ANNEX 2: Information requirements directed to the proponent

Table 2: Please use the table below to provide your department's comments and suggestions for information that should be required from the proponent to ensure the information in the EIS is scientifically and technically accurate and is sufficient to make a determination of significance on environmental effects.

ID	Project Effects Link to CEAA 2012	Reference to EIS guidelines	Reference to EIS	Context and Rationale	Specific Question/ Request for Information
ECCC-01 (CIS-1)	N/A	7.1.2 marine environment	Pg. 130 section 5.7	Iceberg data "thru 2006" may not be representative of current iceberg climatology. It should be confirmed that the annual mean of icebergs of "550" is still representative of iceberg activity based on data that are more recent.	Include a more extensive iceberg data set, particularly to encompass sightings post 2006 in order to represent the current climatology of the region.
ECCC-02 (MSC-3)		Section 5.5. Oceanography	Section 7.6.1 Section 15.2	 Brief mention of hurricanes is made in chapter 15 (15.2) and 'other effects to consider' in 7.6.1. Inclusion/elaboration of extreme wave type. Mention of bathymetric effects on rogue wave potential. The possibility of extreme / rogue waves in the region should be considered due to highly varying bathymetry and the leases being located in a region where post-tropical storms can produce trapped-fetch wave growth. 	 Include information on: A) Extratropically- transitioning hurricanes, and climatology of 'dynamic fetch' waves associated with these unique but dangerous storms. B) Types of extreme wave phenomenon (dynamic fetch, rogue). Information can be provided by ECCC's Hurricane Centre if required.

ECCC-03 (ES-3)	5(1)(a)(i) Fish and Fish Habitat	Part 2, Section 7.1.2 Marine environnent, page 26	EIS, Section 5.2 Bathymetry, page 125	EIS guidelines state that the EIS will include a description of available bathymetric information (e.g. maximum and mean water depths) for the site. The Project Description (Section 2.3) states that "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" (page 41). Section 5.2 of the EIS states that the "water depths in the two ELS range from 100 to 900 m" (page 125). Bathymetric information is inconsistent.	Clarify the water depths for EL 1159 and EL 1160 in Section 5.2.
ECCC-04 (EEP2)	 5(1)(a)(i) Fish and Fish Habitat 5(1)(a)(ii) Aquatic Species 5(1)(a)(iii) Migratory Birds 5(1)(b) Federal Lands or Transboundary 	Section 7.6 Other effects to consider; 7.6.1 Effects of potential accidents or malfunctions; page 42	Chapter 15 Accidental Events	The EIS Guidelines State "Based on the results of the spill modelling and analysis in the EIS, an emergency response plan (e.g. oil spill contingency plan) for spills (small and large) and blowouts will be required. At a minimum, an outline of the emergency response plan along with key commitments is required in the EIS. The proponent should commit to finalizing the plan in consultation with regulators prior to the application of permits." Section 2.9, Waste Discharges and Emissions, of the EIS indicates "As mentioned in Section 1.4.1, Equinor Canada will prepare an EPP". Please note there is no Section 1.4.1 in the EIS.	Provide an outline of each emergency response plan along with key commitments.

				Section 2.11.3, outlines a number of plans. Also refer to sections 15.1, Spill prevention and Response, Section 15.5, Environmental Effects Assessment. It is important for ECCC to have sufficient information regarding the content of the various response plans, SIMA and SOPs, in order to help inform a determination if the proponent's approach to responding to an emergency appears reasonable before the plans are finalized at the OA stage.	
ECCC-05 (CWS-04)	5(1)(a)(iii)	7.1.4 – Migratory birds and their habitat	6.0 – Existing Biological Environment 6.2 – Marine and Migratory Birds (pg. 162-163)	The proponent has only included sightings and colony data to describe the existing baseline of marine and migratory birds in Section 6.2. ECCC recommends that the proponent include abundance data as well as sighting and colony data (all of which are available from ECCC- CWS upon request), which is a valuable source of baseline information. The proponent did not contact ECCC- CWS to obtain updated ECSAS, colony or other sightings data, resulting in some of the information being out of date (given that the original data request was made in 2015 (ECSAS) and 2017 (colony), respectively, per the Reference section on pages 242 and 243). A number of these surveys that were originally completely in 2005 have been repeated as recently as summer 2019; the dataset and reference requires updating with the most recent data. The proponent should update this data to ensure that they are	Include abundance data in addition to sightings/colony data to provide a more complete representation of migratory bird baseline information. Use the most up-to-date information to describe the baseline. The proponent should contact ECCC-CWS to obtain updated ECSAS data for all colonies in the study area to ensure that all of the information in the EIS is accurate. A description of the datasets that were consulted / referenced when organizing the baseline information section should be provided.

		providing "current field data", as per the EIS Guidelines.	The ECSAS and nesting colonies datasets should be correctly and consistently.
		Additionally, the propagant bas not	correctly and consistently
		novided any description of the datasets	tevt
		referenced in this section (assuming	
		FCSAS PIROP ACCDC atc.) This was	The specific tables and
		included in the Elemish Dass FIS and	figures should be referenced
		should be included in the Central Ridge	that show the data they are
		abridged FIS but undated accordingly	discussing
		with the latest information as outlined	alsoadding.
		above	
		The proponent inconsistently references	
		the ECSAS dataset (sightings data)	
		throughout the text (sometimes	
		referenced as 2001-2016, elsewhere	
		2017) and does not refer to the tables or	
		figures that show the data they are	
		discussing.	
		If the data was requested on October	
		2015, all of the references should be	
		"(ECSAS 2015)" however given ECCC's	
		request for updated information; this	
		would need to be updated to "(ECSAS	
		2019)". The correct reference is as	
		follows (red text represents dates that	
		require updating):	
		Environment and Climate Change Canada	
		– Canadian Wildlife Service, Atlantic	
		Canada. 2015. ECSAS (Eastern Canada	
		Seabirds at Sea). Eastern Canada	
		Seabirds at Sea signtings database.	
		information provided by ECCC-CWS in	
		response to data request, October 2015.	

