EMCP Comment 8: C-NLOPB 6

The proponent's response implies that a determination of no significant environmental effects is sufficient. However, Section 5.3.4.1 of the scoping document, *Construction and Operational Discharges*, states that the Proponent must evaluate means to reduce or recover waste beyond those specified in the regulations or in guidance. This means that even where waste discharge may be determined to have no significant adverse environmental effects, that waste discharge should be further reduced where feasible. In the case of produced water, that means reducing the produced water oil content, or the volume discharged.

Section 1.3, *Waste Minimization*, of the C-NLOPB's December 2010 Offshore Waste Treatment Guidelines (OWTG), states:

> **Offshore operators are expected to take all reasonable measures to minimize the volumes of waste materials generated by their operations, and to minimize the quantity of substances of potential environmental concern contained within these waste materials.**

and

> **In keeping with the spirit of waste minimization and the regulatory requirement for continual improvement outlined in subsections 5(2)(*b*) and 5(2)(*i*) of the *Regulations*, the Boards expect that operators will strive to minimize the concentrations and volumes of waste materials discharged to the environment, and will adopt best practices in waste management and treatment.**

In addition, Section 2.2.1, *Treatment and Monitoring*, of the OWTG states:

> **… [T]he operator should consider the technical and economic feasibility of alternatives to conventional marine discharge of produced water. Operators should consider proven and practicable best practices in produced water management and treatment, to reduce oil-in-water concentrations to as low as practicable, or to reduce or eliminate produced water discharges to sea.**

The proponent therefore should describe its technical and economic rationale for concluding that re-injection of produced water into a non-producing formation is not reasonable to undertake at this time.

EMCP Comment 28: EC 14 Regarding Offshore Wind Climate

14a: The response was satisfactory. There is one additional request (sorry this was not noted earlier): Please clarify in the CSR (3.2.2.6) that the adjustment of one-hour means to 10-minute mean wind speeds is an adjustment for the peak one-hour mean to the peak reported 10-minute mean wind speed.

14b: The response clarifies that the wave radar data were not used directly. However, ExxonMobil URC (2009) estimates of design wave criteria for the Hebron Project were developed using a calibration equation based on the MIROS data, which

cannot be independently assessed. It is regrettable that the Hibernia MIROS data are not generally available to the offshore environmental/scientific communities. These data could be used to enhance the understanding of differences or similarities between wave radar, wave buoy, and wave modelled data, and to improve knowledge of wave climatology in the area.

The response to the EC 14 request for indication of the level of uncertainty or confidence interval for the extreme wave criteria (Section 3.2.2.1 and 3.2.2.6) was not satisfactory. The ExxonMobil URC (2009) 100-year return period estimate was 14.8m. The Oceans Ltd (2010) analysis included estimates of 15.1 m and 15.8 m, depending on the method. The response indicated that differences in results arising from differences in approach do not affect the overall environmental assessment. However the request concerned estimates used for engineering design. An example of what was requested is the 95% upper limit given in Table 3-41 for extreme storm surge. Could the CSR include confidence intervals or at least some description of how the differences/range of results might be accounted for in the final design process?

EMCP Comment 75: DFO 13

This response is considered adequate, provided the following comments are addressed:

The following revisions should be made to the updated Section 7.5 provided by ECMP:

Section 7.5.1.1

- As previously requested, the following text *"…will be quantified and detailed within the Habitat Compensation Strategy report for the Hebron Project.*" in the first paragraph in the Nearshore section, should be revised as, "*…will be quantified and detailed within the* ***HADD Quantification Report*** *for the Hebron Project*" as HADD quantification will be detailed in a report separate from the Habitat Compensation Strategy.

- Text contained within the second paragraph of the Nearshore section leads the reader to believe that the upgrades to the Back Cove ferry terminal (pier) will be temporary in nature. It is our understanding that this will not be a temporary structure (i.e., less than 1 year duration). Please correct the text or provide clarification.

