

Environmental Assessment Certificate Application

LNG Canada Export Terminal

Section 14 – Aboriginal Interests

October 2014



LNG CANADA
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14 ABORIGINAL INTERESTS

14.1 Introduction

Section 14 assesses the potential adverse effects of the Project on the Aboriginal Interests of Aboriginal Groups listed under Schedule B and Schedule C of the section 11 Order. For the purposes of this Application and as defined by the EAO, the term “Aboriginal Interests” means asserted Aboriginal rights, including title, or such determined Aboriginal or treaty rights.

For details about notifications for Métis Nation British Columbia, see Section 13. For the remainder of Part C (Sections 14 through 17), the term “Aboriginal Groups” will refer only to Schedule B and C Aboriginal Groups as listed above.

The assessment of potential effects on Aboriginal Interests is based on a comparison between the predicted future conditions with the Project and the predicted future conditions without the Project. A modified version of the assessment methodology used in Part B is used.

The measurable parameters (Section 14.7) used for the assessment were chosen based on information provided by Aboriginal Groups during the consultation process for the Project, including through the provision of TU and other reports, a survey of environmental assessments for other projects, and professional experience.

Wherever possible, information specific to an Aboriginal Group is discussed and incorporated. See Sections 14.4 for detailed information on how consultation with Aboriginal Groups has shaped the identification of Aboriginal Interests and the assessment. See Section 14.5 for detailed information on the use of traditional knowledge (TK) and TU information.

Consistent with the AIR, a determination of the significance of residual adverse effects is not provided. This recognizes the unique nature of Aboriginal Interests and the potential inappropriateness of determining whether any effect on a protected Aboriginal Interest is significant or not significant. Instead, conclusions are provided regarding whether the predicted residual effects might interfere with the exercise of Aboriginal Interests and the seriousness of that interference.

14.2 Scope of Assessment

The scope of assessment considers the potential Project adverse residual and cumulative effects on the Aboriginal Interests of Aboriginal Groups and, to the extent appropriate, ways to avoid, mitigate, or otherwise reduce potential effects.

14.3 Regulatory and Policy Setting

To undertake an assessment of how the Project might adversely affect Aboriginal Interests in a manner consistent with the AIR, LNG Canada has:

- summarized non-confidential past, present, and anticipated future uses of the area in which the Project would be located, including the frequency and timing of such uses
- identified Aboriginal Interests that Aboriginal Groups are currently exercising in the vicinity of, or in relation to the area in which the Project would be located, including the marine access route, that may be adversely affected by the Project
- described how the current exercise of identified Aboriginal Interests by Aboriginal Groups may be adversely affected by the Project including:
 - a discussion of the baseline conditions of VCs assessed in Part B which are relied upon for, or are associated with, the exercise of Aboriginal Interests
 - a discussion of residual and cumulative effects related to the Project on VCs assessed in Part B which are relied upon for, or are associated, with the exercise of Aboriginal Interests
 - a discussion of the extent to which the Project would affect Aboriginal Groups' access to and use of the area in which the Project is located to exercise their Aboriginal Interests, and
 - a discussion of any special characteristics or unique features of the area in which the Project is located and its surroundings that are associated with the exercise of Aboriginal Interests.
- described (or summarized if described elsewhere in the Application) measures to avoid, mitigate, or otherwise manage potential adverse effects on identified Aboriginal Interests
- described the views expressed by Aboriginal Groups during the consultation process regarding avoidance, mitigation, or other management measures to address potential adverse effects on identified Aboriginal Interests
- described the residual effects and degree to which identified Aboriginal Interests are likely to be adversely affected, and
- described the views expressed by Aboriginal Groups during the consultation process regarding the residual effects and degree to which their exercise of Aboriginal Interests is likely to be adversely affected.

As also required by Section 14 of the AIR, where there is overlap between Aboriginal Interests and a VC, the information from other sections are cross-referenced and summarized in the context of the specific Aboriginal Group's Aboriginal Interest. In addition, TU and TK information that has been provided to LNG Canada by Aboriginal Groups was used to inform LNG Canada's understanding of potential adverse effects on Aboriginal Interests.

14.4 Consultations' Influence on the Identification of Aboriginal Interests and the Assessment Process

Aboriginal Interests were identified based on input from Aboriginal Groups through the Project's consultation activities, including review of the dAIR, the *Aboriginal Consultation Plan*, *Aboriginal Consultation Reports* and Part C, and based on TU, TK, and VC information provided by Aboriginal Groups. See Section 13.2 for a summary of consultation activities with Aboriginal Groups for the Project. LNG Canada identified key concerns in the Aboriginal Consultation Reports and sought feedback on how these were characterized. Through this consultation process, LNG Canada identified and confirmed the selection of Aboriginal Interests.

Based on the outcome of consultation undertaken to date, LNG Canada presents in Section 14 an assessment of the following five potential adverse effects:

- changes in consumptive Aboriginal Interests
- changes in the use of sacred and culturally important sites and landscape features
- changes in Aboriginal governance
- changes in Aboriginal cultural identity, and
- changes in Aboriginal spiritual places.

Effects on harvesting are addressed in the assessment of effects on consumptive Aboriginal Interests.

Based on feedback received from Aboriginal Groups and other Working Group members, LNG Canada expanded the scope of certain VC assessments in Part B and modified assessment boundaries for a number of VCs. For example, feedback received from Aboriginal Groups resulted in changes in the baseline study program for marine mammals, air quality, acoustics, visual quality, soil, and water.

Other issues and concerns raised by Aboriginal Groups during consultation are addressed in the appropriate VC assessment sections located in Part B. Finally, other matters of concern to Aboriginal Groups related to potential social, economic, heritage and health effects that are not addressed in either Section 14 or in Part B are addressed in Section 16. The chosen VCs assessed in Part B and the rationale for their inclusion in the assessment are described in detail in Table 4.1-1 of the AIR.

14.5 Traditional Knowledge and Traditional Use Incorporation

TK and TU information provided by Aboriginal Groups or obtained through secondary sources informed the description of baseline conditions and influenced (or was otherwise integrated into) the assessment of potential adverse effects on Aboriginal Interests as well as the development of mitigation measures.

A number of reports were provided to LNG Canada before the time of writing and were incorporated into Section 13 and Section 14, as appropriate:

- *The LNG Canada Proposed Terminal Site and Tanker Route within Haisla Traditional Territory* (the Haisla Nation Report) (Powell 2013)
- *Gitxaala Nation Use Study LNG Canada Export Terminal Project* (the Gitxaala Study) (Calliou Group 2014b and 2014c)
- *Gitxaala VC Report* (Calliou Group 2014a)
- *Metlakatla Interim Report* (DMNCS 2014)
- *Gitga'at First Nation Interim Report Letter* (Ritchie and Gill 2014), and
- *Kitsumkalum First Nation – Interim Report Letter* (Crossroads Cultural Resource Management 2014).

In addition to these reports, a variety of additional reports were provided to LNG Canada. Though not specific to the Project, these provided useful information and were incorporated wherever possible:

- *Report to Kitselas First Nation Regarding Kitselas Traditional Use/Occupancy of Coastal Territories between the Mouths of the Kitimat and Skeen Rivers* (Smith 2008)
- *Report on the Kitselas Traditional Histories and Territories Project* (Smith 1999)
- The Lax Kw'alaams First Nation Land and Marine Resource Plan, titled: *Lut'ak Dil Loomsk Txamii Laxyuup Ksi'aamks dil Laxsuulda. Interim Land and Marine Resource Plan of the Allied Tsimshian Tribes of Lax Kw'alaams* (Lax Kw'alaams 2004), and
- The executive summary of the Metlakatla First Nation marine use plan (Metlakatla First Nation 2014)
- Kitsumkalum First Nation. 2014. *Kitsumkalum Community Marine Use Plan*. Provided to LNG Canada.

Where Project TK/TU studies were not available for the other Aboriginal Groups, publicly available TK and TU information was considered in the identification of Aboriginal Interests, the description of relevant baseline conditions, the assessment of potential adverse effects on Aboriginal Interests, and the development of appropriate mitigation measures.

In addition, relevant TK and TU information was also used to inform the assessment of VCs in Part B. Details on this incorporation of TK and TU information into Part B are provided in Table 14.5-1.

Table 14.5-1: Incorporation of TK in Part B of the Assessment

VC Section	Specific Sections	Method of Incorporation
Acoustics	Section 5.4.2.3	<p>Consultation with Aboriginal Groups, public, and stakeholders revealed concerns with Project noise.</p> <p>TU areas at locations such as Gil Island, Fin Island, Otter Channel, Anger Island, Banks Island, and McCauley Island are included as noise sensitive receptors in the assessment.</p>
Air Quality	Section 5.2.2.3	<p>TK and TU studies were reviewed and considered during the preparation of the environmental assessment.</p> <p>Consultation with a number of Coastal First Nations resulted in a Project local study area and regional study area for vessel air emissions extending along the entire marine access route.</p> <p>At the request of potentially affected Aboriginal Groups, LNG Canada engaged in an extensive assessment of background air quality in traditional territories of six Aboriginal Groups. Thirteen passive ambient monitoring stations were established in 2013 and were serviced monthly. The assessment of background air quality is presented in detail in the Air Quality TDR (Stantec 2014: Section 3.2.3 and Appendix B) and is summarized in Section 5.2.3.</p>
Community Health and Well Being	7.5.2.3	<p>In addition to information in Section 13 (Background Information), Section 14 (Aboriginal Interests), Section 15 (Statutory Requirements under CEAA 2012 (Section 5(1)(c)), and Section 16 (Other Matters of Concern to Aboriginal Groups), TK and TU studies and other plans provided to LNG Canada Development Inc. (LNG Canada) through consultation were used to inform LNG Canada's understanding of, to the extent possible, Aboriginal country food use and use of health services in greater Kitimat and greater Terrace area. Studies and documents reviewed include:</p> <ul style="list-style-type: none"> ▪ The LNG Canada Proposed Terminal Site and Tanker Route within Haisla Traditional Territory: Haisla TLUS and Socio-economic Profile (Powell 2013) ▪ Interim Letter Report for LNG Canada's Environmental Assessment Application Submission–Kitsumkalum First Nation TUS and SIA Preliminary Information (Crossroads Cultural Resource Management Ltd. 2014) ▪ Gitxaala Use Study: LNG Export Terminal Project (Calliou Group 2014a) ▪ Gitxaala Nation Socioeconomic Study: Interim Report for the LNG Canada Project (The Firelight Group 2014) ▪ Gitxaala Valued Components Report: LNG Canada Development Inc. Application (Calliou Group 2014b) ▪ Gitga'at Economic Development Strategy (Hartley Bay Council 2011) ▪ Gitga'at Sustainable Tourism Strategy (Gitga'at Nation 2003) ▪ Being Gitka'a'ata: A Baseline Report on Gitka'a'ata Way of Life, a Statement of Cultural Impacts Posed by the Northern Gateway Pipeline, and a Critique of the ENGP Assessment Regarding Cultural Impacts (Satterfield et al. 2011) ▪ Report to the Kitselas First Nation Regarding Kitselas Traditional Use/Occupancy of the Coastal Territories Between the Mouths of the Kitimat and Skeena Rivers (Smith 2008) ▪ Report on the Kitselas Traditional Histories and Territories Project August 1998 to 1999 (Smith 1999) ▪ Interim Land and Marine Resources Plan of the Allied Tsimshian Tribes of Lax Kw'alaams (Lax Kw'alaams 2004) ▪ Draft Marine Use Plan Executive Summary (Metlakatla First Nation 2014) ▪ Metlakatla First Nations Multi-species Calendar Logbook (Metlakatla Fisheries 2013)

VC Section	Specific Sections	Method of Incorporation
Freshwater and Estuarine Fish and Fish Habitat	5.7.2.3	The freshwater and estuarine fish and fish habitat VC assessment considers TK about Pacific salmon, steelhead trout, and eulachon largely through information available from the Haisla Nation TUS (Powell 2013) and the Aboriginal Fisheries Strategy (AFS), a fisheries management collaboration between Fisheries and Oceans Canada (DFO) and the Haisla Fisheries Commission (HFC). The additional traditional fisheries identified include crab and herring, which are marine fisheries and are included as part of the Marine Resources VC assessment (Section 5.8). DFO's fisheries managers integrate TK about fish resources into conventional stock assessment methods by working with members of Haisla Nation through the AFS.
Heritage and Archaeology	8.2.2.3	TK and TU information was gathered from both publicly available sources and from Project studies submitted to LNG Canada (see Section 13 and 14 for more detail). Any available TK/TU information was reviewed and considered before baseline data collection, and the available TK/TU information at the time of writing was used to inform the assessment. The Haisla Nation provided a Project-specific TK/TU Report to LNG Canada titled <i>The LNG Canada proposed Terminal Site and Tanker Route within Haisla Traditional Territory</i> (the Haisla Nation Report) (Powell 2013). Information from the Haisla Report was incorporated into this assessment.
Human Health Effects	9.2.2.3	TK/TU information was gathered from Project studies submitted to LNG Canada and publicly available sources. The available TK/TU information at the time of writing was used to inform the baseline conditions for the assessment. Haisla Nation, Gitga'at First Nation, Gitxaala Nation, Kitsumkalum First Nation and Metlakatla First Nation each provided Project studies or reports to LNG Canada (Calliou Group 2014; Powell 2013; Crossroads Cultural Resource Management 2014; Ritchie and Gill 2014; DMNCS 2014). Information from these studies, contributed to the identification of the marine country foods to be considered in the assessment of potential human health risks associated with Project activities.
Infrastructure and Services	7.2.1.3	Information in infrastructure and services does not typically include specific information related to TK or the incorporation of TU studies. However, in Section 7.2, a limited amount of baseline information is included from the following reports: <ul style="list-style-type: none"> ▪ Haisla Nation TUS and Socio-economic Profile (Powell 2013) ▪ Kitsumkalum First Nation Interim Traditional Use Study (Crossroads 2014) ▪ Gitxaala Nation Socio-economic Study (Firelight 2014) ▪ Lax Kw'alaams First Nation Interim Land and Marine Resources Plan of the Allied Tsimshian Tribes of Lax Kw'alaams (Lax Kw'alaams First Nation 2004) ▪ Metlakatla First Nation Traditional Land Use and Ecological Knowledge of LNG Canada Export Terminal Project – Interim Report #1 (DM Cultural Services Inc. and Metlakatla First Nation 2014)
Marine Resources	5.8.2.3	TK/TU information was gathered from Project studies submitted to LNG Canada and publicly available sources. The available TK/TU information at the time of writing was used to inform the baseline conditions for this assessment. Haisla Nation, Gitxaala First Nation, Gitga'at First Nation, Metlakatla First Nation, and Kitsumkalum First Nation each provided a Project-specific study to LNG Canada (Powell 2013; Calliou Group 2014; Crossroads CRM 2014; DM Cultural Services Ltd. 2014; Satterfield et al. 2014). Information from these studies, along with other publicly available TK/TU information (FERENCE Weicker & Company 2009) contributed to the list of Aboriginal fishery species considered in this assessment (see Table 5.8-3). TK from Gitga'at First Nation on timing of marine mammal surveys indicated that Pacific white-sided dolphin (<i>Lagenorhynchus obliquidens</i>) aggregations were largest (greater than 100 animals) in the shipping RSA during February (Picard 2013). Based on this information, the timing of the marine mammal field program was adjusted to capture these sightings.

VC Section	Specific Sections	Method of Incorporation
Marine Transportation and Use	7.4.2.3	<p>The following TK/TU studies were used to inform LNG Canada’s understanding of Aboriginal fisheries and marine use::</p> <ul style="list-style-type: none"> ▪ Gitga’at List of Proposed Potential Adverse Project Effects, Rationale and Measurable Parameters (Gitga’at First Nation 2013) ▪ Being Gitka’a’ata: A Baseline Report on Gitka’a’ata Way of Life, a Statement of Cultural Impacts Posed by the Northern Gateway Pipeline, and a Critique of the ENGP Assessment Regarding Cultural Impacts (Satterfield et al. 2011) ▪ Gitga’at Economic Development Strategy (Hartley Bay Council 2011) ▪ Giga’at Sustainable Tourism Strategy (Gitga’at Nation 2003) ▪ Gitxaala Nation Use Study: LNG Export Terminal Project (Calliou Group 2014a) ▪ Gitxaala Valued Components Report (Calliou Group 2014b) ▪ Gitxaala Nation Socioeconomic Study: Report for the LNG Canada Project (The Firelight Group 2014) ▪ The LNG Canada Proposed Terminal Site and Tanker Route within Haisla Traditional Territory: Haisla TLUS and Socio-economic Profile (Powell 2013) ▪ Report to the Kitselas First Nation Regarding Kitselas Traditional Use/Occupancy of the Coastal Territories Between the Mouths of the Kitimat and Skeena Rivers (Smith 2008) ▪ Report on the Kitselas Traditional Histories and Territories Project August 1998 to 1999 (Smith 1999) ▪ Interim Letter Report for LNG Canada’s Environmental Assessment Application Submission–Kitsumkalum First Nation TUS and SIA Preliminary Information (Crossroads Cultural Resource Management 2014) ▪ Interim Land and Marine Resource Plan of the Allied Tsimshian Tribes of Lax Kw’alaams (Lax Kw’alaams First Nation 2004) ▪ Interim Metlakatla Traditional Use Study (DM Cultural Services Inc. 2014) ▪ Metlakatla Draft Marine Use Plan Executive Summary (Metlakatla First Nation 2014)
Terrestrial Wildlife and Marine Birds	5.6.2.3	<p>Information on TK/TU relevant to the wildlife LSAs and RSAs was gathered from both Project studies submitted to LNG Canada and publicly available sources (see Sections 13 and 14 for more detail). The available TK/TU information at the time of writing was used to inform the baseline conditions for the assessment. Haisla Nation provided a Project study to LNG Canada entitled The LNG Canada Proposed Terminal Site and Tanker Route within Haisla Traditional Territory (the Haisla Report) (Powell 2013). In addition, the Calliou Group (on behalf of Gitxaala Nation) provided a study entitled Gitxaala Nation Use Study: LNG Canada Export Terminal Project (Calliou Group 2014a) and a Gitxaala Valued Components Report (Calliou Group 2014b). This information was used to inform the wildlife assessment and mitigation measures.</p> <p>The following information is included in the assessment as a result of TK/TU information:</p> <ul style="list-style-type: none"> ▪ Knowledge of species distribution, use, and importance was refined based on information obtained from TK/TU studies (see Section 14 Aboriginal Interests for detailed information). ▪ Mitigation measures to reduce Project effects on wildlife resources were selected with consideration of the importance of TU activities.

