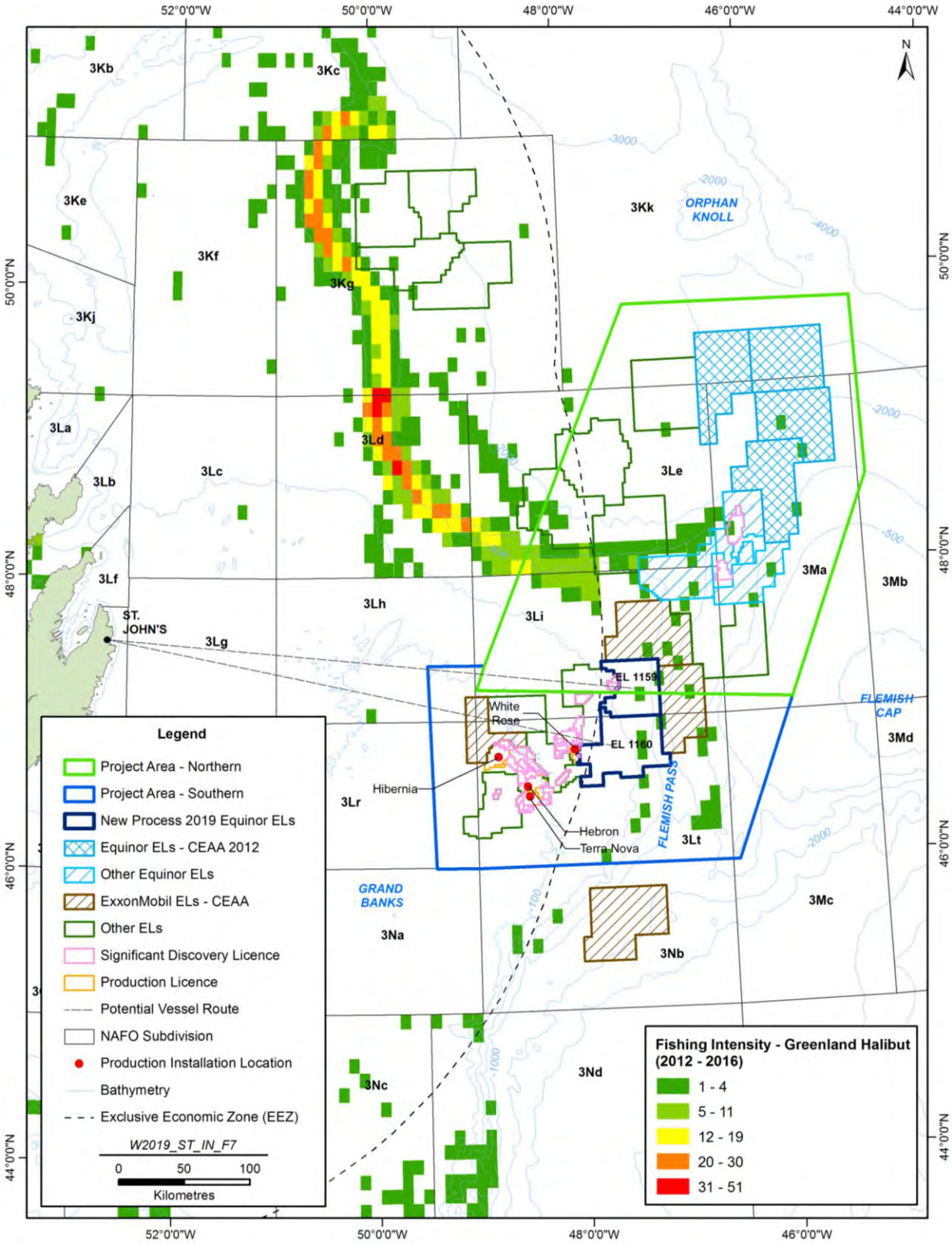


Figure E-4 Domestic Commercial Harvesting Locations and Intensity, Greenland Halibut, All Months 2011 to 2016

2 Marine Research

DFO conducts multispecies research vessel (RV) trawl surveys in various NAFO Divisions, including 3L. As outlined in section 13.3.2 of the Flemish Pass EIS, Equinor Canada will contact DFO regarding timing and locations of planned RV surveys. The annual Industry-DFO Collaborative Post-season Trap Survey for snow crab in NAFO Divisions 2J3KLOPs4R starts in late August or early September after the commercial snow crab season has ended. The location of the set stations changes on an annual basis. There have been a few stations outside the 200 NM EEZ that have been surveyed in the past. ELs 1159 and 1160 are within the NAFO Fisheries "Footprint", an area within the NAFO Regulatory Area defined by bottom-fishing activity intensity by NAFO vessels over a 20-year period (NAFO 2009). Table E.1 below outlines the proposed DFO research vessel survey schedule for 2019.

Table E.1 Proposed Schedule of DFO Research Vessel Surveys, 2019

Vessel	Activity	NAFO Divisions	Planned Start Date	Planned End Date
Needler	NL Spring Survey	3P	March 28	April 9
		3P	April 10	April 18
		3P + 3O	April 23	May 7
		3O + 3N	May 8	May 21
		3L + 3N	May 22	June 4
		TBD	June 5	June 18
	Shellfish Survey	3N	August 30	September 10
	NL Fall Survey	3O	September 11	September 24
		3O + 3N	September 25	October 8
		3N + 3L	October 9	October 22
		3L	October 23	November 5
		3K + 3L	November 6	November 19
Teleost	NL Spring Atlantic Zone Monitoring Program (AZMP)	3L	March 27	April 18
	Calibrations	3P + 3LMNO	April 23	April 29
	Capelin Survey	3KL	April 30	May 20
	NL Fall Survey	2H	October 9	October 23
		2H + 2J	October 23	November 5
		2J	November 6	November 19
		3K	November 19	December 3
		3K	December 4	December 20
Vladykov	Cod Tagging	3L	April 23	May 4
	Cod Tagging	3K	July 2	July 15
	Trinity Bay Ecosystem	3L	August 14	August 22
	Trinity Bay Ecosystem	3L	September 20	September 27

Vessel	Activity	NAFO Divisions	Planned Start Date	Planned End Date
	Cod Tagging	3L	October 16	October 28
Source: L. Mello, pers comm 2019				

3 Marine Shipping

In 2017, St. John's Harbour had approximately 1,344 vessel arrivals, of which approximately 55 percent were related to the offshore energy industry (B. McCarthy, pers comm 2018).

4 Offshore Oil and Gas Activity

As of March 4, 2019, 470 wells have been drilled, including 171 exploration wells, 57 delineation wells and 242 development wells (C-NLOPB 2019e).

5 Other Ocean Uses

Common vessel traffic routes in the Project Area and surrounding area are illustrated in Figure E-5. Marine cables are depicted in Figure E-6 and known shipwrecks and Department of National Defence legacy sites are illustrated in Figure E-7.

