Fisheries and Oceans Canada | Pêches et Océans Canada

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Your File Votre référence

Our File Notre référence
BAB 3960-175

August 11, 2010

Ms. Elizabeth Young
Environmental Assessment Officer
Canada-Newfoundland and Labrador Offshore Petroleum Board
5th Floor TD Place 140 Water St.
St. John's NL A1C 6H6

Dear Ms. Young:

Re: ExxonMobil Canada Properties – Hebron Project Draft Comprehensive Study Report

Thank you for the opportunity to review the Hebron Project Draft CSR.

In response to your request dated June 16, 2010, DFO has reviewed the Draft CSR for the ExxonMobil Canada Properties Hebron Project. After a thorough, multi-sector review, DFO has concluded that the information contained within the Draft CSR does not adequately satisfy certain sections of the Hebron Development Project Scoping Document that relate directly to our departmental mandate.

Attached for your consideration are DFO comments and requests for additional information to address these deficiencies and inadequacies in order to satisfy the scoping document.

DFO recommends that ExxonMobil meet with the Department to discuss the attached information requests in an appropriate level of detail.

Should you have any questions, please do not hesitate to contact me at (709) 772-8889 or jason.kelly@dfo-mpo.gc.ca

Sincerely yours,

J. Kelly
A/Regional Manager – Environmental Assessment & Major Projects

Attachments

cc T. Bieger
R. Dickey

Canada

Note: Please be advised the revisions made to the specific sections of the Draft CSR should be reflected throughout the document where applicable (e.g. Summaries etc…)

Comment No. 1	EA Reference:	2.8 Hebron Project: Construction and Installation
	Scoping Document Cross Reference:	Section 3.1 Project Components Section 5.3.2.1 Marine Ecosystem Section 5.3.2.3 Marine Finfish and Shellfish
	Scoping Document Satisfied:	Not satisfied
Preamble:	The CSR does not provide sufficient information regarding the spoils disposal area within the nearshore project area. Fish habitat information within the proposed spoils disposal area is required in order for DFO to determine if it is likely to result in a HADD.	
Request:	Provide information on the proposed spoils disposal area including, but not limited to, location and fish habitat information.	

Comment No. 2	EA Reference:	Section 2.8 Hebron Project: Construction and Installation
	Scoping Document Cross Reference:	Section 5.3.2.3 Marine Finfish and Shellfish
	Scoping Document Satisfied:	Not satisfied
Preamble:	Tables 2-6 and 2-7 indicate that dredging may be required for the tow-out from the deepwater site to the offshore location. The potential requirement for this dredging is not addressed in the environmental effects assessment.	
Request:	Given there is a possibility that dredging may be required, it should be included in the environmental effects assessment.	

Comment No. 3	EA Reference:	Section 2.8.3 Deepwater Site Construction
	Scoping Document Cross Reference:	Section 3.1 Project Components Section 5.3.2.3 Marine Finfish and Shellfish Section 5.3.2.1 Marine Ecosystem
	Scoping Document Satisfied:	Not satisfied
Preamble:	Section 2.8.3 states that "*It is anticipated that existing deepwater moorings will be used; however additional moorings may be required.*" There is no information provided on these moorings.	
Request:	a) Specify whether these moorings are located on land or in water. If located in water, provide a description of existing and new moorings, including but not limited to location, general design, construction method, mitigation measures to protect fish and fish habitat, etc. b) Given that the construction of new moorings is a possibility, it should	

	be included in the environmental effects assessment.

Comment No. 4	EA Reference:	7.3 Existing Conditions
	Scoping Document Cross Reference:	Section 5.3.2.3 Marine Finfish and Shellfish
	Scoping Document Satisfied:	Not Satisfied
Preamble:	The information provided on existing fish habitat in the nearshore area is not sufficient with regards to the CSR scoping requirements. A more detailed description of fish habitat is required for the Bull Arm project area. Page 7-4 indicates that "*…an extensive fish and fish habitat survey of Great Mosquito Cove was conducted for the Hebron Project in August 2009.*" However, none of this information appears in the CSR as the descriptions are based on earlier studies. Also, the information provided on fish species and their life history characteristics is not discussed in relation to the habitat present within the nearshore project area.	
Request:	a) Provide the August 2009 fish habitat survey of Great Mosquito Cove. b) Rather than providing general overviews of the life history characteristics of the species present, it should be linked to the habitat present within the nearshore project area itself.	

Comment No. 5	EA Reference:	7.3.1.5 Fish and Shellfish, p. 7-7
	Scoping Document Cross Reference:	Section 5.3.2.3 Marine Finfish and Shellfish
	Scoping Document Satisfied:	Not satisfied
Preamble:	Section 5.3.2.3 request the CSR describe the distribution/abundance of species in the study area. It is likely that American Plaice and Yellowtail Flounder would be found in the Nearshore Project Area.	
Request:	Confirm whether American Plaice or Yellowtail Flounder exist in the Nearshore Project Area.	

Comment No. 6	EA Reference:	7.3.1.5 Fish and Shellfish, p. 7-14
	Scoping Document Cross Reference:	Section 5.3.2.3 Marine Finfish and Shellfish
	Scoping Document Satisfied:	Not satisfied
Preamble:	Section 5.3.2.3 request the CSR describe the distribution/abundance of species in the study area.	
Request:	This section should be revised as there are a number of inaccuracies and discrepancies, including: • Snow Crab occur in all major bays surrounding the island and also off Labrador, not just "*...from Fortune Bay to White Bay*" as indicated in	

	the text. • The 170-380 m estimate is likely one taken from a reference for the Gulf of St. Lawrence. In Newfoundland and the Eastern Scotia Shelf, Snow Crab are captured at greater depths along the slope edges, 20-2000 m is a common estimate. • Although a statement is made that, "*The distribution of small crabs is not well documented…*", the distribution of small crabs is described in any of the most recent Canadian Science Advisory Secretariat (CSAS) Research Documents produced by DFO NL Region. • Contrary to the text provided, females carry fertilized eggs for 1-2 years, which is likely influenced by temperature (Sainte-Marie 1993; Moriyasu and Lanteigne 1998; Comeau et al. 1999). Sainte-Marie, B. 1993. Reproductive cycle and fecundity of primiparous and multiparous female snow crab, *Chionoecetes opilio*, in the Northwest Gulf of St. Lawrence. Can. J. Fish. Aquat. Sci. 50(10): 2147-2156. Moriyasu, M. and Lanteigne, C. 1998. Embryo development and reproductive cycle in the snow crab, *Chionoecetes opilio* (Crustacea: Majidae), in the southern Gulf of St. Lawrence, Canada. Can. J. Zool. 76(11): 2040-2048. Comeau, M., Starr, M., Conan, G.Y., Robichaud, G. and Therriault, J-C. 1999. Fecundity and duration of egg incubation for multiparous female snow crabs (*Chionoecetes opilio*) in the fjord of Bonne Bay, Newfoundland. Can. J. Fish. Aquat. Sci. 56(6): 1088-1095.