VC Section	Specific Sections	Method of Incorporation
Vegetation	5.5.2.3	TK/TU information was gathered from both publicly available sources and from Project-specific studies submitted to LNG Canada. The available TK/TU information at the time of writing has been used to describe the baseline conditions for vegetation resources. Haisla Nation provided a Project-specific study to LNG Canada titled <i>The LNG Canada proposed Terminal Site and Tanker Route within Haisla Traditional Territory</i> (the Haisla Report) (Powell 2013). TU plants for medicinal, food, and materials identified from both the publicly available sources and the Haisla Report have been incorporated for the assessment of change in abundance of plant species of interest, specifically for the TU plants measurable parameter. This was measured within the terrestrial LSA where the loss of TU plants is likely to occur.
Visual Quality	7.3.2.3	Available public documents, academic reports, and material submitted by Aboriginal Groups to LNG Canada and the BC EAO were reviewed to help understand the effects of large shipping traffic and to identify potential viewpoints of importance to Aboriginal Groups that may be affected by the Project. The Haisla Nation identified concerns regarding the potential for light and flaring from the facility to cause anxiety among community members and result in light pollution that could affect the community (Table 13.2-3 in Section 13). Gitga'at First Nation reports concerns over the increase in vessel traffic associated with the Project and its subsequent effect on tourism activities and visual quality (Ritchie and Gill 2014). Gitxaala Nation reports sensory disturbance from lights on existing large shipping traffic and "loss of opportunities for peaceful enjoyment and spiritual practice in preferred areas as a result of large vessel traffic" (Gitxaala Nation and the Firelight Group 2014). Gitxaala Nation also notes how changes to visual quality as a result of passing LNG carriers can affect sacred places and cultural identity through an increased disconnect with and disruption of the "sense of place"; further, that the experience of harvesting is also altered by changes in visual quality (Gitxaala Nation and Calliou Group 2014a, 2014b).

14.6 Selection of Effects

As stated above, five potential adverse effects on Aboriginal Interests were identified through consultation with Aboriginal Groups and other working group members, a review of secondary literature and other environmental assessment applications, and professional judgment. These potential adverse effects and associated sub-components are as follows:

- Disturbance of traditional harvesting (e.g., hunting, trapping, fishing, vegetation gathering):
 - potential adverse effects on preferred harvesting methods
 - potential adverse effects on use or access to identified valued TU locations
 - potential adverse effects on preferred harvested species, and
 - potential adverse effects on the experience of traditional harvesting.
- Disturbance of the use of sacred and culturally important sites and landscape features:
 - potential adverse effects on the experience of using sites and landscape features for rituals or spiritually important purposes

- potential adverse effects on sacred and culturally or spiritually important sites and access to those sites, and
- potential adverse effects on landforms and natural features associated with ritual or spiritual use and access to those sites.
- Changes that affect aspects of traditional Aboriginal governance:
 - potential adverse changes in harvesting levels of traditional foods (especially high-value foods used for governance-related events and ceremonies), and
 - potential qualitative changes in harvested traditional foods (especially high-value foods used for governance-related events and ceremonies).
- Changes in aspects of Aboriginal cultural identity:
 - potential adverse effects on participation in teaching trips, cultural camps and traditional harvesting activities
 - potential adverse effects on the use of Aboriginal languages
 - potential adverse effects on culturally important species, and
 - potential adverse effects on harvested species used for feasting activities.
- Effects on Aboriginal spiritual places:
 - Potential disturbance of Aboriginal spiritual places by non-Aboriginal human activity

With regard to potential effects on Aboriginal title, First Nations have asserted (but have not proven in a court) that they have Aboriginal title to areas that are within, or are near to, the Aboriginal Interests LSAs. LNG Canada understands that the Crown has not accepted these assertions of Aboriginal title.

If Aboriginal title to lands within the Aboriginal Interests LSAs were proven or accepted by the Crown, that Aboriginal title would confer a number of rights on the Aboriginal title-holders:

- (a) The right to decide how the land will be used
- (b) The right of enjoyment and occupancy of land
- (c) The right to possess the land
- (d) The right to economic benefits of the land
- (e) The right to pro-actively use and manage the land^[1]

^[1] Tsilhqot'in Nation v. British Columbia, 2014 SCC 44 at para. 70.

Note that the precise extent of these rights remains somewhat unclear given the early stage in the development of the law. It is also unclear whether Aboriginal title applies to the seabed in Canada and if so, the full implications of such a declaration.

In this assessment, potential effects of the Project on use-related Aboriginal Interests (such as resource harvesting and the use of spiritual and cultural use of sites and landscape features) are considered in detail. In addition, potential effects on Aboriginal traditional governance and cultural identity are also considered. The assessment seeks to broadly capture potential effect from the Project on Aboriginal Interests, including many of the rights that would be held by Aboriginal title holders if title were established (e.g., the right of enjoyment and occupancy of land, and the right to use the land).

If Aboriginal title were established within the Aboriginal Interests LSAs, the Project could affect other aspects of the title-holder's rights, in particular the rights to decide how the land will be used, the right to possess the land and the right to economic benefits of the land. The interaction between such rights and the Project could be affected by the extent to which the title-holder has consented to the Project. Moreover, in light of the many uncertainties associated with Aboriginal title within the Aboriginal Interests LSAs (in particular the extent, ownership and boundaries of any Aboriginal title lands within the Aboriginal Interests LSAs and whether Aboriginal title may also apply to the seabed and if so whether it may be affected by Project-related shipping), it is not possible to estimate with any reasonable level of confidence the degree of potential Project interactions with those aspects of asserted Aboriginal title.

14.7 Selection of Measurable Parameters

Table 14.7-1 lists the identified potential adverse effects on Aboriginal Interests, the sub-components considered (where applicable), and corresponding measurable parameters. The measurable parameters were chosen based on the outcomes of consultation activities with Aboriginal Groups engagement activities and experience with conducting similar environmental assessments for other projects.

Table 14.7-1: Measurable Parameters for Potential Adverse Effects on Aboriginal Interests

Potential Adverse Project Effects	Sub-component	Measurable Parameters
Disturbance of consumptive Aboriginal Interests	<ul style="list-style-type: none"> ▪ Potential adverse effects on preferred harvested species ▪ Potential adverse effects on preferred harvesting methods ▪ Potential adverse effects on use or access to identified valued TU locations ▪ Potential adverse effects on the experience of traditional harvesting 	<ul style="list-style-type: none"> ▪ Quantitative and qualitative changes in preferred harvested species ▪ Changes in, or restrictions on, preferred harvesting methods ▪ Quantity and quality of identified valued TU locations and access corridors where use or access to those locations is changed ▪ Qualitative changes in the experience of traditional harvesting
Disturbance of use of sacred and culturally important sites and landscape features	<ul style="list-style-type: none"> ▪ Effects on the experience of using sites and landscape features for rituals or spiritually important purposes ▪ Effects on sacred and culturally or spiritually important sites and access to, or use, of those sites ▪ Effects on landforms and natural features associated with ritual or spiritual use 	<ul style="list-style-type: none"> ▪ Qualitative changes in the experience of using sites and landscape features for rituals or spiritually important purposes (e.g., changes in acoustic environment and visual quality at identified sites) ▪ Quantity and quality of affected sacred and culturally or spiritually important sites where use or access to those locations is changed ▪ Quantity and quality of affected landforms and natural features associated with ritual or spiritual use
Changes in aspects of Aboriginal governance	<ul style="list-style-type: none"> ▪ None used 	<ul style="list-style-type: none"> ▪ Quantitative change in production levels of traditional foods ▪ Change in quality (e.g., safety for consumption) of traditional foods (especially highly valued foods used for governance-related events and ceremonies)
Changes in aspects of Aboriginal cultural identity	<ul style="list-style-type: none"> ▪ Effects on participation in teaching trips and cultural camps ▪ Effects on participation in traditional harvesting activities ▪ Effects on the use of Aboriginal languages ▪ Effects on culturally important species ▪ Effects on feasting activities (frequency, quality, size, perceived meaning) 	<ul style="list-style-type: none"> ▪ Quantitative change in number and participation in of teaching trips and cultural camps and traditional harvesting activities ▪ Quantitative change in use of traditional language (increase or decrease) ▪ Quantitative and qualitative changes in harvested and culturally important species
Effects on Aboriginal spiritual places	<ul style="list-style-type: none"> ▪ Disturbance of Aboriginal spiritual places by non-Aboriginal human activity 	<ul style="list-style-type: none"> ▪ Quantity and quality of adversely affected spiritually important areas ▪ Quantitative and qualitative changes in the acoustic environment at identified sites ▪ Qualitative and quantitative changes in visual quality at sites ▪ Quantitative and qualitative changes in non-Aboriginal interactions with <i>spanoxnox</i> areas or equivalent spiritually important areas

14.8 Boundaries

The spatial, temporal, administrative, and technical boundaries for the assessment of potential adverse effects on Aboriginal Interests are described below.

14.8.1 Spatial Boundaries

14.8.1.1 Assessment of Facility-Related Effects

Project Footprint

The Project footprint is the area of physical disturbance associated with construction, operation, and decommissioning phases. It is defined as the area of direct physical disturbance and includes the area occupied by the marine terminal and related infrastructure upgrades.

Aboriginal Interests Local Study Area #1

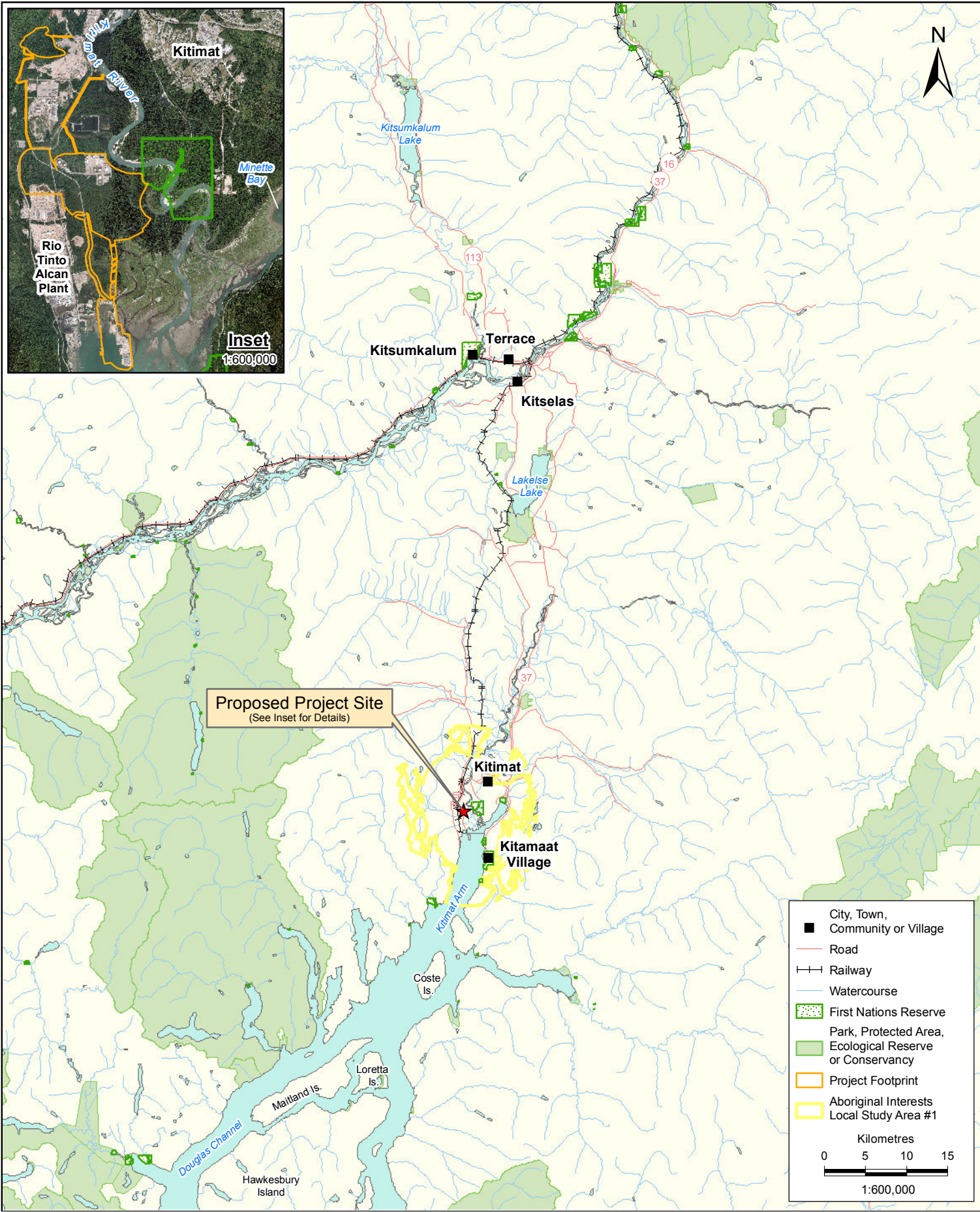
Aboriginal Interests LSA #1 is used for assessing the effects of the LNG facility on Haisla Nation's Aboriginal Interests (except for those related to emissions from the facility) and is shown in Figure 14.8-1. It is the maximum combined extent of the LSAs for the following VCs assessed, as described in each relevant Section:

- acoustic environment (Section 5.4)
- vegetation (Section 5.5, excluding consideration of effects caused by Project emissions)
- wildlife (Section 5.6)
- freshwater and estuarine fish (Section 5.7)
- marine resources (Section 5.8), and
- visual quality (Section 7.3).

Aboriginal Interests Local Study Area #2

Aboriginal Interests LSA #2 (Figure 14.8-2) is the maximum combined extent of the LSAs for the following VCs, as described in each relevant Section:

- air quality (Section 5.2) and health (Section 9.2)
- surface water quality (Section 5.9), and
- vegetation (emissions) (Section 5.5).



Proposed Project Site
(See Inset for Details)

■	City, Town, Community or Village
—	Road
—+—+—	Railway
—	Watercourse
▨	First Nations Reserve
■	Park, Protected Area, Ecological Reserve or Conservancy
▭	Project Footprint
▭	Aboriginal Interests Local Study Area #1

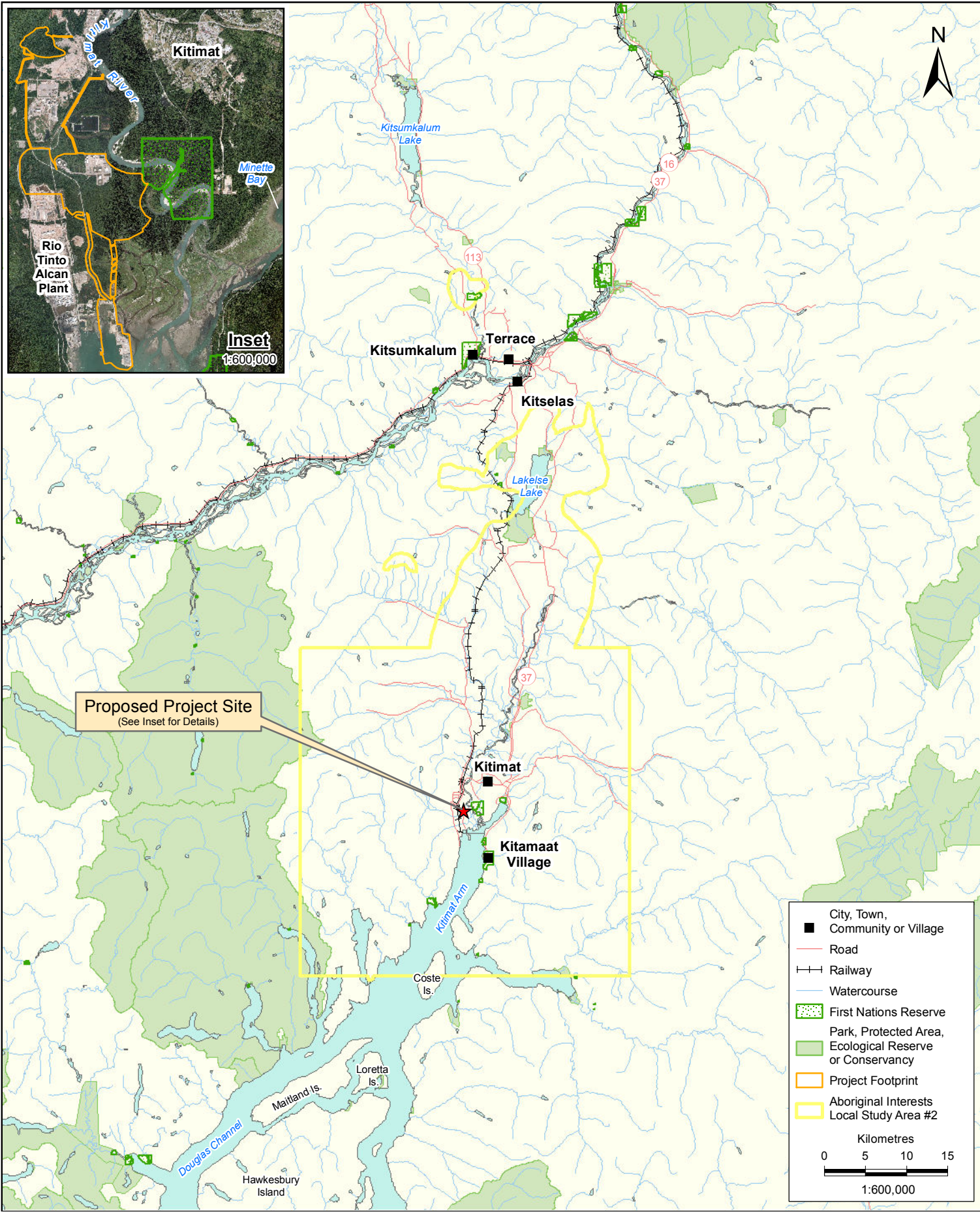
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ABORIGINAL INTERESTS ENVIRONMENTAL EFFECTS ASSESSMENT
ABORIGINAL INTERESTS LOCAL STUDY AREA #1
 LNG CANADA EXPORT TERMINAL
 KITIMAT, BRITISH COLUMBIA

PROJECTION	UTM9	DRAWN BY	SS
DATUM	NAD 83	CHECKED BY	SW
DATE	08-SEP-14	FIGURE NO.	14.8-1

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ABORIGINAL INTERESTS ENVIRONMENTAL EFFECTS ASSESSMENT
ABORIGINAL INTERESTS LOCAL STUDY AREA #2
 LNG CANADA EXPORT TERMINAL
 KITIMAT, BRITISH COLUMBIA

PROJECTION	UTM9	DRAWN BY	SS
DATUM	NAD 83	CHECKED BY	SW
DATE	08-SEP-14	FIGURE NO.	14.8-2

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Aboriginal Interests LSA #2 captures potential adverse effects of Project air emissions, including the resulting potential effects on surface water quality and vegetation as they relate to the Aboriginal Interests of the following Aboriginal Groups:

- Haisla Nation
- Gitga'at First Nation
- Kitselas First Nation
- Kitsumkalum First Nation
- Lax Kw'alaams First Nation, and
- Metlakatla First Nation.