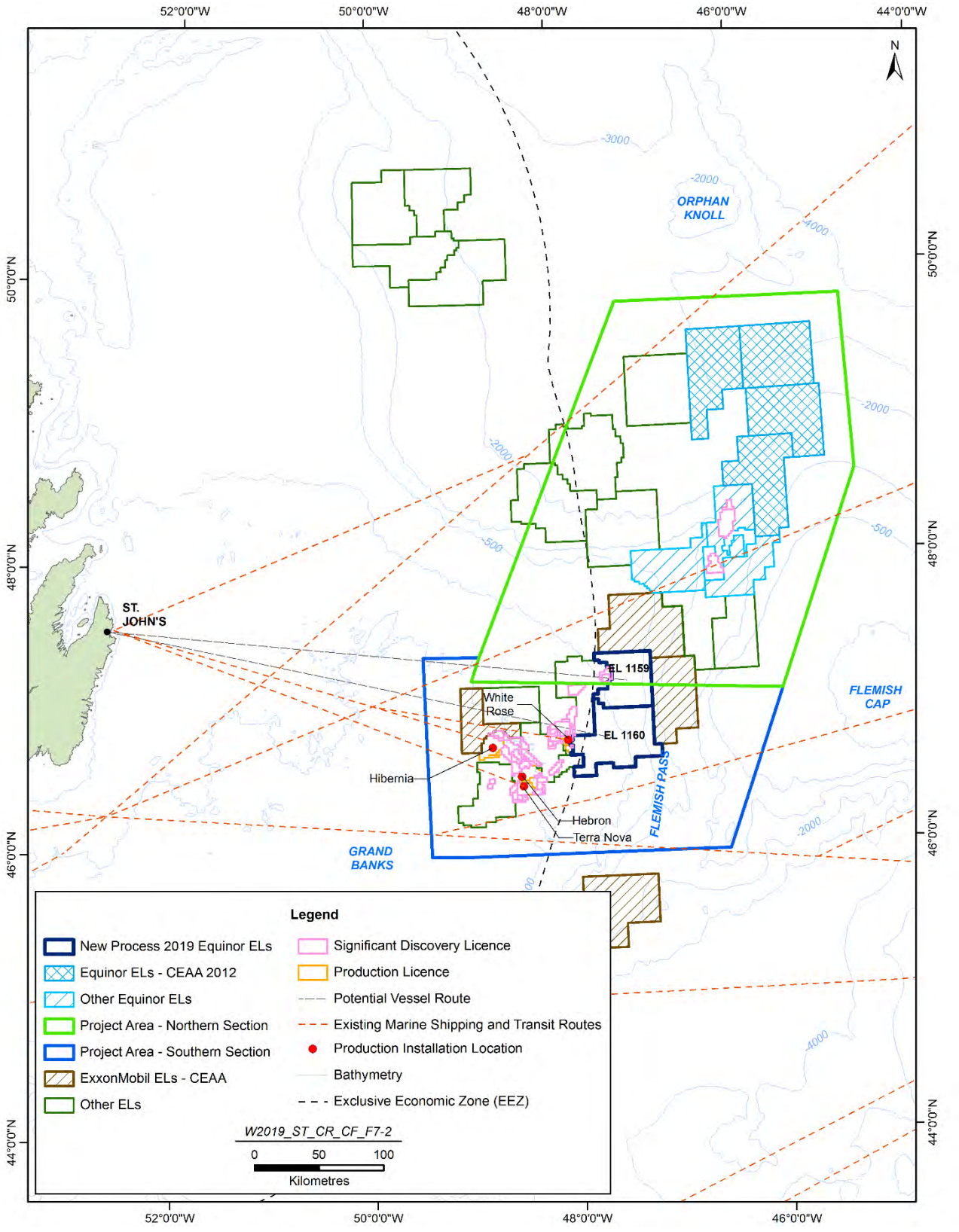


Figure E-5 Major Vessel Routes in the Vicinity of the Project Area

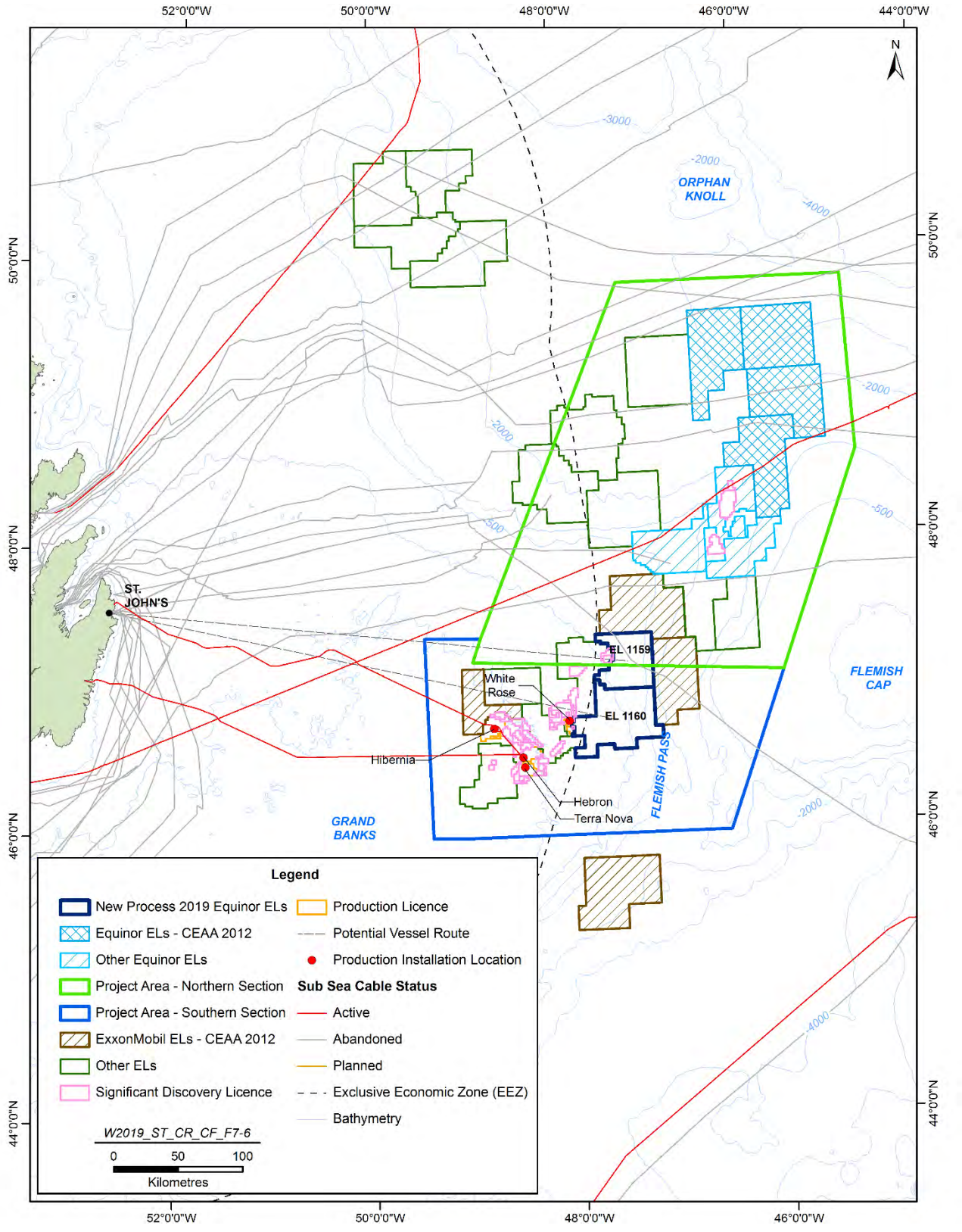


Figure E-6 Marine Cables in the Vicinity of the Project Area

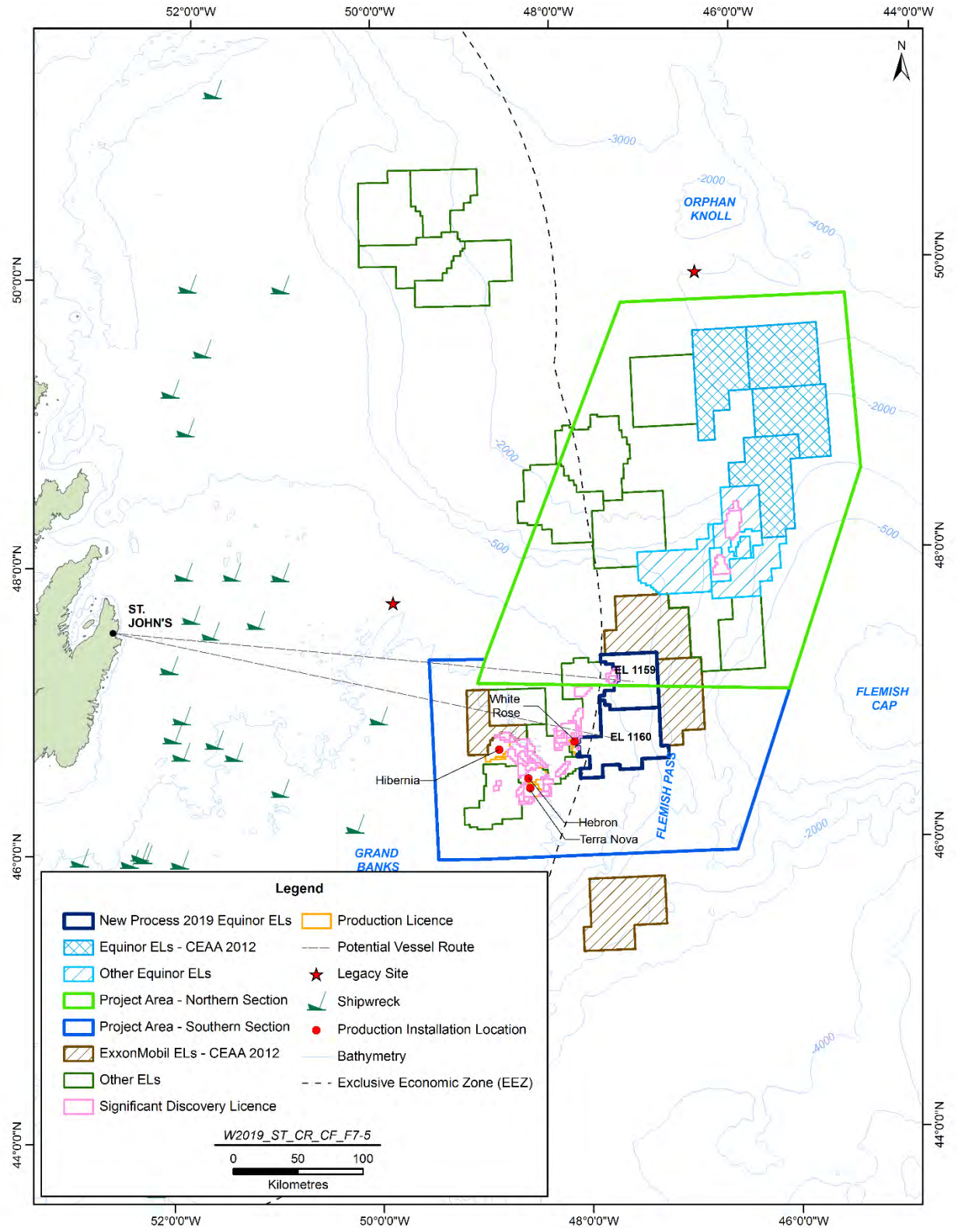


Figure E-7 Known Shipwrecks and Department of National Defence Legacy Sites in the Vicinity of the Project Area

APPENDIX F

Environmental Effects Assessment Summary Tables – All Valued Components

Table F.1 Environmental Effects Assessment Summary: Marine Fish and Fish Habitat – EL 1159

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY	
Summary of Existing Conditions and Ecological and Social Context: EL 1159 • Water depths within EL 1159 range from approximately 90 m to 930 m. • Within EL 1159 itself, regional datasets indicate presence of unidentified species of sponges, sea pens with few observations of gorgonian corals. • Distribution information on key species indicate that dominant species in the water depths are sand lance, deepwater redfish, American plaice, and capelin in bottom areas of the Project Area around EL 1159.	**Summary of Key Mitigation** • Use of existing and common vessel and aircraft travel routes for vessels and helicopters will be used where possible and practicable • Low-level aircraft operations will be avoided where it is not required per Transport Canada protocols • Operational discharges will be treated prior to release in accordance with the OWTG and other applicable regulations and standards • The selection and screening of chemicals to be discharged, including drilling fluids, will be in accordance with the Offshore Chemical Selection Guidelines for Drilling and Production Activities on Frontier Lands • During formation flow testing with flaring, produced hydrocarbons and produced water will be flared. If there is a large amount of produced water encountered, it will be treated in accordance with the relevant regulatory requirements prior to ocean discharge, or shipped to shore for appropriate disposal • Appropriate handling, storage, transportation, and on-shore disposal of solid and hazardous waste • Prior to the start of a drilling campaign, a pre-drill coral survey will be undertaken. A report summarizing the coral mapping, risk assessment and planned mitigation measures (if corals are identified) will be prepared and submitted to the C-NLOPB / DFO for review and acceptance. Potential mitigation include relocation of the well and/or relocation of cuttings discharge through a subsea cuttings transport system • Relocation of well and/or redirection of WBM cuttings discharge in the event that the pre-drill coral survey and risk assessment identifies mitigation required to protect sensitive benthic habitat (i.e., corals and sponges) • SBM-related drill cuttings will be returned to the drilling installation and treated in accordance with the OWTG before being discharged to the marine environment. WBM-related drill cuttings will be discharged without treatment • Use of explosives will not be employed for removal of wellheads At the time of decommissioning a well, the well will be inspected in accordance with applicable regulatory requirements

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY								
Project Component or Activity	**Potential Environmental Effects**	**Residual Environmental Effects Summary Descriptors**						
		Nature	**Magnitude**	**Geographic Extent**	**Duration**	**Frequency**	**Reversibility**	**Certainty**
Presence and Operation of Drilling Installation	• Change in habitat availability and quality • Change in fish mortality, injury, health • Change in fish presence and abundance	A	L	L-PA	S-M	R	R	H
Drilling and Associated Marine Discharges	• Change in habitat availability and quality • Change in fish mortality, injury, health • Change in fish presence and abundance)	A	L	L-PA	M-L	R	R	H
Formation Flow Testing with Flaring	• Change in fish mortality, injury, health • Change in fish presence and abundance	A	L	L	S	S	R	H
Wellhead Decommissioning	• Change in habitat availability and quality • Change in fish presence and abundance	A	N-L	L	S	S	R	H
Geophysical, Geohazard, Wellsite Seabed and VSP Surveys	• Change in fish mortality, injury, health • Change in fish presence and abundance	A	L	PA	S	S	R	H

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY								
Project Component or Activity	**Potential Environmental Effects**	**Residual Environmental Effects Summary Descriptors**						
		Nature	**Magnitude**	**Geographic Extent**	**Duration**	**Frequency**	**Reversibility**	**Certainty**
Geological, Geotechnical and Environmental Surveys	• Change in habitat availability and quality • Change in fish mortality, injury, health • Change in fish presence and abundance	A	N-L	L	S	S	R	H
Supply and Servicing	• Change in fish mortality, injury, health • Change in fish presence and abundance	A	L	L	S	R	R	H

Evaluation of Significance

- Based on the nature and characteristics of exploration drilling on ELs 1159 and 1160 and the existing environment for this VC within the LSA and RSA, and with the planned implementation of mitigation, exploration drilling on ELs 1159 and 1160 is not likely to result in significant adverse effects on Marine Fish and Fish Habitat.
- Although components, activities and emissions may result in some localized, short-term interactions with fish and fish habitat in parts of the LSA, the number of individuals and habitat areas that may be affected, and the temporary and reversible nature of these interactions, means that exploration drilling on ELs 1159 and 1160 will not have overall ecological or population-level effects, and particularly, will not result in detectable decline in overall fish abundance or changes in the spatial and temporal distributions of fish populations within this area.
- For fish species at risk, the potential for interactions between individuals of these species and exploration drilling on ELs 1159 and 1160 is limited, and no identified critical habitat is present in the LSA or RSA. Exploration drilling on ELs 1159 and 1160 will therefore not have implications for the overall abundance, distribution, or health of such species nor its eventual recovery. Exploration drilling on ELs 1159 and 1160 is not predicted to result in significant adverse effects on marine fish species at risk.

NOTE: The environmental effects assessment for accidental events is presented separately in Section 10.

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY

KEY

Nature / Direction:

P	Positive
A	Adverse
N	Neutral (or no effect)

Magnitude:

N	Negligible
L	Low
M	Medium
H	High

Geographic Extent:

L	Localized, in immediate vicinity of activity
PA	Within Project Area
LSA	Within LSA
RSA	Within RSA or beyond

Frequency:

O	Occurs once
S	Occurs sporadically
R	Occurs on a regular basis
C	Occurs continuously

Duration:

S	Short-term (for duration of the activity)
M	Medium-term (beyond duration of the activity – weeks or months)
L	Long- term (beyond duration of the activity – years)
P	Permanent (recovery unlikely)

Reversibility:

R	Reversible (will recover to baseline)
I	Irreversible (permanent)

Certainty in Predictions:

L	Low level of confidence
M	Moderate level of confidence
H	High level of confidence
N/A	Not Applicable

Table F.2 Environmental Effects Assessment Summary: Marine Fish and Fish Habitat – EL 1160

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY	
Summary of Existing Conditions and Ecological and Social Context: EL 1160 • Water depths within EL 1160 range from approximately 40 m to 1,022 m. • Within EL 1160 itself, regional datasets indicate presence of unidentified species of sponges, sea pens with few observations of gorgonian corals. • Distribution information on key species indicate that dominant species in the water depths are sand lance, deepwater redfish, American plaice, and capelin in bottom areas of the Project Area around EL 1160.	**Summary of Key Mitigation** • Use of existing and common vessel and aircraft travel routes for vessels and helicopters will be used where possible and practicable • Low-level aircraft operations will be avoided where it is not required per Transport Canada protocols • Operational discharges will be treated prior to release in accordance with the OWTG and other applicable regulations and standards • The selection and screening of chemicals to be discharged, including drilling fluids, will be in accordance with the Offshore Chemical Selection Guidelines for Drilling and Production Activities on Frontier Lands • During formation flow testing with flaring, produced hydrocarbons and produced water will be flared. If there is a large amount of produced water encountered, it will be treated in accordance with the relevant regulatory requirements prior to ocean discharge, or shipped to shore for appropriate disposal • Appropriate handling, storage, transportation, and on-shore disposal of solid and hazardous waste • Prior to the start of a drilling campaign, a pre-drill coral survey will be undertaken. A report summarizing the coral mapping, risk assessment and planned mitigation measures (if corals are identified) will be prepared and submitted to the C-NLOPB / DFO for review and acceptance. Potential mitigation include relocation of the well and/or relocation of cuttings discharge through a subsea cuttings transport system • Relocation of well and/or redirection of WBM cuttings discharge in the event that the pre-drill coral survey and risk assessment identifies mitigation required to protect sensitive benthic habitat (i.e., corals and sponges) • SBM-related drill cuttings will be returned to the drilling installation and treated in accordance with the OWTG before being discharged to the marine environment. WBM-related drill cuttings will be discharged without treatment • Use of explosives will not be employed for removal of wellheads At the time of decommissioning a well, the well will be inspected in accordance with applicable regulatory requirements

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY								
Project Component or Activity	**Potential Environmental Effects**	**Residual Environmental Effects Summary Descriptors**						
		Nature	**Magnitude**	**Geographic Extent**	**Duration**	**Frequency**	**Reversibility**	**Certainty**
Presence and Operation of Drilling Installation	• Change in habitat availability and quality • Change in fish mortality, injury, health • Change in fish presence and abundance	A	L	L-PA	S-M	R	R	H
Drilling and Associated Marine Discharges	• Change in habitat availability and quality • Change in fish mortality, injury, health • Change in fish presence and abundance)	A	L	L-PA	M-L	R	R	H
Formation Flow Testing with Flaring	• Change in fish mortality, injury, health • Change in fish presence and abundance	A	L	L	S	S	R	H
Wellhead Decommissioning	• Change in habitat availability and quality • Change in fish presence and abundance	A	N-L	L	S	S	R	H

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY								
Project Component or Activity	**Potential Environmental Effects**	**Residual Environmental Effects Summary Descriptors**						
		Nature	**Magnitude**	**Geographic Extent**	**Duration**	**Frequency**	**Reversibility**	**Certainty**
Geophysical, Geohazard, Wellsite Seabed and VSP Surveys	• Change in fish mortality, injury, health • Change in fish presence and abundance	A	L	PA	S	S	R	H
Geological, Geotechnical and Environmental Surveys	• Change in habitat availability and quality • Change in fish mortality, injury, health • Change in fish presence and abundance	A	N-L	L	S	S	R	H
Supply and Servicing	• Change in fish mortality, injury, health • Change in fish presence and abundance	A	L	L	S	R	R	H

Evaluation of Significance

- Based on the nature and characteristics of exploration drilling on ELs 1159 and 1160 and the existing environment for this VC within the LSA and RSA, and with the planned implementation of mitigation, exploration drilling on ELs 1159 and 1160 is not likely to result in significant adverse effects on Marine Fish and Fish Habitat.
- Although components, activities and emissions may result in some localized, short-term interactions with fish and fish habitat in parts of the LSA, the number of individuals and habitat areas that may be affected, and the temporary and reversible nature of these interactions, means that exploration drilling on ELs 1159 and 1160 will not have overall ecological or population-level effects, and particularly, will not result in detectable decline in overall fish abundance or changes in the spatial and temporal distributions of fish populations within this area.
- For fish species at risk, the potential for interactions between individuals of these species and exploration drilling on ELs 1159 and 1160 is limited, and no identified critical habitat is present in the LSA or RSA. Exploration drilling on ELs 1159 and 1160 will therefore not have implications for the overall abundance, distribution, or health of such species nor its eventual recovery. Exploration drilling on ELs 1159 and 1160 is not predicted to result in significant adverse effects on marine fish species at risk.