				Similarly, the ECCC-CWS seabird nesting colonies database has been referenced incorrectly on pg. 242. This should be referenced as follows, and updated accordingly based on new information: Environment and Climate Change Canada – Canadian Wildlife Service, Atlantic Canada. 2017. Database of seabird nesting colonies of eastern Newfoundland. Information provided by ECCC-CWS in response to data request, December 2017.	
ECCC-06 (CWS-06)	5(1)(a)(iii)	7.1.4 – Marine and migratory birds and their habitats	6.0 – Existing Biological Environment 6.2 – Marine and Migratory Birds (pg. 162-163)	The proponent makes a number of incorrect or inaccurate statements in this section. These should be corrected/clarified as follows: Quote (pg. 162) – "Seabirds are at their highest density during the spring and summer months, when species are migrating." This statement is inaccurate – seabird densities are dependent on the species; for example, some species (such as Dovekie) are at their highest densities during the winter. Additionally, the proponent only references densities in relation to migrating birds, but many birds are breeding in the summer. This statement should be clarified. Quote (pg. 162) – "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	Correct the incorrect and/or inaccurate statements that have been included in Section 6.2, as per ECCC's clarifications in the previous column.

		(fulmars, petrels and shearwaters)Other species with potential to occur within the Project Area include puffins, razorbills, phalarope, skua and jaegar." This paragraph is redundant. The "other species" they have identifies are already listed in the first sentence, so there is no value to adding the second part. This statement should be amended accordingly.	
		Quote (pg. 162) – "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)." This statement is inaccurate – very few Gannets overwinter in the Gulf of Maine, most overwinter in the Gulf of Mexico. This statement should be corrected.	
		Quote (pg. 162) – "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." This statement is inaccurate – there are two migratory periods (spring and fall), so the proponent should be more specific as to which "migration" they are referring.	

Quote (pg. 162) – "Outside of the	
breeding season, most gulls species are	
associated with coastal areas"	
This statement is incorrect. The	
proponent should consult and reference	
Gierdrum and Bolduc (2016) in order to	
correct this statement	
Reference:	
Gierdrum C and Bolduc E (2016) Non-	
Breeding Distribution of Herring Gull	
(Larus graentatus) and Great Plack	
(Luius urgentutus) and Great Diack-	
Backed Guil (Larus Internets) in Eastern	
Canada from Ship-Based Surveys.	
<i>waterbiras.</i> 39 (1): 202-219.	
Quote (pg. 163) – "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."	
This statement is inaccurate and	
unreferenced. Fulmars and shearwaters	
are also known to sit on the water's	
surface and are vulnerable to surface	
oiling. This statement should be	
corrected.	
Quote (pg. 163) – "Storm-petrels are	
found in offshore environments year-	
round, often following ships and fishing	
boats (Huntington et al. 1996)."	
This statement is incorrect – Leach's	
Storm-petrel are not known to follow	
ships or vessels, as per The Cornell Lab of	
Ornithology's Birds of North America	
articles. found here:	

				Account/bna/species/lcspet/introduction . The proponent's use of Huntington et al 1996 is also unsatisfactory, given that this is no longer publically available and is superseded by the <i>Birds of North</i> <i>America</i> reference.	
ECCC-07 CWS-07	5(1)(a)(iii)	7.1.4 – Marine and migratory birds and their habitats	6.0 – Existing Biological Environment 6.2 – Marine and Migratory Birds (pg. 162-163)	Leach's Storm-petrel is a species of concern for ECCC that is experiencing significant population declines. Additional information on Leach's Storm- petrel should be provided in this section. The three largest colonies in Newfoundland (Baccalieu Island, Great Island, and Gull Island) have shown declines of 40-50% over the past 20-30 years. It is also important to emphasize that the core foraging areas of the Leach's storm-petrels breeding at Baccalieu Island and Gull and Great Island in Witless Bay overlap with the Project Area. Hedd et al. 2018 is an important reference when providing additional information for this section. Reference: Hedd, A., Pollett, I.L., Mauck, R.A., Burke, C.M., Mallory, M.L., McFarlane Tranquilla, L.A., Montevecchi, W.A., Robertson, G.J., Ronconi, R.A., Shutler, D., Wilhelm, S.I., and Burgess, N.M. (2018). Foraging areas, offshore habitat use, and colony overlap by incubating Leach's storm-petrels <i>Oceanodroma</i> <i>leucorhoa</i> in the Northwest Atlantic.	Provide supplementary information (with reference to Hedd et al 2018) to identify that Leach's Storm- petrel populations are experiencing significant declines.