14.8.1.2 Assessment of Shipping-related Effects

Aboriginal Interests Local Study Area #3

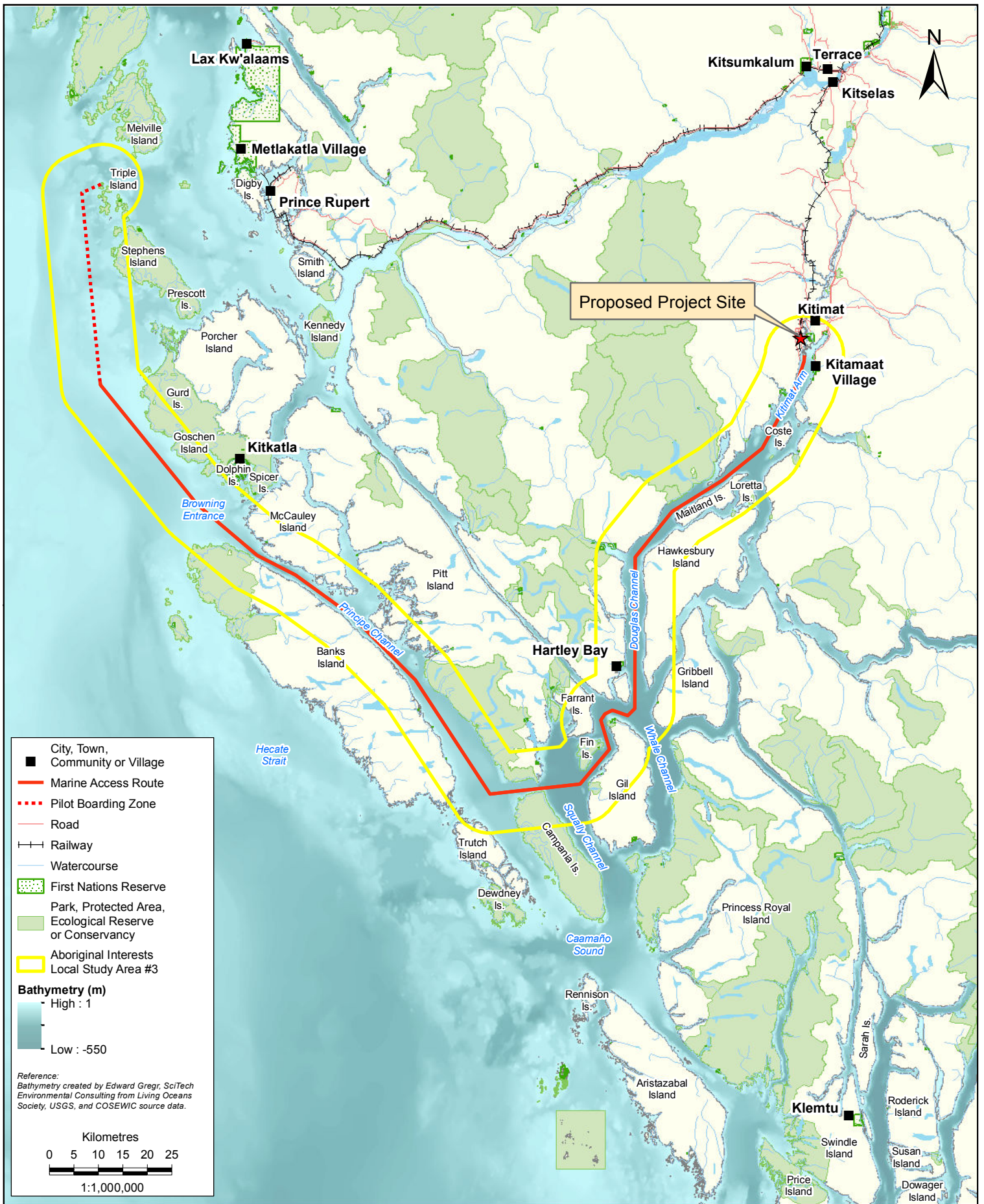
Aboriginal Interests LSA #3 is the same area as the LSA used by visual quality for the marine access route (see Figure 14.8-3). Aboriginal Interests LSA #3 captures relevant potential adverse effects of Project-related marine traffic on the Aboriginal Interests of the following Aboriginal Groups:

- Haisla Nation
- Gitga'at First Nation
- Gitxaala Nation
- Kitselas First Nation
- Kitsumkalum First Nation
- Lax Kw'alaams First Nation, and
- Metlakatla First Nation.

Aboriginal Interests LSA #3 captures relevant potential adverse effects of Project marine traffic from a broad range of relevant VCs examined in Part B:

- wildlife resources (Section 5.6)
- marine resources (Section 5.8)
- marine transportation and use (Section 7.4)
- human health (Section 9), and
- community health and wellbeing (Section 7.5).

Table 14.8-1 summarizes each LSA used in this section 14.



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ABORIGINAL INTERESTS ENVIRONMENTAL EFFECTS ASSESSMENT
ABORIGINAL INTERESTS LOCAL STUDY AREA #3
 LNG CANADA EXPORT TERMINAL
 KITIMAT, BRITISH COLUMBIA

PROJECTION	UTM9	DRAWN BY	SS
DATUM	NAD 83	CHECKED BY	SW
DATE	08-SEP-14	FIGURE NO.	14.8-3

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Table 14.8-1: Spatial Boundaries

LSA	Description	Aboriginal Group Traditional Territory Overlap	Reasonable expectation that effects could be of concern in area									
			Air Quality	Acoustic Environment	Vegetation Resources	Wildlife Resources	Freshwater and Estuarine Fish and Fish Habitat	Marine Resources	Marine Transportation and Use	Archaeological and Heritage Resources	Human Health	Surface Water Quality
LNG Facility												
Project Footprint	Marine terminal and associated infrastructure	Haisla Nation	X	X	X	X	X	X	X	X	X	X
Aboriginal Interests LSA #1	Maximum combined extent of the LSAs for the following VCs: <ul style="list-style-type: none"> ▪ acoustic environment, ▪ vegetation (excluding consideration of effects caused by Project emissions), ▪ wildlife, ▪ freshwater and estuarine fish, ▪ marine resources (facility), and ▪ visual quality (facility). 	Haisla Nation		X	X	X	X	X	X			
Aboriginal Interests LSA #2	The maximum combined extent of the LSAs for the following VCs: <ul style="list-style-type: none"> ▪ air quality and health , ▪ surface water quality, and ▪ vegetation (emissions). 	Haisla Nation Kitselas First Nation Kitsumkalum First Nation Lax Kw'alaams First Nation Metlakatla First Nation Gitga'at First Nation	X		X					X	X	

LSA	Description	Aboriginal Group Traditional Territory Overlap	Reasonable expectation that effects could be of concern in area										
			Air Quality	Acoustic Environment	Vegetation Resources	Wildlife Resources	Freshwater and Estuarine Fish and Fish Habitat	Marine Resources	Marine Transportation and Use	Archaeological and Heritage Resources	Human Health	Surface Water Quality	
Shipping													
Aboriginal Interests LSA #3	The same area as that used as the LSA by visual quality for the marine access route.	Haisla Nation Gitga'at First Nation Gitxaala Nation Kitselas First Nation Kitsumkalum First Nation Lax Kw'alaams First Nation Metlakatla First Nation	X	X		X*		X	X			X	

NOTE:

* - Marine Birds

14.8.2 Temporal Boundaries

Based on the current Project schedule, the temporal boundaries are:

- construction, Phase 1 (trains 1 and 2) to be completed approximately five to six years following issuance of permits, the subsequent phase(s) (trains 3, 4) to be determined based on market demand
- operation, minimum of 25 years after commissioning, and
- decommissioning, approximately two years at the end of the Project life.

14.8.3 Administrative and Technical Boundaries

Many of the potentially affected Aboriginal Groups have signed strategic land use planning agreements with the Province of British Columbia (BC). These agreements are described in Table 14.8-2. These agreements are relevant to LNG Canada’s assessment because they identify specific locations or areas that Aboriginal Groups view as having particular TU, spiritual/cultural, or ecological significance.

Table 14.8-2: Land Use Planning Agreements

First Nation	Title and Date	Details
Haisla Nation	<i>Strategic Land Use Planning Agreement (2006)</i>	Sets out land use zones, potential designations, potential excluded uses, potential legal designations, and recommended uses
Gitga’at First Nation	<i>Strategic Land Use Planning Agreement (2006)</i>	Sets out land use zones, potential designations, potential excluded uses, potential legal designations, and recommended uses
Kitselas First Nation	<i>North Coast Strategic Land Use Planning Agreement (2006)</i>	Sets out land use zones, designations and allowable uses, and management objectives for a number of areas
Kitsumkalum First Nation	<i>North Coast Strategic Land Use Planning Agreement (2006)</i>	Sets out land use zones, designations and allowable uses, and management objectives for a number of areas
Gitxaala Nation	<i>Strategic Land Use Planning Agreement (2006)</i>	Specifies that management intent for Kennedy Island, Stephens Island, and West Porcher Island is to maintain ecological integrity and traditional activities Contains a number of management objectives for Gitxaala cultural heritage and traditional resources, cedar and culturally modified trees, freshwater ecosystems and habitats, landscape-level and stand-level biodiversity, and grizzly bear habitat
Lax Kw’alaams First Nation	<i>Strategic Land Use Planning Agreement (2008)</i>	Provides a map produced by Lax Kw’alaams First Nation as part of the development of their own land use plan, showing designated land use areas Lelu Island and waters to the south and southwest are designated as stewardship areas by Lax Kw’alaams First Nation. Kennedy Island, Melville Island, Stephens Island, and the northern coastline of Porcher Island are designated as cultural and natural areas
Metlakatla First Nation	<i>Strategic Land Use Planning Agreement (2006)</i>	Specifies that management intent for Kinahan Islands is to maintain traditional and recreational use, and cultural heritage features and values Management intent for Kennedy Island and Stephens Island is to maintain their ecological integrity, traditional activities, and opportunities for nature-based tourism by establishing a Protection Area

Sources: See “Agreements” in the References section

14.9 Residual Effects Description Criteria

Table 14.9-1 lists the criteria used to characterize residual effects on Aboriginal Interests.

Table 14.9-1: Characterization of Residual Effects on Aboriginal Interests

Characterization	Description	Quantitative Measure or Definition of Qualitative Categories
Magnitude	The expected size or severity of effect. Low-magnitude effects may have little effect, while high-magnitude effects may have a substantial effect.	<p>N—Negligible, no measurable change</p> <p>L—Low, very small detectable change from baseline; no exacerbation of existing conditions</p> <p>M—Moderate, varies from baseline and may result in noticeable changes to traditional practices, TK or community perceptions of traditional territory, practices or knowledge; moderate exacerbation of existing conditions</p> <p>H—High, varies from baseline to a high degree, has serious implication for the continuance of traditional practices and TK; greatly exacerbates existing conditions</p>
Geographic Extent	The spatial scale over which the residual effects of the Project are expected to occur. The geographic extent of effects can be local or regional. Local effects may have a lower effect than regional effects.	<p>Project Footprint – predicted interference with Aboriginal Interests restricted to the PDA</p> <p>Aboriginal Interests LSA #1 – predicted interference with Aboriginal Interests occurs in the Aboriginal Interests LSA #1</p> <p>Aboriginal Interests LSA #2 – predicted interference with Aboriginal Interests occurs in Aboriginal Interests LSA #2</p> <p>Aboriginal Interests LSA #3 – predicted interference with Aboriginal Interests occurs in Aboriginal Interests LSA #3</p>
Duration	The length of time the residual effect persists. The duration of an effect can be short term or longer term.	<p>Short-term – Effect on Aboriginal Interests restricted to construction phase (six years following issuance of permits)</p> <p>Medium-term – Effect on Aboriginal Interests extends up to 20 years following issuance of permits</p> <p>Long-term – Effect on Aboriginal Interests extends 20+ years from issuance of permits (equivalent to a generation)</p> <p>Permanent – Aboriginal Interests unlikely to recover to baseline</p>
Frequency	How often the effect occurs. The frequency of an effect can be frequent or infrequent. Short term and/or infrequent effects may have a lower effect than long term and/or infrequent effects.	<p>Single event</p> <p>Multiple irregular event (no set schedule)</p> <p>Multiple regular event</p> <p>Continuous – effect occurs continuously</p>
Reversibility	Whether or not the residual effect on Aboriginal Interests can be reversed once the physical work or activity causing the disturbance ceases. Effects can be reversible or permanent. Reversible effects may have lower effect than irreversible or permanent effects.	<p>Reversible – would recover after Project closure and reclamation</p> <p>Irreversible – permanent</p>
Likelihood	Whether or not a residual effect is likely to occur	<p>Low – low likelihood that there would be a residual effect</p> <p>Medium – moderate likelihood that there would be a residual effect</p> <p>High – high likelihood that there would be a residual effect</p>

Characterization	Description	Quantitative Measure or Definition of Qualitative Categories
Degree of Adverse Effect	The predicted degree of interference with Aboriginal Interests	<p>N = Negligible – no measurable interference or insignificant level of interference with Aboriginal Interests</p> <p>L = Low – very small but measurable interference with Aboriginal Interests; limitation impose no added burden on Aboriginal rights-holders; unlikely to deny preferred means¹ of exercising Aboriginal Interests</p> <p>M = Moderate – a moderate level of potential interference with Aboriginal Interests; limitation may impose some burden on Aboriginal rights-holders but would not result in undue hardship; would not deny rights-holders preferred means of exercising Aboriginal Interests</p> <p>H = High – serious level of interference with Aboriginal Interests; ; would likely impose undue hardship on Aboriginal rights-holders; would deny rights-holder preferred means of exercising Aboriginal Interests</p>

NOTES:

¹ For purposes of the assessment, current uses are considered to be preferred means. In some situations, this might not be entirely correct, for example, where the preferred means of exercising an Aboriginal Interest are not possible because of other pre-existing circumstances or activities. Without information on the existence or frequency of such situations, the assessment instead relies on current use information, and assumes that a restriction on current use could constitute a denial of preferred means of exercising the relevant Aboriginal Interest.

14.10 Baseline Conditions

14.10.1 Baseline Data Sources

Baseline data sources for this assessment include information from:

- consultation with Aboriginal Groups
- Project-related TK and TU information
- Project-specific Aboriginal groups reports
- past research conducted in the region
- publicly available TK and TU information
- knowledge gained from the collection of baseline data during a literature review and qualitative and quantitative analysis
- information gathered for the assessments of other VCs
- government reports, and
- relevant court decisions and related court documents.

Specific relevant baseline information on harvested species, TU of the three study areas is provided below in the separate subsections.

14.11 Project Interactions

14.11.1 Introduction

Adverse effects on Aboriginal Interests have the potential to occur where there is an interaction between Project components or activities and the resources, activities, traditions and landscapes that are the foundation of an Aboriginal Interest, including access-related interests.

Based on the outcomes of LNG Canada's consultation with Aboriginal Groups, a review of available information, and the experience of LNG Canada and Stantec environmental assessment professionals, Project activities that could result in potential adverse effects on Aboriginal Interests are described in terms of LNG facility-related effects and shipping-related effects.

14.11.2 LNG Facility-Related Interactions in LSA #1

LNG facility construction, operation, and decommissioning have the potential to adversely affect the Aboriginal Interests of Haisla Nation within Aboriginal Interests LSA #1 (Figure 14.8-1). LNG facility construction and commissioning (including site preparation, onshore construction, dredging, marine construction, vehicle and rail traffic), operation (including LNG loading, vehicle and rail traffic) and decommissioning (dismantling of land-based and marine infrastructure, remediation and reclamation of the site) could potentially adversely affect Haisla Nation's:

- harvesting-related Aboriginal Interests (e.g., hunting, trapping, fishing, intertidal harvesting, vegetation gathering)
- Aboriginal traditional governance systems
- aspects of Aboriginal cultural identity that are linked to traditional harvesting activities through:
 - changes in the abundance, availability, diversity, health and safety for human consumption of harvested traditional plant species, wildlife and marine birds, marine and freshwater fish, and intertidal resources
 - interference with preferred traditional harvesting methods
 - limiting or eliminating the use of, or access to, identified valued TU locations, and
 - adversely affecting the experience of Aboriginal Groups' members who use land and marine areas affected by Project activities when exercising their consumptive Aboriginal Interests.

LNG facility construction and commissioning, operation, decommissioning and reclamation could also affect the use of sacred or culturally important sites and landscape features by Haisla Nation members by physically altering those sites or features, by interfering with access to those areas, or by adversely affecting the experience of Aboriginal peoples who use those sites or areas.

Construction, operation, and decommissioning activities may also affect aspects of the cultural identity of Haisla Nation members by physically interfering with traditional cultural practices (e.g., access to areas used for teaching trips and cultural camp activities).

