

Appendix G.9
Marine Resources
Information Request #25 and 26B

December 12, 2014

Catherine Ponsford
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Dear Ms. Ponsford:

Reference: Marine Resources Information Request #25 and #26B

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

Information Request #25:

Government of Canada – Outstanding Information

DFO: *The proponent has indicated that it will provide final details regarding the offsetting project during the regulatory stage of project review. Given the scale of known and potential impacts to fish and fish habitat, the ability to develop adequate offsetting is essential for reducing residual impacts. The proponent has provided several conceptual offsetting projects all of which have the potential to result in additional impacts to fish and fish habitat and have significant uncertainty around their benefit to the resource being impacted. Greater certainty around the offsetting projects' potential benefits and impacts is necessary to assess the significance of residual impacts on fish and fish habitat. i.e., what species are being targeted for benefits, what are the impacts of the offsetting projects, how do the benefits outweigh the impacts. Please provide this information.*

Information Request #26B:

Government of Canada - Outstanding Information

DFO: *The proponent has not provided enough information to conclude that the proposed offsetting will be beneficial. Please provide this information.*

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

PNW LNG has 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. The marine terminal design mitigation includes:

- Relocation of the liquefied natural gas (LNG) carrier berth from Agnew Bank into deeper waters (15 m deep in Chatham Sound) and approximately 510 m from the location described in the EIS resulting in:
 - Reduction in marine portion of the project development area by eliminating the need:
 - o to dredge over 7,000,000 m³ of sediment at the marine terminal and the need for maintenance dredging at the marine terminal during the operations phase
 - o for breakwaters at the marine terminal
 - o for slope armoring of the dredge area
- Site and layout designed to avoid Flora Bank and eelgrass habitats

- A 2.7 km jetty that consists of a 1.6 km clear-span suspension bridge over Flora Bank from Lelu Island to Agnew Bank, and a 1.1 km conventional pipe pile trestle from the suspension bridge to the LNG carrier berth
- A single southwest tower for the suspension bridge outside Flora Bank within subtidal area of Agnew Bank, with a bridge clearance height of at least 11 m at high tide to allow the passage of fishing and pleasure craft adjacent to Lelu Island
- No dredging on Agnew Bank
- No offset habitats planned for Flora or Agnew Banks.

The 2012 *Fisheries Act* provides for protection of fisheries and their habitats to prevent serious harm to fish and fish habitats that are part of a commercial, recreational, and Aboriginal (CRA) fishery, or to fish that support such a fishery. The Fisheries Protection Policy Statement (DFO 2013b) defines serious harm to fish as:

- The death of fish
- Permanent alteration to fish habitat—an alteration of fish habitat of a spatial scale, duration, and intensity that limits or diminishes the ability of fish to use such habitats as spawning grounds, or as nursery, rearing or food supply areas, or as a migration corridor, or any other area in order to carry out one or more of their life processes
- Destruction of fish habitat—an elimination of habitat of a spatial scale, duration, and intensity that fish can no longer rely upon such habitats for use as spawning grounds, or as nursery, rearing or food supply areas, or as a migration corridor, or any other area in order to carry out one or more of their life processes.

The Federal Fisheries Protection Policy Statement (2013) and Fisheries Productivity Investment Policy (2013) outline Fisheries and Oceans Canada's (DFO's) policy for maintaining and enhancing ongoing productivity and sustainability of CRA fisheries or fish that support such a fishery. Under this policy, DFO works with proponents and government agencies to ensure that projects are designed to maintain fish habitat while recognizing the potential or existing land use value. In cases where residual losses of fish habitat cannot be avoided by project development through mitigation measures, habitat replacement or enhancement, on a case by case basis, may be accepted as offsetting measures. The extent of habitat offsets defined within the following Habitat Offsetting Plan (Appendix G.10 of the EIS Addendum) are based and dependent on the total residual habitat area which cannot be avoided and limited by mitigation measures that will be permanently altered or destroyed as a result of project construction and operations.