				PLoS One. 13 (5) : e0194389. https://doi.org/ 10.1371/journal.pone.0194389	
ECCC-08 (CWS-10)	5(1)(a)(iii)	7.1.5 – Species at Risk	6.0 – Existing Biological Environment 6.2 – Marine and Migratory Birds 6.2.2 – Species at Risk (pg. 196)	Quote (pg. 196) "There is a potential for Ross's gull (SARA Schedule 1 – Threatened; COSEWIC – Threatened), ivory gull (SARA Schedule 1 – Endangered; COSEWIC – Endangered), and piping plover (SARA Schedule 1 – Endangered; COSEWIC – Endangered) to occur offshore in the Project Area." This statement is inaccurate. Piping Plover are unlikely to be present in the offshore area due to their preference for coastal habitats. The proponent has not included Red- necked Phalarope in the list of SAR likely to be present in the offshore area. Red- necked Phalarope are surface feeders and often congregate in areas such as upwellings which are associated with higher prey densities (such as those which may occur offshore). They have been seen in small numbers during ECSAS surveys, although they are scarce in the winter and spring (ECSAS, 2016).	Amend the statement in the previous column to include Red-necked Phalarope as species that have the potential to occur offshore in the Project Area. Amend the statement to exclude Piping Plover, which are unlikely to occur offshore in the Project Area.
ECCC-09 (CWS-11)	5(1)(a)(iii)	7.1.5 – Species at Risk	6.0 – Existing Biological Environment 6.2 – Marine and Migratory Birds	Quote (pg. 196) "Migratory bird SAR 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	Provide a complete list of avian species at risk (see the previous column) that are unlikely to occur in the Project Area, to remain consistent with the Flemish Pass EIS.

	Risk (pg. 196)	 (SARA Schedule 1 – Threatened; (SARA Schedule 1 – Threatened; COSEWIC – Endangered), common nighthawk (SARA Schedule 1 – Threatened; COSEWIC – Special Concern), red knot (SARA Schedule 1 – Endangered; COSEWIC – Endangered), roseate tern (SARA Schedule 1 – Endangered; COSEWIC – Endangered), and olive-sided flycatcher (SARA Schedule 1 – Threatened; COSEWIC – Special Concern)." The proponent has not included a complete list of SAR that are unlikely to occur in the Project Area. The proponent should include Barrow's Goldeneye, Harlequin Duck, and Buff-breasted Sandpiper in this list, as these are species that are unlikely to occur in the Project Area, but may be vulnerable to shoreline oiling in the event of an accidental release. The proponent should also include Peregrine Falcon in this list, although vagrant individuals have been observed near offshore production platforms. The Flemish Pass EIS also mentions Gray- cheeked Thrush, Bobolink, and Short- eared Owl. To remain consistent with the 	Harlequin Duck, Buff- breasted Sandpiper, Gray- cheeked Thrush, Bobolink, Short-eared Owl and Peregrine Falcon, as these species, although unlikely, may interact with the Project or be impacted by the Project.
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ECCC-10	5(1)(a)(iii)	7.1.9.1 – Special	6.0 – Existing	A number of updates are required	The proponent should note
(CWS-13)		Areas	Biological	throughout Section 6.4 – Special Areas:	that the Laurentian Channel
			Environment		is now designated as an MPA
				a) Quote (Table 6.20, pg. 223) –	and identify any implications
			6.4 – Special	"Laurentian Channel AOI —	related to this change and
			Areas	Designated as an AOI in 2010"	update with the most recent
					information available.
			a) Table 6.20 –	The Laurentian Channel is now	
			Marine	designated as an MPA (April 2019), so	All of the above-mentioned
			Protected	this statement should be	updates should be
			Areas in	corrected/updated.	subsequently applied in
			Newfoundlan		Sections 11 and 14.
			d and	Additionally, the proponent should	
			Labrador	update the "Rationale for	
				Identification/Designation" to include a	
			b) Table 6.21 –	statement that given the designation as	
			Federal	an MPA, recreational and commercial	
			Fisheries	fishing, and oil and gas exploration and	
			Closure Areas	exploitation are prohibited in all zones of	
			and Table	the MPA.	
			6.22 – Marine		
			Refuges	b) Table 6.21 – Federal Fisheries	
				Closure Areas off Eastern	
			c) Table 6.23 –	Newfoundland and Table 6.22 –	
			Ecologically	Marine Refuges	
			and		
			Biologically	A number of the fisheries closure areas	
			Significant	are now identified as Marine Refuges, so	
			Areas off	Tables 6.21 and 6.22 should be updated	
			Eastern NL	accordingly. ECCL also recommends	
			Table 6.22	including information related to the	
			Idule 0.32 -	conservation objectives and prohibited	
			Areas in Eastern	activities that are associated with each	
			Areas in Eastern	information	
			NewIOuliulaliu		
	1		1		