Construction, operation, and decommissioning activities could also adversely affect areas identified by Haisla Nation as having particular spiritual importance. These Project potential effects could arise through changes in the number of non-Aboriginal people interacting with those areas, as well as changes in the acoustic environment and visual quality at those sites.

14.11.3 LNG Facility-Related Interactions in LSA #2

LNG facility residual effects have the potential to adversely affect the Aboriginal Interests of Haisla Nation, Kitselas First Nation, Kitsumkalum First Nation, Lax Kw'alaams First Nation, Gitga'at First Nation and Metlakatla First Nation within Aboriginal Interests LSA #2 (Figure 14.8-2).

Emissions from the LNG facility could adversely affect the abundance, availability, diversity, health and safety for human consumption of harvested traditional plant species (e.g., vegetation gathering), and Aboriginal traditional governance systems and aspects of Aboriginal cultural identity that are linked to traditional harvesting activities.

LNG facility-related air quality and human health effects could also affect the use of sacred or culturally important sites and landscape features located within Aboriginal Interests LSA #2, through adverse effects on the experience of Aboriginal peoples who use those sites or areas.

14.11.4 Shipping-Related Interactions in LSA #3

Vessel traffic associated with the Project during construction, operation, and decommissioning has the potential to affect harvesting-related Aboriginal Interests, traditional governance systems, and the cultural identity of Haisla Nation, Gitga'at First Nation, Gitxaala Nation, Metlakatla First Nation, Lax Kw'alaams First Nation, Kitselas First Nation, and Kitsumkalum First Nation. LNG Canada recognizes that the vessel traffic passes through the traditional territory of each group to varying amounts; however, assessments are made for each group locations regardless of percentage of territory. Vessel traffic may adversely affect preferred harvested species, harvesting methods, use or access to identified valued TU locations, and may adversely affect the experience of land and marine use for Aboriginal Groups who live or harvest resources along the Project marine access route.

Shipping activities during construction, operation, and decommissioning could also affect the use of sacred or culturally important sites and landscape features by Aboriginal Groups by physically altering those sites or features, by interfering with access to those areas, and by adversely affecting the experience of Aboriginal people who use those sites or areas.

Shipping activities during all Project phases could potentially affect:

- aspects of the cultural identity of potentially affected Aboriginal Groups by physically interfering with traditional cultural practices (e.g., access to areas used for teaching trips and cultural camp activities), and
- areas identified by Aboriginal Groups as having particular spiritual importance through changes in the number of non-Aboriginal humans interacting with those areas, as well as changes in the acoustic environment and visual quality at those sites.

14.12 Analytical Methods

14.12.1 Assessment Techniques

In general, the assessment for each assessed Aboriginal Interests is divided into three subsections—the first subsection dealing with residual adverse effects of the LNG facility on Haisla Nation Aboriginal Interests within Aboriginal Interests LSA #1, the second dealing with residual adverse effects of LNG facility-related air emissions (including human health effects, effects on vegetation, and emissions-related surface water quality changes) on the Aboriginal Interests that exist in LSA #2, and the third addressing residual adverse effects related to shipping on Aboriginal Interests that exist within LSA #3 (Figure 14.8-3).

The assessment of residual adverse effects resulting from the LNG facility on Aboriginal Interests is based on a comparison of the current exercise of the identified Aboriginal Interests without the Project and how the Aboriginal Interests would be exercised with the Project in place. Where information on a particular Aboriginal Interest was not provided to LNG Canada at the time of writing, conclusions have been based on publicly available information (see section 14.5 for more detail on sources).

The approach used to assess residual adverse effects from the LNG facility on Aboriginal Interests includes:

- identifying Project activities that could result in adverse effects on Aboriginal Interests
- using measurable parameters to identify the Project effect mechanisms for each effect as a result of Project activities, the location where these effects are likely to occur, and the residual adverse effects
- providing a summary of mitigation measures to avoid, reduce, or otherwise manage residual adverse effects on Aboriginal Interests
- characterizing residual effects using specific criteria (see Table 14.2-4)
- determining the degree to which identified Aboriginal Interests are likely to be adversely affected, and
- predicting confidence and risk regarding residual adverse effects on Aboriginal Interests.

As directed by the AIR, the section also provides a description of cumulative effects as described in Part B that are relevant to Aboriginal Interests.

14.12.2 Ecosystems Services and Non-market Values

LNG Canada has reviewed various recent studies on ecosystem service and non-market values in Canada and has also reviewed the evidence related to ecosystem services and non-market values that were presented as part of the National Energy Board Hearings on the Northern Gateway Project:

- Anielski Management Inc. 2012. Evaluation of Natural Capital and Ecological goods and Services at Risk Associated with the Proposed Enbridge Northern Gateway Pipeline. Prepared for Northern Gateway.
- Gregory, Failing and Joseph. 2011. Economic Impacts of the Enbridge Northern Gateway Project on the Gitga'at First Nation. Prepared for the Hartley Bay Band Council.
- Gunton and Broadbent. 2012. A Public Interests Assessment of the Enbridge Northern Gateway Project. Prepared for the Coastal First Nations
- Gunton and Broadbent. 2012. A Review of Potential Impacts to Coastal First Nations from an Oil Tanker Spill Associated with the Northern Gateway Project. Prepared for the Coastal First Nations
- Mansell et al. 2012. Public Interest Benefit Evaluation of the Enbridge Northern Pipeline Project: Update and Reply Evidence. Prepared for Northern Gateway.
Ruth and Gasper. 2012. Ecological Costs Associated with the Proposed Northern Gateway Pipeline. Prepared for the Haisla Kitamaat Council.

Based on the literature review, LNG Canada has concluded that an assessment of the potential effects of its project on ecosystem services is not required. Since a key component of such an assessment would be to determine Project effects on the resources and the use of these resources, LNG Canada believes that the information contained in its Application already provides a description of potential effects on ecosystems services that is sufficient for regulatory decision-making purposes. LNG Canada concludes that the quantification of Project effects on ecosystems in economic terms is not required because such information would only be of value as part of a Project cost/benefit analyses, which is not required by provincial or federal regulators. It would also be difficult to produce because there is no existing information on ecosystem services that is relevant to the Project setting or the population affected by the setting. Furthermore, undertaking site-specific studies to evaluate potential Project effects on non-market values would be highly problematic given the methodological challenges inherent in undertaking such a study and it is highly unlikely that potentially affected parties would agree with the results of such a study. LNG Canada believes that the existing Working Group process is a far more effective approach for

discussing and addressing conflicting opinions about the magnitude and economic importance of potential Project effects on ecosystem services.

14.12.3 Assumptions and Conservative Approach

Desktop research into current Aboriginal TU in the Project footprint area revealed limited reference to TU, possibly because much of the area is privately owned and has already seen a high level of industrial activity.

Lax Kw'alaams First Nation has provided LNG Canada with their *2004 Marine and Land Resources Plan*. Although this plan is 10 years old, it is reasonable to assume that Lax Kw'alaams First Nation members participate in a similar level of use activities (potentially with certain geographic differences) in LSA #2 and LSA #3.

Depending on the size of the LNG carrier, LNG Canada estimates that 170 to 350 LNG carriers could visit Kitimat annually as a result; 350 LNG carrier visits is the number used in the assessment.

LNG Canada recognizes that an absence of public information on Aboriginal TU for a certain area does not necessarily mean that no TU activities or valued use sites occur at that location. TK and TU studies or other information provided by interested Aboriginal Groups after submission of the Application may provide additional details on the current use of the Aboriginal Interests LSAs by Aboriginal people for hunting, fishing, vegetation harvesting, or other TU activities.

14.12.4 Determining the Degree of Residual Adverse Effect on Aboriginal Interests

LNG Canada's determination of the degree of adverse effect on Aboriginal Interests considers the following three questions:

- Would the limitation on the Aboriginal Interest impose undue hardship?
- Would the limitation deny the rights-holder their preferred means of exercising their Aboriginal Interest?
- Would the limitation interfere with the Aboriginal Interest in, "more than an insignificant or trivial way"?

14.13 Assessment of Changes in Traditional Harvesting in LSA #1

14.13.1 Baseline Information

14.13.1.1 Past Use of Aboriginal Interests LSAs

Hunting has been actively practiced by Aboriginal Groups throughout all three Aboriginal Interests LSAs since before contact with European explorers and settlers. Species that were hunted included ungulates (e.g., moose, caribou, and deer), birds and waterfowl, bear (grizzly and black bear), mountain goats, cougar, and small mammals, such as beaver, snowshoe hare, and red squirrel, and marine mammals (Powell 2013; Calliou 2014c; Satterfield et al. 2012).

Trapping is presumed to be a long-practiced activity among Aboriginal Groups, although the methods may have been adapted over time. In some cases, traplines were moved to accommodate the provincially registered trapline system. Traplines were also adapted to define the territories of various Coast Tsimshian Houses after the introduction of government tenures (Lax Kw'alaams 2004). Mammals trapped included beaver, snowshoe hare, mink, marten, beaver, squirrel, weasel, and porcupine (MFN 2011; Powell 2013; Calliou 2014c).

Marine fishing was a mainstay of both Haisla Nation and Tsimshian groups. Important areas for fishing activities included the area around Triple Island, Stephens Island, Porcher Island, and Dolphin Island, as well as Principle Channel, Otter Channel, Seal Rocks, and Douglas Channel (Satterfield et al. 2012; Powell 2013; Calliou 2014c; Metlakatla First Nation 2014a and 2014b, Crossroads 2014; Kitsumkalum 2014). Shellfish and marine plant resources were important subsistence foods for Haisla Nation members and the Tsimshian, who consumed shellfish and seaweed throughout the year as food (Seguin Anderson 2006; Powell 2013, Crossroads 2014; Kitsumkalum 2014). Salmon of all species were harvested in the Kitimat River and were vitally important to Haisla Nation and Tsimshian groups for food and cultural practices. Similarly, eulachon was an important food source because they spawn in late winter or early spring, and were often the earliest food source available for harvest (Gordon et al. n.d.). Other freshwater species harvested in the Aboriginal Interests LSAs included several species of trout.

Vegetation resources were important to both Haisla Nation and Tsimshian cultures. The cedar tree contributed to the development of their unique cultures through its use in building long houses and canoes, and for clothing and implements. Food plants included various berries (e.g., bunchberry, cloudberry, crabapple, cranberry, crowberry, black and red currant, elderberry, black gooseberry, huckleberry, raspberry, soapberry, salal, saskatoon, strawberry, thimbleberry), and others plants species, such as hazelnuts, lily of the valley, devil's club, springbank, clover, fireweed, lichen, licorice, pacific silverweed, rice-root, wild onions, common juniper, cinquefoil, copperbush, cow parsnip, Indian hellebore, Labrador tea, lupine, skunk, cabbage, Sylvan goat's beard, wild rose, tubers, and roots. Medicinal plants

included black hawthorn and bog and oval-leafed blueberry (Powell 2013; Calliou 2014c; Satterfield et al. 2012).

14.13.1.2 Current Use of LSA #1

The LNG facility will be located in the Haisla Nation *wa'wais* area called *Yaksda*, which means “dirty water.” Haisla Nation reports that its members hunt, trap, fish, gather vegetation and use cabins and campsites for traditional harvesting purposes within Aboriginal Interests LSA #1, including in the *Yaksda wa'wais* (Moore Creek and Anderson Creek watersheds), in the *Simgas* and *Zagwis wa'wais*, and along Kitimat Arm (Haisla Nation 2013; Powell 2013). Haisla Nation members use various locations within the *Yaksda wa'wais* to gather traditional foods during different times of year. While Haisla Nation members in Kitimaat Village prefer to fish close to the village in small skiffs because of high fuel prices (Powell 2013), decreased seafood availability has meant that Haisla Nation has to travel greater distances to harvest marine resources. For example, pollution from the Eurocan pulp mill has destroyed local stocks of butter clams and cockles, forcing Haisla Nation members to travel as far as Clio Bay to harvest shellfish (Powell 2013). This harvesting occurs primarily during evening tides, which in turn makes travelling to the location more difficult. Eulachon fishing has not taken place in the Kitimat River since 1971, because of discharge from the pulp and paper mill (Gordon et al. n.d.; Powell 2013). With the loss of the Kitimat eulachon fishery, Haisla Nation has had to travel long distances to fish eulachon in the Kemano River, a smaller system with a reduced eulachon fishery (Gordon et al. n.d.).

Table 14.13-1 summarizes information on current traditional harvesting activity by Haisla Nation in Aboriginal Interests LSA #1.

Table 14.13-1: Haisla Nation Harvesting Activity in LSA #1

Use Category	Targeted Species	Identified Use Locations
Hunting	Seal	The mouth of the Kitimat River estuary; the flats around the Kitimat River estuary; Minette Bay from the east shoreline
	Deer	Throughout their territory; specific identified locations are around Kitimaat Village; active or decommissioned logging roads
	Moose	Throughout their territory; specific identified location around Kitimaat Village and active or decommissioned logging roads
	Black bear and grizzly bear	Throughout Aboriginal Interests LSA #1; specific identified location around Kitimaat Village and active or decommissioned logging roads; flats between Anderson and Moore creeks; various locations along the marine access route
	Duck	Usually hunted in saltwater before they group to move to lakes and inland areas during the winter; specific locations are flats between Anderson and Moore creeks; various locations along the shipping lanes
	Canada goose	Reported for <i>Yaksda wa'wais</i> and along the shipping lanes; specific locations are higher elevations before they learn to fly
	Quail	Reported for <i>Yaksda wa'wais</i> and along the shipping lanes

Use Category	Targeted Species	Identified Use Locations
Fishing	Halibut and cod	In parts of Aboriginal Interests LSA #1 along Kitimat Arm
	Herring	Parts of Aboriginal Interests LSA #1 at locations along Kitimat Arm
	Shrimps and prawns	Parts of Aboriginal Interests LSA #1 along Kitimat Arm
	Salmon	Throughout Aboriginal Interests LSA #1; reported in <i>C'imoca and Wohlstu</i> , <i>Yaksda</i> , and <i>Simgas and Zagwis wa'wais</i> . Major spawning streams are Kitimat River and its tributaries, streams along Douglas Channel
	Trout	Rivers along Kitimat Arm and Douglas Channel
Marine harvesting	Shellfish	Throughout coastal areas of Aboriginal Interests LSA #1
Trapping	Small fur-bearing animals Including beaver, marten, fisher, land otter, mink, weasel, and muskrat	Throughout Aboriginal Interests LSA #1 along Kitimat Arm
Vegetation gathering	Terrestrial food harvesting includes berries, crab-apples, wild rice, various tubers, and roots	Throughout Aboriginal Interests LSA #1
	Marine food harvesting Includes seaweed and kelp	Throughout marine/coastal areas of Aboriginal Interests LSA #1
	Food harvesting for medicine and material	Throughout Aboriginal Interests LSA #1 and Aboriginal Interests LSA #3. No specific recorded locations are available
Transportation- Trails	NS	Throughout terrestrial areas of Aboriginal Interests LSA #1
Transportation- Marine navigation	NS	Throughout marine areas of Aboriginal Interests LSA #1 with specific locations in Kitimat Arm
Archaeology and habitation- Trapping cabins	NS	Numerous throughout Aboriginal Interests LSA #1; however, "none of these cabin sites are near the proposed LNG Canada development."

NOTES:

NS = None Specified – specific use and/or targeted species has not been identified by a particular Aboriginal Group

Sources: Powell 2011, Powell 2013

14.13.1.3 Future Use of LSA #1

LNG Canada has limited information on anticipated future use at the time of writing. Haisla Nation has indicated it is considering using the eulachon run on the Kitimat River, especially around Kitimaat Village, which was "historically the best place to catch eulachon in the Kitimat River" (Gordon et al. n.d.).

LNG Canada acknowledges that predicting future use is complex, and a number of interrelated and sometimes subtle factors may influence future use patterns, including demographic, economic, and cultural shifts in Aboriginal communities; the effect of increased development in the region; and wider economic and population changes throughout the central coast region. However, LNG Canada has

conservatively anticipated that Aboriginal consumptive and non-consumptive use of the three Aboriginal Interests LSAs would likely continue at or near current levels into the future.

14.13.1.4 Baseline for Harvested Species in LSA #1

14.13.1.4.1 Terrestrial Wildlife and Marine Birds

TU of harvested species by Haisla Nation members includes the hunting of mallards, goldeneyes, and merganser ducks, Canada goose and snow goose for food and for down feathers, hunting of marine birds for food and harvesting of gull eggs (Powell 2011). Haisla Nation members hunt and trap several mammal and bird species for pelts, food, down and other subsistence materials, such as quills, down feathers, bone, pelts, horns, antlers, and wool (Table 14.13-2).

Table 14.13-2 lists wildlife harvested by Haisla Nation members and whether they were detected within LSA #1 during baseline surveys for the Project or during other surveys in the area.

Grizzly bear (which is a traditionally harvested species and also has cultural significance for Haisla Nation) were one of the top three most commonly detected species during large mammal transect surveys (Stantec 2014). Habitat suitability models indicated moderate to high suitability grizzly bear spring and fall feeding habitat in that LSA, primarily associated with the Kitimat River and sedge-dominated habitats surrounding the estuary.

During May and June of 2013 a total of 58 species of terrestrial breeding birds were observed in areas of Aboriginal Interests LSA #1 that overlap with the wildlife resources LSA (for the facility). Two owl species were detected during nocturnal surveys, three (two active, one inactive) bald eagle nests and one osprey nest were documented within that area, and three species of amphibian were observed. In addition, at least 50 marine bird species were recorded during vessel-based surveys (shore surveys identified 53 species). Of the shorebirds, the highest percentages of bird observations are Canada goose (10%) and mallard duck (9%).