- The words "*to a small degree*" should be removed from the first sentence in the second paragraph of the Nearshore section as it misrepresents the effect the project footprint will have on habitat quantity.

- Text contained within the second paragraph of the Offshore section should be rearranged to clarify the relationship between the positive and negative effects of the project infrastructure on fish habitat. The paragraph should be revised as follows:
"*There is currently no plan to trench the OLS, but to protect the line with rock cover and or concrete mattresses. The footprint of the OLS on the seafloor will restrict access by fish and shellfish to some habitat and may be declared a HADD of fish habitat by DFO*

and likely require a Section 35(2) Fisheries Act Authorization, requiring any loss of fish habitat to be compensated with the objective to achieve no net loss of productive capacity of fish habitat. However, the presence of unburied material over the OLS (i.e., concrete mattresses and rock cover) is expected to create habitat by increasing the amount of available hard substrate habitat that could be colonized by local flora and fauna, creating a reef effect for fish populations in otherwise barren sandy or soft bottom areas. Where flowlines and equipment are buried, the overlying sediments will provide habitat upon which benthic communities will recover."

- Text contained within the third paragraph of the Offshore section should be rearranged to clarify the relationship between the positive and negative effects of the project infrastructure on fish habitat. The paragraph should be revised as follows:

  "*Installation of the GBS will have a similar effect in that access to habitat under the GBS will be lost to fish and shellfish and may be declared a HADD of fish habitat by DFO and likely require a Section 35(2) Fisheries Act Authorization, requiring any loss of fish habitat to be compensated with the objective to achieve no net loss of productive capacity of fish habitat. However, colonization by invertebrates on the concrete GBS is expected.*"

- Text contained within the fifth and a portion of the sixth paragraph of the Potential Expansion Opportunities section should be rearranged to clarify the relationship between the positive and negative effects of the project infrastructure on fish habitat. The paragraph should be revised as follows:

  "*As with the nearshore, any offshore activities including excavated drill centre(s) and spoils disposal, the OLS or installations of pipeline(s) / flowline(s) (including related infrastructure such as concrete mattresses, rock cover or other flowline insulation) and testing from excavated drill centre(s) to the Hebron Platform may be declared to cause a HADD by DFO and require a Section 35(2) Fisheries Act Authorization and any loss of fish habitat will be fully compensated with the objective to achieve no net loss of productive capacity of fish habitat. The concrete mattresses, rock cover and other flowline insulations have the potential to provide new hard substrate habitat to be colonized and function as an artificial reef and would likely be colonized by sponges, anemones, brittlestars and seastars.*"

- Section 7.5.1.3 states that, "*Drydock dewatering and the re-establishment of moorings at the Bull Arm deepwater site may affect habitat use as there will be a loss of habitat quantity in these areas*". The effect of re-establishment of Moorings at the Bull Arm Deepwater Site on habitat quantity should be discussed in this section and noted in Table 7-11.

Section 7.5.1.2

- The effects of Upgrades to the Ferry Terminal at Back Cove on habitat quality should be discussed in this section as well as indicated in Table 7-11.

Section 7.5.1.3

- The reference to Section 7.5.1.2 made in the first paragraph of the Nearshore section should be Section 7.5.1.1.

- Reference to Upgrades to Ferry Terminal in Back Cove should be made in this section as its effect on habitat use is indicated in Table 7-11.

- As previously requested, please include "*Implement chemical selection management system*" and "*Adherence to regulatory limits with respect to discharges in to marine waters*" as mitigations in this section as they are included in Table 7-11 under Hook-Up, Production Testing and Commissioning of Excavated Drill Centres.

Section 7.5.1.4

- While it is noted that Bund Wall Construction could cause fish mortality, it is not explained how this activity could potentially kill fish and invertebrates. As previously requested, please include this explanation.

- The following sentence should be added to the last paragraph of the Offshore section, "*EMCP will consult with DFO prior to water extraction to ensure fish screens are adequately sized.*"

- As the installation of temporary moorings in the offshore may potentially affect habitat quality and use, the first three paragraphs of the Offshore section should be moved to either Section 7.5.1.2 or 7.5.1.3.