NOTE: The environmental effects assessment for accidental events is presented separately in Section 10.

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY

KEY

Nature / Direction:

P	Positive
A	Adverse
N	Neutral (or no effect)

Magnitude:

N	Negligible
L	Low
M	Medium
H	High

Geographic Extent:

L	Localized, in immediate vicinity of activity
PA	Within Project Area
LSA	Within LSA
RSA	Within RSA or beyond

Frequency:

O	Occurs once
S	Occurs sporadically
R	Occurs on a regular basis
C	Occurs continuously

Duration:

S	Short-term (for duration of the activity)
M	Medium-term (beyond duration of the activity – weeks or months)
L	Long- term (beyond duration of the activity – years)
P	Permanent (recovery unlikely)

Reversibility:

R	Reversible (will recover to baseline)
I	Irreversible (permanent)

Certainty in Predictions:

L	Low level of confidence
M	Moderate level of confidence
H	High level of confidence
N/A	Not Applicable

Table F.3 Environmental Effects Assessment Summary: Marine and Migratory Birds – EL 1159

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY	
Summary of Existing Conditions and Ecological and Social Context: EL 1159 • A variety of avifauna species occur within the marine and coastal environments off Eastern Newfoundland at various times of the year, including seabirds and other avifauna that inhabit the region at particular or extended periods for breeding, feeding, migration and other activities according to their individual life histories and habitat requirements. • Birds are highly mobile, and so information on their presence and distribution (spatially and temporally) is inherently regional in nature. • A number of important habitats for birds have also been identified at locations along the coastline of Newfoundland and Labrador, well outside of the area within which exploration drilling and associated activities are planned to occur.	**Summary of Key Mitigation** • Low-level aircraft operations will be avoided where it is not required per Transport Canada protocols • Operational discharges will be treated prior to release in accordance with the OWTG (2016) and other applicable regulations and standards. • The selection and screening of chemicals to be discharged, including drilling fluids, will be in accordance with the Offshore Chemical Selection Guidelines for Drilling and Production Activities on Frontier Lands • During formation flow testing with flaring, produced hydrocarbons and produced water will be flared. If there is a large amount of produced water encountered, it will be treated in accordance with the relevant regulatory requirements prior to ocean discharge, or shipped to shore for appropriate disposal • The Operator will avoid, where possible, established bird colonies. Helicopters will avoid known coastal seabird colonies per requirements of the NL *Seabird Ecological Reserve Regulations, 2015* • During drilling operations, routine observations of seabirds, following the CWS protocols will be undertaken from the drilling installation • Routine searches for stranded birds will be conducted on the platform and supply vessels, and appropriate programs and protocols for the collection and release of marine and migratory birds will be implemented for birds that become stranded (i.e., ECCC-CWS's "Procedures for handling and documenting stranded birds encountered on infrastructure offshore Atlantic Canada" [ECCC 2017] and Williams and Chardine "The Leach's storm-petrel - General Information and Handling Instructions" [no date; adapted in Appendix I of EC 2015]) • The Operator will obtain a Seabird Handling permit from ECCC-CWS • Maceration of sewage and kitchen waste, in accordance with the OWTG to 6 mm particle size • Operators are required to notify the C-NLOPB for plans to flare associated with formation flow testing for exploration drilling. The C-NLOPB then consults with ECCC-CWS to determine a safe timeline to proceed to reduce effects on migrating birds

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY								
Project Component or Activity	**Potential Environmental Effects**	**Residual Environmental Effects Summary Descriptors**						
		Nature / Direction	**Magnitude**	**Geographic Extent**	**Duration**	**Frequency**	**Reversibility**	**Certainty**
Presence and Operation of Drilling Installation	• Change in mortality / injury levels and bird health • Change in avifauna presence and abundance • Change in habitat availability and quality • Change in food availability or quality	A	L	L-PA	S-M	R	R	M
Drilling and Associated Marine Discharges	• Change in mortality / injury levels and bird health • Change in food availability or quality	A	L	L	S	S	R	M
Formation Flow Testing with Flaring	• Change in mortality / injury levels and bird health	A	L	L-PA	S	S	R	M
Wellhead Decommissioning	• None expected	N	-	-	-	-	-	H
Geophysical, Geohazard, Wellsite Seabed and VSP Surveys	• Change in mortality / injury levels and bird health • Change in avifauna presence and abundance • Change in habitat availability and quality	A	N	L - PA	S	S	R	H

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY								
Project Component or Activity	**Potential Environmental Effects**	**Residual Environmental Effects Summary Descriptors**						
		Nature / Direction	**Magnitude**	**Geographic Extent**	**Duration**	**Frequency**	**Reversibility**	**Certainty**
Geological, Geotechnical and Environmental Surveys	• None expected	N	-	-	-	-	-	H
Supply and Servicing	• Change in mortality / injury levels and bird health • Change in avifauna presence and abundance	A	L	L	S	R	R	H

Evaluation of Significance

- Based on the nature and characteristics of exploration drilling on ELs 1159 and 1160 and the existing environment for this VC within the LSA and RSA, and with the planned implementation of mitigation, exploration drilling on ELs 1159 and 1160 is not likely to result in significant adverse effects on Marine and Migratory Birds.
- Although components, activities and emissions may result in some localized, short-term interactions with marine-associated avifauna in parts of the LSA, including bird attraction to offshore lighting and other components, the number of individuals that may be affected, and the temporary and reversible nature of these interactions, means that exploration drilling on ELs 1159 and 1160 will not have any overall ecological or population-level effects, and particularly, will not result in a detectable decline in overall bird abundance or changes in the spatial and temporal distributions of bird populations within this area
- With regard to avifauna species at risk, ivory gull and red-necked phalarope are the only such species that are likely to be found in the Project Area. During fall migration, there is some potential for Peregrine Falcons and nocturnally migrating landbird species at risk to be present and to be attracted to exploration drilling activities. However, the potential for interactions between individuals of these species and exploration drilling is limited, and no identified critical habitat is present in the LSA or RSA. Exploration drilling on ELs 1159 and 1160 will therefore not have implications for the overall abundance, distribution, or health of such species at risk nor its eventual recovery. Exploration drilling on ELs 1159 and 1160 is therefore not likely to result in significant adverse effects on avian species at risk.

NOTE: The environmental effects assessment for accidental events is presented separately in Section 10.

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY

KEY

Nature / Direction:

P	Positive
A	Adverse
N	Neutral (or no effect)

Magnitude:

N	Negligible
L	Low
M	Medium
H	High

Geographic Extent:

L	Localized, in immediate vicinity of activity
PA	Within Project Area
LSA	Within LSA
RSA	Within RSA or beyond

Frequency:

O	Occurs once
S	Occurs sporadically
R	Occurs on a regular basis
C	Occurs continuously

Duration:

S	Short-term (for duration of the activity)
M	Medium-term (beyond duration of the activity – weeks or months)
L	Long- term (beyond duration of the activity – years)
P	Permanent (recovery unlikely)

Reversibility:

R	Reversible (will recover to baseline)
I	Irreversible (permanent)

Certainty in Predictions:

L	Low level of confidence
M	Moderate level of confidence
H	High level of confidence
N/A	Not Applicable

Table F.4 Environmental Effects Assessment Summary: Marine and Migratory Birds – EL 1160

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY	
Summary of Existing Conditions and Ecological and Social Context: EL 1160 • A variety of avifauna species occur within the marine and coastal environments off Eastern Newfoundland at various times of the year, including seabirds and other avifauna that inhabit the region at particular or extended periods for breeding, feeding, migration and other activities according to their individual life histories and habitat requirements. • Birds are highly mobile, and so information on their presence and distribution (spatially and temporally) is inherently regional in nature. • A number of important habitats for birds have also been identified at locations along the coastline of Newfoundland and Labrador, well outside of the area within which exploration drilling and associated activities are planned to occur.	**Summary of Key Mitigation** • Low-level aircraft operations will be avoided where it is not required per Transport Canada protocols • Operational discharges will be treated prior to release in accordance with the OWTG (2016) and other applicable regulations and standards. • The selection and screening of chemicals to be discharged, including drilling fluids, will be in accordance with the Offshore Chemical Selection Guidelines for Drilling and Production Activities on Frontier Lands • During formation flow testing with flaring, produced hydrocarbons and produced water will be flared. If there is a large amount of produced water encountered, it will be treated in accordance with the relevant regulatory requirements prior to ocean discharge, or shipped to shore for appropriate disposal • The Operator will avoid, where possible, established bird colonies. Helicopters will avoid known coastal seabird colonies per requirements of the NL *Seabird Ecological Reserve Regulations, 2015* • During drilling operations, routine observations of seabirds, following the CWS protocols will be undertaken from the drilling installation • Routine searches for stranded birds will be conducted on the platform and supply vessels, and appropriate programs and protocols for the collection and release of marine and migratory birds will be implemented for birds that become stranded (i.e., ECCC-CWS's "Procedures for handling and documenting stranded birds encountered on infrastructure offshore Atlantic Canada" [ECCC 2017] and Williams and Chardine "The Leach's storm-petrel - General Information and Handling Instructions" [no date; adapted in Appendix I of EC 2015]) • The Operator will obtain a Seabird Handling permit from ECCC-CWS • Maceration of sewage and kitchen waste, in accordance with the OWTG to 6 mm particle size • Operators are required to notify the C-NLOPB for plans to flare associated with formation flow testing for exploration drilling. The C-NLOPB then consults with ECCC-CWS to determine a safe timeline to proceed to reduce effects on migrating birds

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY								
Project Component or Activity	**Potential Environmental Effects**	**Residual Environmental Effects Summary Descriptors**						
		Nature / Direction	**Magnitude**	**Geographic Extent**	**Duration**	**Frequency**	**Reversibility**	**Certainty**
Presence and Operation of Drilling Installation	• Change in mortality / injury levels and bird health • Change in avifauna presence and abundance • Change in habitat availability and quality • Change in food availability or quality	A	L	L-PA	S-M	R	R	M
Drilling and Associated Marine Discharges	• Change in mortality / injury levels and bird health • Change in food availability or quality	A	L	L	S	S	R	M
Formation Flow Testing with Flaring	• Change in mortality / injury levels and bird health	A	L	L-PA	S	S	R	M
Wellhead Decommissioning	• None expected	N	-	-	-	-	-	H
Geophysical, Geohazard, Wellsite Seabed and VSP Surveys	• Change in mortality / injury levels and bird health • Change in avifauna presence and abundance • Change in habitat availability and quality	A	N	L - PA	S	S	R	H

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY								
Project Component or Activity	**Potential Environmental Effects**	**Residual Environmental Effects Summary Descriptors**						
		Nature / Direction	**Magnitude**	**Geographic Extent**	**Duration**	**Frequency**	**Reversibility**	**Certainty**
Geological, Geotechnical and Environmental Surveys	• None expected	N	-	-	-	-	-	H
Supply and Servicing	• Change in mortality / injury levels and bird health • Change in avifauna presence and abundance	A	L	L	S	R	R	H

Evaluation of Significance

- Based on the nature and characteristics of exploration drilling on ELs 1159 and 1160 and the existing environment for this VC within the LSA and RSA, and with the planned implementation of mitigation, exploration drilling is not likely to result in significant adverse effects on Marine and Migratory Birds.
- Although components, activities and emissions may result in some localized, short-term interactions with marine-associated avifauna in parts of the LSA, including bird attraction to offshore lighting and other components, the number of individuals that may be affected, and the temporary and reversible nature of these interactions, means that exploration drilling will not have any overall ecological or population-level effects, and particularly, will not result in a detectable decline in overall bird abundance or changes in the spatial and temporal distributions of bird populations within this area
- With regard to avifauna species at risk, ivory gull and red-necked phalarope are the only such species that are likely to be found in the Project Area. During fall migration, there is some potential for Peregrine Falcons and nocturnally migrating landbird species at risk to be present and to be attracted to exploration drilling activities. However, the potential for interactions between individuals of these species and exploration drilling is limited, and no identified critical habitat is present in the LSA or RSA. Exploration drilling on ELs 1159 and 1160 will therefore not have implications for the overall abundance, distribution, or health of such species at risk nor its eventual recovery. Exploration drilling on ELs 1159 and 1160 is therefore not likely to result in significant adverse effects on avian species at risk.

NOTE: The environmental effects assessment for accidental events is presented separately in Section 10.