Table 14.13-2: Traditional Wildlife Used by Haisla Nation

Wildlife Type	Use	Detected During Project Surveys in LSA#1
Large Mammals		
Black bear	Pelt, food	Yes
Moose	Food, antler	Yes
Deer	Food, antler	Yes
Mountain goat	Food, horn, wool	No
Wolf	Pelt	Yes
Wolverine	Pelt	No
Grizzly bear	Pelt	Yes

Wildlife Type	Use	Detected During Project Surveys in LSA#1
Lynx	Pelt	No
Small Mammals		
Beaver	Pelt	Yes
Porcupine	Quills	Yes
Marmot	Pelt	Yes
Marten	Pelt	Yes
Fisher	Pelt	Yes
River otter	Pelt	Yes
Mink	Pelt	Yes
Weasel	Pelt	Yes
Muskrat	Pelt	Yes
Birds		
Mallard	Food, down	Yes
Goldeneye	Food, down	Yes
Black duck	Food, down	Yes
Merganser	Food, down	Yes
Canada goose	Food, down	Yes
Goslings	Down	Yes
Snow goose	Food, down	Yes
Goose eggs	Food	Yes
Grouse	Food, feathers	Yes
Glaucous-winged gull/California gull	Eggs	Yes

Sources: Powell 2011; Powell 2013

14.13.1.4.2 Freshwater and Estuarine Fish

Haisla Nation identified the following freshwater and anadromous fish species as of particular importance to their members:

- trout
- steelhead
- sockeye salmon
- spring salmon
- pink salmon
- chum salmon

- coho salmon, and
- eulachon (Powell 2013).

Kitimat River, Moore Creek, Anderson Creek, and Beaver Creek provide access to extensive habitat for freshwater and estuarine fish species that are important to Haisla Nation harvesters. The Kitimat River is a critical access corridor for migrating anadromous fish, including all five species of Pacific salmon, steelhead and rainbow trout, cutthroat trout, Dolly Varden, and eulachon. Most, if not all, of the harvested fish species spawn in freshwater habitats upstream of the section of river within LSA #1. Off-channel habitats to the west of the main-stem of the Kitimat River support stickleback as well as juvenile coho and chum salmon. Spawning adult salmon were not directly observed in the Kitimat River during studies for the Application. Eulachon was also not observed in the Kitimat River.

Coho salmon is the most abundant and widely distributed species in freshwater main-stem and off-channel habitats of Anderson Creek, Beaver Creek, and Moore Creek. Adult coho, pink, sockeye, and chum salmon were observed spawning there during the study period within LSA #1. Rainbow trout and Dolly Varden char were also observed in Anderson and Beaver creeks, along with Pacific staghorn, coast-range, and prickly sculpins. Other fish are lamprey and three-spined stickleback, where suitable habitat conditions permitted. Coho salmon and three-spine stickleback also occupy off-channel habitats that include the wetland complexes extending off the main-stems of Anderson and Beaver creeks in the Project footprint.

The lowest reaches of all freshwater streams in LSA #1 are subject to tidal influences. Estuarine tidal channels directly below the stream outlets provide transitional habitat for salmonid smolts, including chum, chinook, coho, pink, and river sockeye salmon. Three-spined stickleback and Pacific staghorn sculpin also use the tidal channels perennially and during multiple life stages.

14.13.1.4.3 Marine Resources

Marine fish species caught by Haisla Nation include salmonids, such as chum, sockeye, coho, chinook, pink, and steelhead trout; small pelagic fish, such as eulachon and Pacific herring; demersal fish, such as Pacific halibut, ling cod, rock cod and snapper, sablefish, and flounders; and invertebrates such as Dungeness crab, clams, cockles, mussel, shrimps/prawns, octopus, sea cucumber, and sea anemone (Powell 2013).

Marine species habitats within LSA #1 are estuarine and marine riparian habitat, intertidal and sub-tidal habitat, eelgrass and kelp beds, estuaries, and salt marshes. Herring spawning areas and salmon and eulachon spawning rivers occur in LSA #1, as do important areas for eulachon, tanner crabs, and cloud sponges and sea anemone. The existing shoreline in the marine resources facility LSA provides habitat for 13 small patches of eelgrass, one patch of sea-grass, five marsh plants, and 12 species of algae. The

constructed salt marsh habitat located north of the Eurocan Basin provides rearing habitat for juvenile salmon and habitat for non-migratory fish species, marine algae, six marsh plant species, invertebrates, and marine fish. The constructed salt marsh has moderate productive capacity and is considered important fish habitat because it provides rearing habitat for juvenile salmon, and year-round habitat for non-migratory fish species, such as Pacific staghorn sculpin and three-spined stickleback. In addition, 51 marine fish and invertebrate species were observed in the sub-tidal zone within LSA #1 during the survey.

14.13.1.4.4 Vegetation Resources

Twenty-two ecological communities and 14 non-vegetated cover types (including the wetland class, shallow open water) were identified in the area of overlap between LSA #1 and the vegetation resources LSA through terrestrial ecosystem mapping. Plants used by Haisla Nation members in the region were detected, including six tree, seven shrub, and 11 forb species. Detected Haisla Nation TU species were as follows:

- red alder
- Pacific crab apple
- Sitka spruce
- black cottonwood
- western red-cedar
- hemlock
- western hemlock
- red-osier dogwood
- black twinberry
- devil's club
- black gooseberry
- currant or gooseberry
- stink currant
- trailing black currant
- Pacific willow
- Sitka willow
- red elderberry
- Alaskan blueberry
- oval-leaved blueberry
- red huckleberry

- high-bush cranberry
- yarrow
- kneeling angelica
- goats-beard
- cow-parsnip
- arctic lupine
- salmonberry
- thimbleberry
- coast silverweed
- buttercup
- common cattail
- stinging nettle
- Indian hellebore
- spiny wood fern
- licorice fern
- peat-moss
- Nootka lupine
- skunk cabbage
- false lily-of-the-valley
- Pacific water-parsley
- Nootka rose

A detailed description of the habitat and vegetation species found in the vegetation resources LSA and RSA is provided in Section 5.5.2.5.

14.13.1.4.5 Visual Quality

LNG Canada's landscape character assessment confirmed that LSA #1 has high topographic variation, varied vegetation patterns, and expansive views of water, forming a distinct and visually appealing landscape. A large amount of human disturbance occurs in LSA #1, including major industrial development, recent and historical logging, waterfront commercial development, and residential development. However, the amount of human caused visual disturbance varies considerably depending on the viewpoint.

LNG Canada sought out feedback from Haisla Nation regarding visual quality baseline information. Direct discussions took place to determine relevant viewpoints, and Haisla Nation was provided with a blank map-book on which they could identify viewpoints related to the LNG facility. Haisla Nation suggested that a viewpoint from Kitamaat Village be included in the study; however, due to the timing of the inclusion, it was determined that a previously identified viewpoint from the marina near Kitamaat Village would be used instead because it offers a representative and equivalent view.

14.13.1.4.6 Acoustics

The existing ambient acoustic environment near the Project footprint is characterized by a combination of sounds generated by both the natural environment and by human activities. In the town of Kitimat, human activities that generate sound are rail traffic, aircraft flyovers, local industry, and vehicle traffic on local roads.

14.13.2 Project Effects Mechanisms for Harvesting-Related Aboriginal Interests in LSA #1

Construction, operation, and decommissioning of the LNG facility could result in the following relevant effects on harvesting-related Aboriginal Interests in LSA #1:

- effects on harvesting methods
- effects on use or access to identified harvesting locations
- effects on harvested species, and
- effects on the experience of traditional harvesting.

These four Project effects mechanisms are discussed separately and in detail below.

14.13.2.1 Effects on Harvesting Methods

All Project phases could potentially adversely affect harvesting-related Aboriginal Interests (e.g., hunting, trapping, fishing, intertidal harvesting, vegetation gathering) systems through physical interference with, or disturbance of, preferred harvesting methods.

14.13.2.2 Effects on Use or Access to Identified Harvesting Locations

All Project phases could potentially adversely affect harvesting-related Aboriginal Interests (e.g., hunting, trapping, fishing, intertidal harvesting, vegetation gathering) through limiting or eliminating the use of, or access to, identified valued TU locations (e.g., Project-related clearing of identified harvesting area).

14.13.2.3 Effects on Harvested Species

All Project phases could potentially adversely affect harvesting-related Aboriginal Interests (e.g., hunting, trapping, fishing, intertidal harvesting, vegetation gathering), through changes in the abundance, availability, diversity, health and safety for human consumption of harvested traditional plant species, wildlife and marine birds, marine and freshwater fish, and intertidal resources.

Section 5.6.2.4 describes in detail potential interactions between wildlife resources (including species harvested by Aboriginal Groups) and the Project that are associated with construction, operation and decommissioning activities. These potential changes are:

- loss or change in habitat
- risk of injury or mortality, and
- sensory disturbance or behavioural alterations.

These potential changes could affect Haisla Nation's harvesting activities (e.g., hunting, trapping) by affecting the number of harvested wildlife species individuals available to be harvested within Aboriginal Interests LSA #1.

Section 5.7.2.4 describes in detail potential interactions between Project activities and freshwater and estuarine fish resources (including species harvested by Aboriginal Groups). Potential changes due to these interactions are:

- changes in fish habitat (i.e., permanent alteration to or destruction of freshwater or estuarine fish habitat, including changes in habitat quality and quantity)
- change in risk of physical injury or mortality to fish (i.e., harm to fish by way of physical injury or mortality to freshwater or estuarine species), and
- change in fish health.

These potential changes could affect Aboriginal harvesting activities (e.g., fishing in lakes, rivers and streams) by affecting the number of individuals of harvested freshwater and estuarine fish species that are available to be harvested within Aboriginal Interests LSA #1 by Haisla Nation members.

As described in Section 5.5.2.4, potential effects on the Project on vegetation resources (including harvested species) are related primarily to the preparation of the site-specific infrastructure (which will result in a loss of vegetation resources). The following categories of effects on vegetation resources are assessed in the Application for LSA #1:

- change in abundance of plant species of interests (including TU species), and
- change in abundance or condition of ecological communities of interests.

These potential changes could affect Aboriginal harvesting activities (e.g., berry picking) by affecting the number of individuals of harvested TU vegetation species that are available to be harvested within Aboriginal Interests LSA #1 by Aboriginal Group members.

As described in Section 5.8.2.4, potential effects on marine resources are as follows:

- change in fish habitat
- harm (defined as physical injury or mortality) to fish or marine mammals
- change in fish health as a result of toxicity, and
- change in behaviour of fish or marine mammals due to pressure waves or underwater noise.

These potential changes could affect Haisla Nation harvesting activities (e.g., fishing for salmon, hunting for seal) by affecting the number of individuals of harvested marine species that are available to be harvested within Aboriginal Interests LSA #1 by Haisla Nation members.

14.13.2.4 Effects on the Experience of Traditional Harvesting

All Project phases could cause acoustic and visual quality disturbances that might potentially affect harvesting-related Aboriginal Interests (e.g., hunting, trapping, fishing, intertidal harvesting, vegetation gathering) by adversely affecting the experience of Aboriginal harvesters who use land and marine areas affected by Project activities. For example, Project-related noise at a preferred harvesting site may degrade the experience of Aboriginal harvesters, causing them to reduce or eliminate harvesting at affected locations.

14.13.3 Mitigation Measures

Measures to mitigate effects on harvesting-related Aboriginal Interests are adapted as needed from the assessment of relevant VCs from Part B and are summarized in this section. A complete list of mitigation measures for each VC is provided in Section 20 (Summary of Mitigation Measures) as well as in each relevant VC assessment section (Section 5.4: Acoustic Environment, Section 5.5: Vegetation Resources, Section 5.6: Wildlife Resources, Section 5.7: Freshwater and Estuarine Fish and Fish Habitat, Section 5.8: Marine Resources, Section 7.3: Visual Quality, Section 7.4: Marine Transportation and Use).

Key measures to mitigate potential adverse effects on harvested species are listed for each VC.

Key mitigation measures for potential effects of the LNG facility on vegetation resources (Section 5.5) are:

- The approved clearing boundaries will be clearly delineated (flagged) prior to site preparation to keep clearing activities within the designated Project footprint (Mitigation 5.5-1).
- An Invasive Plant Management Plan will be incorporated into the Project's EMP that will describe the control of invasive species. Where invasive species have been discovered on site, action will be implemented as soon as possible to eradicate them (Mitigation 5.5-6).

- Incorporate traditional use plants, where appropriate and technically feasible, in wetland compensation measures and reclamation of temporary construction areas (Mitigation 5.5-3).
- Any temporary workspace will be reclaimed as soon as practicable as per measures stated in the EMPs (Mitigation 5.5-4).
- Develop and implement a Wetland Compensation Plan to address loss of wetland habitat function for breeding and foraging terrestrial mammals, amphibians, and birds (Mitigation 5.5-10).

Key mitigation measures for potential effects of the LNG facility on wildlife resources (Section 5.6) are:

- Construction activities will account for applicable bird breeding periods:
 - end of March to mid-August for migratory birds (Environment Canada 2014b), and
 - January 1 through September 5 for raptors (BC MOE 2012).

Clearing activities that need to occur during bird breeding periods will incorporate measures to protect birds and their eggs as per federal and provincial regulations. These measures will be detailed in the Wildlife Management Plan (Mitigation 5.6-5).

- Clearly delineate (flag) vegetation clearing limits to avoid damage to important wildlife habitat features (e.g., large boulders, nurse logs, raptor nests, mammal dens, ungulate mineral licks) in the facility LSA but outside of the Project footprint or the areas of temporary construction disturbance. Major game trails will be cleared of equipment, brush piles, and felled trees to maintain their use as movement corridors for wildlife, where practicable (Mitigation 5.6-1).
- Wildlife movement through the estuary will be maintained during construction of the LNG loading line, where practicable (Mitigation 5.6-14).
- Design of the LNG loading line corridor will consider and incorporate, where practicable, ways to maintain tidal flow and wildlife passage (Mitigation 5.5-8).
- Protocols will be developed and implemented as outlined in a Wildlife Management Plan, including measures such as bear awareness to avoid or mitigate human-wildlife conflicts and injury to humans or wildlife (Mitigation 5.6-9).
- Waste will be managed according to an established Waste Management Plan onsite and in the workforce accommodation centre(s) or maintenance areas to reduce the potential to attract wildlife to the facility. Garbage and other waste should be temporarily stored onsite in bear-proof containers and disposed of at an approved facility (Mitigation 5.6-10).
- Develop and implement a Traffic Management Plan (Mitigation 5.4-6).

Key mitigation measures for potential effects on freshwater and estuarine fish and fish habitat (Section 5.7) are:

- A Fish Habitat Offsetting Plan will be developed and implemented to offset unavoidable permanent alteration or destruction of fish habitat from Project activities and works. The Plan will be developed in consultation with DFO, the Haisla Nation, and key stakeholders (Mitigation 5.7-8).
- To minimize impact to fish and fish habitat, instream works will occur within the relevant reduced risk work windows, where practicable. Where Project activities need to occur outside the reduced risk work windows, measures to protect fish and fish habitat will be developed in consultation with appropriate regulatory bodies including DFO. These measures will be detailed in the Fish Habitat Offsetting Plan (Mitigation 5.7-5).
- Measures to protect fish and fish habitat will be provided in various EMPs including a Fish Habitat Offsetting Plan, an Erosion and Sediment Control Plan, a Surface Water Management Plan, and a Wastewater Management Plan (Mitigation 5.7-6).
- If isolating freshwater habitats during instream works occurs, fish will be salvaged and relocated to unaffected habitats (Mitigation 5.7-3).
- To minimize potential sedimentation of watercourses, disturbed riparian areas will be reclaimed with appropriate vegetation cover, as soon as practicable after construction (Mitigation 5.7-2).

Key mitigation measures for Project potential effects on marine resources (Section 5.8) are:

- A Fish Habitat Offsetting Plan will be developed and implemented to offset unavoidable permanent alteration or destruction of fish habitat from Project activities and works. The Plan will be developed in consultation with DFO, Haisla Nation, and key stakeholders (Mitigation 5.7-8).
- If and where quay walls/slopes are required, use materials that promote post-construction colonization of marine algae and invertebrate communities (Mitigation 5.8-1).
- Develop and implement a Marine Activities Plan (MAP) in accordance with applicable federal and provincial legislation and regulations. The MAP will include measures to address potential effects from dredge activities, pile installation (including marine mammal exclusion zone, soft start procedures and consideration of sound dampening technologies) and shipping (Mitigation 5.8-2).
- Vessels arriving at the marine terminal will comply with legislation and regulations on the management of ballast water. LNG Canada may conduct random audits of vessel logs. No ballast will be discharged until compliance has been determined. Only clean ballast from segregated ballast tanks will be allowed to be discharged into the sea at the marine terminal. (Mitigation 5.8-5).

- A Disposal at Sea Permit will be obtained prior to any sediment disposal in the marine environment. A disposal site will be selected in consultation with Environment Canada, DFO, affected Aboriginal Groups, and key stakeholders (Mitigation 5.8-4).

Mitigation measures for potential effects on marine transportation and use (Section 7.4) are:

- Project-related marine traffic including LNG carriers will use the Coast Guard Marine Communication and Traffic System (MCTS) to provide notice of planned arrival time at Triple Island, and encourage Aboriginal Groups and stakeholders to use the system to plan their routing and scheduling (Mitigation 7.3-3).
- Provide input, with other industry and the municipal government, into the creation of a waterfront access space (that may include a public boat launch) for the community (Mitigation 7.4-5).

LNG Canada is committed to ongoing consultation with Aboriginal Groups, and will continue to consult and engage with communities with respect to their Aboriginal Interests, issues and concerns throughout the Application review phase and the life of the Project. As stated in the approved Aboriginal Consultation Plan, LNG Canada will work towards maintaining good, long term relationships through open dialogue about issues and concerns that arise during the construction and operation phases and work towards resolving any Project-related issues that may arise.

14.13.4 Characterization of Residual Effects on Haisla Nation Harvesting-Related Aboriginal Interests

14.13.4.1 Changes In, or Restrictions On, Preferred Harvesting Methods

14.13.4.1.1 Terrestrial Harvesting Methods

Construction of the LNG facility will result in the direct loss of terrestrial TU locations and access corridors if those locations are within the footprint area. An estimated 430 ha will be required by the Project footprint to accommodate the full build out of the LNG facility which will result in a direct and permanent loss of habitat for key species, or an alteration of habitat to early seral plant communities. Habitat loss is 41 ha of upland forest, 82 ha of wetland habitat and 144 ha of floodplain habitat (see Section 5.5, Table 5.5-5). Aboriginal harvesting activities would be affected through the direct loss of areas located within or near to the LNG facility footprint that are used for freshwater fishing, intertidal harvesting, hunting, trapping and vegetation gathering.

