Tilt Cove Exploration Drilling Program

Chapter 13: Indigenous Peoples VC

Prepared for: Suncor Energy



Prepared by: Stantec Consulting Ltd. 141 Kelsey Drive St. John's, NL A1B 0L2 Tel: (709) 576-1458 Fax: (709) 576-2126

File No: 121417383

April 2023



Table of Contents

13.0	ASSESS	MENT OF P	OTENTIAL EFFECTS ON INDIGENOUS PEOPLES	13-1
13.1	Scope of t	the Assessr	nent	13-1
	13.1.1	Regulator	y and Policy Setting	13-1
	13.1.2	The Influe	nce of Consultation and Engagement on the Assessmen	t 13-2
	13.1.3	Potential E	Effects, Pathways, and Measurable Parameters	13-3
	13.1.4	Boundarie	S	13-4
		13.1.4.1	Spatial Boundaries	13-4
		13.1.4.2	Temporal Boundaries	13-6
	13.1.5	Residual E	Effects Characterization	13-6
	13.1.6	Significan	ce Definition	13-7
13.2	Project Int	teractions w	vith Indigenous Peoples	13-8
13.3	Assessme	ent of Resid	ual Environmental Effects on Indigenous Peoples	13-8
	13.3.1	Overview	of Species Harvested	13-9
	13.3.2	Change in	Commercial-Communal Fisheries	13-9
		13.3.2.1	Project Pathways	13-9
		13.3.2.2	Mitigation	13-10
		13.3.2.3	Characterization of Residual Project-related Environment	ntal
			Effects	13-11
	13.3.3	Change in	Current Use of Lands and Resources for Traditional	
		Purposes.		13-13
		13.3.3.1	Project Pathways	13-13
		13.3.3.2	Mitigation	13-14
		13.3.3.3	Characterization of Residual Project-related Environmen	ntal
	1001	. .	Effects	13-14
	13.3.4	Species of	f Commercial and/or Cultural Importance: Potential Effect	ts 13-16
		13.3.4.1	Swordfish	13-17
		13.3.4.2	Bluefin Tuna	13-17
		13.3.4.3	Atlantic Salmon	13-17
	40.05	13.3.4.4	American Eel	13-18
	13.3.5	Summary	of Project Residual Environmental Effects	13-19
13.4	Determina	ation of Sigr	hificance	13-20
13.5	Prediction	Confidence	e	13-21
13.6	Follow-up	and Monito	pring	13-21
13.7	Reference	es		13-21

LIST OF TABLES

Table 13.1	Potential Effects, Effects Pathways, and Measurable Parameters for
	Indigenous Peoples
Table 13.2	Characterization of Residual Effects on Indigenous Peoples
Table 13.3	Potential Interactions of Project-related Activities with Indigenous Peoples 13-
Table 13.4	Summary of Residual Environmental Effects on Indigenous Peoples 13-19

LIST OF FIGURES

Figure 13-1	Indigenous Peoples Spatial Areas	13-5
-------------	----------------------------------	------



13.0 ASSESSMENT OF POTENTIAL EFFECTS ON INDIGENOUS PEOPLES

Indigenous peoples was identified as a VC in the EIS in recognition of the cultural, social, and economic importance of marine life and fishing to Indigenous peoples, and in consideration of potential or established Aboriginal and treaty rights. As prescribed in the EIS Guidelines and in CEAA 2012, the VC considers the following:

- Health and socio-economic conditions
- Physical and cultural heritage
- Current use of lands and resources for traditional purposes
- Any structure, site or thing that is of historical, archaeological, paleontological or architectural significance

There were 41 Indigenous groups identified in the EIS Guidelines that may be influenced by routine Project activities and which should be considered in the scope of the environmental assessment. This included 5 groups in NL, 13 groups in NS, 16 groups in NB, two groups in PEI, and five groups in QC. The key interaction between the Project and these Indigenous groups is related to the potential effects to commercial-communal and FSC fishing through a change in access to and/or availability of harvested species. Several Indigenous communities hold commercial-communal or FSC licences for fishing areas in the RAA or for species that may migrate through the RAA. Although there are no documented FSC licences within the Project Area, some species targeted in FSC fisheries are anadromous and can potentially migrate through the Project Area. This VC also considers the indirect effects on socio-economic conditions that may subsequently occur as a result of impacts to the commercial-communal and FSC fisheries.

This VC is closely linked to the Commercial Fisheries and Other Ocean Users VC (Chapter 14), and to the availability and quality of marine resources, such as marine fish, marine and migratory birds, and marine mammals and sea turtles (Chapters 7, and 9 to 11).

13.1 Scope of the Assessment

13.1.1 Regulatory and Policy Setting

Through DFO, the Government of Canada has jurisdiction over commercial fishing within the 200 NM EEZ. NAFO has primary jurisdiction over commercial fisheries for non-sedentary species beyond the EEZ, where a portion of the Project Area for EL 1161 is located. DFO has the authority within the EEZ to allocate FSC and commercial-communal fishing licences to Indigenous communities and enterprises and gives the Government of Canada the authority to set total allowable catches, quota, and licenses to fishing enterprises. DFO introduced the Aboriginal Fisheries Strategy in 1992 to provide a regulatory framework for FSC fishing. In Canada, following conservation measures, fishing for FSC purposes takes precedence over other fisheries, including commercial and recreational fisheries.

Under section 35 of the *Constitution Act, 1982,* treaty rights and Aboriginal rights are recognized and affirmed. They are also part of the United Nations Declaration on the Rights of Indigenous Peoples which





the Government of Canada has committed to adopt. It is Suncor's understanding that none of the listed Indigenous groups has asserted or established Aboriginal or treaty rights, protected by section 35 of the *Constitution Act, 1982,* to the lands and waters of eastern offshore Newfoundland where the Project components and activities will be located. However, various Indigenous groups identified in the EIS Guidelines have asserted or established section 35 rights to harvest for FSC purposes or to earn a moderate livelihood in their traditional territories.

DFO implemented the Marshall Response Initiative (MRI) in 2000 to provide increased Indigenous access to the commercial fishery through commercial-communal licenses, which was replaced in 2007 by the Atlantic Integrated Commercial Fisheries Initiative (AICFI) to sustain public investment in Indigenous commercial fisheries. The AICFI provided the 34 Mi'kmaq and Wolastoqiyik First Nations affected by the Marshall decision with capacity-building support for commercial-communal fisheries and Indigenous participation in fisheries co-management (DFO 2012a, 2012b, 2012c).

The following technical guidance documents have been taken into consideration in this effects assessment:

- Aboriginal Consultation and Accommodation Updated Guidelines for Federal Officials to Fulfill the Duty to Consult (Aboriginal Affairs and Northern Development Canada 2011)
- The Government of Newfoundland and Labrador's Aboriginal Consultation Policy on Land and Resource Development Decisions (Government of Newfoundland and Labrador 2013)
- Reference Guide: Considering Aboriginal Traditional Knowledge in Environmental Assessments Conducted Under the *Canadian Environmental Assessment Act, 2012* (CEA Agency 2015a)
- Technical Guidance for Assessing Physical and Cultural Heritage or any Structure, Site or Thing that is of Historical, Archaeological, Paleontological or Architectural Significance under the *Canadian Environmental Assessment Act, 2012* (CEA Agency 2015b)
- Technical Guidance for Assessing the Current Use of Lands and Resources for Traditional Purposes under the *Canadian Environmental Assessment Act, 2012* (CEA Agency 2016)

13.1.2 The Influence of Consultation and Engagement on the Assessment

There has been ongoing consultation and engagement with Indigenous groups on exploration drilling offshore eastern Newfoundland. This has been occurring either through Suncor directly, or through EA processes involving other projects and proponents. Several key issues and concerns related to Indigenous communities and potential environmental effects have been identified through this consultation and engagement. Indigenous groups have communicated that their interests and concerns extend beyond the potential interactions with effects on commercial-communal and/or FSC fishing practices and that the footprint of fishing activities need not overlap with the Project for Indigenous communities to be affected. Another key message is that potential effects on commercial-communal and/or FSC fishing practices can have direct and indirect effects on the health and well-being of Indigenous communities.