		c) Table 6.23 – Ecologically and	
		Biologically Significant Areas off	
		Fastern Newfoundland	
		Lastern Newroundiana	
		The information provided in this table is	
		out-of-date and should be updated to	
		provide current (to 2019) information.	
		The sources (Templeman 2007 DEO	
		2012 and 2016 and AMEC 2014) are	
		not the most recent references that are	
		available.	
		The proponent has not included	
		reference to an important reference –	
		Wolls at al. 2010, which includes	
		information about CDCA within the	
		Information about EBSAS within the	
		Placentia Bay-Grand Banks. This	
		reference should be included as part of	
		the baseline information and referenced	
		accordingly	
		Martin N. Turken K. Allend K. Marner	
		weils, N., Tucker, K., Allard, K., Warren,	
		M., Olson, S., Gullage, L., Pretty, C.,	
		Sutton-Pande, V., and Clarke, K. 2019.	
		Re-evaluation of the Placentia Bay-Grand	
		Banks Area of the Newfoundland and	
		Labrador Shelves Bioregion to Identify	
		and Describe Ecologically and Dislogically	
		Significant Areas. DFO Can. Sci. Advis.	
		Sec. Res. Doc. 2019/049. viii + 138p.	
		d) Table 6.32 – Important Bird Areas in	
		Fastern Newfoundland	
		The manual should be the set	
		The proponent should confirm that the	
		most up-to-date information (to 2019)	
		regarding importance to marine and	
		migratory birds is provided as baseline	

				information. Table 6.32 should be updated to reflect the most up-to-date information.	
ECCC-11 (CWS-18)	5(1)(a)(iii)	7.3.5 – Predicted effects on valued components – Marine and Migratory Birds	9.3.3 – Presence and Operation of Drilling Installation	ECCC notes that the effect of artificial lighting and attraction of migratory birds is one of the most important effects that should be included in the effects assessment. The proponent has not provided sufficient information to complete an adequate assessment of the effects that artificial lighting and attraction have on migratory birds. It is important to consider both the light intensity itself, but also the timing and location of the light source, which can affect the level of attraction and potential mortality.	Provide additional information on the effects of artificial lighting and attraction/strandings on migratory birds in order to complete a more thorough effects assessment.
ECCC-12 (CWS-20)	5(1)(a)(iii)	7.3.5 – Predicted effects on valued components – Marine and Migratory Birds	 a) 9.3.3 – Presence and Operation of Drilling Installation (pg. 361) b) 11.4.3.1 – Potential Zones of Influence (pg. 411) 	 a) Quote (pg. 361) "The distance at which Project-related lighting in the offshore environment will be visible (and thus, its likely zone of influence) may be up to 15 km (Rodriguez et al. 2014), but this will be influenced by site and time specific factors, such as disturbances appear to occur most frequently during periods of drizzle and fog in overcast conditions." b) Quote (pg. 411) "Bird colonies up to 15 km were susceptible to stranding due to light attraction, which suggests that attraction distances of anthropogenic light sources may be 	Revise the statements, provided in the previous column, to remain consistent with the results of Rodriguez et al (2014, 2015), which concluded that seabirds could be attracted to artificial light sources from up to 16km away. Clearly state the uncertainty that remains in how far away birds detect light, as well as the uncertainty in how far away bird behaviour is altered by light.

				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 15km as the ZOI is very conservation."	
				The proponent has incorrectly transcribed the results of this study in this paragraph – the Rodriguez et al 2014 and 2015 studies concluded that birds were attracted to the light source from up to 16 km.	
				It is also important to note that considerable uncertainty remains as to the actual zone of influence of light. There have been no studies undertaken on the maximum light detection distance of the eyes of migratory birds. Furthermore, no studies have been undertaken that describe how far away from a light source a migratory bird must be before light affects its behaviour. This uncertainty should be clearly stated and should be reflected in the proponent's level of confidence in their conclusions.	
ECCC-13 (CWS-21)	5(1)(a)(iii)	7.3.5 – Predicted effects on valued components – Marine and Migratory Birds	9.3.3 – Presence and Operation of Drilling Installation (pg. 361)	Quote (pg. 361) "As further described in the Flemish Pass EIS, these changes are predicted to be adverse, low in magnitude, localized and within the Project Area, short to medium term, regular in frequency, and reversible, with a moderate level of confidence"	Provide additional information/analysis to support the EIS conclusion that the project's effects on marine and migratory birds will be "low in magnitude". ECCC also requests that the proponent adjust their level

				In the absence of systematic searches and documentation of stranded birds (live and dead) to quantify the level of attraction and effect of strandings, and a discussion of why certain mitigation measures were chosen over other options, the proponent cannot state with a "moderate level of confidence" that the project activities' effects will be low in magnitude.	of confidence in the conclusions, given the absence of systematic searches and documentation of stranded birds (live and dead) to quantify the effect of artificial light attraction and stranding.
ECCC-14 (CWS-22)	5(1)(a)(iii)	7.3.5 – Predicted effects on valued components – Marine and Migratory Birds 7.6.1 – Effects of potential accidents of malfunctions	 a) 9.3.4 – Drilling and Associated Marine Discharge (pg. 362) 15.5.2 – Marine and Migratory Birds (including Species at Risk) 	 a) Quote (pg. 362) "Hydrocarbon sheens that may occur from routine discharges (i.e. hydrocarbon concentrations of 0.01 to 1 um thickness) may have an effect on habitat quality, albeit in the very short term, dispersing within 24 hours." b) Quote (pg. 490) "Based on vulnerability indices (French and McCay 2009) the mortality rate would range from 35% to 95% for birds for birds that come in contact with the slick in the 0.01-0.1mm thickness range." Hydrocarbon sheens may also result in changes in mortality/injury levels of individuals and populations, depending on the location and timing of the sheening. ECCC emphasizes that the surface oil thickness that the proponent has listed (i.e. 0.01 to 1 um) is within the range that can cause impact to feather structure (see O'Hara and Morandin 2019) and possible mortality (see French- 	Include information on the effects of hydrocarbon sheens on individual and populations of migratory birds. Revise the EIS to reflect that thinner surface thicknesses than the 0.01-0.1mm thickness can also result in injury or mortality to migratory birds.