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY					
KEY					
Nature / Direction:		Frequency:		Certainty in Predictions:	
P	Positive	O	Occurs once	L	Low level of confidence
A	Adverse	S	Occurs sporadically	M	Moderate level of confidence
N	Neutral (or no effect)	R	Occurs on a regular basis	H	High level of confidence
		C	Occurs continuously		
Magnitude:				N/A	Not Applicable
N	Negligible	Duration:			
L	Low	S	Short-term (for duration of the activity)		
M	Medium	M	Medium-term (beyond duration of the activity – weeks or months)		
H	High	L	Long- term (beyond duration of the activity – years)		
		P	Permanent (recovery unlikely)		
Geographic Extent:					
L	Localized, in immediate vicinity of activity	Reversibility:			
PA	Within Project Area	R	Reversible (will recover to baseline)		
LSA	Within LSA	I	Irreversible (permanent)		
RSA	Within RSA or beyond				

Table F.5 Environmental Effects Assessment Summary: Marine Mammals and Sea Turtles – EL 1159

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY	
Summary of Existing Conditions and Ecological and Social Context: EL 1159 • Species that may interact with exploration drilling include: 18 species of cetaceans, of which six species are mysticetes and 12 species are odontocetes; four species of phocids; and four species of sea turtles • These species are mobile and therefore their presence and distribution are regional and transient in nature.	**Summary of Key Mitigation** • Use of existing and common travel routes for vessels and helicopters will be used where possible and practicable • Low-level aircraft operations will be avoided where it is not required per Transport Canada protocols • Operational discharges will be treated prior to release in accordance with the OWTG (2016) and other applicable regulations and standards • The selection and screening of chemicals to be discharged, including drilling fluids, will be in accordance with the Offshore Chemical Selection Guidelines for Drilling and Production Activities on Frontier Lands • Project associated vessel traffic will be approximately eight to ten trips per month to service one drilling installation. Use of existing and common travel routes will be used where possible and practical. Vessels will maintain a steady course and safe vessel speed whenever possible • Use of explosives will not be employed for removal of wellheads • As required in the Geophysical, Geological, Environmental and Geotechnical Program Guidelines, mitigation measures applied during geophysical surveys will be consistent with those outlined in the Statement of Canadian Practice with respect to the Mitigation of Geophysical Sound in the Marine Environment (SOCP) (DFO 2007b). The following is a partial list of those mitigation measures: – Trained MMOs will be used to monitor and report on marine mammal and sea turtle sightings during VSP and geophysical surveys where geophysical source arrays are used – A ramp-up of the source array (i.e., gradually increasing geophysical source elements over a period of at least 20 minutes until the operating level is achieved) starting from a single source element – MMOs will implement a pre-ramp up watch of 30 minutes prior to the start of the air source. Ramp-up will be delayed if marine mammal or sea turtle is sighted within the safety zone – Shut down of the geophysical source array if a marine mammal or sea turtle listed as endangered or threatened on SARA Schedule 1

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY								
Project Component or Activity	**Potential Environmental Effects**	**Residual Environmental Effects Summary Descriptors**						
		Nature / Direction	**Magnitude**	**Geographic Extent**	**Duration**	**Frequency**	**Reversibility**	**Certainty**
Presence and Operation of Drilling Installation	• Change in mortality or injury (underwater noise) • Change in habitat quality or use (behavioural effects) • Change in mortality or injury (vessel strikes) • Change in food availability or quality	A	L-M	PA-LSA	S-M	R	R	M
Drilling and Associated Marine Discharges	• Change in habitat quality or use (behavioural effects) • Change in mortality or injury (vessel strikes) • Change in food availability or quality • Change in health (contaminants)	A	L	L-PA	S	R	R	H

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY								
Project Component or Activity	**Potential Environmental Effects**	**Residual Environmental Effects Summary Descriptors**						
		Nature / Direction	**Magnitude**	**Geographic Extent**	**Duration**	**Frequency**	**Reversibility**	**Certainty**
Formation Flow Testing with Flaring	• Change in habitat quality or use (behavioural effects) • Change in mortality or injury (vessel strikes) • Change in food availability or quality • Change in health (contaminants)	A	N-L	L-PA	S	S	R	H
Wellhead Decommissioning	• Change in habitat quality or use (behavioural effects) • Change in mortality or injury (vessel strikes) • Change in food availability or quality	A	N-L	L-PA	S	S	R	H

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY								
Project Component or Activity	**Potential Environmental Effects**	**Residual Environmental Effects Summary Descriptors**						
		Nature / Direction	**Magnitude**	**Geographic Extent**	**Duration**	**Frequency**	**Reversibility**	**Certainty**
Geophysical, Geohazard, Wellsite Seabed and VSP Surveys	• Change in mortality or injury (underwater noise) • Change in habitat quality or use (behavioural effects) • Change in mortality or injury (vessel strikes) • Change in food availability or quality	A	N-L	L-LSA	S-M	S	R	H
Geological, Geotechnical and Environmental Surveys	• Change in habitat quality or use (behavioural effects) • Change in mortality or injury (vessel strikes) • Change in food availability or quality	A	N	L-PA	S	S	R	H

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY								
Project Component or Activity	**Potential Environmental Effects**	**Residual Environmental Effects Summary Descriptors**						
		Nature / Direction	**Magnitude**	**Geographic Extent**	**Duration**	**Frequency**	**Reversibility**	**Certainty**
Supply and Servicing	• Change in habitat quality or use (behavioural effects) • Change in mortality or injury (vessel strikes) • Change in food availability or quality	A	L	L-LSA	S	R	R	H

Evaluation of Significance

- Based on the nature and characteristics of exploration drilling and the existing environment for this VC within the LSA and RSA, and with the planned implementation of mitigation, exploration drilling on ELs 1159 and 1160 is not likely to result in significant adverse effects on Marine Mammals and Sea Turtles.
- Although components, activities, and emissions may result in some localized, short-term interactions with individuals the number of individuals and areas that may be affected, and the temporary and reversible nature of these interactions, means that exploration drilling will not have any overall ecological or population-level effects, and will not result in any detectable decline in overall abundance or changes in the spatial and temporal distributions of populations within the RSA.
- For SAR, the potential for interactions between individuals of these species and exploration drilling is limited, and no identified critical habitat is present in the LSA or RSA. Exploration drilling on ELs 1159 and 1160 will therefore not have implications for the overall abundance, distribution, or health of any such species nor its eventual recovery within the RSA. Exploration drilling on ELs 1159 and 1160 is not predicted to result in significant adverse effects on marine mammal or sea turtle SAR.

NOTE: The environmental effects assessment for accidental events is presented separately in Section 10.

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY

KEY

Nature / Direction:

P	Positive
A	Adverse
N	Neutral (or no effect)

Magnitude:

N	Negligible
L	Low
M	Medium
H	High

Geographic Extent:

L	Localized, in immediate vicinity of activity
PA	Within Project Area
LSA	Within LSA
RSA	Within RSA or beyond

Frequency:

O	Occurs once
S	Occurs sporadically
R	Occurs on a regular basis
C	Occurs continuously

Duration:

S	Short-term (for duration of the activity)
M	Medium-term (beyond duration of the activity – weeks or months)
L	Long-term (beyond duration of the activity – years)
P	Permanent (recovery unlikely)

Reversibility:

R	Reversible (will recover to baseline)
I	Irreversible (permanent)

Certainty in Predictions:

L	Low level of confidence
M	Moderate level of confidence
H	High level of confidence
N/A	Not Applicable

Table F.6 Environmental Effects Assessment Summary: Marine Mammals and Sea Turtles – EL 1160

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY	
Summary of Existing Conditions and Ecological and Social Context: EL 1160 • Species that may interact with exploration drilling include: 18 species of cetaceans, of which six species are mysticetes and 12 species are odontocetes; four species of phocids; and four species of sea turtles • These species are mobile and therefore their presence and distribution are regional and transient in nature.	**Summary of Key Mitigation** • Use of existing and common travel routes for vessels and helicopters will be used where possible and practicable • Low-level aircraft operations will be avoided where it is not required per Transport Canada protocols • Operational discharges will be treated prior to release in accordance with the OWTG (2016) and other applicable regulations and standards • The selection and screening of chemicals to be discharged, including drilling fluids, will be in accordance with the Offshore Chemical Selection Guidelines for Drilling and Production Activities on Frontier Lands • Project associated vessel traffic will be approximately eight to ten trips per month to service one drilling installation. Use of existing and common travel routes will be used where possible and practical. Vessels will maintain a steady course and safe vessel speed whenever possible • Use of explosives will not be employed for removal of wellheads • As required in the Geophysical, Geological, Environmental and Geotechnical Program Guidelines, mitigation measures applied during geophysical surveys will be consistent with those outlined in the Statement of Canadian Practice with respect to the Mitigation of Geophysical Sound in the Marine Environment (SOCP) (DFO 2007b). The following is a partial list of those mitigation measures: – Trained MMOs will be used to monitor and report on marine mammal and sea turtle sightings during VSP and geophysical surveys where geophysical source arrays are used – A ramp-up of the source array (i.e., gradually increasing geophysical source elements over a period of at least 20 minutes until the operating level is achieved) starting from a single source element – MMOs will implement a pre-ramp up watch of 30 minutes prior to the start of the air source. Ramp-up will be delayed if marine mammal or sea turtle is sighted within the safety zone – Shut down of the geophysical source array if a marine mammal or sea turtle listed as endangered or threatened on SARA Schedule 1

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY								
Project Component or Activity	**Potential Environmental Effects**	**Residual Environmental Effects Summary Descriptors**						
		Nature / Direction	**Magnitude**	**Geographic Extent**	**Duration**	**Frequency**	**Reversibility**	**Certainty**
Presence and Operation of Drilling Installation	• Change in mortality or injury (underwater noise) • Change in habitat quality or use (behavioural effects) • Change in mortality or injury (vessel strikes) • Change in food availability or quality	A	L-M	PA-LSA	S-M	R	R	M
Drilling and Associated Marine Discharges	• Change in habitat quality or use (behavioural effects) • Change in mortality or injury (vessel strikes) • Change in food availability or quality • Change in health (contaminants)	A	L	L-PA	S	R	R	H
Formation Flow Testing with Flaring	• Change in habitat quality or use (behavioural effects) • Change in mortality or injury (vessel strikes) • Change in food availability or quality • Change in health (contaminants)	A	N-L	L-PA	S	S	R	H

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY								
Project Component or Activity	**Potential Environmental Effects**	**Residual Environmental Effects Summary Descriptors**						
		Nature / Direction	**Magnitude**	**Geographic Extent**	**Duration**	**Frequency**	**Reversibility**	**Certainty**
Wellhead Decommissioning	• Change in habitat quality or use (behavioural effects) • Change in mortality or injury (vessel strikes) • Change in food availability or quality	A	N-L	L-PA	S	S	R	H
Geophysical, Geohazard, Wellsite Seabed and VSP Surveys	• Change in mortality or injury (underwater noise) • Change in habitat quality or use (behavioural effects) • Change in mortality or injury (vessel strikes) • Change in food availability or quality	A	N-L	L-LSA	S-M	S	R	H
Geological, Geotechnical and Environmental Surveys	• Change in habitat quality or use (behavioural effects) • Change in mortality or injury (vessel strikes) • Change in food availability or quality	A	N	L-PA	S	S	R	H

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY								
Project Component or Activity	**Potential Environmental Effects**	**Residual Environmental Effects Summary Descriptors**						
		Nature / Direction	**Magnitude**	**Geographic Extent**	**Duration**	**Frequency**	**Reversibility**	**Certainty**
Supply and Servicing	• Change in habitat quality or use (behavioural effects) • Change in mortality or injury (vessel strikes) • Change in food availability or quality	A	L	L-LSA	S	R	R	H

Evaluation of Significance

- Based on the nature and characteristics of exploration drilling and the existing environment for this VC within the LSA and RSA, and with the planned implementation of mitigation, exploration drilling on ELs 1159 and 1160 is not likely to result in significant adverse effects on Marine Mammals and Sea Turtles.
- Although components, activities, and emissions may result in some localized, short-term interactions with individuals the number of individuals and areas that may be affected, and the temporary and reversible nature of these interactions, means that exploration drilling will not have any overall ecological or population-level effects, and will not result in any detectable decline in overall abundance or changes in the spatial and temporal distributions of populations within the RSA.
- For SAR, the potential for interactions between individuals of these species and exploration drilling is limited, and no identified critical habitat is present in the LSA or RSA. Exploration drilling on ELs 1159 and 1160 will therefore not have implications for the overall abundance, distribution, or health of any such species nor its eventual recovery within the RSA. Exploration drilling on ELs 1159 and 1160 is not predicted to result in significant adverse effects on marine mammal or sea turtle SAR.

NOTE: The environmental effects assessment for accidental events is presented separately in Section 10.

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY

KEY

Nature / Direction:

P	Positive
A	Adverse
N	Neutral (or no effect)

Magnitude:

N	Negligible
L	Low
M	Medium
H	High

Geographic Extent:

L	Localized, in immediate vicinity of activity
PA	Within Project Area
LSA	Within LSA
RSA	Within RSA or beyond

Frequency:

O	Occurs once
S	Occurs sporadically
R	Occurs on a regular basis
C	Occurs continuously

Duration:

S	Short-term (for duration of the activity)
M	Medium-term (beyond duration of the activity – weeks or months)
L	Long-term (beyond duration of the activity – years)
P	Permanent (recovery unlikely)

Reversibility:

R	Reversible (will recover to baseline)
I	Irreversible (permanent)

Certainty in Predictions:

L	Low level of confidence
M	Moderate level of confidence
H	High level of confidence
N/A	Not Applicable

Table F.7 Environmental Effects Assessment Summary: Special Areas – EL 1159

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY	
Summary of Existing Conditions and Ecological and Social Context – EL 1159 • A number of marine and coastal areas in Newfoundland and Labrador have been designated as protected under provincial, federal and/or other legislation or agreements due to their biological/ecological or socio-cultural characteristics and importance, and other areas have been formally identified as being special or sensitive through relevant processes and initiatives. • Special areas designation or identification is often directly related to the existing physical and biological environment, including marine fish and fish habitat, marine and migratory birds and marine mammals and sea turtles (including species at risk) or socio-cultural values such as economy, culture, history or recreation, which are also covered in other sections. • EL 1160 overlaps with Slopes of the Flemish Cap and Grand Bank EBSA and Southern Flemish Pass to Eastern Canyons VME.	**Summary of Key Mitigation** • Mitigation measures that are designed to avoid or reduce the effects of planned Project components and activities on marine biota, habitats and other marine users will also reduce effects on to special areas • Pre-drilling coral survey and risk assessment. Industry best practice approach in areas with potentially high concentrations of cold-water corals

Project Component or Activity	Potential Environmental Effects	Residual Environmental Effects Summary Descriptors						
		Nature / Direction	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Certainty
Presence and Operation of Drilling Installation	• Possible direct interactions with special areas • Possible effects through associated changes to the biophysical environment • Possible interactions (interference or disturbances) with other human activities	A	N-L	L-PA	S-M	R	R	H
Drilling and Associated Marine Discharges		A	N-L	L-PA	S-M	R	R	H
Formation Flow Testing with Flaring		N	-	-	-	-	-	H
Wellhead Decommissioning		A	N-L	L	S	S	R	H

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY								
Project Component or Activity	**Potential Environmental Effects**	**Residual Environmental Effects Summary Descriptors**						
		Nature / Direction	**Magnitude**	**Geographic Extent**	**Duration**	**Frequency**	**Reversibility**	**Certainty**
Geophysical, Geohazard, Wellsite Seabed and VSP Surveys		A	N-L	L-PA	S	S	R	H
Geological, Geotechnical and Environmental Surveys		N	-	-	-	-	-	H
Supply and Servicing		N	-	-	-	-	-	H

Evaluation of Significance

- Oil and gas exploration activities are not prohibited within special areas that overlap with the Project Area.
- For the various special areas that overlap with the Project Area (offshore and associated vessel traffic routes), the overall and defining physical, biological, and socioeconomic environments within these areas will not be adversely affected by exploration drilling on ELs 1159 and 1160.