During Suncor's Project-related engagement to date, questions, issues, and concerns related to Indigenous peoples have been noted. Several migratory species have been identified as being culturally or commercially significant to the Indigenous communities, including Atlantic salmon, Atlantic eel, Atlantic bluefin tuna, swordfish, blue whale, North Atlantic right whale. Cold-water corals were also identified as important. Additionally, some Indigenous groups have expressed concerns regarding potential effects on marine and migratory birds (e.g., waterfowl, murres) and their eggs, which are harvested by Indigenous





peoples. Indigenous groups shared with Suncor that they have the same concerns generally about all of the proposed offshore exploration drilling projects.

13.1.3 Potential Effects, Pathways, and Measurable Parameters

As with commercial fisheries (Chapter 14), the Project could affect commercial-communal fisheries resources by direct or indirect effects on fished species or through effects on fishing activity (e.g., displacement from fishing areas, gear loss or damage, availability of fisheries resources). To date, no Indigenous community has indicated that they actively fish in the Project Area or LAA, although this does not necessarily mean they will not do so in the future. Although there is no known FSC fishing or harvesting taking place in the Project Area, routine Project activities could interact with migratory fish, bird, or mammal species that may be harvested by Indigenous communities from onshore / nearshore harvesting sites. Adverse effects on fishing or harvesting activities could indirectly lead to changes in health, socio-economic, and well-being conditions or cultural heritage of affected Indigenous communities.

The nearest Indigenous community to the Project Area is the Qalipu Mi'kmaq First Nation located approximately 445 km away, on the island of Newfoundland. There are no known physical and cultural sites, including structures, sites, or things of historical, archaeological, paleontological, or architectural significance within the Project Area or the LAA, and therefore, there are no pathways of effects from routine Project activities to these areas.

As a result of these considerations, the assessment of Project-related effects on Indigenous peoples is focused on the following potential effect:

- Change in commercial-communal fisheries
- Change in current use of lands and resources for traditional purposes

The measurable parameters used for the assessment of the environmental effects presented above, and the rationale for their selection, are provided in Table 13.1. Effects of accidental events are assessed separately in Section 16.5.

Potential Environmental Effect	Effect Pathway	Measurable Parameter(s) and Units of Measurement
Change in commercial- communal fisheries	• Direct or indirect loss in availability of commercial-communal fisheries resources arising from Project activities (e.g., through effects on target species or fishing access)	 Change in access to area used for commercial-communal fisheries (ha) Change in catch rates (qualitative) Mortality of commercially important species (qualitative) Loss or damage to fishing gear (qualitative) Employment and business activity and income levels / revenues (qualitative) Change in community revenues (qualitative) Perceived quality of life and well-being (qualitative)

Table 13.1Potential Effects, Effects Pathways, and Measurable Parameters for
Indigenous Peoples





Potential Environmental Effect	Effect Pathway	Measurable Parameter(s) and Units of Measurement
Change in current use of lands and resources for traditional purposes	 Project activities causing a change in quantity, quality or availability of traditional lands and resources 	 Change in quantity, quality or availability of resources and habitat (e.g., mortality or change in migration pattern of culturally significant species) (qualitative) Change in fishing, hunting or trapping activities (qualitative) Loss of cultural or spiritual practice (qualitative) Perceived quality of life and well-being (qualitative)

Table 13.1Potential Effects, Effects Pathways, and Measurable Parameters for
Indigenous Peoples

13.1.4 Boundaries

13.1.4.1 Spatial Boundaries

Three spatial assessment boundaries have been defined for the environmental assessment of this VC, which reflect the varying ways and scales in which Project related activities may Indigenous peoples. These include:

Project Area: The Project Area (Figure 13-1) encompasses the immediate area within which Project activities and components may occur. Specific well locations have not been identified but will occur within EL 1161 in the Project Area. As a subset of the Project Area, the wellsite is referenced in the assessment discussion, where relevant, to more appropriately characterize the associated effects.

Local Assessment Area (LAA): The LAA (Figure 13-1) is the maximum area within which environmental effects from routine Project activities and components can be predicted or measured with a reasonable degree of accuracy and confidence. It consists of the Project Area and transit routes to and from the Project Area.

Regional Assessment Area (RAA): The RAA (Figure 13-1) is the area within which residual environmental effects from Project activities and components may interact cumulatively with the residual environmental effects of other past, present, and future (i.e., certain or reasonably foreseeable) physical activities.

Although the RAA is intended to be much broader than the LAA, which focuses on the extent of potential effects associated with routine Project activities for each VC, it is possible that effects from larger scale unplanned events (e.g., blowout) could extend beyond the RAA. The RAA is consistent for all VCs, except for the Indigenous Peoples VC, which has a larger RAA to encompass the various Indigenous communities that have the potential to be affected by Project-related activities. The spatial distribution and overall geographic extent of the Indigenous groups under consideration, including their communities, activities, and distribution and movements of the various marine-associated resources that are used for traditional purposes, are also considered within the environmental effects assessment for this VC. The RAA for this VC is therefore much larger than other VC RAAs and includes the overall Atlantic Canada region. This encompasses the Indigenous communities and activities throughout relevant parts of NL, the Maritime Provinces, and QC. The RAA for Indigenous communities is shown below in Figure 13-1.







Figure 13-1 Indigenous Peoples Spatial Areas





13.1.4.2 Temporal Boundaries

Suncor is proposing to drill up to 12 to 16 wells on EL 1161 over the term of the Project with an initial well proposed for as early as Q2 2024. The drilling of each well is expected to take up to 120 days and drilling activities may occur year-round. The temporal scope of the Project extends to end of 2029 to cover off activities that could carry over following the last year of the EL (e.g., well decommissioning, suspension and abandonment).

13.1.5 Residual Effects Characterization

Table 13.2 outlines the definitions used to characterize environmental effects as part of this assessment for Indigenous peoples. These descriptions will be used throughout the chapter for characterization and evaluation of potential residual environmental effects on Indigenous peoples from routine Project activities.

Characterization	Description	Quantitative Measure or Definition of Qualitative Categories				
Direction	The long-term trend of the residual environmental effect relative to baseline	Positive – a residual environmental effect that moves measurable parameters in a direction beneficial to Indigenous peoples relative to baseline				
		Adverse – a residual environmental effect that moves measurable parameters in a direction detrimental to Indigenous peoples relative to baseline				
Magnitude	The amount of change in	Negligible – no measurable change				
	measurable parameters or the VC relative to existing conditions	Low – A detectable change that is within the range of natural variability, with no associated adverse effect on the overall nature, intensity, quality / health or value of the affected component or activity.				
		Moderate – A detectable change that is beyond the range of natural variability, but with no associated adverse effect on the overall nature, intensity, quality / health or value of the affected component or activity.				
		High – A detectable change that is beyond the range of natural variability, with an adverse effect on the overall nature, intensity, quality / heath or value of the affected component or activity.				
Geographic Extent	The geographic area in which a residual	Project Area – residual environmental effects are restricted to the Project Area				
	environmental effect occurs	LAA – residual environmental effects extend into the LAA				
		RAA - residual environmental effects extend into the RAA				
Frequency	Identifies how often the	Unlikely event – effect is unlikely to occur				
	residual effect occurs and	Single event – effect occurs once				
	now often during the Project	Multiple irregular event - effect occurs at no set schedule				
		Multiple regular event – effect occurs at regular intervals				
		Continuous – effect occurs continuously				