14.13.4.1.2 Marine Harvesting Methods

Construction, operation and decommissioning of the LNG facility would have minimal effects on navigation by Haisla Nation members within LSA #1 at the head of Kitimat Arm. Overall, the marine terminal will become smaller in area by 5.11 ha and width by 30 m. These changes would result in a smaller proportion of the navigable channel being occupied by the terminal relative to current conditions.

Transport Canada approved safety zones will extend from each berth to reduce the potential for incidents between LNG carriers and other vessels, especially during berthing, loading and un-berthing. Vessels that enter this area will be immediately advised to leave the zone for their own safety and the safety of the operation and if necessary escorted to a distance outside the safety zone by a harbour vessel. It is anticipated that because the safety zones are relatively small and located between the jetty and the wharf, an area that is avoided by the vast majority of non-commercial ships, that they will not impede marine navigation or harvesting by Haisla Nation members. LNG Canada understands that Haisla Nation do not collect shellfish or crab near to the terminal due to real or perceived chemical contamination in the estuary (Powell 2013) and most local residents (presumably including Haisla Nation members) avoid fishing near to the marine terminal due to the same concerns (Hummel and Langagger 2013, pers. comm.). Clam harvesting is closed at the head of the channel due to biotoxin and sanitary closures (DFO 2014b) and will not be affected by LNG facility activities and works.

14.13.4.2 Changes in Use and Access to Identified Valued Traditional Use Locations and Access Corridors

14.13.4.2.1 Terrestrial Traditional Use Locations and Access Corridors

Construction of the LNG facility will result in the direct loss of terrestrial TU locations and access corridors if they are located within the Project footprint. An estimated 430 ha will be required to accommodate the full build out of the LNG facility, which will result in a direct and permanent loss of habitat for key species, or an alteration of habitat to early seral plant communities. The clearing areas contain 65 ha of old-growth forest and 27 ha of marine habitat (Table 5.6-9). The largest loss of habitat will be on young deciduous forests (112 ha), followed by old-growth coniferous forest (62 ha), and young mixed wood stands (42 ha). Aboriginal traditional harvesting activities would be affected through the direct loss of areas located within or near to the LNG facility footprint that are used for freshwater fishing, intertidal harvesting, hunting, trapping and vegetation gathering.

Identified Haisla Nation harvesting locations that would experience physical interactions with the LNG facility and related infrastructure are shown in Table 14.13-3.

Table 14.13-3: Haisla Nation Harvesting Locations and Interactions with LNG Facility Infrastructure

Affected Haisla Nation Harvesting Locations	Targeted Species		Physical Components of Facility (X indicates predicted interaction)												
			Safety Zone	LNG loading line Corridor (Including Associated Infrastructure)	Potential Workforce Accommodation Access Road	LNG Processing and Storage Site	Bund	Water Supply System ROW	Temporary Construction ROW for Water Supply System Upgrades	Potential Workforce Accommodation Lands	Haul Road Widening	Marine Terminal	Dredging Area	Material Offloading/Laydown Area	Potential Tree Clearing
Hunting															
Yaksda wa'wais (Moore Creek and Anderson Creek watersheds)	Deer Grouse Moose Seals	Bear Ducks Geese Quail	X	X	X	X	X	X	X	X	X	X	X	X	X
Mouth of the Kitimat River estuary	Seal		X									X	X		
On flats between Anderson and Moore creeks	Black bear and grizzly bear Ducks		X	X								X	X		X
Flats around Kitimat River estuary more generally	Seal		X	X								X	X		X

Affected Haisla Nation Harvesting Locations	Targeted Species	Physical Components of Facility (X indicates predicted interaction)													
		Safety Zone	LNG loading line Corridor (Including Associated Infrastructure)	Potential Workforce Accommodation Access Road	LNG Processing and Storage Site	Bund	Water Supply System ROW	Temporary Construction ROW for Water Supply System Upgrades	Potential Workforce Accommodation Lands	Haul Road Widening	Marine Terminal	Dredging Area	Material Offloading/Laydown Area	Potential Tree Clearing	
Trapping															
<i>Yaksda wa'wais</i> (Moore Creek and Anderson Creek watersheds)	Marten Mink Fox Wolf Beaver	Fisher Otter Mink Weasel Muskrat	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Simgas and Zagwis wa'wais</i>	Marten Mink Fox Wolf														

Affected Haisla Nation Harvesting Locations	Targeted Species	Physical Components of Facility (X indicates predicted interaction)														
		Safety Zone	LNG loading line Corridor (Including Associated Infrastructure)	Potential Workforce Accommodation Access Road	LNG Processing and Storage Site	Bund	Water Supply System ROW	Temporary Construction ROW for Water Supply System Upgrades	Potential Workforce Accommodation Lands	Haul Road Widening	Marine Terminal	Dredging Area	Material Offloading/Laydown Area	Potential Tree Clearing		
Fishing																
Yaksda wa'wais (Moore Creek and Anderson Creek watersheds)	Coho salmon Spring salmon Pink salmon Chum salmon	Herring Herring roe Octopus Prawns	X	X		X	X					X	X	X		X
Kitimat Arm	Halibut Cod	Herring Shrimp Prawn	X									X	X			

Affected Haisla Nation Harvesting Locations	Targeted Species	Physical Components of Facility (X indicates predicted interaction)													
		Safety Zone	LNG loading line Corridor (Including Associated Infrastructure)	Potential Workforce Accommodation Access Road	LNG Processing and Storage Site	Bund	Water Supply System ROW	Temporary Construction ROW for Water Supply System Upgrades	Potential Workforce Accommodation Lands	Haul Road Widening	Marine Terminal	Dredging Area	Material Offloading/Laydown Area	Potential Tree Clearing	
Vegetation Harvesting															
Yaksda wa'wais (Moore Creek and Anderson Creek watersheds)	Blueberries Raspberries Red huckleberries Gooseberries Crab apples Large cedar Cedar bark Cedar withes Hemlock cambium Spruce root and gum Fireweed Cattails, Cow parsnip Wild rhubarb	Fern roots Clover roots Buttercup roots Wild rice Hellebore Alder bark Devil's club Rose hips Salmonberries	X	X	X	X	X	X	X	X	X	X	X	X	X

Source: Powell 2013, Powell 2011

14.13.4.2.2 Marine Traditional Use Locations and Access Corridors

See above Section 14.13.4.1 (b) Effects on Marine Harvesting Methods.

14.13.4.3 Changes in Harvested Species

14.13.4.3.1 Terrestrial Wildlife and Marine Birds

As described in Section 5.6, residual effects on terrestrial wildlife and marine birds would be local in extent, and with adherence to mitigation measures and best practices, the Project would potentially affect only a small number of individuals in wildlife populations in the region and would not adversely affect the sustainability of regional terrestrial wildlife and marine bird populations. While most predicted residual effects on terrestrial wildlife and marine birds in LSA #1 are considered to be low to moderate in magnitude, during the construction phase certain effects could be high in magnitude for a limited number of species that are harvested or otherwise valued by Haisla Nation members. For example, important habitats that provide suitable fall and spring feeding habitat for grizzly bears might be lost in the area covered by the LNG facility and the Kitimat River estuary, and fencing of the LNG loading line would interrupt wildlife passage and use of established movement corridors by grizzly bear and other wildlife species. Project-related loss of 66 ha of mature and old-growth forest has the potential to affect grizzly bear and Pacific marten (species that are harvested by Haisla Nation members). The loss of high suitability habitat for specific species is of concern; however, this loss should be mitigated by restricting clearing to approved areas and developing management plans as noted in section 5.6.6.2.

Acoustic emissions, artificial light and other human and equipment activities may cause sensory disturbance to culturally important wildlife species. Certain species, including grizzly bear are particularly sensitive to disturbance. This disturbance is predicted to result in disruption to wildlife movement and avoidance of disturbed areas. Avoidance would result in functional loss of habitat adjacent to the LNG facility, LNG loading and water lines, and the upgraded road.

14.13.4.3.2 Freshwater and Estuarine Fish

As described in detail in Section 5.7, habitat offsetting and mitigation measures would result in no net loss of productive capacity. Harm to fish by way of physical injury or mortality is not anticipated because all areas proposed for in-stream works would be isolated from fish, and any fish present will be removed before beginning in-stream works. Effects on eulachon and Pacific salmon habitat and access to fishing location are specifically considered in mitigation measures, in particular in design of the realignments of Beaver Creek and the Kitimat River side channel, and in the water withdrawal practices in Kitimat River.

The residual effect will occur in the Project footprint only and freshwater and estuarine fish and fish habitat have a high degree of resilience in this regard, given the current state of the coho salmon

population in the freshwater system and despite a considerable amount of previous disturbance from adjacent industrial developments. The residual effect will occur during multiple irregular fish salvage events, but the number of individual fish potentially affected will be low and will not affect the sustainability of fish populations. The confidence level for predictions in the assessment of residual effects on freshwater fish and fish habitat is high. For these reasons, the magnitude of residual effects on fish harvesting as a result of changes to freshwater and estuarine fish is low.

14.13.4.3.3 Marine Resources

With implementation of mitigation and offsetting measures, residual effects on marine resources are not predicted to affect the viability of marine fish and mammal populations, or to cause harm to species listed as *endangered* or *threatened* under the SARA. With implementation of the offsetting plan, there would be no net loss in total area or productive capacity of marine fish habitat in the marine resources RSA for the LNG facility. Mitigation measures will reduce effects on fish habitat, fish health, and behaviour of fish and marine mammals, and will reduce the risk of harm to fish and marine mammals.

Overall, residual effects on marine resources attributable to the LNG facility are negligible to moderate in magnitude, short to long term in duration, and to extend into the facility marine resources RSA, depending on the effect. Project-related changes in fish habitat, fish health, and behaviour of fish and marine mammals because of underwater noise or pressure waves would be reversible. While harm to fish and marine mammals would be irreversible at the individual level, it would be reversible at the population level. Residual effects on marine resources from the LNG facility are predicted to be not significant.

Confidence in predicting effects of physical harm and changes in behaviour varies based on the effect and the potential species affected. Confidence in the prediction of effects on behaviour for most marine mammal species (e.g., seals, sea lions) is moderate. However, confidence in the prediction of effects on behaviour is low for killer whales (which are not harvested by Aboriginal Groups). Disruptions in behaviour and subsequent effects on marine mammal populations have not been well researched, particularly in terms of underwater noise from shipping.

Project activities and physical works would result in residual harm to a limited number of individuals of fish species that support, or are targeted by Aboriginal food, social and ceremonial fisheries. However, any harm to Aboriginal fishery species would not be sufficient to affect population viability.

For these reasons, LNG Canada predicts that residual effects on the harvesting of marine resources as a result of changes to marine resources will be low in magnitude.

14.13.4.3.4 Vegetation Resources

Clearing of vegetation during the construction phase will result in the removal of 20 TU plant species in the Project footprint. But, these TU plants are not limited to habitat in the terrestrial LSA; they have an equal or greater abundance and are common species throughout the terrestrial RSA. Therefore, losses of TU plant species that are in the Project footprint are not anticipated to affect the viability of the species occurring in the terrestrial RSA. Thus, the magnitude of the residual effects on TU plants is rated as low due to the prevalence of the species throughout the region. The duration is permanent because decommissioning will revert the land to secondary industrial use and may not entail revegetation. The removal of these plants occurs in a single event, during construction, and, in the absence of reclamation, the residual effect is irreversible. TU plants have moderate to high resilience to stress in the terrestrial LSA and the majority of these plants are found widely dispersed throughout the terrestrial LSA and RSA. Likelihood is high that reduced abundance of TU plants will occur in the terrestrial LSA and RSA due to the removal of these plants from the Project footprint.

Overall, with the implementation of mitigation measures, residual effects on vegetation resources within LSA #1 would likely be moderate in nature. Affected TU plants would remain abundant and would continue to be found extensively throughout Haisla Nation territory. Traditional users who use exclusive or preferred harvesting areas within the Project footprint would experience a high level of interference during operations, as the Project footprint will be fenced and will therefore restrict access to harvesting locations.

As described in detail in Section 9.2.4.1, emissions from the LNG facility will not accumulate in the tissues of TU vegetation. The quality and safety of traditional foods and medicines will not be affected by emissions from the LNG facility. No added health risk is predicted for consumers of TU vegetation.

14.13.4.4 Qualitative Changes to the Experience of Traditional Harvesting

14.13.4.4.1 Visual quality

About 50% of the Visual Quality LSA (an area contained within LSA #1) will have a potential view of the LNG facility. The facility would be most visible to residents in Kitimaat Village, mariners and tourists in Kitimat Arm, and recreation users along the eastern and western shores of Kitimat Arm. Overall, the residual adverse effects from the LNG facility on visual quality will be minor because the setting already has an average of “maximum modification disturbance,” meaning that current human alteration is easy to see, is large in scale, and/or rectilinear and geometric in shape, and results in more than 20% modification. Overall, the residual effects of the LNG facility on visual quality will be minor because the recreational setting already has an average of maximum modification disturbance.

14.13.4.4.2 Acoustics

As described in Section 5.4, during the operations and construction phases for the LNG facility, sound levels in the area of overlap between LSA #1 and the acoustics LSA (3.5 km around the facility where a number of identified Haisla Nation TU sites are located) are expected to increase when compared to the existing acoustic environment. However, the magnitude of those changes for all receptors (including Haisla Nation traditional users) is rated as low and there will be negligible to little effect. During construction, noise effects will be lower or equal to Health Canada criteria. During operation, noise from the Project will be barely perceptible at all receptors (including at Haisla Nation TU sites) within the acoustics LSA and will not exceed the baseline sound level by more than 3 dB. For receptors greater than 5 km from the LNG facility and marine terminal, noise effects from construction and operation activities will attenuate to a level well below the threshold of human hearing perception.

14.13.5 Conclusions

Based on the analysis set out in detail above, the residual effects on Haisla Nation harvesting-related Aboriginal Interests attributable to the Project are predicted to be low to moderate in magnitude. The majority of effects on Haisla Nation Aboriginal Interests will be confined to the Project footprint area, with certain effects extending out to the boundaries of LSA #1. Given the residual effects on harvesting methods, TU locations, harvested species and qualitative changes to the experience of harvesting described above, it is likely that the duration of those changes will range from short to long term. Some effects will be single events while the majority will be relatively continuous. The majority of residual effects will be reversible, except for residual effects on harvested TU vegetation within the Project footprint area, which are considered permanent. Based on the conclusions regarding likelihood for effects on harvested species and effects on the experience of harvesting, the likelihood for predicted residual effects is considered high.

14.13.6 Prediction Confidence and Risk

Confidence in the prediction of residual adverse effects on harvesting-related Aboriginal Interests is rated as moderate to high. LNG Canada has a high level of confidence regarding its determination of residual effects on terrestrial wildlife and marine birds and effects on freshwater and estuarine fish species. The quality and quantity of available scientific information on fish species and habitats, effectiveness of mitigation, and understanding of Project mechanisms are sufficient to have a high level of confidence in predictions for both Project residual effects and cumulative effects. For marine mammals, there is moderate confidence in the prediction of effects on behaviour for most marine mammal species (including harvested species such as seal and sea lion) associated with shipping activities. LNG Canada has a

moderate level of confidence in the prediction of Project residual effects and cumulative effects on visual quality and acoustics.

The primary risks are:

- there are Haisla Nation harvesting activities that are unique to the Project footprint area that LNG Canada is currently unaware of
- the Project footprint area is much more important for Haisla Nation traditional harvesting than LNG Canada is aware of, or
- LNG Canada has overestimated the available supply of alternative harvesting locations outside the Project footprint area.

Project specific Traditional Use studies have identified no such unique interests or concerns. Since LNG Canada's confidence in its prediction of residual effects is not low, no additional risk analysis has been conducted.

14.13.7 Degree of Residual Adverse Effect

Consistent with the AIR, a determination of significance of residual adverse effects is not provided. This recognizes the unique nature of Aboriginal Interests and the potential inappropriateness of determining whether any effects on a protected Aboriginal Interest is "significant" or "not significant." Instead, conclusions are provided regarding whether the predicted residual effects may interfere with the exercise of Aboriginal Interests and the predicted level of seriousness of that interference.

Given the residual adverse effects described above, LNG Canada concludes that the Project will have a low to moderate level of interference with Haisla Nation harvesting-related Aboriginal Interests within LSA #1; however, there will be a high level of interference with potential Haisla Nation harvesting-related Aboriginal Interests within the Project footprint during operations as a result of restricted access. Project-related limitations on Haisla Nation harvesting activities may impose some added burden on Haisla Nation members because certain TU areas will no longer be available for use. However, it is unlikely that it would result in undue hardship given the existing industrial nature of the Project footprint, the current level of human activity and disturbance within those areas that would be most affected by the LNG facility, and the remaining availability of other potential harvesting areas immediately surrounding the Project footprint that would remain largely unaffected by the LNG facility. Residual effects will not deny Haisla Nation members their preferred means of exercising their harvesting rights.

Table 14.13-4 lists LNG Canada's conclusions regarding the predicted degree of interference with harvesting-related Aboriginal Interests because of the LNG facility.

Table 14.13-4: Degree of Interference on Harvesting-related Aboriginal Interests¹

	Limitation on Aboriginal Interest would impose “undue” hardship	Limitation would deny rights-holder preferred means of exercising Aboriginal Interest	Limitation would interfere with Aboriginal Interest in “more than insignificant or trivial” way	Level of Predicted Interference
Harvesting-related Aboriginal Interests	No	No	Yes	Low to Moderate except in fenced project footprint which will be high

NOTES:

¹ Language adapted from *William v. British Columbia*, 2012 BCCA 285 (CanLII)

14.14 Assessment of Changes in Traditional Harvesting in LSA #2

14.14.1 Baseline Information

14.14.1.1 Past Use of LSA #2

For information on past use of LSA #2, see the general discussion in 14.13.1.1.

14.14.1.2 Current Use of LSA #2

14.14.1.2.1 Haisla Nation

Haisla Nation members report that they hunt, trap, fish and gather vegetation and use cabins and campsites for those purposes throughout Aboriginal Interests LSA #2, including in the *Yaksda wa’wais* (Moore Creek and Anderson Creek watersheds), in the *Simgas* and *Zagwis wa’wais*, and along Kitimat Arm (Haisla Nation 2013; Powell 2013). Table 14.14-1 summarizes information on current harvesting by Haisla Nation members within LSA #2.