Comment No. 7	EA Reference:	7.3.2.5 Fish and Shellfish, p. 7-26
	Scoping Document Cross Reference:	Section 5.3.2.3 Marine Finfish and Shellfish
	Scoping Document Satisfied:	Not satisfied
Preamble:	Section 5.3.2.3 request that the CSR describe the distribution/abundance of species in the study area.	
Request:	Although American Plaice is noted as the fourth most abundantly caught species during the Hebron biological survey, there is no species description provided. It is noted, however, that a description of this species is included in Section 11.3.1.2, which should be cross-referenced here. This section states that, "*Historically, the most abundant species in the area, and over the entire Grand Banks, were Atlantic cod and American plaice. However, in more recent years, these species have become uncommon on the northern portion of the Grand Banks.*" This statement is not accurate for American Plaice. While there are fewer plaice in NAFO Div. 3L than were present in the 1980s, this species is still not uncommon.	

	For example, in Figure 7.5, plaice is the fourth most common species encountered by catch and in Table 7-7 it is ranked third by weight landed. Please revise accordingly.

Comment No. 8	EA Reference:	7.3.2.5 Fish and Shellfish, Page 7-28, Table 7-7
	Scoping Document Cross Reference:	Section 5.3.2.3 Marine Finfish and Shellfish
	Scoping Document Satisfied:	Not satisfied
Preamble:	Section 5.3.2.3 request that the CSR describe the distribution/abundance of species in the study area.	
Request:	Information in Table 7-7 appears to be incorrect. Table 7-7 indicates that Yellowtail Flounder were not caught in the Study Area in 2007, however, distribution plots from 2007 (from the most recent assessments) depict Yellowtail Flounder throughout the Study Area at depths less than 93 m on the bank. Table 7-8 also contradicts Table 7-7 as values are reported for Yellowtail Flounder in 2007. Furthermore, values for American Plaice also seem low. The table indicates landed weight should be revised to should be weight caught as this information is from DFO research vessel surveys and not fishery related. Also the figures in the table also need re-examination. For example, the table suggests there was 2,439,298 kg of Redfish caught in the in 2007 survey, which would be equivalent to 2, 439 metric tons (an incredibly high value for this fishery). Values for some of the other species are suspect as well. Perhaps there was some error in reading the data from DFO species catch weight. Please review this information.	

Comment No. 9	EA Reference:	7.3.2.5 Fish and Shellfish, Page 7-30
	Scoping Document Cross Reference:	Section 5.3.2.3 Marine Finfish and Shellfish
	Scoping Document Satisfied:	Not satisfied
Preamble:	Section 5.3.2.3 request that the CSR describe the distribution/abundance of species in the study area.	
Request:	This section states that, "*Halibut population estimates declined for many years, but a slight increasing trend has been observed more recently (Kulka et al. 2003).*" This information and reference is not considered "recent". More recent information exists which should be incorporated into the CSR.	

Comment No. 10	EA Reference:	7.3.2.5 Fish and Shellfish, p. 7-31

	Scoping Document Cross Reference:	Section 5.3.2.3 Marine Finfish and Shellfish
	Scoping Document Satisfied:	Not satisfied
Preamble:	Section 5.3.2.3 request that the CSR describe the distribution/abundance of species in the study area.	
Request:	This section should be revised as there are a number of inaccuracies and discrepancies, including: • Although it states that, "*Snow crab are relatively sedentary and are not known to undergo seasonal or spawning migrations,*" it has been known for quite some time that Snow Crab undergo seasonal breeding migrations throughout the Gulf of St. Lawrence and Newfoundland (Ennis et al. 1988). • Contrary to the statement, "*The spatial distribution of snow crab appears to be a function of their age, physical habitat and time of the year,*" the spatial distribution of Snow Crab may have nothing to do with age as we cannot age them. They also terminally molt at different sizes/ages, which introduces further uncertainty to the statement. • Contrary to the statement, "*Recently-settled juveniles (<30 mm, carapace width) prefer a mud substrate…*" most appear to settle on shallow hard substrates (i.e., atop banks). Therefore, the following statement, "*Given the low percentage of fines in the substrate within the Offshore Project Area, it is not considered juvenile snow crab habitat*" is also incorrect. • The exploitable biomass of Snow Crab in NAFO Div. 3L has changed drastically since the DFO (2005b) report referenced here. Since assessments of this species are carried out annually, it would be more appropriate to reference the most recent, 2010 DFO Science Advisory Report, which indicates that the exploitable biomass of Snow Crab is now increasing. Ennis, G.P., Hooper, R.G. and Taylor, D.M. 1988. Changes in size composition of male crabs (*Chionoecetes opilio*) participating in the annual breeding migration in Bonne Bay, Newfoundland. CAFSAC Res. Doc. 88(2). 14p.	

Comment No. 11	EA Reference:	Section 7.3.2.5 Fish and Shellfish, Page 7-31
	Scoping Document Cross Reference:	Section 5.3.2.3 Marine Finfish and Shellfish
	Scoping Document Satisfied:	Not satisfied
Preamble:	Section 5.3.2.3 request the CSR describe the distribution/abundance of species in the study area.	
Request:	This section states that, "*The most recent measure of the population of Greenland halibut on, and in the vicinity of the Grand Banks, indicates*	

	the exploitable biomass is currently at the lowest recorded level (Healey and Mahe 2005)." The reference is an assessment of Greenland Halibut based on an age-based population model for the subarea 2 + Division 3KLMNO stock area, not just "*on, and in the vicinity of the Grand Banks*". It should also be noted that as the assessment of this resource occurs annually, a 2005 reference is quite dated. Information from more recent studies should be incorporated into the CSR.

Comment No. 12	EA Reference:	7.4.1 Nearshore
	Scoping Document Cross Reference:	Section 3.1 Project Components Section 5.3.2.3 Marine Finfish and Shellfish
	Scoping Document Satisfied:	Not satisfied
Preamble:	Section 7.4.1 outlines nearshore project activities that could potentially interact directly or indirectly with marine fish and fish habitat. This list of activities does not include upgrades to the terminal at Back Cove, which will be used for vessel docking during crew transport. During a recent visit to the Bull Arm site, DFO was informed that upgrades to the terminal would be required, which could result in a narrowing of the mouth of a stream which empties at the site.	
Request:	a) Provide details on the upgrades required at the Back Cove terminal. b) Proposed upgrades to the terminal should be included in the environmental effects assessment.	

Comment No. 13	EA Reference:	7.5 Environmental Effects Analysis and Mitigation
	Scoping Document Cross Reference:	Section 5.3.2.3 Marine Finfish and Shellfish
	Scoping Document Satisfied:	Not satisfied
Preamble:	Although the potential environmental effects listed within the tables in this section are fairly comprehensive, some effects have not been adequately described within the text. Thus, it is important that there is sufficient discussion within the text to support the claims made within the tables.	
Request:	Provide a more detailed explanation of environmental effects.	

Comment No. 14	EA Reference:	7.5.1.1 Change in Habitat Quantity, p. 7-49
	Scoping Document Cross Reference:	5.3.6.3 HADD
	Scoping Document Satisfied:	Not satisfied
Preamble:	The last paragraph of this section states that, "*In accordance with the DFO policy of no net loss of fish habitat, a habitat compensation program will be developed in conjunction with DFO as a mitigation measure for*	

	the net loss of fish habitat resulting from nearshore and offshore Hebron Project activities." Although DFO acknowledges the proponent's commitment to the development and implementation of a fish habitat compensation program, a fish habitat compensation strategy is required as part of this CSR.
Request:	Provide a Fish Habitat Compensation Strategy.

