

**Appendix G.15  
Marine Resources  
Information Request #38**

December 12, 2014

Catherine Ponsford  
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Dear Ms. Ponsford:

**Reference: Marine Resources Information Request #38**

This letter responds to the request for Outstanding Information received from the Canadian Environmental Assessment (CEA) Agency on August 14, 2014.

**Information Request #38**

**Government of Canada - Outstanding Information:**

**Agency:** *To satisfy the requirements of CEAA 2012 and the EIS Guidelines, the proponent must assess the effects of the Project on marine plants. This would include a description of the baseline, possible effects, mitigation measures, and significance of residual effects. An assessment of cumulative effects, and possible other effects arising from effects to marine plants (e.g., effects on current use of lands and resources for traditional purposes) is also required.*

**Pacific NorthWest LNG Limited Partnership (PNW LNG) - Response:**

The assessment of the potential effects of the Pacific Northwest LNG Project (the Project) on marine vegetation was conducted as a component of Fish and Fish Habitat in the Environmental Impact Statement (EIS), Section 13 and Appendix M, Technical Data Report – Marine Resources.

Baseline information on marine vegetation in the local assessment area (LAA) was compiled from literature reviews and field studies and reported in Appendix M, Technical Data Report – Marine Resources, of the EIS. Intertidal and subtidal surveys were conducted along with surveys of eelgrass on Flora Bank. The subtidal video revealed a relatively low diversity of vegetation and fauna throughout the soft bottom habitat of Flora and Agnew banks. Higher diversities of vegetation and fauna were observed on the boulder and bedrock areas in Porpoise Channel along the northwest side of Lelu Island. The Flora Bank eelgrass survey indicated patchy distribution of various sizes and densities, interspersed by extensive areas with no vegetation. No evidence was found of other vascular marine species in the assessment area. Aside from eelgrass, Flora Bank was almost completely devoid of structuring habitat except for small pockets of green [*Ulva sp.*] red, and brown algae [*Alaria sp.*, *Laminaria sp.*] found in sub-tidal areas surrounding the Bank. Section 13.3.2.2 provides an overview of the baseline conditions as they relate to fish and fish habitat, including marine vegetation. For a more thorough baseline report, please consult Appendix M, Technical Data Report – Marine Resources of the EIS.

The potential effects of the Project on fish habitat, including marine vegetation, are assessed in Section 13.2.3.2 of the EIS: Change in Fish Habitat. The measurable parameters selected for change in fish habitat are the area (m<sup>2</sup>) of fish habitat (including marine vegetation) permanently altered or destroyed, as required under Section 35 of the *Fisheries Act*.



Change to fish and fish habitat, including marine vegetation, is assessed by identifying the location, area ( $m^2$ ) and type of habitat that will be lost or altered as a result of project activities in the marine riparian, intertidal and subtidal zones (see Section 13.5.3 of the EIS). Marine vegetation that could be affected by construction activities are predominantly bull kelp [*Nereocystis leutkeana*] and eelgrass [*Zostera spp.*]. The area of eelgrass beds expected to be permanently destroyed or altered is identified separately due to its ecological importance (see Table 13-8 of Section 13.5.3.1 of the EIS). The area ( $m^2$ ) of eelgrass permanently destroyed or altered provides a surrogate measure for change in productivity.

PNW LNG has recently redesigned the marine terminal to avoid and limit potential project related effects on marine resources and eliminate the need to dredge at the marine terminal and dispose of dredge materials therefore eliminating permanent destruction or alteration of eelgrass on Flora Bank, due to sediment deposition. Dredging will now be required only for the materials off-loading facility (MOF). Mitigation measures to address possible adverse effects resulting from the interaction of project activities with fish and fish habitat, including marine vegetation, are described in Section 13.5.3.2 of the EIS. The primary mitigation measure is avoidance of sensitive marine habitats, where feasible, during project design. The marine terminal was sited to reduce disturbance to Flora and Agnew Banks and effects on the regionally important eelgrass bed. Section 13.5.3.2 lists mitigation measures incorporated to reduce changes to fish habitat, including marine vegetation, caused by project activities.

Residual adverse effects to fish and fish habitat, including marine vegetation, as a result of the Project are characterized in Section 13.5.3.3 of the EIS. For further information regarding effects of dredging on fish and fish habitat including marine vegetation please see response to Information Request #18 (Appendix G.6 of the EIS/Addendum).

There will be no residual adverse effects to fish habitat as a result of the Project with the implementation of the Fish Habitat Offsetting Plan, see response to Government of Canada IR #25 and #26B for an overview of offsetting options (Appendix G.9 of the EIS/Addendum). The implementation of offsetting measures will maintain the productivity of fish habitat, including marine vegetation.

Cumulative effects are assessed in Section 13.6 of the EIS. No residual adverse effects to fish habitat, including marine vegetation, are expected therefore it is not expected that project activities will contribute to cumulative effects on marine vegetation.

## Closure

This letter provides the Outstanding Information requested by the Government of Canada. If you have any questions, please contact PNW LNG.

## References

BC MOE. 2006. British Columbia Approved Water Quality Guidelines. Ministry of Environment, Science and Information Branch.