 Table 13.2
 Characterization of Residual Effects on Indigenous Peoples





Characterization	Description	Quantitative Measure or Definition of Qualitative Categories				
Duration	The period required until the measurable parameter or the	Short term - for duration of the activity, or for duration of accidental event				
	VC returns to its existing condition, or the residual effect can no longer be	Medium term - beyond duration of activity up to end of Project, or for duration of threshold exceedance of accidental event – weeks or months				
	perceived	Long term - beyond Project duration of activity, or beyond the duration of threshold exceedance for accidental events - years				
		Permanent - recovery to baseline conditions unlikely				
Reversibility	Pertains to whether a measurable parameter or the VC can return to its existing condition after the project activity ceases	Reversible – will recover to baseline conditions before or after Project completion Irreversible – permanent				
Ecological and Socio-economic Context	Existing condition and trends in the area where residual effects occur	Undisturbed – The VC is relatively undisturbed in the Project Area, not adversely affected by human activity, or is likely able to assimilate the additional change				
		Disturbed – The VC has been substantially previously disturbed by human development or human development is still present in the Project Area, or the VC is likely not able to assimilate the additional change				

 Table 13.2
 Characterization of Residual Effects on Indigenous Peoples

13.1.6 Significance Definition

In consideration of the descriptors listed above, the following threshold has been established to define a significant adverse residual environmental effect on Indigenous peoples.

For the purposes of this effects assessment, a significant adverse residual effect on Indigenous peoples is defined as a Project-related environmental effect that results in one or more of the following:

- Loss of access to areas relied upon for traditional use practices, or the loss of traditional use areas within a large portion of the LAA and RAA for a season
- Adverse effects on socio-economic conditions of affected Indigenous communities, such that there are associated detectable and sustained decreases in the quality of life of a community
- A decrease in the established employment and business activity in commercial-communal fisheries (e.g., due to changes in fish mortality and/or dispersion of stocks) such that there is a detectable adverse effect on the economy of the affected Indigenous community
- A reduction in the quality of ambient air, water, fish, wildlife, or other resources at concentrations predicted to result in unacceptable human health risks, with an associated detectable increase in the incidence of health issues
- Unmitigated damage to fishing gear





13.2 Project Interactions with Indigenous Peoples

Table 13.3 identifies the physical activities that might interact with Indigenous peoples and result in the environmental effects. These interactions are indicated by a check mark and are discussed in detail in Section 13.3, in the context of effects pathways, standard and project-specific mitigation/enhancement, and residual effects. A justification for no effect is provided following the table.

	Environmental Effects				
Physical Activity	Change in Commercial- Communal Fisheries	Change in Current Use of Lands and Resources for Traditional Purposes			
Presence and Operation of a MODU (including drilling, associated safety zone, lights, and sound)	✓	~			
Geophysical (including VSP), Geological, Geotechnical, and Environmental Surveys	✓	~			
Discharges (e.g., drill muds / cuttings, liquid discharges)	✓	\checkmark			
Well Testing and Flaring (including air emissions)	-	\checkmark			
Well Decommissioning, Suspension and Abandonment	✓	-			
Supply and Servicing Operations (including helicopter transportation and supply vessel operations)	✓	\checkmark			
Notes: \checkmark = Potential interaction - = No interaction					

Table 13.3	Potential Interactions of Project-related Activities with Indigenous Peoples
------------	--

Given the lack of interaction between well testing activities (including flaring) with the marine environment, there are no anticipated effects on marine fish and mammal species as a result of this Project activity. Therefore, no potential interaction has been identified for well testing and flaring for commercial-communal fisheries.

No potential interaction has been identified for well decommissioning, suspension and abandonment activities as these activities will occur in the Project Area where FSC fishing and harvesting activities do not occur. Effects on marine fish, marine and migratory birds, and marine mammals from well decommissioning, suspension and abandonment activities are predicted to be low in magnitude and, therefore, are not predicted to affect the quality or availability of resources which Indigenous communities may fish or harvest for traditional purposes.

13.3 Assessment of Residual Environmental Effects on Indigenous Peoples

The following section assesses the environmental effects on Indigenous peoples as identified through potential interactions noted in Table 13.3. Given the similarities in Project description and proximity of activities at Orphan and Flemish Pass basins, this EIS draws on recent information from previous EA documents for similar exploration drilling projects in Atlantic Canada, including comments received during stakeholder and Indigenous review processes.





The main pathways for potential Project effects on Indigenous peoples are related to direct or indirect effects on commercial-communal fisheries resources / activities or interactions with migratory fish, bird or mammal species that may be harvested by Indigenous communities from onshore / nearshore harvesting sites. The following section therefore provides an overview of the species harvested as context for these potential effects.

13.3.1 Overview of Species Harvested

Commercial-communal and FSC fishing activities are described in Section 7.3.7. Within the RAA, the following species are harvested for commercial-communal purposes: capelin, groundfish, herring, mackerel, seal, shrimp, snow crab, tuna, and whelk. Shrimp, snow crab, and groundfish are key species harvested within the RAA by Indigenous groups based in Newfoundland and Labrador for commercial purposes. Several Indigenous groups from the Maritime provinces also have commercial-communal licences to fish for swordfish and tuna in the RAA.

As described in Sections 7.3.7.2, various species are harvested by Indigenous groups in the RAA for FSC purposes, including but not limited to gaspereau, trout, Atlantic salmon, bass, mackerel, eel, shad, groundfish (e.g., flounder, halibut, pollock), Arctic char, smelt, blue shark, herring, mussel, clams, periwinkle, soft-shell clams, squid, tomcod, quahaug, razor clams, lobster, crab, and scallops. In general, these FSC species would be harvested in the nearshore and/or freshwater systems and would not interact with Project activities. However, American eel and Atlantic salmon are migratory species that potentially migrate through the Project Area at some point in their life cycle. Life histories of these species and their importance to Indigenous peoples are discussed in Section 6.1.3.6.

Over the course of EAs for recently proposed offshore exploration drilling projects, specific concerns about potential effects on swordfish, bluefin tuna, Atlantic salmon and American eel have been raised by various Indigenous communities and organizations and therefore potential effects of routine Project activities on these species is discussed in Section 13.3.4.

Marine and migratory birds and eggs are commonly harvested by Indigenous communities from the shore and nearshore areas, and include geese (e.g., Canada goose), ducks (e.g., northern pintail, blue-winged teal, Harlequin duck, common eider), loons (e.g., common loon), gulls, murres (also referred to as turrs), mergansers and scoters. Game birds (e.g., ptarmigan, grouse), although also commonly harvested by Indigenous communities, are not migratory nor do they use the marine environment therefore there is no predicted Project-interaction with game birds; therefore, game birds are not discussed further in this VC.

Between late March and mid-May, harp, grey, hooded and ringed seals are harvested by Indigenous groups in Newfoundland and Labrador. Seals may be harvested as part of the commercial-communal fishery or for FSC purposes (the latter of which could occur year-round).

13.3.2 Change in Commercial-Communal Fisheries

13.3.2.1 Project Pathways

Commercial-communal fishing activity includes deploying, setting, retrieving / hauling, and / or accessing gear in designated fishing grounds, and travel to and from those fishing grounds. A change in commercial-communal fisheries would most likely occur from Project interactions that might interrupt or prevent that





process (e.g., having grounds closed to fishing, impediments to or from fishing grounds, lost or damaged fishing gear, or lost or reduced catch), are the focus of this assessment. Furthermore, for many Indigenous communities, commercial-communal fishing activities represent an important revenue source. Many Indigenous communities rely on revenue generated from commercial-communal fishing to fund community ventures, social programs and benefits, and therefore, indirect socio-economic effects are also qualitatively considered in this assessment. Project interactions which could interrupt or prevent commercial-communal fishing could result in reduced revenue for a community and affect community spending and investment in infrastructure, services and/or programs.