Based on the siting of the marine terminal design mitigation, and recent discussions with DFO and clarification of policy under the *Fisheries Act*, the predicted Pacific NorthWest LNG Project (the Project) related habitat impacts being considered as serious harm for habitat offset include:

- Permanent alteration of, or destruction to, approximately 1,830 m² of intertidal eelgrass areas used as nursery and foraging habitats by juvenile salmonids, herring (*Clupea pallasii*), surf smelt (*Hypomesus pretiosus*), sandlance and crab within the dredge area planned for the materials off-loading facility (MOF)
- Permanent alteration of, or destruction to, approximately 6,800 m² of intertidal and subtidal hard bottom substrate with brown algae, used as nursery and foraging habitat by juvenile salmonids, herring, surf smelt, sandlance and crab within the dredge area planned for the MOF
- Alteration of, or destruction to, approximately 2,384 m² of open water / soft substrate area used as benthic habitat by Dungeness crab and local flatfish species around the southwest tower platform (infrastructure and scour armouring) for the marine terminal suspension bridge

- Alteration of, or destruction to, approximately 5,730 m² of open water / soft substrate area used as benthic habitat by Dungeness crab and local flatfish species around the southwest anchor block platform (infrastructure and scour armouring) for the marine terminal suspension bridge
- Alteration of, or destruction to, approximately 6,282 m² of open water / soft substrate areas used as benthic habitat by Dungeness crab, coonstrip shrimp and local flatfish species around individual and grouped piles (pile infrastructure and scour armouring) for the marine terminal jetty and berth
- No dredging impacts within the marine terminal area. No breakwaters or armouring of the dredge slope
- No serious harm to fisheries and forage fish species at trestle pile siting and layout, including temporary scour and accretion at piles, based on mapped, widely distributed subtidal soft silty sand habitats with observed low density use by sculpin, flatfish, crab and shrimp species. Mitigation measures are planned during construction to avoid and limit pile scour
- No serious harm at the population level to fisheries and forage fish species at Lelu Island bridge slough and pioneer dock pile locations
- No serious harm on widely distributed marine riparian areas on Lelu Island (riparian areas have been assessed as not supporting life process dependent habitats for salmonids, crab, shrimp and forage fish species [sandlance and surf smelt]) based on mapped intertidal habitats not having suitable substrate and fetch characteristics for beach spawning fish species at the MOF, marine terminal land-side connection, pioneer dock and Lelu Island bridge slough areas
- No serious harm on widely distribution soft silty/mud intertidal habitats within the MOF (intertidal areas in the MOF have been assessed as not supporting life process dependent habitats for salmonids, crab, and forage fish species)
- No serious harm to Lelu Island freshwater watercourses. Watercourses have been assessed as not supporting fish life processes for salmonids and forage fish species, therefore no offset measures are presented for freshwater streams. Construction and operations mitigation measures will be implemented to maintain flow regimes at the boundaries of the project development area that are similar to natural flows. Freshwater streams will be surveyed prior to clearing and construction activities to salvage fish in the streams and protect any assessed viable fisheries habitats.

Habitat offsetting is presented for the Project to counterbalance the permanent alteration and destruction of marine fisheries habitats. The specific habitat offsets planned address the destruction of eelgrass, algae and soft sediment habitats used by juvenile salmonids, herring, crab and forage fish species as nursery, foraging and shelter habitats. The habitat offsets are planned across five potential sites in marine locations around Lelu Island and the project site. The sites represent existing areas which are presently disturbed (Porpoise navigation channel), have observed low levels of productivity (mud, silt-clay habitats) and are widely available habitat types (rocky shorelines). Habitat offsets will be designed to limit the destruction of existing habitats and focus on the creation and enhancement of physical and biological habitats that support CRA fish and forage fish species.

Habitat types and location that will be affected by project construction activities include:

- Subtidal soft silt-clay substrate habitats in open water areas of Agnew Bank at the suspension bridge tower and anchor platforms
- Intertidal soft silt-sand substrate habitats in the partially shelter bay adjacent to Porpoise channel supporting eelgrass at the MOF
- Intertidal and partial subtidal hard bottom substrate habitats adjacent to Porpoise channel supporting brown algae at the MOF.

Offset habitats will be carefully sited and fully designed with input from DFO and First Nation groups to maintain and enhance local fisheries productivity. The final habitat offset designs will be presented in a detailed Request for Authorization under Section 35(2) of the *Fisheries Act*. Habitat offset designs will be defined for location, size, design feasibility, effectiveness and follow-up monitoring. The project preference will be to create offset habitats in advance or parallel to project construction works, if feasible, to limit lag time between loss and development of productive habitats.

The presented habitat offsets include:

- Five sites located around Lelu Island with an approximate area of 24,080 m²
- Design as a series of benched platforms at each site planned to support subtidal, intertidal and foreshore habitat areas
- Habitats planted for algae and kelp, intertidal eelgrass and foreshore salt marsh plant species including sedge, forbes and salt tolerant shrubs and trees
- Designed to enhance local productivity and diversity and complexity of habitats available for marine fish and invertebrates
- Designed to enhance and support diverse and complex subtidal, intertidal and foreshore habitats for marine mammals, marine birds and wildlife species.

Closure

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