Comment No. 15	EA Reference:	7.5.1.4 Potential Mortality (Nearshore)
	Scoping Document Cross Reference:	Section 5.3.2.3 Marine Finfish and Shellfish
	Scoping Document Satisfied:	Not satisfied
Preamble:	Dewatering of the drydock will result in fish mortality, which is not included in the environmental effects assessment. During dewatering it is likely that fish will be stranded within the drydock area. Prior to dewatering, fish should be removed from the isolated drydock area and be relocated to a predetermined location within the nearby marine environment.	
Request:	a) Provide details of a fish recovery and relocation program. b) Fish mortality should be included as a potential environmental effect within the environmental effects assessment (text and tables). c) Make reference to the fish recovery and relocation program in the applicable mitigations column in Table 7-11.	

Comment No. 16	EA Reference:	7.5 Environmental Effects Analysis and Mitigation
	Scoping Document Cross Reference:	Section 3.1 Project Components
	Scoping Document Satisfied:	Not satisfied
Preamble:	In Table 7-11 the use of "*bubble curtains, if required*" and "*Compliance with terms of Section 32 Fisheries Act Authorization (if required)*" are listed as mitigations during removal of the bund wall and disposal (dredging/ocean disposal). These mitigations are typically associated with in-water blasting, however, the CSR does not specify that in-water blasting will be used for bund wall removal and disposal.	
Request:	Provide clarification on whether in-water blasting will be required for removal of the bund wall.	

Comment No. 17	EA Reference:	7.5 Environmental Effects Analysis and Mitigation
	Scoping Document Cross Reference:	Section 3.1 Project Components Section 5.3.2.1 Marine Ecosystem
	Scoping Document Satisfied:	Not satisfied

Preamble:	Table 7-11 lists installation of temporary moorings at the offshore project location as a project activity, however, there is no other information on these temporary moorings within the CSR.
Request:	Provide details on the nature of these moorings.

Comment No. 18	EA Reference:	Section 8.4.2 Potential Interactions (and Impact Pathways) Table 8-14 Potential Project-related Interactions with Commercial Fisheries, p. 8-45
	Scoping Document Cross Reference:	Section 5.3.3.3 Traditional, Existing and Potential Commercial, Recreational and Subsistence Fisheries, including Foreign Fisheries.
	Scoping Document Satisfied:	Not satisfied
Preamble:	Section 5.3.3.3 requests that the environmental effects of the project fisheries be discussed. Section 8.4.1.1 indicates that fishers were are concerned about effects of construction-related noise and light on fish behaviour in the nearshore however lighting is not indicated as having a potential effect in Table 8-14 or included in Section 8.5 Environmental Effects Analysis and Mitigation.	
Request:	Please revise Table 8.14 and Section 8.5 to include the potential for lighting to affect fisheries.	

Comment No.19	EA Reference:	Section 8 – Commercial Fisheries
	Scoping Document Cross Reference:	Section 5.3.3.3 Traditional, Existing and Potential Commercial, Recreational and Subsistence Fisheries, including Foreign Fisheries.
	Scoping Document Satisfied:	Not satisfied
Preamble:	Scoping document requires CSR to provide a description of fisheries in Study Areas (including traditional, existing and potential commercial, recreational and subsistence). However, this section only identifies traditional and existing key species fisheries of significant value in the study areas.	
Request:	a) Study report to include potential commercial, recreational and subsistence fisheries. b) If not included, explain why.	

Comment No. 20	EA Reference:	Section 8 – Commercial Fisheries
	Scoping Document Cross Reference:	Section 5.3.3.3
	Scoping Document Satisfied:	Not satisfied

Preamble:	Scoping document requires CSR to detail traditional historical fishing activity – abundance data for certain species in this area, prior to the severe decline of many fish species (e.g., an overview of survey results and fishing patterns in the survey areas for the last 20 years). While there is some landings and value data presented as well as harvesting locations, theses are limited to the last 3-6 years.
Request:	Please provide an overview of survey results and fishing patterns in the survey areas for the last 20 years

Comment No.: 21	EA Reference:	Section 8 – Commercial Fisheries
	Scoping Document Cross Reference:	Section 5.3.3.3 Traditional, Existing and Potential Commercial, Recreational and Subsistence Fisheries, including Foreign Fisheries.
	Scoping Document Satisfied:	Not satisfied
Preamble:	Scoping document requires CSR to demonstrate consideration of underutilized species that may be found in the study area as determined by analyses of past DFO research surveys and Industry GEAC survey data, with emphasis on those species being considered for future potential fishers, and species under moratoria. This is not evident in the CSR.	
Request:	Demonstrate consideration of underutilized species that may be found in the study areas as determined by analyses of past DFO research surveys and Industry GEAC survey data, with emphasis on those species being considered for future potential fishers, and species under moratoria.	

Comment No.: 22	EA Reference:	Section 8 – Commercial Fisheries
	Scoping Document Cross Reference:	Section 5.3.3.3 Traditional, Existing and Potential Commercial, Recreational and Subsistence Fisheries, including Foreign Fisheries.
	Scoping Document Satisfied:	Not satisfied
Preamble:	Scoping document requires CSR to detail program(s) for compensation of affected parties, including fisheries interests, for accidental damage resulting from project activities. While a Fisheries Compensation Plan will be established, it only states that the plan will be developed based on existing practice and industry-based guidance.	
Request:	a) Identify what the plan will compensate and to whom. That is, who would be an "affected party" and if the plan will include compensation for accidental damage or other negative effect resulting from project activities. b) Although the plan is not yet developed, a summary of "existing practice" and industry-based guidance should be included.	

Comment No. 23	EA Reference	Section 8.5.1.1 Nearshore (Mitigations) , p. 8-51
	Scoping Document Cross Reference:	Section 5.3.3.2 Presence of Structures and/or Operations
	Scoping Document Satisfied	Not satisfied
Preamble:	Section 5.3.3.2 of the scoping document request that the means by which adverse effects upon marine use may be mitigated through design or operation procedures. List below are operational regulations and procedures regarding the regarding movement of vessel traffic inshore and offshore.	
Request:	This section should be revised to include the following mitigations: • All vessel traffic to be made aware of the provisions of the Eastern Canada Traffic Zone Regulations (ECAREG) and inshore High Level Traffic Zone practices and procedures. • All parties provide Canadian Coast Guard with required information for issuance of Notices to Shipping and Notices to Mariners in a timely manner. • Private floating and fixed Aids to Navigation be established in Trinity Bay approaches to Bull Arm. See below The following Aids to Navigation are recommended by Superintendent, Aids to Navigation, NL Region. 1. Floating aid identified as Bowers Ledge (TBU) North Cardinal Buoy with RACON. 2. Floating aid identified as Temples Knob (TB2) Starboard Hand Light Buoy 3. Floating Aid identified as Stanton Point (TB4) Starboard Hand Light Buoy 4. Floating Aid identified as The Hoof Port Hand Buoy 5. Fixed Aid – a sector light recommended at Ram Head. Item 4, The Hoof port hand buoy is already in place as a private AtoN. A tower is also in place to accommodate a sector light, item 5. Coast Guard would place, maintain and retrieve Aids on a cost-recovery basis from the project proponent.	