NOTE: The environmental effects assessment for accidental events is presented separately in Section 10.

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY

KEY

Nature / Direction:

P	Positive
A	Adverse
N	Neutral (or no effect)

Magnitude:

N	Negligible
L	Low
M	Medium
H	High

Geographic Extent:

L	Localized, in immediate vicinity of activity
PA	Within Project Area
LSA	Within LSA
RSA	Within RSA or beyond

Frequency:

O	Occurs once
S	Occurs sporadically
R	Occurs on a regular basis
C	Occurs continuously

Duration:

S	Short term (for duration of the activity)
M	Medium term (beyond duration of the activity – weeks or months)
L	Long term (beyond duration of the activity – years)
P	Permanent (recovery unlikely)

Reversibility:

R	Reversible (will recover to baseline)
I	Irreversible (permanent)

Certainty in Predictions:

L	Low level of confidence
M	Moderate level of confidence
H	High level of confidence
N/A	Not Applicable

Table F.8 Environmental Effects Assessment Summary: Special Areas – EL 1160

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY

Summary of Existing Conditions and Ecological and Social Context – EL 1160

- A number of marine and coastal areas in Newfoundland and Labrador have been designated as protected under provincial, federal and/or other legislation or agreements due to their biological/ecological or socio-cultural characteristics and importance, and other areas have been formally identified as being special or sensitive through relevant processes and initiatives.
- Special areas designation or identification is often directly related to the existing physical and biological environment, including marine fish and fish habitat, marine and migratory birds and marine mammals and sea turtles (including species at risk) or socio-cultural values such as economy, culture, history or recreation, which are also covered in other sections.
- EL 1160 overlaps with Slopes of the Flemish Cap and Grand Bank EBSA and Southern Flemish Pass to Eastern Canyons VME.

Summary of Key Mitigation

- Mitigation measures that are designed to avoid or reduce the effects of planned Project components and activities on marine biota, habitats and other marine users will also reduce effects on to special areas
- Pre-drilling coral survey and risk assessment. Industry best practice approach in areas with potentially high concentrations of cold-water corals

Project Component or Activity	Potential Environmental Effects	Residual Environmental Effects Summary Descriptors						
		Nature / Direction	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Certainty
Presence and Operation of Drilling Installation	• Possible direct interactions with special areas • Possible effects through associated changes to the biophysical environment • Possible interactions (interference or disturbances) with other human activities	A	N-L	L-PA	S-M	R	R	H
Drilling and Associated Marine Discharges		A	N-L	L-PA	S-M	R	R	H
Formation Flow Testing with Flaring		N	-	-	-	-	-	H
Wellhead Decommissioning		A	N-L	L	S	S	R	H
Geophysical, Geohazard, Wellsite Seabed and VSP Surveys		A	N-L	L-PA	S	S	R	H

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY								
Geological, Geotechnical and Environmental Surveys		N	-	-	-	-	-	H
Supply and Servicing		N	-	-	-	-	-	H

Evaluation of Significance

- Oil and gas exploration activities are not prohibited within special areas that overlap with the Project Area.
- For the various special areas that overlap with the Project Area (offshore and associated vessel traffic routes), the overall and defining physical, biological, and socioeconomic environments within these areas will not be adversely affected by exploration drilling on ELs 1159 and 1160.

NOTE: The environmental effects assessment for accidental events is presented separately in Section 10.

KEY

Nature / Direction:

P	Positive
A	Adverse
N	Neutral (or no effect)

Magnitude:

N	Negligible
L	Low
M	Medium
H	High

Geographic Extent:

L	Localized, in immediate vicinity of activity
PA	Within Project Area
LSA	Within LSA
RSA	Within RSA or beyond

Frequency:

O	Occurs once
S	Occurs sporadically
R	Occurs on a regular basis
C	Occurs continuously

Duration:

S	Short term (for duration of the activity)
M	Medium term (beyond duration of the activity – weeks or months)
L	Long term (beyond duration of the activity – years)
P	Permanent (recovery unlikely)

Reversibility:

R	Reversible (will recover to baseline)
I	Irreversible (permanent)

Certainty in Predictions:

L	Low level of confidence
M	Moderate level of confidence
H	High level of confidence
N/A	Not Applicable

Table F.9 Environmental Effects Assessment Summary: Indigenous Communities and Activities – EL 1159

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY

Summary of Existing Conditions and Ecological and Social Context: EL 1159

- There are no communities or other aspects of the physical / cultural heritage and other socioeconomic components and activities of any Indigenous groups located within or near the Project Area / LSA, including EL 1159.
- Other past and on-going projects and activities in Eastern Canada have, to varying degrees, interacted with and affected Indigenous communities and activities, depending on their location, nature, and scale in relation to the communities, activities and other components and interests of individual groups.
- The description of the socioeconomic characteristics of these Indigenous communities provided in the EIS inherently reflects any such past and on-going activities and effects

Summary of Key Mitigation

- Mitigation measures that are outlined elsewhere in this EIS will serve to avoid or reduce environmental emissions, disturbances and resulting environmental changes by reducing the nature, degree, extent and duration of these changes, and therefore reducing the potential for these to interact with and adversely affect the various components and activities that comprise this VC
- A copy of the EA update will be sent to Indigenous groups and stakeholders identified in chapter 3 of the Flemish Pass EIS (Statoil 2017). The Operator will follow up with Indigenous groups and stakeholders on questions arising from the EA update
- The Operator will continue to communicate with relevant Indigenous communities and representative organizations, through established and/or informal engagement processes, as required and requested. The specific nature, frequency, subject matter and format of such future engagement will be determined in discussion with the Indigenous organization and outlined in an Indigenous Communities Fisheries Communication Plan

Project Component or Activity	Potential Environmental Effects	Residual Environmental Effects Summary Descriptors						
		Nature / Direction	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Certainty
Presence and Operation of Drilling Installation	• Possible direct interactions (interference or disturbances) with Indigenous communities and their activities Possible effects through associated changes to the biophysical environment (health, resource availability or quality)	N	-	-	-	-	-	H

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY								
Project Component or Activity	**Potential Environmental Effects**	**Residual Environmental Effects Summary Descriptors**						
		Nature / Direction	**Magnitude**	**Geographic Extent**	**Duration**	**Frequency**	**Reversibility**	**Certainty**
Drilling and Associated Marine Discharges	• As above	N	-	-	-	-	-	H
Formation Flow Testing with Flaring	• As above	N	-	-	-	-	-	H
Wellhead Decommissioning	• As above	N	-	-	-	-	-	H
Geophysical, Geohazard, Wellsite Seabed and VSP Surveys	• As above	N	-	-	-	-	-	H
Geological, Geotechnical and Environmental Surveys	• As above	N	-	-	-	-	-	H
Supply and Servicing	• As above	N	-	-	-	-	-	H

Evaluation of Significance

- As there are no Indigenous communities or other aspects of the physical / cultural heritage and other socioeconomic components and activities of these groups located within or near the Project Area / LSA, and because the environmental changes and effects of exploration drilling will not otherwise extend to and affect lands and resources that are currently used by these groups for traditional purposes, exploration drilling on ELs 1159 and 1160 will not have adverse effects on this VC.
- The planned components and activities associated with ELs 1159 and 1160 will therefore not likely have significant adverse effects upon Indigenous communities and their activities.

NOTE: The environmental effects assessment for accidental events is presented separately in Section 10.

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY			
KEY			
Nature / Direction:		Certainty in Predictions:	
P	Positive	L	Low level of confidence
A	Adverse	M	Moderate level of confidence
N	Neutral (or no effect)	H	High level of confidence

Table F.10 Environmental Effects Assessment Summary: Indigenous Communities and Activities – EL 1160

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY

Summary of Existing Conditions and Ecological and Social Context: EL 1160

- There are no communities or other aspects of the physical / cultural heritage and other socioeconomic components and activities of any Indigenous groups located within or near the Project Area / LSA, including EL 1160
- Other past and on-going projects and activities in Eastern Canada have, to varying degrees, interacted with and affected Indigenous communities and activities, depending on their location, nature, and scale in relation to the communities, activities and other components and interests of individual groups.
- The description of the socioeconomic characteristics of these Indigenous communities provided in the EIS inherently reflects any such past and on-going activities and effects

Summary of Key Mitigation

- Mitigation measures that are outlined elsewhere in this EIS will serve to avoid or reduce environmental emissions, disturbances and resulting environmental changes by reducing the nature, degree, extent and duration of these changes, and therefore reducing the potential for these to interact with and adversely affect the various components and activities that comprise this VC
- A copy of the EA update will be sent to Indigenous groups and stakeholders identified in chapter 3 of the Flemish Pass EIS (Statoil 2017). The Operator will follow up with Indigenous groups and stakeholders on questions arising from the EA update
- The Operator will continue to communicate with relevant Indigenous communities and representative organizations, through established and/or informal engagement processes, as required and requested. The specific nature, frequency, subject matter and format of such future engagement will be determined in discussion with the Indigenous organization and outlined in an Indigenous Communities Fisheries Communication Plan

Project Component or Activity	Potential Environmental Effects	Residual Environmental Effects Summary Descriptors						
		Nature / Direction	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Certainty
Presence and Operation of Drilling Installation	• Possible direct interactions (interference or disturbances) with Indigenous communities and their activities Possible effects through associated changes to the biophysical environment (health, resource availability or quality)	N	-	-	-	-	-	H

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY								
Project Component or Activity	**Potential Environmental Effects**	**Residual Environmental Effects Summary Descriptors**						
		Nature / Direction	**Magnitude**	**Geographic Extent**	**Duration**	**Frequency**	**Reversibility**	**Certainty**
Drilling and Associated Marine Discharges	• As above	N	-	-	-	-	-	H
Formation Flow Testing with Flaring	• As above	N	-	-	-	-	-	H
Wellhead Decommissioning	• As above	N	-	-	-	-	-	H
Geophysical, Geohazard, Wellsite Seabed and VSP Surveys	• As above	N	-	-	-	-	-	H
Geological, Geotechnical and Environmental Surveys	• As above	N	-	-	-	-	-	H
Supply and Servicing	• As above	N	-	-	-	-	-	H

Evaluation of Significance

- As there are no Indigenous communities or other aspects of the physical / cultural heritage and other socioeconomic components and activities of these groups located within or near the Project Area / LSA, and because the environmental changes and effects of exploration drilling will not otherwise extend to and affect lands and resources that are currently used by these groups for traditional purposes, exploration drilling on ELs 1159 and 1160 will not have adverse effects on this VC.
- The planned components and activities associated with ELs 1159 and 1160 will therefore not likely have significant adverse effects upon Indigenous communities and their activities.

NOTE: The environmental effects assessment for accidental events is presented separately in Section 10.

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY			
KEY			
Nature / Direction:		Certainty in Predictions:	
P	Positive	L	Low level of confidence
A	Adverse	M	Moderate level of confidence
N	Neutral (or no effect)	H	High level of confidence

Table F.11 Environmental Effects Assessment Summary: Commercial Fisheries and Other Ocean Users – EL 1159

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY	
Summary of Existing Conditions and Ecological and Social Context: EL 1159 • A variety of commercial fishing activity for multiple fish species takes place within the Project Area / LSA and RSA, with the summer months usually being the times when offshore Newfoundland and Labrador experiences the most ocean use / activity. • Important commercial fisheries include those for snow crab and northern shrimp. Other commercial fisheries that occur in the area include those for clams, cockles, capelin, Greenland and Atlantic halibut, yellowtail flounder, and pelagic species such as swordfish and various species of tuna. • Recent decades have seen important and widespread changes in the fishing industry due to natural (climate change) and human (other anthropogenic activities), which have influenced the nature, intensity, distribution, and timing of fisheries into his region. • There are also possible future changes in the fisheries off Eastern Newfoundland, such as a possible resurgence of groundfish activities, which are relevant to the characteristics of the VC over the lifespan of this Project. • EL 1159 overlaps with NAFO Division 3L. • Fishing activity during the 2011 to 2016 period occurred generally within the April to December timeframe, with the highest landings by weight and value occurring in the April to July period.	**Summary of Key Mitigation** • Use of existing and common travel routes for vessels and helicopters will be used where possible and practicable • Low-level aircraft operations will be avoided where it is not required per Transport Canada protocols • Operational discharges will be treated prior to release in accordance with the OWTG and other applicable regulations and standards. • The selection and screening of chemicals to be discharged, including drilling fluids, will be in accordance with the Offshore Chemical Selection Guidelines for Drilling and Production Activities on Frontier Lands • During formation flow testing with flaring, produced hydrocarbons and produced water will be flared. If there is a large amount of produced water encountered, it will be treated in accordance with the relevant regulatory requirements prior to ocean discharge, or shipped to shore for appropriate disposal • Appropriate handling, storage, transportation, and on-shore disposal of solid and hazardous waste • Establishment of a safety zone around drilling installations in accordance with the *Newfoundland Offshore Petroleum Drilling and Production Regulations* SOR/2009-316 • Issuance of Notices to Shipping, Notice to Mariners (where appropriate) regarding planned Project activities • Ongoing communication with commercial fishers through One Ocean, FFAW-Unifor and seafood producers regarding planned project activities, including timely communication of drilling locations, safety zone, and decommissioned wellheads. This information will also be communicated to Indigenous fishers in accordance with the Indigenous Communities Fisheries Communication Plan • Ongoing communications with the NAFO Secretariat, through DFO as the Canadian representative, regarding planned Project activities, including timely communication of drilling locations, safety zone, and decommissioned wellsites • In accordance with the One Ocean “Risk Management Matrix Guidelines,” the need for a Fisheries Liaison Officer (FLO) and/or fisheries guide vessels during drilling installation movement from port to its offshore location will be determined in consideration of the guidelines. Use of a FLO during geophysical programs will also be determined in consideration of these guidelines