				McCav 2009) Thinner surface	
				thicknesses can also result in injury or	
				mortality	
				mortanty.	
				The proponent has not included any	
				information about the effects of	
				hydrocarbon sheens on the	
				injury/mortality of migratory birds. The	
				nrononent should include additional	
				information about how bydrocarbons	
				discharges/sheeps impact the structure	
				and function of soabird foathors, and	
				how shoons can result in individual and	
				now sheens can result in individual and	
				population-level effects.	
				O'Hara P.D. and I.A. Morandin 2010	
				Effects of sheens associated with	
				offshore oil and gas development on the	
				for the microstructure of pologic	
				sophirds Mar Doll Bull 60:672 678	
				seabirus. Mar. Poll. Bull. 60.672-678.	
				French-McCay D.P. 2009 State-of-the-	
				art and research needs for oil spill impact	
				assessment modeling PP 601-653 In:	
				Proceedings of the 32 nd AMOP Technical	
				Seminar on Environmental	
				Contamination and Response.	
				Emergencies Science Division	
				Environment Canada, Ottawa, ON.	
				Available at:	
				http://www.asascience.com/publications	
				/pdf/2009/FrenchMcCay_AMOP09-	
				biomodel-with-cite.pdf.	
ECCC-15	5(1)(a)(iii)	7.3.5 –	9.5 – Significance	Quote (pg. 369) – " <i>With the</i>	Discuss potential effects on
(CWS-24)		Predicted	of Residual	implementation of mitigation measures,	Leach's Storm-petrel.
		effects on		exploration drilling activities on ELs 1159	

		valued	Environmental	and 1160 are not likely to result in	
		components -	Efforts	significant adverse environmental effects	
		Marino and	(ng 260)	on Marino and Migratory Birds "	
		Migratory Dirdo	(pg. 509)	on Marine and Migratory Birds.	
		Migratory Birds 7.4 – Mitigation Measures	(pg. 369)	ECCC does not agree with the proponent's conclusion that project activities are "not likely to result in significant adverse environmental effects on Marine and Migratory Birds", given potential impacts/effects on Leach's Storm-petrel. There is currently not enough information to quantify the effects with a high level of certainty. Leach's Storm-petrels breeding on Baccalieu Island, the largest colony in the world and hosting 4 million breeding individuals, travel across and forage in the proposed Project area (deep waters, specifically) during the breeding season. Therefore, effects on breeding birds,	
				be high	
				be filgh.	
5000.10		7.2.5	0.0	Quete (ng. 200) "Although ng angeifig	
(CWS-25)	5(1)(a)(iii)	 7.3.5 – Predicted effects on valued components – Marine and Migratory Birds 9.0 – Follow-up and Monitoring 	9.6 – Environmental Monitoring and Follow-Up (pg. 369)	Quote (pg. 369) – "Although no specific follow-up related to the Marine and Migratory Birds VC is considered necessary, in relation to the Project, a monitoring and observation program is proposed."	and monitoring programs in an effort to quantify the effects of light attraction on migratory birds.
		Programs			
ECCC-17	5(1)(a)(iii)	7.3.5 –	9.6 –	Quote (pg. 369) – "Personnel on board	Clarify the difference in the
(CWS-26)		Predicted	Environmental	the drilling installation and/or vessels	various monitoring
		effects on		tasked with seabird observations,	protocols, and add reference

	valued	Monitoring and	handling and reporting will be trained in	to the systematic search
	valueu		the requirements outlined in the SCCAC	to the systematic search
	components –		the requirements outlined in the ECSAS	protocols that will outline
	Marine and	(pg. 369)	protocol (Gjerdrum et al. 2012)."	information about handling
	Migratory Birds			and reporting stranded
			ECCC notes that the ECSAS protocol does	birds.
	9.0 – Follow-up		not provide any information related to	
	and Monitoring		the handling and reporting of birds. The	
	Programs		proponent is conflating the ECSAS	
			protocol for live seabird observations	
			with the handling and reporting of	
			stranded birds (related to systematic	
			search protocols). This statement should	
			be corrected and reference to the	
			systematic search protocols.	
			For clarification, the protocols are as	
			follows:	
			• Systematic Seabird Searches – to be	
			undertaken by a gualified individual	
			at consistent times and with a	
			qualification/documentation of	
			search effort. The nurnose of this	
			protocol is to find hirds on the	
			plotocol is to find birds on the	
			piacionins/vessels.	
			• Seabird nandling protocols – this	
			protocol describes how a living or	
			dead bird is to be handled in the	
			event it is found.	
			Seabird observation protocol – this	
			protocol observes birds flying and/or	
			swimming around a platform/vessel	
			which contributes to overall	
			knowledge of migratory bird	
			presence in the project area and	
			helps ECCC and the proponent	
			better respond to accidental spills.	
			This protocol is further divided into	