Comment No. 24	EA Reference::	Section 8.5.1.2 Offshore, Mitigations p. 8-53
	Scoping Document Cross Reference:	Section 5.3.3.2 Presence of Structures and/or Operations
	Scoping Document Satisfied	Not satisfied.
Preamble:	Clarification of procedures is required regarding – Notice to shipping, Not	

	mariners, Notice to Fish Harvesters.
Request:	Please revise this section accordingly. Canadian Coast Guard will issue Notices to Shipping based on waterway conditions, exploration activities, or other short term operations. Notices to Mariners are written notices, usually based on a broadcast Notice to Shipping and also promulgated by the Canadian Coast Guard dealing with situations over three (3) weeks in duration. Notices to Shipping are broadcast by MF radio and Navtex and by VHF on the Continuous Marine Broadcast (CMB) while they are in force. Notices to Mariners are promulgated by written copy on a monthly basis. Notices to Fish Harvesters are promulgated by DFO Resource Management Branch. They are also broadcast by Coast Guard MCTS Centres on MF and on the CMB for a period of 24 hours. DFO also sends Notices to Fish Harvesters to CBC Radio for inclusion on the Fisheries Broadcast.

Comment No. 25	EA Reference:	10.3.1.2 Fisheries and Oceans Canada Cetacean Sightings Database, Page 10-10
	Scoping Document Cross Reference:	Section 5.3.2.4 Marine Mammals and Sea Turtles
	Scoping Document Satisfied:	Not satisfied
Preamble:	Section 5.3.2.4 request the CSR describe the distribution/abundance of species utilizing the study area.	
Request:	Lawson and Gosselin 2009 should also be referenced in this section as it includes effort measures and density estimates in a stratum that borders the western edge of the operational study area. Lawson, J. W. and Gosselin, J-F. 2009. Distribution and preliminary abundance estimates for cetaceans seen during Canada's Marine Megafauna Survey: A Component of the 2007 TNASS. Canadian Science Advisory Secretariat Research Document. 28p + vi.	

Comment No. 26	EA Reference:	Section 10.5 Environmental Effects Analysis and Mitigation, p. 10-47
	Scoping Document Cross Reference:	Section 5.3.3.1 Noise/Acoustic Environment
	Scoping Document Satisfied:	Not satisfied
Preamble:	Section 5.3.3.1 of the scoping document requests that the proponent discuss the means by which potentially significant effect may be mitigated through design and/or operational procedures. Section 10.5.1.2 of the CSR describes the environmental effects of	

	surveys, in particular seismic surveys, on habitat quality for marine mammals and sea turtles. While this section does make reference to the *Statement of Canadian Practice with Respect to the Mitigation of Sound in the Marine Environment* (SOCP) it accurate only provides a limited discussion of associated mitigations. For example the SOCP states that monitoring should be carried out by a qualified Marine Mammal Observer, not a "*dedicated environmental observer*" as specified in the text on Page 10-47 of the CSR. Please be advised that the SOCP specifies the mitigation requirements that must be met during the planning and conduct of marine seismic surveys, in order to minimize impacts on life in the oceans. These requirements are set out as <u>minimum standards</u>, which will apply in all non-ice covered marine waters in Canada
Request:	Provide all mitigation measures as stipulated in the SOCP that will be implemented to minimize any adverse effects on fish, marine mammals and sea turtles.

Comment No. 27	EA Reference:	Section 11.1.3 – Administrative
	Scoping Document Cross Reference:	Section 5.3.2.5 – Species at Risk
	Scoping Document Satisfied:	<u>Not Satisfied</u>
Preamble:	There are several errors in the text about SARA that need to be addressed.	
Request:	a) The purpose of SARA as stated is not entirely correct. Replace text "management of other species to prevent from becoming at risk" with "manage species of special concern to prevent them from becoming endangered or threatened. b) There is reference made to Schedules 2 and 3 of SARA. Note that there are no species left to be reassessed on Schedule 2 and many of the Schedule 3 species have also been re-assessed. c) Section 32 of SARA as worded in this section is incorrect – it does not include critical habitat. Section 32 prohibits the killing, harming harassing, capturing, taking, etc. of an extirpated, endangered or threatened species. Section 33 deals specifically with damage and destruction of residences and Section 58 deals with the destruction of critical habitat. The text should be revised accordingly. d) The 3rd paragraph lists existing recovery strategies/mgmt plans. The Recovery Strategy for North Atlantic Right Whale should also be included.	

Comment No. 28	EA Reference:	Section 11.3 - Existing Conditions
	Scoping Document Cross Reference:	Section 5.3.2.5 – Species at Risk
	Scoping Document Satisfied:	<u>Not satisfied</u>
Preamble:	There are several items that need to be addressed or revised in Table 11.2.	

Request:	a) For American Plaice it should be noted that it is the Newfoundland and Labrador population being referred to. b) It is not necessary to refer to the COSEWIC status of species which are listed on Schedule 1 of SARA. c) Earlier in the document (Table 7-2), it mentions that redfish may occur. Since Table 11.2 includes species assessed by COSEWIC, then it should be updated to include Deepwater and/or Acadian Redfish (as applicable) as both these species have been recently assessed by COSEWIC. For Deepwater Redfish, the Gulf of St. Lawrence/Laurentian Channel population was assessed as endangered and the Northern population was assessed as threatened. For Acadian Redfish, the Atlantic population was assessed as threatened and the Bonne Bay population was assessed as special concern. d) Earlier in the document (Section 10.3.3) it mentions that Loggerhead Sea Turtle may occur. This species was recently assessed by COSEWIC as endangered. Table 11.2 should be updated to include this.

Comment No. 29	EA Reference:	Section 11.3.1.1 – Atlantic cod
	Scoping Document Cross Reference:	Section 5.3.2.5 – Species at Risk
	Scoping Document Satisfied:	Not satisfied
Preamble:	Cod was recently re-assessed by COSEWIC and the information in this section needs up-dating.	
Request:	Revise text to indicate that the Laurentian North population is now assessed as endangered, not threatened.	

Comment No. 30	EA Reference:	Section 11.3.1.3 – American eel Section 11.3.1.6 – Grenadier Section 11.3.1.8 – Blue shark Section 11.3.1.11 – White shark Section 11.3.2.4 – Killer whale Section 11.3.2.5 – Harbour porpoise
	Scoping Document Cross Reference:	Section 5.3.2.5 – Species at Risk
	Scoping Document Satisfied:	Not satisfied
Preamble:	The same comment applies to all of the above sections. The wording used to describe COSEWIC assessments is inaccurate.	
Request:	COSEWIC does not "list" species. Where the document indicates that a species is "listed by COSEWIC" the wording should be changed to indicate that a species is "assessed by COSEWIC as…"	

Comment No. 31	EA Reference	Section 11.3.2. – Marine Mammals and Sea Turtles
	Scoping Document Cross Reference:	Section 5.3.2.5 – Species at Risk

	Scoping Document Satisfied:	Not satisfied
Preamble:	The recovery strategies published for marine mammals and sea turtles are listed in this section.	
Request:	It should be noted that there is also a recovery strategy published for the North Atlantic Right Whale.	