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY								
		• A single point of contact (SPOC) will be established during Project activities to facilitate communications between fishers and the Operator regarding gear loss/damage and other compensation matters • Develop and implement a compensation program for damages resulting from Project activities. This compensation program will be developed in consideration of C-NLOPB guidelines, including the Compensation Guidelines Respecting Damages Relating to Offshore Petroleum Activity (C-NLOPB and CNSOPB 2017) and as revised. This program will outline compensation procedures for actual loss or damages to commercial fishers, including Commercial-communal fishers, attributable to the operator resulting from a spill or debris, or expenses incurred in taking remedial action. Actual loss or damage includes loss of income or future income; loss of hunting, fishing, or gathering opportunities; and costs and expenses incurred for action taken to remedy a situation involving a spill, including measure to control or clean a spill • The communication of suspended and/or abandoned wellsite locations to the appropriate authorities for inclusion on nautical charts for use by commercial fishers and other mariners • Contact DFO regarding timing and locations of planned DFO research surveys • Contact DND regarding timing of planned offshore military exercises						
Project Component or Activity	**Potential Environmental Effects**	**Residual Environmental Effects Summary Descriptors**						
		Nature / Direction	**Magnitude**	**Geographic Extent**	**Duration**	**Frequency**	**Reversibility**	**Certainty**
Presence and Operation of Drilling Installation	• Direct interference • Change in resource abundance, location, quality	A	L	L	S	C	R	H
Drilling and Associated Marine Discharges	• Damage to equipment • Change in resource abundance, location, quality	A	L	L	S	R	R	H
Formation Flow Testing with Flaring	• None expected	N	-	-	-	-		H

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY								
Project Component or Activity	**Potential Environmental Effects**	**Residual Environmental Effects Summary Descriptors**						
		Nature / Direction	**Magnitude**	**Geographic Extent**	**Duration**	**Frequency**	**Reversibility**	**Certainty**
Wellhead Decommissioning	• Direct interference • Damage to equipment	A	L	L	L	C	R	H
Geophysical, Geohazard, Wellsite Seabed and VSP Surveys	• Direct interference • Damage to equipment • Change in resource abundance, location, quality	A	L	L	S	S	R	H
Geological, Geotechnical and Environmental Surveys	• Direct interference • Damage to equipment • Change in resource abundance, location, quality	A	L	L	S	S	R	H
Supply and Servicing	• Direct interference • Damage to equipment • Change in resource abundance, location, quality	A	L	L	S	R	R	H

Evaluation of Significance

- Exploration drilling on ELs 1159 and 1160 is not likely to result in significant adverse environmental effects on Commercial Fisheries and Other Ocean Users. The establishment of a safety zone around the Drilling Installation may temporarily displace commercial fishers and other activities from accessing certain localized areas but is unlikely to have an overall and detectable economic effect on any industry within the RSA.
- The implementation of standard mitigation measures for Commercial Fisheries and Other Ocean Users, such as gear damage compensation, establishment of a safety zone around the drilling installation, presence and active advice of a FLO as required, Notice to Shippers and Notice to Mariners, and other communications are expected to further reduce the potential for interactions and effects.

NOTE: The environmental effects assessment for accidental events is presented separately in Section 10.

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY

KEY

Nature / Direction:

P	Positive
A	Adverse
N	Neutral (or no effect)

Magnitude:

N	Negligible
L	Low
M	Medium
H	High

Geographic Extent:

L	Localized, in immediate vicinity of activity
PA	Within Project Area
LSA	Within LSA
RSA	Within RSA or beyond

Frequency:

O	Occurs once
S	Occurs sporadically
R	Occurs on a regular basis
C	Occurs continuously

Duration:

S	Short-term (for duration of the activity)
M	Medium-term (beyond duration of the activity – weeks or months)
L	Long-term (beyond duration of the activity – years)
P	Permanent (recovery unlikely)

Reversibility:

R	Reversible (will recover to baseline)
I	Irreversible (permanent)

Certainty in Predictions:

L	Low level of confidence
M	Moderate level of confidence
H	High level of confidence
N/A	Not Applicable

Table F.12 Environmental Effects Assessment Summary: Commercial Fisheries and Other Ocean Users – EL 1160

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY	
Summary of Existing Conditions and Ecological and Social Context: EL 1160 • A variety of commercial fishing activity for multiple fish species takes place within the Project Area / LSA and RSA, with the summer months usually being the times when offshore Newfoundland and Labrador experiences the most ocean use / activity. • Important commercial fisheries include those for snow crab and northern shrimp. Other commercial fisheries that occur in the area include those for clams, cockles, capelin, Greenland and Atlantic halibut, yellowtail flounder, and pelagic species such as swordfish and various species of tuna. • Recent decades have seen important and widespread changes in the fishing industry due to natural (climate change) and human (other anthropogenic activities), which have influenced the nature, intensity, distribution, and timing of fisheries into his region. • There are also possible future changes in the fisheries off Eastern Newfoundland, such as a possible resurgence of groundfish activities, which are relevant to the characteristics of the VC over the lifespan of this Project. • EL 1160 overlaps with NAFO Division 3L. • Fishing activity during the 2011 to 2016 period occurred generally within the April to December timeframe, with the highest landings by weight and value occurring in the April to July period.	**Summary of Key Mitigation** • Use of existing and common travel routes for vessels and helicopters will be used where possible and practicable • Low-level aircraft operations will be avoided where it is not required per Transport Canada protocols • Operational discharges will be treated prior to release in accordance with the OWTG and other applicable regulations and standards. • The selection and screening of chemicals to be discharged, including drilling fluids, will be in accordance with the Offshore Chemical Selection Guidelines for Drilling and Production Activities on Frontier Lands • During formation flow testing with flaring, produced hydrocarbons and produced water will be flared. If there is a large amount of produced water encountered, it will be treated in accordance with the relevant regulatory requirements prior to ocean discharge, or shipped to shore for appropriate disposal • Appropriate handling, storage, transportation, and on-shore disposal of solid and hazardous waste • Establishment of a safety zone around drilling installations in accordance with the *Newfoundland Offshore Petroleum Drilling and Production Regulations* SOR/2009-316 • Issuance of Notices to Shipping, Notice to Mariners (where appropriate) regarding planned Project activities • Ongoing communication with commercial fishers through One Ocean, FFAW-Unifor and seafood producers regarding planned project activities, including timely communication of drilling locations, safety zone, and decommissioned wellheads. This information will also be communicated to Indigenous fishers in accordance with the Indigenous Communities Fisheries Communication Plan • Ongoing communications with the NAFO Secretariat, through DFO as the Canadian representative, regarding planned Project activities, including timely communication of drilling locations, safety zone, and decommissioned wellsites • In accordance with the One Ocean “Risk Management Matrix Guidelines,” the need for a Fisheries Liaison Officer (FLO) and/or fisheries guide vessels during drilling installation movement from port to its offshore location will be determined in consideration of the guidelines. Use of a FLO during geophysical programs will also be determined in consideration of these guidelines

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY								
		• A single point of contact (SPOC) will be established during Project activities to facilitate communications between fishers and the Operator regarding gear loss/damage and other compensation matters • Develop and implement a compensation program for damages resulting from Project activities. This compensation program will be developed in consideration of C-NLOPB guidelines, including the Compensation Guidelines Respecting Damages Relating to Offshore Petroleum Activity (C-NLOPB and CNSOPB 2017) and as revised. This program will outline compensation procedures for actual loss or damages to commercial fishers, including Commercial-communal fishers, attributable to the operator resulting from a spill or debris, or expenses incurred in taking remedial action. Actual loss or damage includes loss of income or future income; loss of hunting, fishing, or gathering opportunities; and costs and expenses incurred for action taken to remedy a situation involving a spill, including measure to control or clean a spill • The communication of suspended and/or abandoned wellsite locations to the appropriate authorities for inclusion on nautical charts for use by commercial fishers and other mariners • Contact DFO regarding timing and locations of planned DFO research surveys • Contact DND regarding timing of planned offshore military exercises						
Project Component or Activity	**Potential Environmental Effects**	**Residual Environmental Effects Summary Descriptors**						
		Nature / Direction	**Magnitude**	**Geographic Extent**	**Duration**	**Frequency**	**Reversibility**	**Certainty**
Presence and Operation of Drilling Installation	• Direct interference • Change in resource abundance, location, quality	A	L	L	S	C	R	H
Drilling and Associated Marine Discharges	• Damage to equipment • Change in resource abundance, location, quality	A	L	L	S	R	R	H
Formation Flow Testing with Flaring	• None expected	N	-	-	-	-		H

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY								
Project Component or Activity	**Potential Environmental Effects**	**Residual Environmental Effects Summary Descriptors**						
		Nature / Direction	**Magnitude**	**Geographic Extent**	**Duration**	**Frequency**	**Reversibility**	**Certainty**
Wellhead Decommissioning	• Direct interference • Damage to equipment	A	L	L	L	C	R	H
Geophysical, Geohazard, Wellsite Seabed and VSP Surveys	• Direct interference • Damage to equipment • Change in resource abundance, location, quality	A	L	L	S	S	R	H
Geological, Geotechnical and Environmental Surveys	• Direct interference • Damage to equipment • Change in resource abundance, location, quality	A	L	L	S	S	R	H
Supply and Servicing	• Direct interference • Damage to equipment • Change in resource abundance, location, quality	A	L	L	S	R	R	H

Evaluation of Significance

- Exploration drilling on ELs 1159 and 1160 is not likely to result in significant adverse environmental effects on Commercial Fisheries and Other Ocean Users. The establishment of a safety zone around the Drilling Installation may temporarily displace commercial fishers and other activities from accessing certain localized areas but is unlikely to have an overall and detectable economic effect on any industry within the RSA.
- The implementation of standard mitigation measures for Commercial Fisheries and Other Ocean Users, such as gear damage compensation, establishment of a safety zone around the drilling installation, presence and active advice of a FLO as required, Notice to Shippers and Notice to Mariners, and other communications are expected to further reduce the potential for interactions and effects.

NOTE: The environmental effects assessment for accidental events is presented separately in Section 10.

ENVIRONMENTAL EFFECTS ASSESSMENT SUMMARY

KEY

Nature / Direction:

P	Positive
A	Adverse
N	Neutral (or no effect)

Magnitude:

N	Negligible
L	Low
M	Medium
H	High

Geographic Extent:

L	Localized, in immediate vicinity of activity
PA	Within Project Area
LSA	Within LSA
RSA	Within RSA or beyond

Frequency:

O	Occurs once
S	Occurs sporadically
R	Occurs on a regular basis
C	Occurs continuously

Duration:

S	Short-term (for duration of the activity)
M	Medium-term (beyond duration of the activity – weeks or months)
L	Long-term (beyond duration of the activity – years)
P	Permanent (recovery unlikely)

Reversibility:

R	Reversible (will recover to baseline)
I	Irreversible (permanent)

Certainty in Predictions:

L	Low level of confidence
M	Moderate level of confidence
H	High level of confidence
N/A	Not Applicable

APPENDIX G

Updated Spill Data – Canada-NL Offshore Area

Table G.1 Newfoundland and Labrador Offshore Exploration and Production Oil Spills (1997 to 2018)

Year	Exploration						Development & Production						Total					
	Spill Number			Bbl.			Spill Number			Bbl.			Spill Number			Bbl.		
	HC	SBM	All	HC	SBM	All	HC	SBM	All	HC	SBM	All	HC	SBM	All	HC	SBM	All
1997	1	0	1	0.25	0.00	0.25	10	0	10	10.64	0.00	10.64	11	0	11	10.89	0.00	10.89
1998	4	0	4	20.10	0.00	20.10	22	2	24	3.70	12.63	16.33	26	2	28	23.80	12.63	36.43
1999	24	0	24	12.36	0.00	12.36	14	9	23	5.67	46.37	52.04	38	9	47	18.03	46.37	64.40
2000	1	0	1	1.01	0.00	1.01	4	5	9	0.40	29.56	29.96	5	5	10	1.40	29.56	30.97
2001	0	0	0	0.00	0.00	0.00	15	2	17	0.82	35.22	36.04	15	2	17	0.82	35.22	36.04
2002	1	0	1	0.01	0.00	0.01	23	2	25	0.19	77.05	77.24	24	2	26	0.19	77.05	77.24
2003	3	1	4	0.92	27.68	28.60	17	4	21	1.52	167.48	169.00	20	5	25	2.44	195.15	197.60
2004	0	0	0	0.00	0.00	0.00	50	6	56	1,043.50	679.95	1,723.46	50	6	56	1,043.50	679.95	1,723.46
2005	0	0	0	0.00	0.00	0.00	38	2	40	1.19	25.35	26.54	38	2	40	1.19	25.35	26.54
2006	3	1	4	0.10	3.77	3.87	29	5	34	3.87	19.06	22.93	32	6	38	3.97	22.84	26.81
2007	0	1	1	0.00	465.45	465.45	37	1	38	0.61	6.85	7.46	37	2	39	0.61	472.30	472.91
2008	1	0	1	0.00	0.00	0.00	34	1	35	30.25	0.63	30.88	35	1	36	30.25	0.63	30.88
2009	4	1	5	0.06	0.01	0.07	35	1	36	1.80	0.00	1.80	39	2	41	1.86	0.01	1.87
2010	3	0	3	0.02	0.00	0.02	16	0	16	1.16	0.00	1.16	19	0	19	1.19	0.00	1.19
2011	2	4	6	0.25	180.78	181.03	34	4	38	3.43	28.94	32.37	36	8	44	3.69	209.72	213.41
2012	0	1	1	0.00	0.17	0.17	7	0	7	0.07	0.00	0.07	7	1	8	0.07	0.17	0.24
2013	0	0	0	0.00	0.00	0.00	11	2	13	39.33	1.40	40.73	11	2	13	39.33	1.40	40.73
2014	0	1	1	0.00	5.41	5.41	10	3	13	1.44	6.76	8.21	10	4	14	1.44	12.17	13.61
2015	1	1	2	0.00	92.8	92.8	1	1	2	0.02	0.90	0.92	2	2	4	0.02	93.71	93.73
2016	1	0	1	0.013	0	0.013	3	0	3	0.00	0.00	0.0	4	0	4	0.015	0.00	0.015
2017	0	0	0	0	0	0	6	1	7	0.007	0.015	0.022	6	1	7	0.007	0.015	0.022
2018	0	0	0	0	0	0	5	2	7	1,575.16	176.14	1,751.30	5	2	7	1,575.16	176.14	1,751.30
Total	**49**	**11**	**60**	**35.09**	**776.07**	**811.16**	**421**	**53**	**474**	**2,724.78**	**1,314.31**	**4,039.09**	**470**	**64**	**534**	**2,759.87**	**2,090.39**	**4,850.29**
Avg	2.2	0.5	2.7	1.60	35.28	36.87	19.1	2.4	21.5	123.85	59.74	183.60	21.4	2.9	24.2	125.45	95.02	220.47