				specific protocols for moving vessels and for stationary platforms.	
ECCC-18 (CWS-27)	5(1)(a)(iii)	7.3.8.3 – Special Areas	11.0 – Special Areas: Environmental Effects Assessment 11.2 – Environmental Assessment Study Areas and Effects Assessment Criteria	Quote (pg. 402) – "Within the Project Areas itself, potential effects are expected to be direct in nature and associated with the specific environmental interactions and other disturbances that may be associated with planned Project activities." ECCC disagrees with the statement that potential effects to special areas are limited to direct effects.	Include a list of indirect effects on special areas.
ECCC-19 (CWS-28)	5(1)(a)(iii)	7.3.8.3 – Special Areas	11.0 – Special Areas: Environmental Effects Assessment 11.2 – Environmental Assessment Study Areas and Effects Assessment Criteria Figure 11-1 – Special Areas in Eastern Newfoundland	Figure 11-1 is out-of-date and should be updated as per 2019 information. ECCC also notes that Marine Refuges are not pictured in this figure, so the proponent should include these in Figure 11-1	Update and redraw Figure 11-1 with the most recent information to include Marine Refuges.
ECCC-20 (CWS-29)	5(1)(a)(iii)	7.3.8.3 – Special Areas	11.0 – Special Areas: Environmental	Quote (pg. 411) "Bird colonies up to 15 km were susceptible to stranding due to light attraction, which suggests that attraction distances of anthropogenic	Provide supporting supplementary information in order to provide context for how they have

			Effects Assessment 11.4 – Environmental Effects Assessment and Mitigation 11.4.3.1 – Potential Zones of Influence (Lighting) (pg. 411)	light sources may be greater than 5km (Rodriguez et al 2014, 2015). It is noted that exploration drilling installation emit less light than a fully lit production platform, and therefore selecting 15km as the ZOI is very conservative." ECCC notes that the proponent has excluded a reference to Poot et al, 2008, which suggests "that birds can be attracted to fully lit oil platforms at distances of 5km, although greater distances could not be ruled out". The quoted statement mentions the 5km attraction distance, but does not provide supporting evidence (in this section nor elsewhere in the EIS). The proponent has not provided sufficient context and supporting references to demonstrate how they determined the zone of influence for light attraction.	determined the zone of influence for light attraction, with reference to Poot et al. 2008.
				references to demonstrate how they determined the zone of influence for light attraction. Poot, H., B.J., Ens, H. de Vries, M.A.H. Donners, M.R. Wernand, and J.M. Marquenie. 2008. Green Light for Nocturnally Migrating Birds. <i>Ecology and</i> <i>Society</i> . 113 : 47. <u>http:///www.ecologyandsociety.org/vol1</u> <u>3/iss2/art47/</u>	
ECCC-21 (CWS-31)	5(1)(a)(iii)	7.6.1 – Effects of potential accidents of malfunctions	15.0 – Accidental Events 15.1 – Spill Prevention and Response	(pg. 467) "The OSRP will describe various spill response tactics that may be undertaken in the event of a spill, including: natural attenuation/degradation (no response); mechanical containment (e.g. booms,	Include information the development of a Wildlife Emergency Response Plan (WERP) as a part of the Oil Spill Response Plan (OSRP).

			(pg. 467)	skimmers) and recovery; in sit burning; and chemical dispersion (surface application and subsea injection). A Spill Impact Mitigation Assessment (SIMA) will evaluate benefits and drawbacks of different response tactics, considering feasibility and effectiveness of implementation in different spill scenarios and prevailing conditions." All emergency incidents can potentially affect wildlife. During these incidents ECCC acts as a Resource Agency, which sets wildlife emergency response standards and guidelines related to Migratory Birds and Species at Risk under its jurisdiction. As such, Wildlife Response requires that a Wildlife Emergency Response Plan (WERP), which is a component of the Incident Command System (ICS) for pollution incidents affecting wildlife, and should address all of the various procedures and strategies required to mount an effective wildlife response (see ECCC Guidance in Appendix 3). The proponent is required to develop a WERP as part of their OSRP. It is recommended that the proponent consult ECCC when developing WERPs. ECCC is also available to review WERPs prior to their implementation.	
FCCC-22	5(1)(a)(iii)	7 6 1 – Effects of	15.0 – Accidental	Ouote (ng 490) – "Batch spills if any	FCCC requests that the
(CWS-32)	- σ(±)(α)(m)	potential accidents of malfunctions	15.5 – 15.5 – Environmental	resulting from the Project would cause a temporary (likely less than 24 hours) decrease in water quality (and thus habitat quality) around the spill site."	proponent include information from the most recent spills to clarify whether surface oil from