Comment No. 32	EA Reference:	Section 12.4.1 Nearshore (Project-Valued Ecosystem Component Interactions) p. 12-13
	Scoping Document Cross Reference:	Section 5.3.2.6 Sensitive Areas
	Scoping Document Satisfied:	Not satisfied
Preamble:	The scoping document requires the CSR to discuss the environmental effects of the project on sensitive areas. The first paragraph in this section states that, "*These potential effects are fully considered and assessed in the respective VECs (i.e., Marine Fish and Fish Habitat, Marine Birds)*", which implies a complete assessment of all relevant species that may be affected by the development. However, this may not be the case. There are several large (>1000 m^2) productive eelgrass meadows within a 20 km radius of the Bull Arm site. The head of Bull Arm itself is particularly productive, through the presence of eelgrass nursery meadows, pebble-cobble areas, and extensive kelp and algae species, all of which provide cover for a variety of groundfish species, particularly juveniles of several prominent marine commercial species.	
Request:	Please revise this section to include the species to be affected by the impacts on these sensitive areas.	

Comment No. 33	EA Reference:	Section 12.4.1 Nearshore (Project-Valued Ecosystem Component Interactions) p. 12-13
	Scoping Document Cross Reference:	Section 5.3.2.6 Sensitive Areas
	Scoping Document Satisfied:	Not satisfied
Preamble:	The last paragraph on this page states that, "*There is potential for eelgrass beds to be physically affected by an accidental oil spill in the nearshore environment during construction, which could result in a change in habitat quality and mortality of individual plants.*" This statement understates a more serious concern, which would be the disruption or destruction of a significant portion of an entire eelgrass meadow. This should also be addressed in Table 12-2 and the environmental effects analysis.	
Request:	Please revise this section to include the impact an entire eelgrass meadow. IN additional please revise the Section 12.4.3 Summary to reflect these changes.	

Additional Deficiences and Editorial Comments

4.0 Effects Assessment Methods

4.3.1 Step 1 – Scoping Issues and Selecting Valued Ecosystem Components

Page 4-4

> Under the Fish and Fish Habitat section, the first bullet should read "*Provisions of the Fisheries Act pertaining to the* ***harmful alteration, disruption or destruction*** *of fish habitat.…*"

4.3.3 Step 3 – Definition of Significance

Page 4-10 Fish and Fish Habitat

> The definition of a significant adverse environmental effect is somewhat confusing. This definition should be revised to the following "…would be one that results in a residual effect (i.e. harmful alteration, disruption or destruction of fish habitat) that is so large and/or the fish and fish habitat is of such importance that it cannot be adequately compensated for."
>
> This definition should also be revised in **Section 7.2 Definition of Significance p. 7-3, par. 2**

7.0 Fish and Fish Habitat

> Some fish species descriptions are absent from this section, but appear in later sections of the document, most specifically the Species at Risk section. These species should at least be cross-referenced here, so the reader can locate the information easily.
>
> It should be noted throughout the assessment of fish and fish habitat that stocks are interrelated (i.e., have a connection with other areas), although knowing exactly what this connection is may be uncertain. It is also important to recognize that surveys are simply snapshots in time as fish tend to continually move in and out of areas.

7.3.1.5 Fish and Shellfish

Page 7-10 (Greenland Halibut)

> This section states that, "*Although Greenland halibut can be found in small numbers at depths of less than 100 m, most of them are caught near the sea bottom at depths of between 200 to 600 m. In the southern part of the range; however, they go as deep as*

1,500 m". This statement is not entirely accurate as, "*Greenland Halibut can be found at depths ranging from less than 100 m to deeper than 1,500 m*" and although they are predominantly considered a deepwater fish, they are generally found at all depths.

7.3.2 Offshore

Page 7-16

The second paragraph in this section states that, "*DFO RV data from 3Lt have also been reviewed along with relevant fish and fish habitat primary literature for the Hebron Offshore Study Area.*" In order to provide an accurate depiction of the species composition and abundance in the **Offshore Study Area**, surveys within other subdivisions of 3L and 3N, which fall within the Study Area should also be included. Depending on the findings, the assessment of impacts on fisheries may need to be revisited accordingly.

Page 7-19

Table 7-2 should include American Plaice.

7.3.2.3 Plankton

Page 7-18

The last paragraph in this section states that ichthyoplankton may include jellyfish and squid. This is incorrect as "*ichthyoplankton*" refers to fish eggs and larvae. While jellyfish and squid may have been found during ichthyoplankton surveys, they are not considered ichthyoplankton.

7.3.2.4 Benthos

Although the CSR mentions the numbers of trawls reporting a particular coral species, it would be beneficial to present this number in the context of the total number of trawls taken.

Page 7-20

This section refers to, "…*short-lived polychaetes, amphipods and cumaceans*". Please provide supporting reference(s).

7.3.2.5 Fish and Shellfish

More recent references than Methven 1999 exist on the diet of groundfish in the area. Since there has been a regime shift on the Newfoundland shelf over time, the most up to

date information should be incorporated into the CSR. Information on the biology of a species, including feeding habits, can be found in the most recent CSAS or NAFO documents for that species.

Page 7-29

The second paragraph on this page states that, "*There are several other species that are so infrequent, there is little chance of an interaction with the Project.*" It is important to note that just because a species is infrequent, does not mean it is unimportant or does not need to be considered. In fact, the opposite may be true, particularly for some rare species and/or structural species such as corals and sponges. In addition, although plaice are no longer concentrated in Div. 3L (but are increasing slightly in the area), it does not mean they are infrequent. Notably, habitat in the area is very important to the recovery of American Plaice.

Page 7-32 (Greenland Halibut)

The caption for Figure 7-6 references Yellowtail Flounder when it should in fact be Greenland Halibut.

Page 7-33 (Greenland Halibut)

The first paragraph on this page states that, "*Spawning occurs during the winter in the Davis Strait….*" This information should be checked against more recent references, as it may prove the statement to be inaccurate.

Page 7-33 (Yellowtail Flounder)

Although it states that, "*Historically, their distribution has included the northern portion of the Grand Banks (Walsh et al. 2000) and, therefore may occur within the Offshore Project Area*", according to recent NAFO documents the distribution of Yellowtail Flounder, since their population increase in 2000, has been returning to its historical pattern and a greater proportion of the stock is found in Div. 3L.

Page 7-40 (Redfish)

It is likely that Figure 7-11 is inaccurate as Redfish are more common than indicated according to recent NAFO documents.

7.4 Project-Valued Ecosystem Component Interactions

Page 7-41

In the interactions summary categories a "*Change in Habitat Quantity*" is noted as, "*Project activities that may result in physical alteration of fish habitat, and may be*

declared a HADD of fish habitat by DFO and require a Section 35(2) Fisheries Act Authorization." This should be revised to read "*Project activities that may result in* ***the harmful alteration, disruption or destruction of fish habitat****, and may be declared a HADD of fish habitat by DFO and require a Section 35(2) Fisheries Act Authorization.*"

Page 7-42

With regards to a "*Change in Habitat Quality*" it should be noted that this could be considered a harmful alteration or disruption of fish habitat and may be declared a HADD of fish habitat by DFO and require a Section 35(2) *Fisheries Act* Authorization.

Table 7-9

There are numerous instances where a change in habitat quality has been noted for a particular activity, however, DFO is of the opinion that no change in habitat quality will occur. Below is a list of these activities. This table, as well as other tables within this section should be updated to remove this environmental effect or a justification should be provided as to why the effect should remain.