Table 14.14-1: Haisla Nation Harvesting Activity in LSA #2

Use Category	Targeted Species	Identified Use Locations
Hunting	Seal	The mouth of the Kitimat River estuary; the flats around the Kitimat River estuary; Minette Bay from the east shoreline; Coste Rocks (off the southeast corner of Coste Island [Louis Point]), the rock reef in Emsley Cove
	Deer	Throughout their territory; specific identified locations are around Kitamaat Village; active or decommissioned logging roads; Coste Island
	Moose	Throughout their territory; specific identified location around Kitamaat Village and active or decommissioned logging roads
	Black bear and grizzly bear	Throughout Aboriginal Interests LSA #2; specific identified location around Kitamaat Village and active or decommissioned logging roads; flats between Anderson and Moore creeks; various locations along the marine access route

Use Category	Targeted Species	Identified Use Locations
	Duck	Usually hunted in saltwater before they group to move to lakes and inland areas during the winter; specific locations are flats between Anderson and Moore creeks; various locations along the shipping lanes
	Canada goose	Reported for <i>Yaksda wa'wais</i> and along the shipping lanes; specific locations are higher elevations before they learn to fly
	Quail	Reported for <i>Yaksda wa'wais</i> and along the shipping lanes
Fishing	Salmon Halibut and cod	In parts of Aboriginal Interests LSA #2; specific location along Kitimat Arm
	Herring	Parts of Aboriginal Interests LSA #2; specific locations in Kitimat Arm
	Shrimps and prawns	Parts of Aboriginal Interests LSA #1, parts of Aboriginal Interests LSA #2 and Aboriginal Interests LSA #3; specific location along Kitimat Arm
	Salmon	Throughout Aboriginal Interests LSA #2; reported in <i>C'imoca and Wohlstu</i> , <i>Yaksda</i> , and <i>Simgas and Zagwis wa'wais</i> . Major spawning streams are Kitimat River and its tributaries, streams along Douglas and Principe channels,
	Trout	Rivers along Kitimat Arm, and the Douglas Channel
Marine harvesting	Shellfish,	Throughout coastal areas of LSA #2
Trapping	beaver, marten, fisher, land otter, mink, weasel, and muskrat other small fur-bearing animal	Throughout LSA #2; specific locations along Kitimat Arm Trapping cabins located in LSA #2, but none reported near the LNG Canada development
Vegetation gathering	Terrestrial food harvesting includes berries, crab-apples, wild rice, various tubers, and roots	Throughout LSA #2. No specific recorded locations are available
	Marine food harvesting includes seaweed, kelp	Throughout marine/coastal areas of LSA #2
	Food harvesting - medicine and material	Throughout Aboriginal Interests LSA #2

NOTES:

NS = None Specified – specific use and/or targeted species has not been identified by a particular Aboriginal Group

Sources: Powell 2011, Powell 2013

14.14.1.2.2 Gitga’at First Nation

Gitga’at First Nation members currently exercise harvesting-related Aboriginal Interests within their traditional territory, including in areas of that territory that overlap with LSA #2 (GFN 2013b). Gitga’at First Nation has stated that the majority of Gitga’at First Nation households actively engage in traditional harvesting activities and that over 40% of meals are traditionally sourced. Gitga’at First Nation has also stated that marine foods are critically important to the Gitga’at First Nation cultural practice of feasting (GFN 2013b).

Table 14.14-2 summarizes available information on current use by Gitga’at First Nation within Aboriginal LSA #2.

Table 14.14-2: Gitga’at First Nation Harvesting in LSA #2

Use Category	Targeted Species	Identified Use Locations in LSA #2
Hunting	Deer	Throughout territory
	Moose	Throughout territory
	Bear	Throughout territory
Trapping	Small fur-bearing animals (including beaver, marten, fisher, land otter, mink, weasel, and muskrat)	Specific locations along Kitimat Arm

Source: Satterfield et al. 2012; Gitga’at First Nation 2013b

14.14.1.2.3 Kitselas First Nation

Kitselas First Nation members use their traditional territory and traditional harvesting areas to hunt, fish, trap, and plant, gather for social, economic, subsistence and cultural purposes. Kitselas First Nation members fish, hunt for ungulates, mountain goats and bear in the upper Kitimat River valley and its tributaries (Berthiaume 1999). They fish in the Clore River valley, and hunt ungulates and bear in the Lower Kitimat, parts of the Big and Little Wedeene valleys, and in the Clore River valley (BCEAO 2008). Kitselas First Nation members actively trap near the Kitimat River and its tributaries, and their trapline cabins are located on north Kitimat River, upper Kitimat River, and in the valleys of Chist Creek and Bolton Creek. Most trapping of fur-bearing animals takes place within 50 m of roads, in treed areas bordering rivers and streams (BCEAO 2008). Kitselas First Nation members also gather forest plants and berries in the Upper Kitimat River and tributary valleys, typically at lower elevations adjacent to marshes, lakes, streams, and rivers (BCEAO 2008).

Table 14.14-3 summarizes information on current use by the Kitselas First Nation in LSA #2

Table 14.14-3: Kitselas First Nation Harvesting in LSA #2

Use Category	Targeted Species	Identified Use Locations
Vegetation harvesting	berries, crab-apples, wild rice, various tubers, and roots	Along the Kitimat River from McCay Creek to the valley west of Mount Davies Areas adjacent to roadways in upper Kitimat River valley Davies Creek Valley McKay Creek Valley
	Medicine and technology	Areas adjacent to roadways in upper Kitimat River valley
Hunting	Mountain goat	Upper Chist Creek, and around Bolton, Hunter, and Hoult creeks
	Deer	Upper Kitimat River and tributaries (i.e., Wedeene River, and Davies, Hoult, Hunter, Chist, McKay, and Bolton creeks)
	Moose	Upper Kitimat River and tributaries (i.e., Wedeene River, and Davies, Hoult, Hunter, Chist, McKay, and Bolton creeks)
	Black bear	Specific locations are the Little Wedeene and Wedeene River valleys, south of Lakelse Lake to Kitimat River
	Duck	Upper Kitimat River and tributaries, in similar areas frequented by water animals
	Geese	Upper Kitimat River and tributaries, in similar areas frequented by water animals
Fishing	Salmon	Throughout Aboriginal Interests LSA #2; specific locations are Kitimat River and tributaries, and areas adjacent to the Kitselas First Nation communities
	Trout	Throughout the Aboriginal Interests LSA #2; specific locations are Kitimat River and tributaries, and areas adjacent to Kitselas First Nation communities
Trapping	Small fur-bearing animals including beaver, marten, fisher, mink, weasel, and muskrat.	Throughout Aboriginal Interests LSA #2; specific sites are along Kitimat River from McKray Creek to the valley west of Mount Davies, and the valleys along Chist, McKray, and Davies creeks
Vegetation gathering	Food harvesting - terrestrial	Throughout Aboriginal Interests LSA #2; specific sites are along Kitimat River from McKray Creek to the valley west of Mount Davies, the valleys along Chist, McKray, and Davies creeks, and areas adjacent to roadways in upper Kitimat River valley
	Food harvesting- medicine and materials	Throughout Aboriginal Interests LSA #2; specific sites are areas adjacent to roadways in upper Kitimat River valley

Source: Berthiaume (1999); Kitsault Mine Project (2011); Kitselas Band Council n.d.

14.14.1.2.4 Kitsumkalum First Nation

Kitsumkalum First Nation members exercise their Aboriginal Interests within their traditional territory and Kitsumkalum First Nation states that its members have used, occupied, governed, and exercised exclusive ownership of Kitsumkalum First Nation traditional territory “from time immemorial” (Kitsumkalum First Nation and the Province of British Columbia 2011, 2013).

Table 14.14-4 summarizes information on current use by the Kitsumkalum First Nation in Aboriginal Interests LSA #2.

Table 14.14-4: Kitsumkalum First Nation Harvesting in LSA #2

Use Category	Species	Identified Use Locations
Hunting	Mountain sheep	Specific locations are Kitsumkalum River and tributaries
	Deer	Kitsumkalum River and tributaries
	Black bear	Kitsumkalum River and tributaries
Fishing	Salmon	Kitsumkalum River and tributaries
	Trout	Specific locations are Kitsumkalum River and tributaries
	Whitefish, sturgeon, suckers, chubs, and Kokanee salmon	Throughout freshwater areas
Trapping	Small fur-bearing animals (Includes beaver, marten, fisher, mink, weasel, and muskrat)	Specific locations are Kitsumkalum River and tributaries

Source: Mcdonald (2003); Kitsumkalum Band (2012), Crossroads (2014)

14.14.1.2.5 Lax Kw’alaams First Nation

In 2008, EAO issued its KSL Project Assessment Report, which concluded that certain Houses of Lax Kw’alaams historically used lands around the Big and Little Wedeene rivers (where they enter the Kitimat Valley) as part of their subsistence and cultural activities (BCEAO 2008). BCEAO stated that it was therefore “prudent” to assume that Lax Kw’alaams First Nation had a strong prima facie claim to Aboriginal rights to hunt, fish, trap, and gather plants for food, social, and ceremonial purposes around Lakelse Lake and River area, and around the Big and Little Wedeene rivers area (BCEAO 2008).

Lax Kw’alaams First Nation has stated that culturally modified trees (CMTs) are present in the Big and Little Wedeene valleys and in high concentrations at the mouth of the Lakelse River (Lax Kw’alaams 2010). In their *Land and Marine Resources Plan*, Lax Kw’alaams First Nation (2004) claims an “ongoing right to harvest forest resources for both cultural and economic purposes arising both from aboriginal title, and from the modern exercise of traditional harvesting as an aboriginal right.” The Lakelse Lake (*Klaxghels*) “Special Management Area” contains important forest harvesting sites, heritage resources,

berry gathering areas, hunting and trapping areas, and fresh water fishing sites (Lax Kw'alaams 2004). For more information on these management areas, see Section 13.1.7.4).

Table 14.14-5 summarizes information on current harvesting activity by Lax Kw'alaams First Nation members within that area.

Table 14.14-5: Lax Kw'alaams First Nation Harvesting in LSA #2

Use Category	Species	Identified Use Locations
Hunting	Grizzly bear, black bear	Specific location in Aboriginal Interests LSA #2 is Lakelse Lake
	Mallard duck, geese, swan, grouse	Specific location in Aboriginal Interests LSA #2 is Lakelse Lake,
	Moose	Specific location in Aboriginal Interests LSA #2 is Lakelse Lake
	Mountain goat	Specific location in Aboriginal Interests LSA #2 is Lakelse Lake
Fishing	Salmon - all species	Specific location in Aboriginal Interests LSA #2 is Lakelse Lake
	Trout	Specific location in Aboriginal Interests LSA #2 is Lakelse Lake
Vegetation gathering	Various tree species(spruce root, red-cedar bark, yellow-cedar, and alder)	In the Little and Big Wedeene valleys
	Various berries (salal berries, creeping raspberries, saskatoon berries, bunch berries, and others)	Lakelse Lake
	Various species (Pacific yew, devil's club, hellebore, and stinging nettle)	In the Little and Big Wedeene valleys

Sources: Lax Kw'alaams (2004); Seguin Anderson (2006); BCEAO (2009)

14.14.1.2.6 Metlakatla First Nation

Metlakatla First Nation exercises harvesting-related Aboriginal Interests within its asserted traditional territory, including within sections of LSA #2 (Metlakatla First Nation and the Province of British Columbia 2006). Metlakatla First Nation members have a strong connection to the resources found throughout their traditional territory. As an example of this close contact, they use *Sm'algyax* names to detail each month according to their seasonal use. For example, the terms for March and April translate to "Eulachon First Run" and "Time for Seaweed," respectively (Metlakatla Fisheries 2013).

Table 14.14-6 summarizes information on current use by Metlakatla First Nation in LSA # 2.

Table 14.14-6: Metlakatla First Nation Harvesting in LSA #2

Use Category	Species	Identified Use Locations
Hunting	Ungulates (general)	In and around the Lakelse watershed
	Mountain goat	Around the Skeena River valley and tributaries
Hunting	Geese	No specific locations given, but previously Metlakatla have indicated interest in the Lakelse watershed
Trapping	Small fur-bearing animals	In and around the Lakelse watershed

Source: Metlakatla First Nation (2011); Metlakatla First Nation (2014a and 2014b)

14.14.1.3 Future Use of LSA #2

LNG Canada has limited information on anticipated future use at the time of writing. Haisla Nation has indicated it is considering using the eulachon run on the Kitimat River, especially around Kitimaat Village, which was “historically the best place to catch eulachon in the Kitimat River” (Gordon et al. n.d.: 18). Metlakatla First Nation’s Draft Marine Use Plan (2014b) outlines the need to increase the amount of harvested traditional foods, specifically crab and salmon, and has developed management goals for specific areas. They note the following:

The importance of the continued consumption of traditionally harvested marine foods has been reflected in a Community Needs study which demonstrated that Metlakatla First Nation members are not getting access to the range or amount of traditional foods they once enjoyed and would prefer to be eating. Metlakatla First Nation is committed to food security for our community that is safe, culturally acceptable and nutritionally adequate (Metlakatla First Nation 2014b).

LNG Canada acknowledges that predicting future use is complex, and a number of interrelated and sometimes subtle factors may influence future use patterns, including demographic, economic, and cultural shifts in Aboriginal communities; the effect of increased development in the region; and wider economic and population changes throughout the central coast region. However, LNG Canada has conservatively anticipated that Aboriginal harvesting and non-harvesting use of the three Aboriginal Interests LSAs would likely continue at or near current levels into the future.

14.14.1.4 Baseline for Harvested Vegetation Species in LSA #2

Baseline information for harvested vegetation in LSA #2 is similar to that for LSA #1. See detailed baseline information for traditionally harvested vegetation resources in LSA #1, LSA #2 and the Vegetation Resources LSA and RSA.

14.14.1.5 Baseline for Air Quality in LSA #2

Please see detailed baseline information in Section 5.2.3.2.

14.14.1.6 Baseline for Surface Water Quality in LSA #2

Please see Section 5.9.3 for detailed baseline information for surface water quality within LSA #2.

14.14.2 Project Effects Mechanisms

In the construction phase (six years), air emissions from activities such as site preparation, onshore construction, dredging, and marine construction will result in increases in the overall level of air emissions. During the operations phase (minimum of 25 years), air emissions from the LNG facility, marine terminal, shipping (between Kitamaat Village and marine terminal), docking and hotelling of the LNG carriers will result in increases in the overall level of air emissions. These air emissions could result in residual adverse effects on harvesting-related Aboriginal Interests within LSA #2 through:

- adverse effects on harvested vegetation species
- adverse effects on surface water quality, and
- adverse effects on the health of Aboriginal traditional harvesters.

14.14.3 Mitigation Measures

Measures to mitigate effects on harvesting-related Aboriginal Interests are adapted as needed from the assessment of relevant VCs from Part B and are summarized in this section. A complete list of mitigation measures for each VC is provided in Section 20 (Summary of Mitigation Measures) as well as in each VC relevant assessment section (Section 5.2, Air Quality; Section 5.5, Vegetation Resources).

Key mitigation measures to reduce potential effects on community health and wellbeing related to perceived effects on harvesting related Aboriginal Interests are:

- Inform the local community and Aboriginal Groups of changes in access to the Project footprint and marine environment potentially affecting access to country foods (Mitigation 7.5-8).
- Provide Project information to the local community and Aboriginal Groups and hold information sessions to facilitate ongoing discussion to resolve concerns (Mitigation 7.5-9).

LNG Canada is committed to ongoing consultation with Aboriginal Groups and will continue to consult and engage with communities with respect to their Aboriginal Interests, issues and concerns throughout the Application review phase and the life of the Project. As stated in the approved Aboriginal Consultation Plan, LNG Canada will work towards maintaining good, long term relationships through open dialogue about issues and concerns that arise during the construction and operation phases and work towards resolving Project related issues that may arise.

14.14.4 Characterization of Residual Effects on Harvesting-Related Aboriginal Interests

14.14.4.1 Harvested Vegetation Species

As described in detail in Section 5.5.6, the construction and operation may result in low magnitude changes in native vegetation health and diversity due to air emissions effects of sulphur dioxide fumigation, nitrogen deposition and acid deposition. As described in Section 5.5.5.3.6 vegetation communities potentially affected by air emissions from the LNG facility will continue to persist within LSA #2, although their growth rate or vigor may be reduced within the areas where critical loads for sulphur dioxide, nitrogen, sulphate and acid are exceeded during the period of operation. In addition, rare occurrence of vegetation damage from emissions at baseline is possible. For these reasons, low magnitude adverse effects on traditional harvesting-related Aboriginal Interests will result from the interaction between Project emissions and harvested vegetation species.

14.14.4.2 Surface Water Quality

Overall, residual effects are expected to be low to moderate in magnitude and long-term in duration. Project contributions to acidification or eutrophication effects are considered to be reversible after Project emissions cease. Residual effects from air emissions on harvested freshwater fish and harvesting Aboriginal Interests associated with freshwater fishing would likely be negligible to low in magnitude.

14.14.4.3 Health of Aboriginal Traditional Harvesters

With regard to direct inhalation exposures of LNG facility emissions (e.g., SO₂) by Aboriginal traditional users at terrestrial TU locations and access corridors within LSA #2, Project-related effects are rated as not significant for the assessed areas. Predicted human health effects of direct inhalation exposure would be even lower (from a human health perspective) for individuals (including Aboriginal traditional users) who frequent areas outside of the immediate Kitimat area. In addition, as described in detail in Section 9.2.4.1, emissions from the LNG facility will not accumulate in the tissues of harvested species. The quality and safety of traditional foods and medicines will not be affected by emissions from the LNG facility. No added health risk is predicted for consumers of harvested species.

14.14.5 Conclusions

Construction and operation may result in low magnitude changes in native vegetation health and diversity. Residual effects on surface water quality due to Project emissions are expected to be low to moderate in magnitude. Negligible effects on the health of traditional harvesters are predicted. Based on these results, the residual effects on harvesting-related Aboriginal Interests attributable to emissions from the LNG facility are predicted to be low to moderate in magnitude. Predicted residual effects may extend

throughout LSA #2. Given the residual effects on harvested vegetation, surface water quality, and the health of Aboriginal traditional harvesters described above, it is likely that the duration of those changes will last for the life of the Project. The majority of residual effects would be relatively continuous and reversible. Based on the conclusions regarding likelihood for effects on harvested species and effects on the experience of harvesting, the likelihood for predicted residual effects is considered high.