Data extracted from C-NLOPB spill statistics (https://www.cnlopb.ca/information/statistics/) and includes up to December 28, 2018; HC = Hydrocarbon; SBM = Synthetic-based [drilling] mud

Table G.2 Oil Types in Spills in Offshore Newfoundland-Labrador

Oil Type	Exploration		Development & Production	
	% Incidents	% Total Volume	% Incidents	% Total Volume
Synthetic Oils/Fluids	18.6%	95.6%	10.9%	32.4%
Crude Oil/Condensate	37.3%	2.1%	27.5%	66.8%
Hydraulic/Lubricating Oil	23.7%	0.1%	35.8%	0.5%
Diesel and Jet Fuel	10.2%	2.1%	6.4%	0.1%
Other Types (Oil)	10.2%	0.1%	19.3%	0.2%

Table G.3 Spill Volumes for Exploration in Newfoundland-Labrador

Volume Category (bbl.)	% Total Spills >1 L					% Total All Spills (w/<1 L)
	Crude Oil/ Condensate	Diesel/Jet Fuel	Hydraulic/ Lube Oil	Synthetic Oils/Fluids	Other Types (Oil)	
0.00001-0.00009	-	-	-	-	-	**2.3%**
0.0001-0.0009	-	-	-	-	-	**4.5%**
0.001-0.009	-	-	-	-	-	**6.8%**
0.01-0.09	40.0%	10.0%	87.5%	27.3%%	50.0%	**34.1%**
0.1-0.9	0.0%	30.0%	12.5%	0.0%	50.0%	**13.6%**
1-9	60.0%	50.0%	0.0%	27.3%%	0.0%	**25.0%**
10-99	0.0%	10.0%	0.0%	27.3%%	0.0%	**9.1%**
100-999	0.0%	0.0%	0.0%	18.2%	0.0%	**4.5%**
1,000-9,999	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**

Table G.4 Spill Volumes for Development / Production in Newfoundland-Labrador

Volume Category (bbl)	% Total Spills (>1 L)					% Total All Spills (w/<1 L)
	Crude Oil/ Condensate	Diesel/Jet Fuel	Hydraulic/ Lube Oil	Synthetic Oils/Fluids	Other Types (Oil)	
0.00001-0.00009	-	-	-	-	-	**0.0%**
0.0001-0.0009	-	-	-	-	-	**0.0%**
0.001-0.009	3.2%	0.0%	5.5%	0.0%	4.2%	**3.2%**
0.01-0.09	58.7%	73.7%	64.4%	23.3%	70.8%	**56.3%**
0.1-0.9	23.8%	15.8%	21.9%	16.3%	25.0%	**21.2%**
1-9	7.9%	10.5%	8.2%	25.6%	0.0%	**10.8%**
10-99	3.2%	0.0%	0.0%	27.9%	0.0%	**6.3%**
100-999	0.0%	0.0%	0.0%	7.0%	0.0%	**1.4%**
1,000-9,999	3.2%	0.0%	0.0%	0.0%	0.0%	**0.9%**

APPENDIX H

Residual Accidental Event-Related Environmental Effects Summary Tables – All Valued Components

Table H.1 Summary of Residual Accidental Event-Related Environmental Effects on Marine Fish and Fish Habitat

Accidental Event Scenario	Residual Environmental Effects Characterization						
	Nature	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Certainty
Potential Effects: Change in Habitat Availability and Quality, Change in Fish Mortality, Injury, Health, and Change in Fish Presence and Abundance (Behavioral Effects)							
Flemish Pass EIS							
100 L Diesel Spill	A	L	PA	S	S	R	M
1,000 L Diesel Spill	A	L-M	PA	M	N	R	M
Subsurface Blowout – EL 1140	A	M	RSA	M-L	N	R	M
Subsurface Blowout – EL 1142	A	M	RSA	M-L	N	R	M
Eastern Newfoundland EIS							
100 L Diesel Spill	A	L	PA	S	S	R	M
1,000 L Diesel Spill	A	L-M	PA	M	N	R	M
Subsurface Blowout – EL 1135	A	M	RSA	M-L	N	R	M
Subsurface Blowout – EL 1137	A	M	RSA	M-L	N	R	M
Eastern Newfoundland EIS: EL 1134 Addendum							
100 L Diesel Spill	A	L	PA	S	S	R	M
1,000 L Diesel Spill	A	L-M	PA	M	N	R	M
Subsurface Blowout – EL 1134	A	M	RSA	M-L	N	R	M

KEY

Nature / Direction:
- P Positive
- A Adverse
- N Neutral (or no effect)

Magnitude:
- L Low
- M Medium
- H High

Geographic Extent:
- L Localized
- PA Within Project Area
- LSA Within LSA
- RSA Within RSA and / or beyond

Duration:
- S Short-term
- M Medium-term
- L Long-term
- P Permanent

Frequency:
- N Not likely to occur
- O Occurs once
- S Occurs sporadically
- R Occurs on a regular basis
- C Occurs continuously

Reversibility:
- R Reversible
- I Irreversible

Certainty in Predictions:
- L Low level of confidence
- M Moderate level of confidence
- H High level of confidence

N/A Not Applicable

Table H.2 Summary of Residual Accidental Event-Related Environmental Effects on Marine and Migratory Birds

Accidental Event Scenario	Residual Environmental Effects Characterization						
	Nature	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Certainty
Potential Effects: Changes in Mortality Injury Levels and Bird Health (individuals or populations), Changes in Avifauna Presence and Abundance, Change in Habitat Availability and Quality, and Change in Food Availability or Quality							
Flemish Pass EIS							
100 L Diesel Spill	A	L	PA	S	S	R	M
1,000 L Diesel Spill	A	M	PA	M	N	R	M
Subsurface Blowout – EL 1140	A	M-H	RSA	M-L	N	R	M
Subsurface Blowout – EL 1142	A	M-H	RSA	M-L	N	R	M
Eastern Newfoundland EIS							
100 L Diesel Spill	A	L	PA	S	S	R	M
1,000 L Diesel Spill	A	M	PA	M	N	R	M
Subsurface Blowout – EL 1135	A	M-H	RSA	M-L	N	R	M
Subsurface Blowout – EL 1137	A	M-H	RSA	M-L	N	R	M
Eastern Newfoundland EIS: EL 1134 Addendum							
100 L Diesel Spill	A	L	PA	S	S	R	M
1,000 L Diesel Spill	A	M	PA	M	N	R	M
Subsurface Blowout – EL 1134	A	M-H	RSA	M-L	N	R	M
KEY: See Table H.1							

Table H.3 Summary of Residual Accidental Event-Related Environmental Effects on Marine Mammals and Sea Turtles

Accidental Event Scenario	Residual Environmental Effects Characterization						
	Nature	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Certainty
Potential Effects: Change in Mortality or Injury, Change in Health, and Change in Habitat Quality and Use							
Flemish Pass EIS							
100 L Diesel Spill	A	L	PA	S	S	R	H
1,000 L Diesel Spill	A	L	PA	S	N	R	H
Subsurface Blowout – EL 1140	A	L-M	RSA	M-L	N	R	M
Subsurface Blowout – EL 1142	A	L-M	RSA	M-L	N	R	M
Eastern Newfoundland EIS							
100 L Diesel Spill	A	L	PA	S	S	R	H
1,000 L Diesel Spill	A	L	PA	S	N	R	H
Subsurface Blowout – EL 1135	A	L-M	RSA	M-L	N	R	M
Subsurface Blowout – EL 1137	A	L-M	RSA	M-L	N	R	M
Eastern Newfoundland EIS: EL 1134 Addendum							
100 L Diesel Spill	A	L	PA	S	S	R	H
1,000 L Diesel Spill	A	L	PA	S	N	R	H
Subsurface Blowout – EL 1134	A	L-M	RSA	M-L	N	R	M

KEY:
See Table H.1

Table H.4 Summary of Residual Accidental Event-Related Environmental Effects on Special Areas

Accidental Event Scenario	Residual Environmental Effects Characterization						
	Nature	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Certainty
Potential effects: Change in Environmental Features and/or Processes, Change in Human Use and /or Societal Value							
Flemish Pass EIS							
100 L Diesel Spill	A	L	PA	S	S	R	M
1,000 L Diesel Spill	A	L-M	PA	M	N	R	M
Subsurface Blowout – EL 1140	A	M	RSA	M-L	N	R	M
Subsurface Blowout – EL 1142	A	M	RSA	M-L	N	R	M
Eastern Newfoundland EIS							
100 L Diesel Spill	A	L	PA	S	S	R	M
1,000 L Diesel Spill	A	L-M	PA	M	N	R	M
Subsurface Blowout – EL 1135	A	M	RSA	M-L	N	R	M
Subsurface Blowout – EL 1137	A	M	RSA	M-L	N	R	M
Eastern Newfoundland EIS: EL 1134 Addendum							
100 L Diesel Spill	A	L	PA	S	S	R	M
1,000 L Diesel Spill	A	L-M	PA	M	N	R	M
Subsurface Blowout – EL 1135	A	M	RSA	M-L	N	R	M
KEY: See Table H.1							

Table H.5 Summary of Residual Accidental Event-Related Environmental Effects on Indigenous Communities and Activities

Accidental Event Scenario	Residual Environmental Effects Characterization						
	Nature	**Magnitude**	**Geographic Extent**	**Duration**	**Frequency**	**Reversibility**	**Certainty**
Potential Effects: Changes in Health and Socioeconomic Conditions; Changes in the Current Use of Lands and Resources for Traditional Purposes; Change in Physical and Cultural Heritage; and Changes in any Structure, Site, or Thing that is of Historical, Archaeological, Paleontological or Architectural Significance.							
Flemish Pass EIS							
100 L Diesel Spill	N	-	-	-	-	-	H
1,000 L Diesel Spill	N	-	-	-	-	-	H
Subsurface Blowout – EL 1140	A	N-L	RSA	M-L	N	R	M
Subsurface Blowout – EL 1142	A	N-L	RSA	M-L	N	R	M
Eastern Newfoundland EIS							
100 L Diesel Spill	N	-	-	-	-	-	H
1,000 L Diesel Spill	N	-	-	-	-	-	H
Subsurface Blowout – EL 1135	A	N-L	RSA	M-L	N	R	M
Subsurface Blowout – EL 1137	A	N-L	RSA	M-L	N	R	M
Eastern Newfoundland EIS: EL 1134 Addendum							
100 L Diesel Spill	N	-	-	-	-	-	H
1,000 L Diesel Spill	N	-	-	-	-	-	H
Subsurface Blowout – EL 1134	A	N-L	RSA	M-L	N	R	M
KEY: See Table H.1							

Table H.6 Summary of Residual Accidental Event-Related Environmental Effects on Commercial Fisheries and Other Ocean Users

Accidental Event Scenario	Residual Environmental Effects Characterization						
	Nature	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Certainty
Potential Effects: Direct Interference, Resulting in a Change in the Distribution, Intensity, or Function of Commercial Fishing and Other Ocean Uses, Damage to Fishing Gear, Vessels, and Other Equipment and Components, Change in the Abundance, Distribution and Quality of Marine Resources							
Flemish Pass EIS							
100 L Diesel Spill	A	L	PA	S	S	R	H
1,000 L Diesel Spill	A	L	PA	M	N	R	H
Subsurface Blowout – EL 1140	A	L	RSA	M-L	N	R	M
Subsurface Blowout – EL 1142	A	L	RSA	M-L	N	R	M
Eastern Newfoundland EIS							
100 L Diesel Spill	A	L	PA	S	S	R	H
1,000 L Diesel Spill	A	L	PA	M	N	R	H
Subsurface Blowout – EL 1135	A	L	RSA	M-L	N	R	M
Subsurface Blowout – EL 1137	A	L	RSA	M-L	N	R	M
Eastern Newfoundland EIS: EL 1134 Addendum							
100 L Diesel Spill	A	L	PA	S	S	R	H
1,000 L Diesel Spill	A	L	PA	M	N	R	H
Subsurface Blowout – EL 1134	A	L	RSA	M-L	N	R	M
KEY: See Table H.1							