			Effects Assessment 15.5.2 – Marine and Migratory Birds (including Species at Risk) (pg. 490)	ECCC notes that the most recent spills that occurred in offshore NL had surface oil that persisted well beyond 24 hours.	batch spills may persist longer than the 24 hours.
ECCC-23 (CWS-33)	5(1)(a)(iii)	7.6.1 – Effects of potential accidents of malfunctions	15.0 – Accidental Events 15.5 – Environmental Effects Assessment 15.5.2 – Marine and Migratory Birds (including Species at Risk) (pg. 490)	Quote (pg. 490) – "Dispersant use has a net environmental benefit for marine and migratory birds that could encounter surface oil; however, it is acknowledged that dispersants may reduce surface tension at the feather-water interface which can reduce the capacity of insulation provided by feathers. The magnitude of these effects depends on the proximity of wildlife during dispersant application, as well as the effectiveness of the dispersant on the surface oil (National Research Council 2005)" The proponent's synthesis of the effects of dispersants on marine and migratory birds in this section is lacking and does not provide sufficient supporting evidence to support the conclusions. While applying dispersants may be beneficial for migratory birds in some situations, they may prove to be more harmful in others; therefore the use of dispersants must be done with careful consideration on a case by case basis. It is also not known what the impacts of dispersants alone may have on birds, and in particular on their plumage;	Conduct a more thorough review of the effects of dispersants on migratory birds, including references of recent studies such as Fingas (2017), Whitmer et al (2018), and Tuarze et al (2019).

		dispersants are a surfactant and	
		therefore may compromise the	
		uncheren of in a station in a similar	
		waterproofing of feathers, in a similar	
		manner to that of oil.	
		FCCC suggests that the propenset	
		ECCC suggests that the proponent	
		consider the results of Fiorello et al	
		(2016), Fingas (2017), Whitmer et al	
		(2018) and Tuarze et al (2010) in their	
		analysis of the effects of dispersants (and	
		dispersed oil) on migratory birds.	
		Figure II. C.)/ Freeman K. Fligs D.A.	
		FIOTEIIO, C.V., Freeman, K., Ellas, B.A.,	
		Whitmer, E., and Ziccardi, M.H. (2016).	
		Ophthalmic effects of petroleum	
		dispersant exposure on common murres	
		(Uria dalge): An experimental study.	
		Marine Pollution Bulletin. 113 :387-391.	
		Finance NA (2017) A Deview of Literature	
		Fingas, IVI. (2017) A Review of Literature	
		Related to Oil Spill Dispersants 2014-	
		2017. Prince William Sound Regional	
		Citizens' Advisory Council (PWSRCAC)	
		Analysis Advisory Council (1993) Academic Aciji	
		Anchorage, Alaska. Pp. 264	
		Whitmer, E.R., Elias, B.A., Harvey, D.L.	
		Ziccardi M.H. (2018) An experimental	
		study of the effects of chemically	
		dispersed oil on feather structure and	
		waterproofing in Common Murres (Uria	
		Aalga) Journal of Wildlife Disages	
		Aaigej. Journai oj wilalije Diseases.	
		54(2): 315-328.	
		Tuarze P. M. Stenhenson, P. Mazzocco	
		and L Knonner (2010) A shusial start	
		and L. Knopper. (2019). A physiologically	
		based oiling model (PBOM) to predict	
		thermoregulatory response in oiled	
		hirds Proceedings of the 42 nd AMOR	
		Dirus. Froceedirigs of the 42 AMOP	

				Technical Seminar, Environment and Climate Change Canada, ON, Canada, pp. 111-123.		
ECCC-24 (CWS-35)	5(1)(a)(iii)	7.3.5 – Predicted	17.0 – Environmental	The matrix of potential interactions should be updated.	The propone consider the	ent should following items
		effects on	Assessment		in potential	Project-VC
		valued	Summary and	Some migratory birds are attracted to oil	interactions	
		components –	Conclusions	slicks, and oil has the potential to change		
		Marine and		habitat quality. Oil and discharges may	- Change	in Avifauna
		Migratory Birds	Table 17.1	occur from drilling,	Presenc	e and
			(pg. 504/505)	geological/geotechnical and	Abunda	nce:
				environmental surveys, and supply and	0	Drilling and
				servicing activities.		Associated
						Marine
				Flaring affects behavioural patterns in		Discharges
				migratory birds.		(including fluids
						and cuttings)
				Seismic surveys (as part of the	0	Formation Flow
				geophysical surveys) may change food		Testing with
				hy solicity activity (poise, etc.)	Change	Fidring
				by seisific activity (noise, etc.).	- Change Availabi	lin Habilal
					Availabi	Drilling and
					0	Associated
						Marine
						Discharges
						(including fluids
						and cuttings)
					0	Geological.
					-	Geotechnical
						and
						Environmental
						Surveys
					0	Supply and
						Servicing
					- Change	in Food
					Availabi	lity or Quality

		0	Geophysical, Geohazard, Wellsite, Seabed, and VSP Surveys

ANNEX 3: Advice to the proponent

Table 3: Additional advice to the proponent, such as guidance or standard advice related to your departmental mandate