A change in commercial-communal fisheries could occur as a result of Project activities affecting the marine environment, including drilling (underwater sound effects on commercial-communal fisheries species), geophysical (including VSP), geological, geotechnical and environmental surveys (underwater sound effects on commercial-communal fisheries species), discharges (effects on water and sediment quality for commercial-communal fisheries), well decommissioning, suspension and abandonment (potential interference with commercial-communal fishing) and supply and servicing (supply vessels disturbing marine fish or damaging fisheries gear or equipment).

13.3.2.2 Mitigation

Mitigation measures identified in the assessment for marine fish and fish habitat (Section 9.3), marine and migratory birds (Section 10.3), and marine mammals and sea turtles (Section 11.3), will help reduce the potential for adverse environmental effects on commercial-communal fisheries for Indigenous communities.

In consideration of the environmental effects pathways outlined above, key mitigation measures that will be implemented in relation to the Project to help avoid or reduce potential environmental effects on Indigenous peoples include the following:

- Suncor will continue to engage with Indigenous communities to share Project details and facilitate information sharing. This will be accomplished through the development and implementation of a Fisheries Communication Plan.
- Suncor will establish a marine safety (exclusion) zone in accordance with the Newfoundland Offshore Petroleum Drilling and Production Regulations and will provide details of the safety zone to the Marine Communication and Traffic Services for broadcasting and publishing in the Navigational Warning (NAVWARN) and Notices to Mariners (NOTMAR) systems. Details of the safety zone will also be communicated during ongoing engagement with commercial and Indigenous fishers.
- Supply vessels will follow established shipping lanes in proximity to shore.
- Suncor will communicate the locations of abandoned wellheads (if applicable) to Indigenous and non-Indigenous fishers and the Canadian Hydrographic Services for future nautical charts.
- During transit to/from the Project Area, supply vessels will travel at vessel speeds not exceeding 22 km/hour (12 knots), except as needed in the case of an emergency. In the event that a marine mammal or sea turtle is detected in proximity to the vessel, vessel speed will be reduced to 7 knots.
- Project-related damage to fishing gear, if any, will be compensated in accordance with the Compensation Guidelines with Respecting Damages Relating to Offshore Petroleum Activity (C-NLOPB and CNSOPB 2017).





13.3.2.3 Characterization of Residual Project-related Environmental Effects

Presence and Operation of a MODU

There is potential for a disruption of commercial-communal fishing activities if drilling activities displace fishing in the areas around drill sites. A 500-m radius safety (exclusion) zone will be maintained around the MODU, when it is present and operating, within which non-Project vessels will be prohibited. As discussed in Section 14.3.1.3, should anchors be used during drilling operations, a 50 m safety (exclusion) zone will be implemented around the anchors. Therefore, commercial-communal fishing will be excluded from an area of approximately 7.5 km² for up to approximately 120 days for each well drilled (up to 12 to 16 wells over the term of the EL). Details of the safety zone will be provided for broadcasting and publishing in the NAVWARN and NOTMAR systems. Details of the safety zone will also be communicated through operational updates as described in the Fisheries Communication Plan. As discussed in Section 7.2, commercial fishing efforts within the Project Area are low, with activity from 2016 to 2020 only occurring within the southeastern corner. Although fishing effort may be prevented within this safety zone, it is anticipated to be a temporary and localized fishing exclusion and is not likely to have a substantial effect on commercial-communal fishing activities and fisheries resources. The temporary exclusion of fishing from the safety zone (for up to 120 days per well) of a semi-submersible drilling rig is not predicted to affect commercial-communal fisheries to the extent that it would substantively affect revenue for Indigenous communities and affect community health and socio-economic conditions, given the small area of exclusion and lack of historical fishing in EL 1161.

Biophysical and behavioural effects associated with underwater sound on fish species, including commercial-communal species, are discussed in Chapter 9 (Marine Fish and Fish Habitat). These effects are predicted to be localized and temporary, particularly as the fish may become habituated to the continuous underwater sound emissions (Chapman and Hawkins 1969; McCauley et al. 2000a, 2000b; Fewtrel and McCauley 2012). Given the temporary and localized nature of this effect, it is not expected that fishery species (or prey upon which they may depend) would experience a measurable change in availability to the extent that commercial-communal fisheries resources would be adversely affected.

Residual effects on a change in commercial-communal fisheries due to drilling are predicted to be negligible to low in magnitude, occur within the RAA (where affected Indigenous communities are located), occur more than once as irregular events, be short-term in duration, and be reversible.

Geophysical (including VSP), Geological, Geotechnical and Environmental Surveys

VSP operations will produce underwater sound that may potentially affect commercial-communal fish species (or prey species upon which fishery species may depend). Underwater sound could startle fish, causing them to avoid the area and thereby reduce catchability. As discussed in Section 9.3, physical and behavioral changes in marine fish (including fisheries species) would be temporary (VSP surveys are expected to take one day per well) and reversible (e.g., baseline conditions resume after VSP surveys are completed). As discussed in Section 14.3.1.3, fish species, including commercial-communal species, may move away from an area due to the presence of underwater sound. Effects on fisheries species, however, would not be likely to affect the availability of fisheries resources such that there would be a measurable change in catch rates or mortality of commercially species.

For other surveys that do not used towed gear, such as geological, geotechnical and environmental surveys, there is limited potential for direct interactions with communal-commercial fishing gear. These





surveys are conducted from survey-specific vessels, or from the MODU, within the Project Area potentially at all times of year over the course of the Project. They are transitory in nature with a short term presence at any one location, and is generally consistent with the overall marine traffic that has occurred throughout the region for years. The effects are similar to those discussed in supply and servicing. Mitigation measures outlined in Section 13.3.2.2 will be in place during Project operations.

Residual effects on a change in commercial-communal fisheries due to VSP are predicted to be negligible to low in magnitude, occur within the RAA (where affected Indigenous communities are located), occur more than once as irregular events, be short-term in duration, and reversible.

Discharges

The discharge of drilling waste and other discharges and emissions may result in temporary and localized effects on water quality and/or sediment quality and therefore potentially affect commercial-communal fisheries species within a localized area. The effects of discharges on marine fish are evaluated in Section 9.3 and the assessment concludes that effects will be low in magnitude and localized to the Project Area. Discharges from the MODU will be in accordance with Suncor's EPP and the OWTG (NEB et al. 2010). The availability of fisheries resources is not expected to be affected by discharges.

Residual effects on a change in commercial-communal fisheries due discharges are predicted to be negligible to low in magnitude, occur within the RAA (where affected Indigenous communities are located), occur more than once as irregular events, be medium-term in duration, and be reversible.

Well Decommissioning, Suspension and Abandonment

All wells drilled during the Project life span will be plugged and abandoned upon completion of well evaluation activities, although the abandonment program has not yet been defined. Abandonment activities will be conducted according to Suncor's practices and requirements set by the C-NLOPB. Two possible scenarios exist for an exploratory well decommissioning: suspension or abandonment. The suspension cap will protrude above the seabed. Operators are required to provide detailed plans to the C-NLOPB for monitoring suspended wells and are also required to provide information regarding the specific proposed methods of suspension of each well. Proper notification via NAVWARN and NOTMAR will be made to identify the subsea obstruction until it is removed. This will allow mobile gear and fixed gear fishers to avoid these locations around suspended wells. Effects on commercial-communal fishing activities are expected to be low in magnitude.