-Operation of vessels/vessel traffic
-Lighting
-Tow-out of GBS to Bull Arm deepwater site
-GBS ballasting and de-ballasting (seawater only)
-Complete GBS construction and mate topside at Bull Arm deepwater site
-Hook-up and commissioning of topsides
-Various surveys
-Platform tow-out to deepwater site.
-Hook-up and commissioning of Hebron platform
-Hook-up, production testing and commissioning of excavated drill centres
-Presence of structures

Since Table 7-11 noted that OLS installation and testing could result in potential fish mortality, then Table 7.9 should be updated to reflect this information as well.

Since Table 7-12 indicates that the potential future operational activity of geophysical/seismic surveys could result in potential fish mortality, then Table 7.9 should be updated to reflect this information as well.

7.5.1.1 Change in Habitat Quantity (Construction and Installation)

Page 7-47

The fist paragraph on this page states that, "*The footprint of the bund wall, the area of the drydock, the area to be dredged and the footprint of any at-sea disposal will be quantified and detailed within the Habitat Compensation Strategy report for the Hebron Project.*"

While this level of detail is not required in a Fish Habitat Compensation Strategy, a separate document detailing the HADD quantification should be submitted to DFO.

The second paragraph on this page states that, "*The bund wall footprint and the area to be drained for the drydock in Great Mosquito Cove may temporarily affect to a small degree, the quantity of available habitat for fish and shellfish for an estimated 24 months.*" While it is true that this change in habitat quantity will be temporary, it is important to note that construction of the bund wall and drydock dewatering may still constitute a HADD of fish habitat.

7.5.1.2 Change in Habitat Quality (Construction and Installation)

Page 7-52

Two of the mitigation measures being considered to reduce sediment loading during construction are, "*Investigate the use of washed rock or in-water sediment control measures for fill material in the construction of the bund wall*" and "*Investigate technologies to reduce sedimentation during dredging operations*" There should be a commitment to implement, not investigate, these standard mitigations, which are commonly recommended by DFO for the protection of fish and fish habitat. Similar statements are made throughout the text and tables within this document. These statements should also be revised accordingly.

Table 7-11

Although the following comments were made regarding information contained within Table 7-11 on page 7-62, they also pertain to the text portion of Section 7 and Table 7-9 on page 7-44.

Nearshore Project Activities:

- **Presence of Safety Zone**
  The duration for presence of safety zone is noted as a "*2*" (1-12 months), it should in fact be a "*3*" (13-36 months) to correspond to the life of the project at the Bull Arm site.

- **Dewater Drydock/Prep of Drydock Area**
  The text on page 7-47 states that, "*The bund wall footprint and the area to be drained for the drydock in Great Mosquito Cove may temporarily affect to a small degree, the quantity of available habitat for fish and shellfish for an estimated 24 months.*" However, Table 7-11 does not include habitat quantity as a potential environmental effect. It also rates the duration as "*2*" (1-12 months) when according to the text on page 7-47 it should clearly be rated as "*3*" (13-36 months). In addition, compliance to the Section 35(2) *Fisheries Act* Authorization and Fish Habitat Compensation should be included as mitigations.

The environmental effects of dewatering the drydock should also include fish mortality.

- **Concrete Production (Floating Batch Plant)**
  "*Concrete wash water containment and testing to meet applicable regulations*" is included as an applicable mitigation in the text on page 7-53. This should be added to Table 7-11.

- **Dredging of Bund Wall and Possibly Sections of Tow-Out Route (May Require At-Sea Disposal)**
  Compliance to the Section 35(2) *Fisheries Act* Authorization and Fish Habitat Compensation should be included as mitigations for at-sea disposal.

  Section 7.4.1 (page 7-42) indicates that there may be possible blasting along sections of the GBS tow-out route to the deepwater site, however, there are no mitigations indicated in this table to offset the effects of in-water blasting. The mitigations section should be updated as applicable (i.e., bubble curtains, compliance with Section 32 *Fisheries Act* Authorization, if applicable, etc.).

- **Removal of Bund Wall and Disposal (Dredging/Ocean Disposal)**
  "*Implementation of in-water sediment control measures*" should be cited as a mitigation.

- **GBS Ballasting and De-Ballasting (Seawater Only)**
  The environmental effects of GBS ballasting and de-ballasting (seawater only) should include habitat use.

Offshore Construction/Installation:

- **OLS Installation and Testing**
  The OLS installation is considered a permanent structure and as such the duration rating should be "*5*" (> 72 months). Compliance to the Section 35(2) *Fisheries Act* Authorization should be included as a mitigation.

- **Concrete Mattress Pads/Rock Dumping Over the OLS Offloading Lines**
  As noted in Table 7-9, the environmental effects of placement of concrete mattress pads/rock dumping over the OLS offloading lines could result in potential fish mortality and change in habitat quality. These effects should be added to this table.

  The concrete mattress pads/rock dumping over the OLS offloading lines are considered permanent structures and as such the duration rating should be "*5*" (> 72 months). Compliance to the Section 35(2) *Fisheries Act* Authorization should be included as a mitigation.

- **Platform Tow-Out/Offshore Installation**

The environmental effects of offshore installation should also include potential fish mortality and change in habitat quality.

The offshore installation is considered a permanent structure and as such the duration rating should be "*5*" (> 72 months). Compliance to the Section 35(2) *Fisheries Act* Authorization should be included as a mitigation.

- **Placement of Rock Scour Protection on the Seafloor Around Final Hebron Platform Location**
  The environmental effects of placement of rock scour protection on the seafloor around the final Hebron platform location should also include potential fish mortality.

  The placement of rock scour on the seafloor around the final Hebron platform location is considered a permanent structure and as such the duration rating should be "*5*" (> 72 months). Compliance to the Section 35(2) *Fisheries Act* Authorization and Fish Habitat Compensation should be included as mitigations.

Potential Future Construction Activities:

- **Installation of Pipeline(s)/Flowline(s) and Testing from Excavated Drill Centre(s) to Platform Plus Concrete Mattresses, Rock Cover, or Other Flowlines Insulation**
  Installation of pipeline(s)/flowline(s) and testing from excavated drill centre(s) to platform plus concrete mattresses, rock cover, or other flowlines insulation are considered permanent and as such the duration rating should be "*5*" (> 72 months). Compliance to the Section 35(2) *Fisheries Act* Authorization should be included as a mitigation.

Page 7-61

The third paragraph states that, "*These studies indicate that dredging causes an initial reduction in the abundance, species diversity, and biomass of the benthic community and that substantial progress towards full restoration of the fauna and sediments can be expected within a period of approximately two to four years following cessation (Kenny et al. 1998; Sardá et al. 2000; Van Dalfsen et al. 2000).*" It should be noted that although this statement may be true for polychaetes etc., it is not the case for long-lived species such as corals.

Page 7-62

In the third paragraph it states that, "*The risk of mortality to sessile invertebrates from dredging will be reduced by having dredging contained to the smallest area possible and restricting dredge spoils disposal to a designated disposal area.*" The proponent should note that the disposal area should be determined though consultations with Federal Authorities, including DFO, to ensure the best location is chosen in order to minimize any adverse effects on fish and fish habitat.

Table 7-12

Although the following comments were made regarding information contained within Table 7-12 on page 7-72, they also pertain to the text portion of Section 7 and Table 7-9 on page 7-44.

- **Presence of Structures**
  The change in habitat quantity with regards to the presence of structures has already been considered in the environmental effects assessment for construction and installation (Table 7-11) and therefore does not need to be taken into consideration again under operations and maintenance.