ID	Reference to EIS	Context and Rationale	Advice to the Proponent
ECCC-A01 (CIS-1)	7.1.2 marine environment	Effects of the environment on the project - Iceberg season is defined in the draft EIS as "typically last from March to July" should be corrected (Pg. 130 section 5.7)	Data from the linked study (AMEC 2014) has significant iceberg sightings from January to August for Orphan Basin and Flemish Cap with results that "The majority of the icebergs (95 percent) have been observed from February through July".
ECCC-A02 (MSC-1)	Section 5.3 Climatology	Clarification.	At the end of the first paragraph, suggest adding 'sustained' term. i.e. "Extreme sustained wind speeds in winter can reach 36 m/s" Sustained, as in 10-minute mean. This is to distinguish from 'gusts'.
ECCC-A03 (MSC-2)	Section 5.5 Oceanography	Туро.	3 rd line, edit, likely supposed to be '4.3 m in January' instead of July.
ECCC-A04 (ESTS-1)	Section 15.4 Fate and Behaviour of Potential Spills	This is standard advice provided to the proponent regarding the threshold (1 ppb or μ g/L) applied in the EIS for water column contamination.	Oil toxicity is generally considered as a function of aromatic composition and the toxicity of individual aromatics in the mixture. The 1-ppb cutoff threshold used for water column contamination in the EIS

		The term 'dissolved hydrocarbons' is used in Section 15.4 as follows: 15.4.2 Stochastic Modelling Results, page 474, paragraph 1 (i.e., water column contamination by 'dissolved hydrocarbons'); 15.4.3 Deterministic Results, page 482, paragraph 2; Figure 15-3 page 477; Figure 15-4 page 478 and Table 15.7 page 481).	should be related to dissolved polycyclic aromatic hydrocarbons (PAHs), which corresponds to ~100 ppb of whole oil (total hydrocarbons, THC) in the water column (soluble PAHs are approximately 1% of the total mass of fresh oil). Dissolved hydrocarbons in water may also contain other water-soluble fractions of crude oil (e.g., highly polar petroleum fractions such as phenolic components) besides PAHs. It is recommended to clarify the term 'dissolved hydrocarbons' in the EIS vs. 'dissolved PAHs'.
ECCC-A05 (CWS-36)	General Comment	ECCC has developed a pelagic seabird monitoring protocol called the Eastern Canada Seabirds at Sea (ECSAS) program, that is recommended for use by experienced observers for all offshore projects and is available at <u>http://publications.gc.ca/site/eng/389623/</u> <u>publication.html</u> for the proponent's consideration.	ECCC advises that the proponent employ the use of the new mobile ECSAS database for survey data collection.
		Bird distribution data should be collected during proposed activities. To verify the effects predictions, a data collection effort should be designed in consultation with ECCC and be carried out by an individual who is appropriately trained and dedicated to recording marine bird observations. ECCC can provide training in ECSAS.	
		In an effort to facilitate the collation of survey data from various outside sources, ECCC has developed a new mobile ECSAS database that will permit the collection of data in a standard format. This new mobile	

		database should be used by the proponent to facilitate data collection and storage. A User's Guide has been developed to assist the proponent in the use of this tool and can be obtained from ECCC upon request.	
		In an effort to expedite the process of data exchange, ECCC would appreciate that the data (as it relates to migratory birds and/or species at risk) collected from these baseline surveys be forwarded in digital format to our office following the completion of the study at:	
		Environment and Climate Change Canada (C/O Environmental Assessment) 6 Bruce Street Mount Pearl, NL A1N 4T3	
		These data will be centralized for our internal use to help ensure that best possible natural resources management decisions are made for these species in Atlantic Region. Metadata will be retained to identify source data and will not be used for the purpose of publication. ECCC will not copy, distribute, loan, lease, sell or use this data as part of a value-added product or otherwise make the data available to any other party without the prior express written consent of the proponent.	
ECCC-A06 (CWS-37)	15.1 – Spill Prevention and Response (pg. 465)	All emergency incidents can potentially affect wildlife. During these incidents ECCC acts as a Resource Agency, which sets wildlife emergency response standards	Wildlife Response requires a Wildlife Emergency Response Plan (WERP), which is a component of the Incident Command System (ICS) for pollution incidents affecting wildlife, and should address all of the

		and guidelines related to Migratory Birds and Species at Risk under its jurisdiction.	various procedures and strategies required to mount an effective wildlife response. At minimum, a WERP must include the
			 Information: Information on the wildlife potentially at risk in the area; Mitigation measure to deter non-affected areas; Mitigation and response measures to be undertaken if wildlife and/or sensitive habitats become contaminated by the incident (including treatment of oil-affected wildlife), and, The type and extent of wildlife monitoring that would conducted during and following a pollution incident.
			Important Note: Even during an emergency situation, permits issued by ECCC may be required prior to deterring or relocating migratory birds and/or species at risk.
ECCC-A07 (CWS-38)	7.4 – Mitigation Measures		ECCC provides the following guidance document for the proponent's consideration "Seabird and waterbird colonies: avoiding disturbance" (URL: https://www.canada.ca/en/environment- climate-change/services/avoiding-harm- migratory-birds/seabird-waterbird-colonies- disturbance.html). To note, it is important that helicopters maintain a minimum distance of at least
			300m vertically and horizontally from all areas of the island or colony occupied by seabirds and waterbirds.

ECCC-A08	6.0 – Existing Biological Environment	The proponent has not included Cape St.	Cape St. Mary's should be identified as a
(CWS-9)		Mary's (Colony #230) as a breeding colony	breeding colony for Black Guillemot (94
	6.2 – Marine and Migratory Birds	for Black Guillemot in Table 6.11.	individuals) in Table 6.11, and referenced as
	(Table 6.11 – pg. 178-180)		CWS, 2019 unpublished data.
		CWS unpublished survey data (2019)	
		identifies that there are 94 individual	
		present at Cape St. Mary's.	