APPENDIX I

Updated Summary of Mitigation and Commitments

Table I.1 Summary of Mitigation and Commitments

No.	Commitment Source	Operator Commitment
General*		
1	EIS	Adherence to C-NLOPB guidelines (environmental and drilling/production) and compliance with regulations, as applicable.
2	EIS	Operator will provide an update of planned activities to fishers and fish processors that will include timing of exploration activities and locations of planned wells. In addition, the Operator will provide an EA update to the C-NLOPB each year that offshore operations are planned. The EA update will provide an overview of planned activities as defined by the scope of the project, update on recent and on-going engagement activities and their outcomes, and an overview of any new information regarding commercial fishing activities and updates to Species at Risk, if applicable, as well as outlining the proposed work for the coming year and evaluating the continued applicability and validity of the EIS predictions and mitigation measures.
3	EIS	A copy of the EA update will be sent to all Indigenous groups and stakeholders identified in Chapter 3 of the EIS. The Operator will follow up with Indigenous groups and stakeholders on any questions arising from the EA update.
4	EIS	Use of existing and common travel routes for vessels and helicopters will be used where possible and practicable.
5	EIS	Low-level aircraft operations will be avoided where it is not required per Transport Canada protocols.
6	EIS	Operational discharges will be treated prior to release in accordance with the OWTG (2016) and other applicable regulations and standards.
7	EIS	The selection and screening of chemicals to be discharged, including drilling fluids, will be in accordance with the Offshore Chemical Selection Guidelines for Drilling and Production Activities on Frontier Lands.
8	EIS	During formation flow testing with flaring, produced hydrocarbons and produced water will be flared. If there is a large amount of produced water encountered, it will be treated in accordance with the relevant regulatory requirements prior to ocean discharge or shipped to shore for appropriate disposal.
9	EIS	Appropriate handling, storage, transportation and on-shore disposal of solid and hazardous waste.
10	EIS	Spill prevention plans and procedures as required by the C-NLOPB, will be developed and submitted for approval to the C-NLOPB as a requirement of the Operations Authorization and will include, at a minimum, the following: Training of project personnel in spill prevention and response Spill Response equipment for containment (e.g., booms) and/or removal Implementation of measures to deter birds from contacting spilled oil (e.g., bird scaring devices) Shoreline response measures, if oil is predicted to contact shoreline Shoreline clean-up measures, if in the event oil contacts shoreline Measure to be implemented for the rehabilitation and recovery of oiled seabirds Overview of monitoring that could be conducted in relation to various spill events
11	IR-01 IR-04	Submit a Notification to Suspend/Abandon to the C-NLOPB for approval.

No.	Commitment Source	Operator Commitment
12	IR-07	Submit monthly compliance reports, including volumes of liquid wastes discharged to the marine environment (e.g. ballast water, bilge water, deck drainage, blowout preventer (BOP) testing fluids, produced water, well treatment fluids) to the C-NLOPB.
13	IR-07	Submit annual environmental reports, including volumes of liquid wastes, to the C-NLOPB.
14	IR-07	The Operators will keep records of chemicals screened (i.e., chemicals that are, or have to the potential to be, discharged to the marine environment), and will make them available to the C-NLOPB upon request.
15	IR-78 IR-78-2	The type and concentration of biocides to be used and discharged to the marine environment will be outlined, if applicable, in the Operators EPPs.
Air Emissions		
16	EIS	Sulphur content in diesel fuel will meet the *Sulphur in Diesel Fuel Regulations* and will comply with the sulfur limits in fuels for large marine diesel engines, per the *Vessel Pollution and Dangerous Chemicals Regulations* under the *Canada Shipping Act*.
17	EIS	Adherence with the *Canadian Environmental Protection Act*, the Newfoundland *Air Pollution Control Regulations* for specified criteria air contaminants in exhaust emissions, relevant regulations under MARPOL, and use of the National Ambient Air Quality Objectives as the benchmark for assessing air quality
Marine Fish and Fish Habitat		
18	EIS	Prior to the start of a drilling campaign, a pre-drill coral survey will be undertaken (see section 2.5 of the Flemish Pass EIS for details). A report summarizing the coral mapping, risk assessment and planned mitigation measures (if corals are identified) will be prepared and submitted to C-NLOPB/DFO for review and acceptance.
19	EIS	Relocation of well and/or redirection of WBM cuttings discharge location in the event that the pre-drill coral survey and risk assessment identifies mitigations required to protect sensitive benthic habitat (i.e. corals and sponges)
20	EIS	SBM-related drill cuttings will be returned to the drilling installation and treated in accordance with the OWTG before being discharged to the marine environment. WBM-related drill cuttings will be discharged without treatment.
21	EIS	Use of explosives will not be employed for removal of wellheads.
22	EIS	At the time of decommissioning a well, the well will be inspected in accordance with applicable regulatory requirements.
23	IR-16/16a-2	Generate a short list of potential research activities with Indigenous organizations (e.g. Unama'ki Institute of Natural Resources [UINR], Mi'kmaw Conservation Group [MCG)] to address Indigenous concerns regarding knowledge/data gaps for salmon.
24	IR-16/16a-2	Purchase 18 additional tags for the Atlantic Salmon Federation (ASF) salmon tagging program of kelt in Greenland in fall 2018.
25	IR-16/16a-2	Consider deploying acoustic receivers in the Project Area to provide higher resolution data (i.e. location) within the Project Area.
26	IR-16/16a-2	Present the data gap associated with the migratory route of salmon in the far offshore (Project Area) to the Environmental Studies Research Fun (ESRF) Secretariat in the fall management meeting as a potential new priority.

No.	Commitment Source	Operator Commitment
27	IR-23	If dynamic positioning (DP) is used instead of anchors, then the transponder areas would also be subjected to a pre-drill coral and sponge survey.
28	IR-23-2	Provide copies of resumes associated with the selected Marine Biologists/Scientists, if requested by the C-NLOPB and/or DFO.
29	IR-23-2	Provide video footage to C-NLOPB, DFO, stakeholders and/or Indigenous groups, if requested.
Marine and Migratory Birds		
30	EIS	The Operator will avoid, where possible, established bird colonies. Helicopters will avoid known coastal seabird colonies per requirements of the NL *Seabird Ecological Reserve Regulations, 2015*
31	EIS	During drilling operations, routine observations of seabirds, following the CWS protocols will be undertaken from the drilling installation.
32	EIS	Routine searches for stranded birds will be conducted on the platform and supply vessels, and appropriate programs and protocols for the collection and release of marine and migratory birds will be implemented for any birds that become stranded (i.e., Routine searches for stranded birds will be conducted on the platform and supply vessels, and appropriate programs and protocols for the collection and release of marine and migratory birds will be implemented for birds that become stranded (i.e., ECCC-CWS's "Procedures for handling and documenting stranded birds encountered on infrastructure offshore Atlantic Canada" [ECCC 2017] and Williams and Chardine "The Leach's storm-petrel - General Information and Handling Instructions" [no date; adapted in Appendix I of EC 2015]). **Note: Original commitment in the Flemish Pass EIS (Statoil 2017) has been updated to reflect an updated document, and addition of references.*
33	EIS	The Operator will obtain a Seabird Handling permit from ECCC-CWS.
34	EIS	Maceration of sewage and kitchen waste, in accordance with the OWTG to 6 mm particle size.
35	EIS	Operators are required to notify the C-NLOPB for plans to flare associated with formation flow testing for exploration drilling. The C-NLOPB then consults with ECCC-CWS to determine a safe timeline to proceed to minimize effects on migrating birds
36	IR-30	Requirements associated with seabird observation program will be outlined in the EPP and will take into consideration the latest information from ECCC.
37	IR-30-2	Develop a seabird observation protocol in consultation with ECCC-CWS prior to commencing the first exploration drilling program. Information outlined in the seabird observation protocol will be determined in consultation with ECCC-CWS, and aspects such as frequency of searches, reporting procedures and training requirements will be included.
38	IR-45	Requirements associated with oiled seabirds will be described in Oil Spill Response Plans (OSRPs).
Marine Mammals and Sea Turtles		
39	EIS	Project associated vessel traffic will be approximately eight to ten trips per month for one drilling installation. Use of existing and common travel routes will be used

No.	Commitment Source	Operator Commitment
		where possible and practical. Vessels will maintain a steady course and safe vessel speed whenever possible.
40	EIS	Use of explosives will not be employed for removal of wellheads.
41	EIS	As required in the Geophysical, Geological, Environmental and Geotechnical Program Guidelines (C-NLOPB 2018d), mitigation measures applied during the project's geophysical surveys will be consistent with those outlined in the Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Marine Environment (SOCP) (DFO 2007b). The following is a partial list of those mitigation measures. Trained Marine Mammals Observers (MMOs) will be used to monitor and report on marine mammal and sea turtle sightings during VSP and geophysical surveys where seismic source arrays are used. A ramp-up of the source array (i.e., gradually increasing seismic source elements over a period of at least 20 minutes until the operating level is achieved) starting from a single source element. MMOs will implement a pre-ramp up watch of 30 minutes prior to the start of the air source. Ramp-up will be delayed if any marine mammal or sea turtle is sighted within the safety zone. Shut down of the seismic source array if a marine mammal or sea turtle listed as endangered or threatened on SARA Schedule 1. **Note: Original commitment in the Flemish Pass EIS (Statoil 2017) has been updated to reflected date of updated C-NLOPB Guidelines.*
42	IR-26	If a vessel strikes a marine mammal or sea turtle and assistance is required, then DFO will be contacted (1-888-895-3003) and details of the incident (e.g., species involved, speed of the vessel at the time of impact, state of the animal) will be recorded and reported.
Indigenous Communities and Activities		
43	EIS	The mitigation measures outlined elsewhere in this EIS will serve to avoid or reduce environmental emissions, disturbances and resulting environmental changes by minimizing reducing the nature, degree, extent and duration of these changes, and therefore, reducing the potential for these to interact with and adversely affect the various components and activities that comprise this VC. A copy of the EA update will be sent to all Indigenous groups and stakeholders identified in chapter 3 of the EIS. The Operator will follow up with Indigenous groups and stakeholders on any questions arising from the EA update. The Operator will continue to communicate with relevant Indigenous communities and representative organizations, through established and/or informal engagement processes, as required and requested. The specific nature, frequency, subject matter and format of such future engagement will be determined in discussion with the Indigenous organizations and outlined in an Indigenous Communities Fisheries Communication Plan.
44	IR-16/16a-2	Provide Indigenous groups with result of research studies associated with salmon migration.
45	IR-84-2	The Operators will share their plans for monitoring and follow-up programs with Indigenous groups during upcoming and ongoing engagement. Throughout all phases of the project, the Operators will continue to engage with interested

No.	Commitment Source	Operator Commitment
		Indigenous groups and provide updates regarding the implementation of monitoring and follow-up programs and will share the results of these programs.
46	IR-87-2	Share results and learnings from spill response exercise with Indigenous groups, if requested.
47	IR-87-2	Provide Indigenous groups with a copy of the final OSRP.
Refer to Marine Fish and Fish Habitat and Commercial Fisheries and Other Ocean Users for additional commitments from IR/CLs responses that are also applicable to Indigenous Communities and Activities.		
Commercial Fisheries and Other Ocean Users		
48	EIS	Establishment of a safety zone around drilling installations in accordance with the *Newfoundland Offshore Petroleum Drilling and Production Regulations*.
49	EIS	Issuance of Notices to Shipping, Notices to Mariners (where appropriate) regarding planned project activities.
50	EIS	Ongoing communications with commercial fishers through One Ocean, FFAW-Unifor and seafood producers regarding planned project activities, including timely communication of drilling locations, safety zone and decommissioned wellsites. This information will also be communicated to Indigenous commercial fishers in accordance with the Indigenous Communities Fisheries Communication Plan.
51	EIS	Ongoing communications with the NAFO Secretariat, through DFO as the Canadian representative, regarding planned project activities, including timely communication of drilling locations, safety zone and decommissioned wellsites.
52	EIS	In accordance with the One Ocean “Risk Management Matrix Guidelines,” the need for a Fisheries Liaison Officer (FLO) and/or fisheries guide vessels during drilling installation movement from port to its offshore location will be determined in consideration of the guidelines. Use of a FLO during geophysical programs will also be determined in consideration of these guidelines.
53	EIS	A single point of contact (SPOC) will be established during project activities to facilitate communications between fishers and the operator regarding gear loss//damage and other compensation matters.
54	EIS	Develop and implement a compensation program for damages resulting from Project activities. This compensation program will be developed in consideration of C-NLOPB guidelines, including the Compensation Guidelines Respecting Damages Relating to Offshore Petroleum Activity (C-NLOPB and CNSOPB 2017) and as revised. This program will outline compensation procedures for actual loss or damages to commercial fishers, including Commercial-communal fishers, attributable to the operator resulting from a spill or debris, or expenses incurred in taking remedial action. Actual loss or damage includes loss of income or future income; loss of hunting, fishing, or gathering opportunities; and costs and expenses incurred for action taken to remedy a situation involving a spill, including measure to control or clean a spill. **Note: Original commitment in the Flemish Pass EIS (Statoil 2017) has been updated to reflected date of updated C-NLOPB and CNSOPB Guidelines.*
55	IR-41-2	Develop the compensation program in consultation with Indigenous groups with communal-commercial licenses that overlap with the Project Area prior to commencing the first exploration drilling program.

No.	Commitment Source	Operator Commitment
56	EIS	The communication of suspended and/or abandoned wellsite locations to the appropriate authorities for inclusion on nautical charts for use by commercial fishers and other mariners.
57	EIS	Contact DFO regarding timing and locations of planned DFO research surveys
58	EIS	Contact Department of National Defence (DND) regarding timing of planned offshore military exercises
Effects of the Environment on the Project		
59	EIS	Selection criteria for drilling installations where the installation is capable of operating at required water depths and in environmental conditions prevalent in the Northwest Atlantic Ocean.
60	EIS	Third party certification – a Certificate of Fitness – of the drilling installation and other facilities, as required to obtain an Operations Authorization issued by the C-NLOPB.
61	EIS	Physical environment data observations, weather forecasting, and reporting will be conducted in accordance with the Offshore Physical Environmental Guidelines.
62	EIS	Implementation of an Ice Management Plan. Options to be investigated for ice management include: ice detecting radar on drilling installations, use of satellite data to monitor for presence of ice
63	EIS	Ability to quick disconnect riser in event of emergency.
*General mitigation measures are applicable to the assessment of potential environmental effects on all identified VCs.		