Well abandonment is the permanent decommissioning of a well and includes plugging the well with a cement mixture to isolate the wellbore. The wellhead and associated equipment may then be removed above the plugs to just below the seafloor with mechanical cutters. The seabed is inspected using an ROV to confirm no equipment or obstructions remain. Alternatively, after plugging the well, the wellhead may be left in place on the seafloor (and all other equipment removed). If the wellhead is left in place, it would result in a permanent piece of infrastructure on the seafloor, which would have to potential to interact with fishing and/or research equipment and may potentially cause damage. It is estimated that there would not be a large amount of interaction with commercial fishing activities in the LAA, as most harvesting takes place along the shelf edge at shallower depths. Suncor's well decommissioning, suspension and abandonment strategy will be designed in compliance with the *Newfoundland Offshore Petroleum Drilling and Production Regulations*, standard industry abandonment procedures and practices in accordance with C-NLOPB





regulations, and Suncor's applicable practices and decisions regarding wellhead removal will consider water depth and the likelihood of potential interactions with fishing activities.

Regardless of whether the decommissioned well is suspended or abandoned and whether the wellhead is left in place or removed, effects on marine fish and marine mammals are predicted to be low in magnitude and are not predicted to affect the availability of fisheries resources for commercial-communal fishing.

Residual effects on a change in commercial-communal fisheries due to well decommissioning, suspension and abandonment are predicted to be negligible to low in magnitude, be limited to the Project Area / LAA, occur more than once as irregular events, be short term in duration, and be reversible. Should the wellhead be left in place, residual effects are predicted to be permanent in duration and irreversible.

Supply and Servicing

The operation of supply vessels will increase vessel traffic in the Project Area and the LAA and therefore potentially interact with commercial-communal fishing activity (e.g., interfere with fishing gear or fishing vessel navigation) or disrupt fishery species due to underwater sound emissions. Common shipping routes will be used by supply vessels, as practicable, and supply vessels will adhere to standard navigation procedures to reduce incremental marine disturbance and potential conflict with fishing vessels.

Helicopter transportation is predicted to have negligible effects on fisheries given the lack of interaction with marine fish or fishing activities.

Residual effects on a change in commercial-communal fisheries due to supply and servicing are predicted to be negligible to low in magnitude, occur within the RAA (where affected Indigenous communities are located), occur more than once as irregular events, be short-term in duration, and reversible.

13.3.3 Change in Current Use of Lands and Resources for Traditional Purposes

13.3.3.1 Project Pathways

Current use of lands and resources for traditional purposes includes harvesting activities to collect resources that provide nourishment, or for use in traditional ceremonies and social events. Indigenous peoples have historically relied on harvesting a variety of species (e.g., fish, birds, marine mammals, wildlife, plants) for sustenance, medicine, spiritual and cultural practices, and for trade. Although, Suncor is not aware of FSC fishing occurring in the Project Area, migratory fish, bird and/or mammal species that may be traditionally harvested by Indigenous communities (or species linked to these harvested species [e.g., prey species]) elsewhere, may migrate through the Project Area and interact with the Project. This may therefore affect the quality or availability of these resources upon which Indigenous communities may depend and potentially result in a change in current use of resources for traditional purposes. The pathway for a Project effect causing a change in the current use of lands and resources for traditional purposes is therefore tied to effects on migratory species which may occur in the Project Area or LAA.

A change in current use of lands and resources for traditional purposes could occur as a result of Project activities affecting the marine environment, including the presence and operation of a MODU (underwater sound effects on FSC fisheries species), geophysical (including VSP), geological, geotechnical and environmental surveys (underwater sound effects on FSC fisheries species), discharges (effects on water and sediment quality for FSC fisheries, effects on marine and migratory birds), well testing and flaring (risk





of mortality for marine and migratory birds), and supply and servicing (helicopters and supply vessels disturbing marine and migratory birds, and supply vessels disturbing marine fish or interfering with inshore fisheries).

13.3.3.2 Mitigation

The mitigation measures outlined in Section 13.3.2.2 will also be applicable to reducing potential effects on current use of lands and resources for traditional purposes.

13.3.3.3 Characterization of Residual Project-related Environmental Effects

Presence and Operation of a MODU

As discussed above, fish can be affected by underwater sound emissions from the MODU, which may cause migratory species to avoid the area around the MODU, particularly during the start-up of drilling, although these effects are expected to be temporary as the fish become habituated to the continuous sound levels. Given the temporary nature of this effect, it is not expected that migratory fish would be affected to the extent that FSC fisheries would experience a change in availability of fisheries resources (through species mortality or dispersion of stocks) and therefore would not indirectly result in associated social and cultural impacts to the Indigenous communities.

The presence and operation of the MODU could interact with traditional bird harvesting activities indirectly through nocturnal attraction of the harvested bird species to artificial lighting when these birds are in the vicinity of the MODU. Species commonly harvested by Indigenous communities include geese, ducks, loons, gulls, murres, mergansers, and scoters. Section 10.3 describes Project effects on marine and migratory birds. The magnitude of the effect of MODU operation on marine and migratory birds is expected to be low in consideration of the implementation of mitigation including following the Best Practices for Stranded Birds Encountered Offshore Atlantic Canada (ECCC 2016).

Seals are harvested by Indigenous communities for FSC purposes. The harp seal and hooded seal are expected to be common in the Project Area. Potential effects from drilling on marine mammals (including seals) is discussed in Section 11.3. Residual effects on marine mammals are predicted to be low in magnitude; therefore, potential impacts to harvested seal species are similarly predicted to be low in magnitude.

Residual effects or a change in current use of lands and resources for traditional purposes due to drilling are predicted to be negligible to low in magnitude, occur within the RAA (where affected Indigenous communities are located), occur more than once as irregular events, be short-term in duration, and reversible.

Geophysical (including VSP), Geological, Geotechnical and Environmental Surveys

Underwater sound associated with VSP could cause physiological or behavioral effects (including startle and alarm responses) on migratory fish. Mobile fish are anticipated to avoid underwater sound at thresholds which could result in injury or mortality, particularly with the implementation of ramp-up procedures (implemented primarily for the protection of marine mammals and sea turtles). Similarly, as discussed in Section 11.3, with the implementation of mitigation measures (Section 11.3.2), it is unlikely that VSP surveys will result in injuries (e.g., PTS) for marine mammals or sea turtles. Residual effects from VSP on





FSC fisheries species are not anticipated since the VSP operation would be localized and short term, with negligible environmental effects on FSC fisheries species that may be migrating through the area. Potential impacts to social and cultural values are also anticipated to be low.

Sound produced by VSP surveys could also potentially interact with migratory birds, particularly diving birds, who may hear a sound pulse if they are underwater when the VSP sound source is activated. Murres are diving species which could be present in the Project Area and which are traditionally harvested by Indigenous communities in the RAA. Common murres may dive to a depth of 180 m or deeper (Piatt and Nettleship 1985). However, given the ramp-up period, it is likely that the gradual increase in underwater sound levels would deter these birds from feeding underwater in the affected area when the seismic source is activated. As discussed in Section 10.3, residual effects from these surveys are likewise not anticipated because the activity will be extremely localized and short-term (approximately one day per well), with negligible environmental effects on birds.

The Project will involve geological, geotechnical and environmental surveys conducted from survey-specific vessels, or from the MODU, within the Project Area potentially at all times of year over the course of the Project. The effects are similar to those discussed in supply and servicing. Mitigation measures outlined in Section 13.3.2.2 will be in place during Project operations to reduce the effects of bird attraction due to offshore lighting from survey vessels.

Residual effects on a change in current use of lands and resources for traditional purposes due to geophysical (including VSP), geological, geotechnical and environmental surveys are predicted to be negligible to low in magnitude, occur within the RAA (where affected Indigenous communities are located), occur more than once as irregular events, be short-term in duration, and reversible.

Discharges

The discharge of drilling waste and other emissions may result in temporary and localized effects on water quality and/or sediment quality and therefore could affect FSC species within a localized area. Discharges and emissions will be in accordance with Suncor's EPP and the OWTG (NEB et al. 2010), thereby reducing the potential for adverse environmental effects on marine fish (refer to Section 9.3). Localized effects on the marine benthos from drill waste deposition is not predicted to affect FSC fisheries species.