Potential Future Operational Activities:

- **Presence of Structures**
  The change in habitat quantity with regards to the presence of structures is factored into the environmental effects assessment under construction and installation (Table 7-11) and therefore does not need to be taken into consideration again here.

Table 7-13

- **Removal of the Hebron Platform and OLS Loading Points**
  As noted in Table 7-9, the environmental effects of removal of the platform and OLS loading points could also result in potential mortality. These effects should be added to this table.

- **Surveys (Geophysical, Geological, Geotechnical Environmental, ROV, diving, etc.)**
  As noted in Tables 7-9 and 7-11, these activities would not result in potential fish mortality. This table should be updated to reflect the same information.

7.5.4.1 Change in Habitat Quantity (Accidents, Malfunctions and Unplanned Events)

Page 7-77

The first paragraph in this section states that,*"In the offshore, a spill of crude oil would dissate through evaporation as well, but would have the potential to form tar balls and sink to the sea floor. In any case, the quantity of fish habitat affected by a spill would be negligible.*" Please provide a reference which supports this prediction (i.e. formation and impact of tar balls).

8. Commercial Fisheries

8.1.3 Administrative

Page 8-1

This section gives the impression that NAFO divisions and unit areas are defined by DFO, which is not the case. Suggest revising this section.

8.3.2 Offshore Fisheries

Page 8-14 Figure 8-5

NAFO unit area 3Na is mislabels as 3Lb

8.3.2.2 – Historical Overview of Regional Fisheries

Page 8-16

Please revise Committee on the Status of Wildlife in Canada to Committee on the Status of Endangered Wildlife in Canada.

This section states that "…COSEWIC listed the Atlantic Cod (Newfoundland and Labrador Population as an endangered species." Please be advised that COSEWIC assessed Atlantic Cod as endangered in 2003. Please revise accordingly.

8.5.1.2 Offshore (Access to Fishing Grounds)

Page 8-52

The lack of harvest activity within the proposed offshore safety zone over the last two decades is a function of a significant decline in the abundance of groundfish. In the event of an increase in the abundance of groundfish, reduced access to these fishing grounds may have economic impacts for groundfish licence holders.

10.0 Marine Mammals and Sea Turtles

10.3.1.1 Recent Marine Mammal Monitoring in the Jeanne d'Arc Basin

Page 10-8

The last paragraph on this page states that, "There were no confirmed identifications of sperm whales…" However, DFO and others have made many sightings of sperm whales on the Grand Banks, including some in very shallow nearshore waters, so the low number of these animals should be considered "unexpected". In addition, the most common cetacean sighted in association with offshore trawling operations in recent years are sperm whales. Thus, sperm whales are attracted to fishing operations on the Grand banks and may approach other vessels as a result.

10.3.2.2 Toothed Whales (Odontocetes) (Northern Bottlenose Whale)

Page 10-20

It should be noted that there have been several northern bottlenose whale standings recently in coastal waters, including one in Terra Nova. It is likely these whales were chasing nearshore squid.

11.0 Species at Risk

Since project activities will be occurring over a long time period (e.g. nearshore construction up to 2016, offshore construction to 2017 and onwards) it is possible that during this timeframe more species could be added to Schedule 1 of SARA, new Recovery Strategies, Management Plans or Action Plans could be posted for listed species, critical habitat could be identified, COSEWIC will have assessed new species, etc. Many things could change that may affect a species status and the requirements for it under SARA. This will need to be taken into consideration by the proponent.

11.3.1.2 American Plaice

Page 11-10

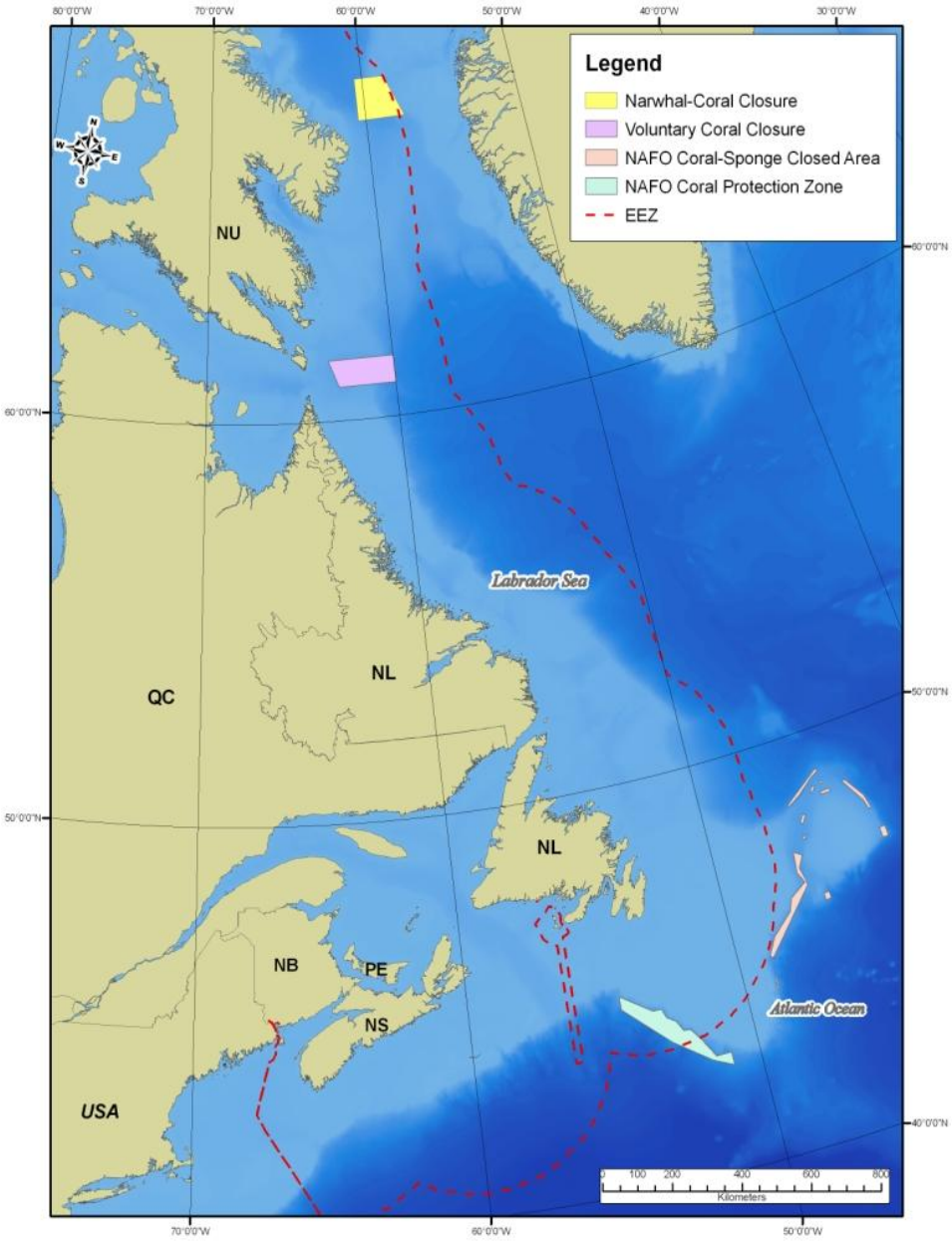
Although the second paragraph states that, "*Females in spawning condition may be found throughout the Grand Banks (Morgan 2001), indicating the lack of a specific spawning ground",* the last paragraph states that, "*The Southeast Shoal and Tail of the Banks EBSA, proposed by DFO, is known as a spawning and nursery area for plaice."* The former statement is more accurate, as recent data has shown that it is unlikely that the Southeast Shoal is the only spawning ground for American Plaice, although they do spawn there. It is also possible that it is not a nursery area as previously thought, however, despite this the area still contains important habitat for American Plaice.