Table 7-11

- As previously requested, "*Bubble curtains, if required*" should be removed as EMCP has already clarified that blasting would not be required for Bund Wall Removal.

- The effect of Platform Tow-Out/Offshore Installation on habitat quantity has been discussed in Section 7.5.1.2, therefore it should be re-entered as a potential environmental effect in Table 7-11.

- The effect of Excavated Drill Centre Dredging and Spoils Disposal on habitat quality has been discussed in Section 7.5.1.2, therefore it should be it should be re-entered as a potential environmental effect in Table 7-11.

Section 7.5.2.2

- As previously requested, the effects of Well Activities on habitat quality should be discussed in this section as it is indicated in Table 7-12.

Section 7.5.2.3

- As previously discussed, the effect of the following activities on habitat use should be discussed in this section. It is also noted that "*Habitat Use*" has been removed from Table 7-12 for these activities, please ensure that "Habitat Use" is included as a potential environmental effect for these activities.
    - Wastewater (produced water, cooling water, storage, displacement)
    - Chemical Use/Management/Storage (e.g., corrosion inhibitors, well treatment fluids)
    - Well Activities (well completions, work overs)
    - WMB Cuttings
    - WMB and SMB Cuttings
    - Chemical Use and Management (BOP fluids, well treatment fluids, corrosion inhibitors)

- This section states that the mitigation measures outlined in the *Geophysical, Geological, Environmental and Geotechnical Program Guidelines* (C-NLOPB 2011) will be applied. While this is correct, reference to the *Statement of Canadian Practice on Mitigation of Seismic Noise in the Marine Environment* should also be included. This statement of practice should also be referenced in Table 7-12.

Table 7-12

- As previously requested, "*Change in Habitat Quality*" should be removed from the potential environmental effects for Presence of Structures for the proposed project as well as the potential expansion opportunity.

- It is noted that "*Potential Mortality*" has been removed as a potential environmental effect for Surveys for both the proposed project as well as the potential expansion opportunity. As seismic surveys can result in mortality please ensure that "*Potential Mortality*" is included as a potential environmental effect.

Section 7.5.3.3

- As previously requested, the effects of Lighting on habitat use should be discussed in this section as it is indicated in Table 7-13.

- As previously requested, reference to Operation of Vessels (supply, support, standby and tow vessels/barges/ROVs) and Surveys (e.g., geophysical, 2D/3D/4D seismic, VSP, geohazard, geological, geotechnical, environmental, ROV, diving) should be made in this section as their effect on habitat use is indicated in Table 7-13.

Table 7-13

- "*Change in Habitat Quantity*" should be removed from the potential environmental effects for Operation of Vessels.

Section 7.5.4.1

- The following, "*In any case, the quantity of fish habitat affected by an accidental event resulting in a hydrocarbon release would be negligible*" should be removed or reworded to clarify the effect a spill would have on the quantity of fish habitat.

EMCP Comment 78: DFO 14

This response is considered adequate, provided the following comments are addressed:

It is incorrect to say, "*compensation may not be required for the Offshore Project Area*". Although components of the project may create sufficient habitat to offset the HADD, that created habitat is still considered fish habitat compensation which must be detailed and quantified in a Fish Habitat Compensation Plan, committed to in an Authorization and adequately monitored. A portion of EMCP's response should be reworded as follows:

"*Therefore, EMCP submits that **additional** ~~HADD~~ compensation may not be required for the Offshore Project Area based on preliminary design of these elements[1] and current understanding of the existing fish and fish habitat within the Offshore Project Area.*"

EMCP Comment 129: EC 46 Regarding Attraction of Seabirds to Platforms

Environment Canada is not fully satisfied with this response, however, the Proponent's recognition of the need to develop a scientifically defensible program regarding seabird attraction to platforms is encouraging and we are eager to work with the Proponent to better define the key elements of such a program as a means to resolve this issue.