Marine and migratory birds that may be harvested for FSC purposes may interact with discharges resulting in attraction to the MODU and/or oiling of feathers if there is a sheen present. However, a sheen is unlikely to occur as a result of routine discharges given compliance with regulatory requirements for waste discharges and therefore adverse effects to marine and migratory birds from discharges is not anticipated. With the implementation of standard environmental protection measures for waste management, the overall magnitude of the effect of discharges and emissions is predicted to be low. It is therefore unlikely that discharges and emissions would reduce the availability of species to be harvested for FSC purposes.

Residual effects on a change in current use of lands and resources for traditional purposes due to discharges is predicted to be negligible to low in magnitude, occur within the RAA (where affected Indigenous communities are located), occur more than once as irregular events, be short-term in duration, and reversible.





Well Testing and Flaring

Well evaluation and testing activities do not interact with the marine environment, therefore there is no predicted effect of this activity on marine fish.

If well testing involves flaring, there is potential for marine and migratory birds to be attracted to the flare where they may become stranded on the MODU and/or experience physical injury or death. Flaring, if conducted, would be brief and bird attraction would be limited to within several kilometres of the MODU. Mitigation measures would be implemented to reduce adverse effects on marine and migratory birds (refer to Section 10.3). The effects of formation flow testing with flaring (if conducted) on marine associated birds, and therefore traditional harvesting, are therefore anticipated to be negligible.

Residual effects or a change in current use of lands and resources for traditional purposes due to well testing and flaring is predicted to be negligible in magnitude, occur within the RAA (where affected Indigenous communities are located), occur more than once as irregular events, be short-term in duration, and reversible.

Supply and Servicing

The operation of supply vessels will increase vessel traffic in the Project Area and LAA and may therefore locally affect migratory species habitat quality and use around the supply vessel. The operation of supply vessels and helicopters, particularly in the nearshore area, may result in sensory disturbances to nesting marine and migratory birds, and supply vessels may interact with FSC fisheries species or nearshore FSC fishing.

Supply and servicing activities are not predicted to affect access to traditional fishing areas or interfere with fishing activities. Supply vessels and helicopters would represent an incremental increase of existing high levels of traffic in the nearshore and would abide by standard navigation practices to reduce or avoid adverse interactions with fishing activities. With respect to migratory bird colonies, buffer zones would be observed to reduce potential for sensory disturbance of breeding birds (refer to Section 10.3).

Residual effects on a change in current use of lands and resources for traditional purposes due to supply and servicing is predicted to be negligible to low in magnitude, occur within the RAA (where affected Indigenous communities are located), occur more than once at irregular intervals, be short-term in duration, and be reversible.

13.3.4 Species of Commercial and/or Cultural Importance: Potential Effects

Indigenous communities and organizations (over the course of environmental assessments for recently proposed offshore exploration drilling projects) have raised concerns about potential effects on swordfish, bluefin tuna, Atlantic salmon and American eel. Therefore, the potential effects of routine Project activities on these species are evaluated below, with a full assessment of Project interactions on marine fish and fish habitat provided in Section 9.3.





13.3.4.1 Swordfish

Miawpukek First Nation and several Indigenous communities in the Maritime provinces hold commercialcommunal licences for swordfish in the RAA. Swordfish are highly migratory pelagic species that forage in Canadian waters from June to October (DFO 2015). The spawning and nursery habitats for swordfish are far away from the Project Area (e.g., Gulf of Mexico, eastern continental shelf of the United States (Arocha 2007). Additionally, the longline fishery for swordfish in the RAA occurs primarily on the southern Grand Banks, also distant from the Project Area or LAA.

Swordfish are highly visual predators (DFO 2015), and like many other pelagic fish, may be attracted to the MODU due in part to increased foraging opportunities (aggregation of prey species) and increased light emissions. Individual swordfish species may be attracted to Project infrastructure which may expose species to the emissions (sound, light) and discharges associated with drilling activities. Lights from the MODU or supply vessel are not projected into the water column far beyond the physical footprint of the MODU / vessels (i.e., within 100 m), limiting the area affected. Furthermore, based on hearing sensitivities of other large pelagic fish, swordfish are likely capable of detecting low frequency sounds and are expected to avoid high intensity sound levels thereby avoiding potential injury.

Potential interactions from Project-related activities with swordfish are expected to be low due to the limited seasonal distribution near the Project Area, their non-schooling behavior, and their capability to avoid adverse effects associated with underwater sound. Mitigation measures will be implemented to protect marine fish and fish habitat (e.g., waste management) which will also help reduce potential for adverse effects on swordfish.

13.3.4.2 Bluefin Tuna

Miawpukek First Nation and several Indigenous communities from the Maritime provinces hold commercialcommunal licences for bluefin tuna and/or other tuna species in the RAA. Bluefin tuna are highly migratory species and seasonal migrants to Canadian waters. They are generally fished from July through December in the Scotian Shelf, Gulf of St. Lawrence, Bay of Fundy and Newfoundland waters with the occurrence and abundance of bluefin tuna in any one of these locations varying from one year to the next. There are no known spawning or rearing habitats for larval and juvenile stages in Canadian Waters (COSEWIC 2011).

Adult bluefin tuna are highly mobile (Hazen et al. 2016) and expected to avoid high intensity sound levels, thereby avoiding potential injury. Tuna are hearing generalists and are capable of detecting low frequency sounds in the range of 200 to 700 Hz with higher sensitivity to sounds between 200 to 400 Hz (Southwood et al. 2008). Project interactions with bluefin tuna are anticipated to be low due to the limited seasonal distribution and broad range of habitat locations, and its capability to avoid sound and injury. Effects on prey species from routine Project activities are not predicted to occur such that it would affect foraging success of bluefin tuna. Mitigation measures will be implemented to protect marine fish and fish habitat (e.g., waste management) which will also help reduce potential for adverse effects on bluefin tuna.

13.3.4.3 Atlantic Salmon

Atlantic salmon has traditionally been a staple food for Indigenous peoples, although today, it is often reserved for special occasions given a lack of abundance and concern for local populations (Denny and





Fanning 2016). There are several populations of Atlantic salmon which could be found in the RAA. Salmon of various ages may be found in the ocean (COSEWIC 2010), and migration routes can vary considerably due to variations in environmental conditions, such as sea surface temperature. Research vessel surveys have not identified salmon within the Project Area and, therefore, the potential for occurrence within the Project Area is considered low. Given recent concerns regarding the presence or absence of Atlantic salmon (Salmo solar) in areas of offshore oil and gas activity in eastern Canada, there are ongoing environmental and social studies on Atlantic salmon through the Environmental Studies Research Fund (ESRF 2019). These studies and other research initiatives may help to provide additional data regarding the migration routes of salmon.

Should Atlantic salmon occur within the Project Area, it is likely that they would be migrating through and therefore would only be temporarily exposed to underwater sound emissions and discharges in the Project Area or LAA. Light from the MODU is not expected to penetrate the water column more than 50 m radius from the source (Davies et al. 2014) and is not anticipated to affect salmon. Atlantic salmon do not have special adaptations for hearing; however, they are sensitive to acoustic particle motion, particularly at frequencies below 200 Hz (Bui et al. 2013) and have been shown to avoid infrasound frequencies in freshwater environments (5 to 10 Hz) in controlled experiments. The MODU will produce low frequency sounds under water not unlike other vessels currently operating in the marine environment, including supertankers / container ships (7 to 70 Hz), medium-sized ships such as ferries (approximately 50 Hz), boats <30m in length (<300 Hz), and smaller ships such as support / supply vessels (20 to 1,000 Hz) (Peng et al. 2015). Underwater sound emissions from the MODU and supply vessels are not predicted to affect salmon, including during spawning migration to natal rivers. Mitigation measures will be implemented to protect marine fish and fish habitat (e.g., waste management) which will also help reduce potential for adverse effects on Atlantic salmon.