12.0 Sensitive of Special Areas

Page 12-3

Figure 12-2 shows "Sponge/Coral Area" but does not note if this is an area where they are found, if these are VMEs (that is what is suggested in paragraph 3 on page 12-1 but not made clear), or closed areas. A map of NAFO Coral and Sponge closed areas and the NAFO Coral Protection zone exists. This data could be used to update table 12-2. This may be less ambiguous than using "sponge/coral area". See attached map.

Also the green area, southwest of the Flemish Cap, is the Beothuk Knoll as indicated by the map's legend. However, the Orphan Knoll also appears as a green area north of the Flemish Cap, but is not included within the map's legend.



12.1.2 Administrative

Page 12-5

The following changes should be made.

- Line 15 Some EBSAs **are** – change to – Some EBSAs **may be**
- Line 16…other EBSAs **are** – change to - ..other EBSAs **may be**
- Line 17….management implications **of the identification of** these…change to...management implications **for** these

12.3.2 Offshore

Page 12-8

Please change where it says EBSAs **are** to EBSAs **may be** in lines 12 and 13

12.5 Environmental Effects Analysis and Mitigation

This section notes that an oil spill in the Bull Arm area could adversely affect some capelin beaches or eelgrass habitat. However, relatively low levels of oil retained in inter-tidal or shallow sub-tidal sediments could potentially affect a variety of species. For instance, studies in the United States and Canada have noted that sub-lethal effects can be produced in flounder species chronically exposed to very low levels (≤ 3 ppm) of sedimentary PAH. This generalization would also hold true in the Offshore Project Area

12.5.1.1 Nearshore (Accidents, Malfunctions and Unplanned Events)

Page 12-16 (Eelgrass Beds)

The references, Fingas (2001) and Wright (2002) do not appear to be first-hand accounts, but rather reviews or information taken from technical manuals. Since neither appears to be the source studies, the references have not been cited appropriately. Please check these references and revise as appropriate.

It should be noted that the recovery time of eelgrass is likely to depend at least partly upon the extent and duration of the exposure. Research on eelgrass disturbance and recovery in Newfoundland coastal waters suggests that eelgrass may recover from disturbance (i.e., physical removal) in 2-3 years (Laurel et al 2003 MEPS; Warren et al. in press JEMBE). However, in both of the above referenced studies, underground rhizomes remained intact after the disturbance, therefore only the removal of the above-substrate biomass (shoots and blades) was investigated. The recovery of eelgrass meadows would take much longer if any spill resulted in appreciable mortality of the underground rhizomes in affected eelgrass beds, perhaps as much as a decade or more based on studies of eelgrass expansion in Newfoundland coastal waters (Warren et al. in press), but certainly longer than 2-3 years as referenced in the CSR.

Laurel, B.J., Gregory, R.S. and Brown, J.A. 2003. Settlement and distribution of Age-0 juvenile cod, *Gadus morhua* and *G. ogac*, following a large-scale habitat manipulation. Mar. Ecol. Prog. Ser. 262: 241-252.

The fourth paragraph states that, "*The average density of eelgrass shoots and flowering shoots were 24 percent and 62 percent lower at oiled sites than at reference sites in 1990; however, no differences between oiled and reference sites were observed with respect to eelgrass biomass, seed density, seed germination or the incidence of normal*

mitosis in seedlings, and there were no signs of elimination of eelgrass beds". This sentence is contradictory and should be revised.

Pages 12-18 to 12-20 (Capelin Beaches)

Based on the spill trajectories, the CSR suggests that there is less than a 2% probability of a spill reaching the head of Bull Arm. This statement does not seem accurate given the coastal currents, wind conditions, proximity to the GBS fabrication site (~3 km in some cases), etc. Dispersal models tend to be highly dependent upon boundary conditions and assumptions, yet the supporting documentation on the model (prepared by AMEC), appears to contain no material to specifically address this. Due to the significance of any impact on nearshore habitat, it is important to fully understand these aspects in order to effectively interpret the results of such models.

14.0 Accidental Hydrocarbon Spill Events

Given recent events in the Gulf of Mexico, it is strongly recommended that some discussion of these events be included in the CSR. Therefore, revisions to the text should reflect the possible ramifications of accidental hydrocarbon spill events in light of the new knowledge obtained from the Gulf of Mexico spill.

.

14.2.1 Model Set-up (Fate and Behaviour of Hebron Hydrocarbon Spills in the Nearshore Study Area (Trajectory Modeling))

Page 14-15

The base model described in the CSR uses a release point 2 km south of the GBS fabrication site in Bull Arm. It is not clear as to why this distance from the development was selected. The modeled zone of impact in Bull Arm, given the above mentioned displacement 2 km south of the Bull Arm fabrication site, does not cover two very prominent eelgrass meadows. Placing the modeled spill point at the GBS fabrication site may produce a very different prediction.

15.0 Follow-Up and Monitoring

15.1.1 Proposed Offshore Environmental Effects Monitoring Program

Page 15-3

The second last paragraph in this section states that, "*A fish habitat compensation monitoring survey is conducted following completion of the compensation works to verify the amount and productivity of habitat created*." While this is correct, it should also be noted that compensation monitoring to determine the continued functioning of the habitat will need to be carried out for a period of time and at intervals agreed upon by DFO and the proponent. Timelines for monitoring will be included in the Fish Habitat

Compensation Plan, which will be included as a condition of the Section 35(2) *Fisheries Act* Authorization. Please revise accordingly.

15.2.1 Nearshore Environmental Compliance Monitoring

Page 15-5

Section 32 of the *Fisheries Act,* which prohibits the destruction of fish by any means other than fishing should also be included in the list of regulatory instruments as it may be applicable in relation to in-water blasting, if required.

15.2.2 Offshore Environmental Compliance Monitoring

Page 15-6

As an Authorization for Works or Undertakings Affecting Fish Habitat will also be issued under the *Fisheries Act* for project components occurring at the offshore project area, a reference to this Authorization should be made in this section as well.

15.3 Other Required Programs

Page 15-7

The third bullet can be removed as the information contained within the fifth bullet is more comprehensive. With regards to the fifth bullet, while this information is correct, it should also be noted that compensation monitoring to determine the continued functioning of the habitat will need to be carried out for a period of time and at intervals agreed upon by DFO and the proponent. Timelines for monitoring will be included in the Fish Habitat Compensation Plan, which will be included as a condition of the Section 35(2) *Fisheries Act* Authorization.

17.0 Summary and Conclusions

17.2.2 Summary of Proposed Mitigation Measures

Table 17-2

Mitigations relating to fish and fish habitat for 1) offshore construction and installation and 2) potential future construction activities should include adherence to the Section 35(2) *Fisheries Act* Authorization and completion of associated fish habitat compensation and related monitoring.