13.3.4.4 American Eel

American eel is a catadromous fish (i.e., migrating down rivers to the sea to spawn) that lives primarily within freshwater and estuarine environments. It has a broad distribution throughout the northwest Atlantic Ocean, stretching from Venezuela to Greenland and Iceland, with the Canadian portion of this distribution including coastlines, freshwater habitats, estuaries, and coastal marine waters connected to Canada, up to the mid-Labrador coast (COSEWIC 2012).

American eel was not identified during 2016 to 2020 DFO research vessel surveys. The potential for occurrence within the Project Area is considered low. Little information is available on specific migration patterns of American eel. Should American eel occur within the Project Area, it is likely that they would be transported by currents on their way either to Greenland, Iceland, or to NL.

An assessment of recovery potential for America eel in Eastern Canada determined that oil and gas exploration, with a focus on seismic exploration represented a negligible threat based on evidence of populations of American eel in the Newfoundland and Labrador region (Chaput et al. 2013). Boat and ship traffic were also noted as being a negligible threat to American eel in the Newfoundland and Labrador region (Chaput et al. 2013).

Studies have shown juvenile and adult American eel to exhibit a strong avoidance to lights (Hadderingh et al. 1992; Cullen and McCarthy 2000; Bruijs et al. 2002). As described above however, light from the MODU





would be quickly attenuated through refraction and absorption, is not expected to penetrate the water column more than 50 m radius from the source (Davies et al. 2014). Artificial lighting from the MODU is therefore not expected to affect eel migration patterns.

Given the low likelihood of high densities of American eel migrating through the Project Area and the localized nature of effects from routine Project activities, the Project is not likely to have adverse effects on American eel. Mitigation measures will be implemented to protect marine fish and fish habitat (e.g., waste management) which will also help reduce potential for adverse effects on American eel.

13.3.5 Summary of Project Residual Environmental Effects

Table 13.4 summarizes the environmental effects assessment and prediction for the residual environmental effects resulting from interactions between Project activities and Indigenous peoples. The Project may result in adverse effects to a change in commercial-communal fisheries and change in current use of lands and resources for traditional purposes. The Project may interact with commercial-communal fishing (if fishing rights are exercised in the LAA) and/or targeted species, although these effects are not predicted to occur to the extent that there would be a measurable change in revenue that could result in a change in health or socio-economic conditions for an Indigenous community. Similarly, the Project may interact with marine species that could be considered important from a food, social or ceremonial perspective, although Project activities are not predicted to cause a change in quantity, quality or availability of traditional resources that could result in a change in current use of lands and resources for traditional purposes. In consideration of the implementation of mitigation, the residual effects are predicted to be negligible to low in magnitude for each Project activity, generally occur within the RAA (where Indigenous communities are located), be of short to long-term in duration, and be reversible.

		Residual Environmental Effects Characterization						
Residual Effect	Direction	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Ecological and Socio-economic Context	
Change in Commercial-Communal Fisheries								
Presence and Operation of a MODU	А	N-L	RAA	ST	IR	R	D	
Geophysical (including VSP) Surveys	А	N-L	RAA	ST	IR	R	D	
Geological, Geotechnical and Environmental Surveys	А	N-L	PA	ST	IR	R	D	
Discharges	А	N-L	RAA	MT	IR	R	D	
Well Testing and Flaring	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Well Decommissioning, Suspension and Abandonment	А	N-L	PA	ST-P	IR	R-I	D	
Supply and Servicing	А	N-L	RAA	ST	IR	R	D	

Table 13.4 Summary of Residual Environmental Effects on Indigenous Peoples





	Residual Environmental Effects Characterization							
Residual Effect	Direction	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Ecological and Socio-economic Context	
Change in Current Use of Lands a	nd Resou	rces for T	raditional	Purpose	s	-	_	-
Presence and Operation of a MODU		А	N-L	RAA	ST	IR	R	D
Geophysical (including VSP) Surveys	5	А	N-L	RAA	ST	IR	R	D
Geological, Geotechnical and Environmental Surveys		А	N-L	PA	ST	IR	R	D
Discharges		А	N-L	RAA	ST	IR	R	D
Well Testing and Flaring		А	N	RAA	ST	IR	R	D
Supply and Servicing		А	N-L	RAA	ST	IR	R	D
KEY: See Table 13.3 for detailed definitions N/A: Not Applicable Direction: P: Positive A: Adverse N: Neutral Magnitude: N: Negligible L: Low M: Moderate H: High	Geograph PA: Proje LAA: Loca RAA: Reg Duration: ST: Short MT: Medi LT: Long- P: Perma	nic Extent: ct Area al Assessmu jional Asses -term um-term term nent	ent Area ssment Area	a	Frequency UL: Unlikel S: Single e IR: Irregula R: Regular C: Continu Reversibilit R: Reversil I: Irreversit Ecological D: Disturbe U: Undistu	y vent ir event event ous y: ble / Socio-Ec ed rbed	conomic (Context:

Table 13.4 Summary of Residual Environmental Effects on Indigenous Peoples

13.4 Determination of Significance

Residual effects from routine Project activities on Indigenous peoples are not predicted to result in a loss of access to or permanent loss of areas relied upon for traditional use practices. Adverse effects on socioeconomic conditions of affected Indigenous communities are not predicted such that there would be an associated detectable and sustained decrease in the quality of life of a community, including for subpopulations within a community. A decrease in established employment and business activity in commercial-communal fisheries (e.g., due to fish mortality and/or dispersion of stocks) is not predicted such that there is a detectable adverse effect upon the economy of the affected Indigenous community, and damage to fishing gear would be mitigated. With the implementation of mitigation and environmental protection measures, residual environmental effects on Indigenous peoples are predicted to be not significant.





13.5 Prediction Confidence

This prediction of a not significant effect is made with a high level of confidence based on a good understanding of the general effects on fisheries activities, and commercial and traditionally harvested species inhabiting the Project Area, LAA and RAA, and the effectiveness of mitigation measures, including those proposed for marine fish, marine and migratory birds, marine mammals and sea turtles, and commercial fisheries.

13.6 Follow-up and Monitoring

No follow-up and monitoring are proposed for routine Project activities. This is based on several factors, including the high level of confidence for a prediction of no significant adverse environmental effects on Indigenous communities and activities, the implementation of standard mitigation, and ongoing engagement with Indigenous communities.

13.7 References

Aboriginal Affairs and Northern Development Canada. 2011. Aboriginal Consultation and Accommodation - Updated Guidelines for Federal Officials to Fulfill the Duty to Consult. Available at: https://www.aadnc-aandc.gc.ca/DAM/DAM-INTER-HQ/STAGING/textetext/intgui_1100100014665_eng.pdf

CEA Agency (Canadian Environmental Assessment Agency). 2015a. Reference Guide: Considering Aboriginal Traditional Knowledge in Environmental Assessments Conducted Under the *Canadian Environmental Assessment Act, 2012*. Available at: http://publications.gc.ca/collections/collection_2013/acee-ceaa/En106-124-2013-eng.pdf

- CEA Agency (Canadian Environmental Assessment Agency). 2015b. Technical Guidance for Assessing Physical and Cultural Heritage or any Structure, Site or Thing that is of Historical, Archaeological, Paleontological or Architectural Significance under *Canadian Environmental Assessment Act, 2012.* Available at: https://www.canada.ca/content/dam/ceaa-acee/documents/policyguidance/technical-guidance-assessing-physical-cultural-heritage-or-structure-site-orthing/technical-guidance-assessing-physical-cultural-heritage-structure-site-thing-historicalarcheological-paleontological-architectural-significance-2015.pdf
- CEA Agency (Canadian Environmental Assessment Agency). 2016. Technical Guidance for Assessing the Current Use of Lands and Resources for Traditional Purposes under the *Canadian Environmental Assessment Act, 2012.* Available at: https://www.canada.ca/content/dam/ceaaacee/documents/policy-guidance/assessing-current-use-lands-resources-traditionalpurposes/current_use_final_draft-eng.pdf
- Arocha, F. 2007. Swordfish reproduction in the Atlantic Ocean: An overview. Gulf and Caribbean Research, 19(2):21-36.





- Bruijs, M.C.M, R.H. Hadderingh and H.A. Jenner. 2002. Deflecting eels from water intakes with light.
 Paper presented at Measuring Behavior 2002, 4th International Conference on Methods and Techniques in Behavioral Research, 27-30 August 2002, Amsterdam, The Netherlands.
- Bui. S., F. Oppedal, O.J. Korsoen, D. Sonny and T. Dempster. 2013. Group behavioural responses of Atlantic salmon (*Salmo salar* L.) to light, infrasound and sound stimuli. PLoS ONE, 8(5): e63696. Doi: 10.1371/journal.pone.0063696.
- Chapman, C.J., and A.D. Hawkins. 1969. The Importance of Sound in Fish Behaviour in Relation to Capture by Trawls. FAO Fisheries Report, 62: 717-729.
- Chaput, G., T.C. Pratt, D.K. Cairns, K.D. Clarke, R.G. Bradford, A. Mathers and G. Verreault. 2013. Recovery potential assessment for the American Eel (*Anguilla rostrata*) for eastern Canada: description and quantification of threats. Canadian Science Advisory Secretariat Research Document, 2013/135.
- C-NLOPB (Canada-Newfoundland and Labrador Offshore Petroleum Board) and CNSOPB (Canada-Nova Scotia Offshore Petroleum Board). 2017. Compensation Guidelines Respecting Damages Relating to Offshore Petroleum Activity. November 2017. Available at: http://www.cnlopb.ca/pdfs/guidelines/compgle.pdf?lbisphpreq=1.
- COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2010. COSEWIC assessment and status report on the Atlantic Salmon *Salmo salar* (Nunavik population, Labrador population, Northeast Newfoundland population, South Newfoundland population, Southwest Newfoundland population, Northwest Newfoundland population, Quebec Eastern North Shore population, Quebec Western North Shore population, Anticosti Island population, Inner St. Lawrence population, Lake Ontario population, Gaspé-Southern Gulf of St. Lawrence population, Eastern Cape Breton population, Nova Scotia Southern Upland population, Inner Bay of Fundy population, Outer Bay of Fundy population) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa, ON. xlvii + 136 pp.
- COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2011. Atlantic bluefin tuna (*Thunnus thynnus*): COSEWIC assessment and status report.
- COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2012. COSEWIC assessment and status report on the American Eel *Anguilla rostrata* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa, ON. xii + 109 pp.
- Cullen, P and T. McCarthy. 2000. The effects of artificial light on the distribution of catches of silver eel, *Anguilla anguilla* (L.), across the Killaloe eel weir in the Lower River Shannon. Biology and Environment: Proceedings of the Royal Irish Academy. 100B.
- Davies, T.W., J.P. Duffy, J. Bennie and D.J. Gaston. 2014. The nature, extent, and ecological Implications of marine light pollution. Front Ecol. Environ., 12(6): 347-355. Doi:10.1890/130281.





- Denny, S., and L. Fanning. 2016. A Mi'kmaw perspective on advancing salmon governance in Nova Scotia, Canada: Setting the stage for collaborative co-existence. The International Indigenous Policy Journal, 7(3).
- DFO (Fisheries and Oceans Canada). 2012a. Aboriginal Fisheries Strategy. Available at: http://www.dfo-mpo.gc.ca/fm-gp/aboriginal-autochtones/afs-srapa-eng.htm.
- DFO (Fisheries and Oceans Canada). 2012b. Evaluation of the Atlantic Integrated Commercial Fisheries Initiative (AICFI). Available at: http://www.dfo-mpo.gc.ca/aeve/evaluations/10-11/6b118-eng.htm.
- DFO (Fisheries and Oceans Canada). 2012c. Atlantic Integrated Commercial Fisheries Initiative. Available at: http://www.dfo-mpo.gc.ca/fm-gp/aboriginal-autochtones/aicfi-ipcia/index-eng.htm.
- DFO (Fisheries and Oceans Canada). 2015. Swordfish. Available at: https://www.dfo-mpo.gc.ca/fisheries-peches/swordfish-espadon-eng.html. Accessed July 25, 2019.
- ECCC (Environment and Climate Change Canada). 2016. Procedures for Handling and Documenting Stranded Birds Encountered on Infrastructure Offshore Atlantic Canada. 17 pp. + Appendices.
- ESRF (Environmental Studies Research Fund). 2019. Call for Proposals: Environmental and Social Studies Atlantic Salmon. Available at: https://www.esrfunds.org/181.
- Fewtrell, J.L. and R.D. McCauley. 2012. Impact of air gun noise on the behaviour of marine fish and squid. Marine Pollution Bulletin, 64(5): 984-993.
- Government of Newfoundland and Labrador. 2013. Aboriginal Consultation Policy on Land and Resource Development Decisions. April 2013. Available at: https://www.gov.nl.ca/iias/wpcontent/uploads/aboriginal_consultation.pdf
- Hadderingh, R.H., J.W. Van Der Stoep and J.M. Hagraken. 1992. Deflecting eels from water inlets of power stations with light. Irish Fisheries Investigations, 36: 37-41.
- Hazen, E.L., A.B. Carlisle, S.G. Wilson, J.E. Ganong, M.R. Castleton, R.J. Schallert, M.J.W. Stokesbury,
 S.J. Brgrad and B.A. Block. 2016. Quantifying overlap between the Deepwater Horizon oil spill and predicted bluefin tuna spawning habitat in the Gulf of Mexico. Scientific Reports, 6, 33824.
- McCauley, R.D., J. Fewtrell, A.J. Duncan, C. Jenner, M.-N. Jenner, J.D. Penrose, R.I.t. Prince, A. Adhitya, J. Murdoch and K. McCabe. 2000a. Marine Seismic Surveys: Analysis of Airgun Signals and Effects of Air Gun Exposure on Humpback Whales, Sea Turtles, Fishes and Squid. Report prepared by the Centre for Marine Science and Technology (Report R99-15), Curtin University, Perth, WA, for Australian Petroleum Production Association, Sydney, NSW.
- McCauley, R.D., J. Fewtrell, A.J. Duncan, C. Jenner, M.-N. Jenner, J.D. Penrose, R.I.T. Prince, A. Adhitya, J. Murdoch and K. McCabe. 2000b. Marine seismic surveys A study of environmental implications. Australian Petroleum Producers and Exploration Association Journal, 40: 692-706.





- NEB (National Energy Board), Canada-Newfoundland and Labrador Offshore Petroleum Board and Canada-Nova Scotia Offshore Petroleum Board. 2010. Offshore Waste Treatment Guidelines. vi + 28 pp. Available at: https://www.cnlopb.ca/wp-content/uploads/guidelines/owtg1012e.pdf
- Peng, C., X. Zhao and G. Liu. 2015. Noise in the sea and its impacts on marine organisms. Int. J. Environ. Res. Public Health., 12: 12304-12323. Doi:10.3390/ijerph121012304.
- Piatt, J.F. and D.N. Nettleship. 1985. Diving depths of four Alcids. The Auk, 102(2): 293.297.
- Southwood, A., K. Fritsches, R. Brill and Y. Swimmer. 2008. Sound, chemical, and light detection in sea turtles and pelagic fishes: sensory-based approaches to bycatch reduction in longline fisheries. Endangered Species Research, 5(2-3): 225-238.