14.14.6 Prediction Confidence and Risk

Confidence in the prediction of residual adverse effects on harvesting-related Aboriginal Interests is rated as moderate. As described in Section 5.5.8, LNG Canada's conclusions with respect to the effect of change in native vegetation health and diversity (including TU plants) from sulphur dioxide fumigation, nitrogen deposition, sulphate, and acid deposition is low. However, there is a high degree of confidence that Project residual effects and cumulative effects on surface water quality will be not significant. In addition, the quality and quantity of available scientific information on the air quality modelling predictions are sufficient to have a high level of confidence in predictions for both Project residual effects and cumulative effects on air quality in the Kitimat air shed. Since LNG Canada's confidence in its prediction of residual effects is not low, no additional risk analysis has been conducted.

14.14.7 Degree of Residual Adverse Effect

Consistent with the AIR, a determination of significance of residual adverse effects is not provided. This recognizes the unique nature of Aboriginal Interests and the potential inappropriateness of determining whether any effects on a protected Aboriginal Interest is "significant" or "not significant." Instead, conclusions are provided regarding whether the predicted residual effects may interfere with the exercise of Aboriginal Interests and the predicted level of seriousness of that interference.

Based on the residual effects described above, LNG Canada concludes there will be a low to moderate level of interference with Haisla Nation harvesting-related Aboriginal Interests within LSA #2 as a result of LNG facility emissions and a low degree of interference for the other potentially affected Aboriginal groups who harvest within LSA #2 (Kitselas First Nation, Kitsumkalum First Nation, Lax Kw'alaams First Nation, Metlakatla First Nation and Gitga'at First Nation).

Residual effects associated with LNG facility emissions will not place an added burden on Aboriginal traditional harvesters within LSA #2 or result in undue hardship. LNG facility emissions-related residual effects within Aboriginal Interests LSA #2 will not deny Aboriginal Group members (Haisla Nation and other Aboriginal Groups) their preferred means of exercising their harvesting rights.

Table 14.14-7 lists LNG Canada's conclusions regarding the predicted degree of interference with harvesting-related Aboriginal Interests associated with LNG facility air emissions.

Table 14.14-7: Degree of Interference on Harvesting-Related Aboriginal Interests¹

	Limitation on Aboriginal Interest would impose “undue” hardship	Limitation would deny rights-holder preferred means of exercising Aboriginal Interest	Limitation would interfere with Aboriginal Interest in “more than insignificant or trivial” way	Level of Predicted Interference
Harvesting-related Aboriginal Interests	No	No	Yes	Low to moderate (Haisla Nation) Low (Non-Haisla Nation Aboriginal Groups)

NOTES:

¹ Language adapted from *William v. British Columbia*, 2012 BCCA 285 (CanLII)

14.15 Assessment of Changes in Traditional Harvesting in LSA #3

14.15.1 Baseline Information

14.15.1.1 Past Use of LSA #3

For information on past use of LSA #3, see the general discussion in Section 14.13.1.1.

14.15.1.2 Current Use of LSA #3

14.15.1.2.1 Overview

Aboriginal Groups hunt in both terrestrial and marine areas within LSA #3 and trap in terrestrial areas within the Aboriginal Interests LSA #3. They maintain a strong connection to the ocean and fishing as a central part of their cultural and societies. Gitga’at First Nation, Gitxaala Nation, Kitsumkalum First Nation, Metlakatla First Nation, Lax Kw’alaams First Nation, and Kitselas First Nation members actively fish in lakes, rivers and streams and marine areas within Aboriginal Interests LSA #3. In addition, marine resources currently harvested include seaweed and kelp, which are gathered by Haisla Nation along the outer coastline of Douglas Channel (Powell 2013) and by Gitga’at First Nation and Gitxaala Nation throughout the marine access route. Specific harvesting areas are the waters around Goschen Island, Principe Channel, and Otter Channel (Satterfield et al 2012; Calliou 2014c). Gitxaala also collect seagull eggs in Otter Passage, Calamity Bay, Otter Channel, and Mink Trap Bay (Calliou 2014c). Kitsumkalum, Kitselas, Metlakatla and Lax Kw’alaams First Nations practice similar marine harvesting activities in the waters of Chatham Sound, including locations around Stephens Island, Melville Island, and Triple Island (DMC 2014, Crossroads 2014, Kitselas First Nation n.d.).

The marine access route crosses through the traditional territories of:

- Haisla Nation
- Gitga'at First Nation
- Gitxaala Nation
- Kitselas First Nation
- Kitsumkalum First Nation
- Lax Kw'alaams First Nation, and
- Metlakatla First Nation.

Gitxaala Nation reports that its members harvesting activities include a variety of marine resources: Pacific herring and herring roe on kelp, halibut, black cod (sablefish), ling cod, rock cod and snapper, salmonids; and invertebrates such as crab, prawns/shrimp, clams, cockles, mussels, chitons, northern abalone, sea cucumbers, urchins, and octopus. Eulachon is not currently fished within their territory (Calliou Group 2014, Powell 2013).

14.15.1.2.2 Haisla Nation Current Use and Harvesting-Related Aboriginal Interests in LSA #3

Haisla Nation asserts that its members have an Aboriginal right to take part in traditional harvesting activities (and has documented that its members currently exercise these asserted Aboriginal Interests) within Aboriginal Interests LSA #3 (Haisla Nation 2013), such as:

- hunting
- trapping
- fishing (marine and freshwater)
- gathering vegetation and cutting trees, and
- use of cabins and campsites for harvesting purposes (Haisla Nation 2013; Powell 2013).

Haisla Nation members currently exercise their harvesting-related Aboriginal Interests in areas located in Aboriginal Interests LSA #3 (Haisla Nation 2013). Table 14.15-1 summarizes information on current use by the Haisla Nation in the Aboriginal Interests LSA #3.

Table 14.15-1: Haisla Nation Harvesting in LSA #3

Use Category	Targeted Species	Identified Use Locations
Hunting	Seal	The mouth of the Kitimat River estuary; the flats around the Kitimat River estuary; Minette Bay from the east shoreline; Coste Rocks (off the southeast corner of Coste Island [Louis Point]), the rock reef in Emsley Cove
	Deer	Throughout their territory; specific identified locations are around Kitamaat Village; active or decommissioned logging roads; Maitland Island, Loretta Island, Coste Island, and Rix Island specifically for "island deer" herds
	Moose	Throughout their territory; specific identified location around Kitamaat Village and active or decommissioned logging roads
	Black bear and grizzly bear	Throughout terrestrial areas within Aboriginal Interests LSA #3 ; specific identified location around Kitamaat Village and active or decommissioned logging roads; flats between Anderson and Moore creeks; various locations along the marine access route
	Duck	Usually hunted in saltwater before they group to move to lakes and inland areas during the winter; specific locations are flats between Anderson and Moore creeks; various locations along the shipping lanes
	Canada goose	Reported for <i>Yaksda wa'wais</i> and along the shipping lanes; specific locations are higher elevations before they learn to fly
	Quail	Reported for <i>Yaksda wa'wais</i> and along the shipping lanes
Fishing	Salmon Halibut and cod	Aboriginal Interests LSA #3; specific locations along Kitimat Arm
	Herring	Aboriginal Interests LSA #3; specific locations along Kitimat Arm
	Shrimps and prawns	Aboriginal Interests LSA #3; specific locations along Kitimat Arm
	Salmon	Aboriginal Interests LSA #3; reported in <i>C'imoca and Wohlstu</i> , <i>Yaksda</i> , and <i>Simgas and Zagwis wa'wais</i> .Major spawning streams are Kitimat River and its tributaries, streams along Douglas and Principe channels, and in Banks, Stephens, and Porcher islands.
	Trout	Rivers along Kitimat Arm, and the Douglas Channel
Marine harvesting	Shellfish	Throughout coastal areas of Aboriginal Interests LSA #3
Trapping	Small fur-bearing animals (including beaver, marten, fisher, land otter, mink, weasel, and muskrat)	Throughout Aboriginal Interests LSA #3; specific locations are along Kitimat Arm
Vegetation gathering	Includes berries, crab-apples, wild rice, various tubers, and roots	Throughout Aboriginal Interests LSA #3. No specific recorded locations are available
	Includes seaweed and kelp	Throughout marine/coastal areas of Aboriginal Interests LSA #3; specific locations along the outer coastline of the Douglas Channel
	NS	Throughout Aboriginal Interests LSA #3. No specific recorded locations are available
Transportation-Trails	NS	Throughout terrestrial areas of Aboriginal Interests LSA #3
Transportation-Marine navigation	NS	Throughout marine areas of Aboriginal Interests LSA #3; specific locations are Kitimat Arm, Douglas Channel, and throughout the coastal shipping lanes
Transportation-Canoe journeys	NS	Along Grenville Channel and the Skeena River

Sources: Powell 2011, Powell 2013

14.15.1.2.3 Gitga'at First Nation Current Use and Harvesting-Related Aboriginal Interests in LSA #3

Gitga'at First Nation has asserted that its members have the Aboriginal right to hunt, fish, trap, and gather vegetation for food, social and ceremonial purposes within their traditional territory (GFN 2013b). Gitga'at First Nation members currently exercise harvesting-related Aboriginal Interests, including harvesting seafood for food, social, ceremonial purposes, and for trade. Gitga'at First Nation members also hunt for food, social and ceremonial purposes in areas that overlap with the Project marine access route (GFN 2013b). Gitga'at First Nation has stated that the majority of Gitga'at First Nation households actively engage in traditional harvesting activities and that over 40% of meals are traditionally sourced. Gitga'at First Nation has also stated that marine foods are critically important to the Gitga'at First Nation cultural practice of feasting (GFN 2013b).

In relation to salmon, Gitga'at First Nation states:

Salmon continues to be the mainstay of the Gitga'at diet, as it is easily dried and stored for year round provisions. Cedar is an extremely important resource that supported communities all along British Columbia's coast and continues to shape the Gitga'at way of life. Cedar, which is rot and insect resistant and easy to carve and shape (using steam), is used to construct longhouses, canoes, storage containers, tools, as well as for carving totem poles and other beautiful pieces of art. Food, clothing, art, and other riches continue to be shared at feasts, which are an important part of Gitga'at society. At feasts, House Groups share the bounty of their resources and reaffirm their connection with their lands in the presence of invited guests. The feasting system is very complex, combining governance and laws with social, cultural and spiritual values (GFN 2013a).

Gitga'at First Nation continues to rely on marine resources accessed throughout their traditional territory. Their main community, Hartley Bay, is located along the marine access route and current use of areas along the Project marine access route include, but are not limited to, Fin and Ferrant islands, Kishkosh and Cornwall inlets, around Hartley Bay, and their historic community, "Old Town" (Satterfield et al. 2012). Critically important foods to Gitga'at First Nation are those that are most widely shared or distributed amongst kinship networks and those that are central to the seasonal group events in Hartley Bay for activities like harvesting, processing, drying, smoking, and freezing foods (Satterfield et al. 2012: 40). Gitga'at First Nation has identified several harvested resources as "mainstays of Gitga'at culture and way of life," including salmon, halibut, and cedar (GFN 2013a).

Table 14.15-2 summarizes additional information on current use by Gitga'at First Nation in the Aboriginal Interest LSA #3.

Table 14.15-2: Gitga’at First Nation Current Use

Use Category	Targeted Species	Identified Use Locations
Hunting	Seal and sea lions	Throughout Aboriginal Interests LSA #3, including around Ferrant Island, Fin Island, and Hartley Bay
	Deer and mountain goat	Throughout Aboriginal Interests LSA #3, including along Douglas Channel shorelines, from Kishkosh and Old Town
	Moose	Around Old Town
	Black bear	Throughout Aboriginal Interests LSA #3, various locations along the shipping lanes
	Duck	Throughout Aboriginal Interests LSA #3, commonly hunted around Old Town and Kishkosh Inlet
	Goose	Throughout Aboriginal Interests LSA #3 including Old Town and Kishkosh Inlet
Fishing	Salmon	Throughout Aboriginal Interests LSA #3; specific locations are Hartley Bay, Old Town, along rivers and creeks feeding into Douglas Channel, and Union Pass
	Halibut and cod	Throughout Aboriginal Interests LSA #3; including areas around Hartley Bay
	Crab	Throughout Aboriginal Interests LSA #3, especially around islands and in inlets and bays
	Herring	Throughout Aboriginal Interests LSA #3. Most use of herring is harvest of eggs
	Crab	Throughout Aboriginal Interests LSA #3, especially around islands and in inlets and bays
	Shrimps and prawns	Throughout Aboriginal Interests LSA #3, specifically Douglas Channel and associated inlets
	Octopus, sea cucumber, chiton	Throughout Aboriginal Interests LSA #3, various locations along the shipping lanes
Marine harvesting	Various shellfish	Throughout Aboriginal Interests LSA #3, extensively
Terrestrial harvesting	seagull eggs	In and around Otter Channel, Otter Pass and Estevan Sound
Trapping	Small fur-bearing animals - Includes beaver, marten, fisher, land otter, mink, weasel, and muskrat	Throughout Aboriginal Interests LSA #3; specific locations along Kitimat Arm
Vegetation gathering	Terrestrial plant food harvesting Includes berries, crab-apples, wild rice, various tubers, and roots	Throughout Aboriginal Interests LSA #3, especially near past and present settlements. Seagull eggs were collected near water on Campania Island.
	Marine plant harvesting Includes seaweed and kelp	Throughout Aboriginal Interests LSA #3, including areas around Otter Channel, Otter Pass and Estevan Sound
	Food harvesting- medicine and	Throughout Aboriginal Interests LSA #3, especially near past and present settlements
Transportation	NS	Throughout Aboriginal Interests LSA #3, and throughout the shipping lanes

NOTES:

NS =None Specified – specific use and/or targeted species has not been identified by a particular Aboriginal Group

Source: Satterfield et al. 2012; Gitga’at First Nation 2013b

14.15.1.2.4 Kitselas First Nation Current Use and Harvesting-Related Aboriginal Interests in LSA #3

Kitselas First Nation members currently exercise Aboriginal Interests relating to use of their traditional territory for spiritual practices and cultural sustainability. Kitselas First Nation members continue to use their traditional territory and traditional harvesting areas to hunt, fish, trap, and gather plants for social, economic, subsistence and cultural purposes. Kitselas First Nation has asserted its right to the use its traditional territory for cultural sustainability (BCEAO 2008).

Kitselas First Nation members rely on both marine and freshwater resources, including clams, seaweed, and herring (Smith 1999 and 2008), among others in Table 7.4–6. The locations of marine resource gathering areas were identified during a fisheries workshop in Kitkatla (Kitselas Community Engagement 2014, pers. comm.). Most fishing locations do not overlap with the Project shipping corridor. As examples, clam and seaweed harvesting sites exist around Dolphin and North Porcher Islands, and in Kitkiata Inlet. Other important fishing areas exist on the northwest side of Fin Island, (used to catch sable fish using long lines), “mink trap”—the area between Anger and Pitt Islands (used to catch salmon by gill nets), and the south east side of McCauley Island and the south west side of Pitt Island (used to catch prawns and crabs by traps). Fishing for salmon using gill nets in Principe Channel has reportedly been prohibited since the 1980s. Halibut long lines are fished by setting gear parallel to shore, following the contours of the bottom. Long line gear is not fished in the centre of the channel (Kitselas Community Engagement 2014, pers. comm.). Kitselas First Nation members reportedly fish in areas that overlap with certain segments of the shipping component of the Aboriginal Interests LSA #3, including in Chatham Sound and Principe Channel (Berthiaume 1999; Kitsault Mine Project 2011; Kitselas Band Council n.d.).

Kitselas First Nation members fish, hunt for ungulates, mountain goats and bear, and trap in the upper Kitimat River valley and its tributaries (Berthiaume 1999). In 2008, the EAO issued its *Kitimat-Summit Lake (KSL) Pipeline Looping Project Assessment Report* (KSL Assessment Report) (BCEAO 2008), which indicated that Kitselas First Nation could continue to hunt, fish, trap, and gather materials in that project area, with activities primarily carried out by those with trapline areas who distribute food to Elders and others in the Kitselas First Nation community. Kitselas First Nation members also fish in the Clore River valley and hunt ungulates and bear in the Lower Kitimat and parts of the Big and Little Wedeene valleys, and in the Clore River valley. In addition, members hunt game birds and migratory birds (BCEAO 2008).

Several Kitselas First Nation members actively trap and the Kitimat River and its tributaries is the main harvest area, with four distinct trapping areas in the upper Kitimat area. Most trapping of fur-bearing animals takes place within 50 m of roads, in treed areas bordering rivers and streams (BCEAO 2008). In its assessment report, EAO also concluded that, with regard to Kitselas First Nation trapping rights,

Kitseles First Nation members actively trap near the Kitimat River and its tributaries, and trapline cabins occur on the North Kitimat River, the upper Kitimat River, and in the valleys of Chist Creek and Bolton Creek.

Kitseles First Nation members gather forest plants and berries in the Upper Kitimat River and tributary valleys, typically at lower elevations adjacent to marshes, lakes, streams, and rivers (BCEAO 2008).

Table 14.15-3 summarizes information on current use by the Kitseles First Nation in Aboriginal Interests LSA #2 and Aboriginal Interests LSA #3.

Table 14.15-3: Kitseles First Nation Current Use

Use Category	Specific Use	Targeted Species	Identified Use Locations
Fishing	Marine fishing	All species	Locations of marine resource gathering areas were identified during a fisheries workshop in Kitkatla (Kitseles Community Engagement 2014, pers. comm.). Most fishing locations do not overlap with the shipping corridor (LSA #3). As examples, clam and seaweed harvesting sites exist around Dolphin and North Porcher Islands, and in Kitkiata Inlet. Other important fishing areas exist on the northwest side of Fin Island, (used to catch sable fish using long lines), "mink trap"—the area between Anger and Pitt Islands (used to catch salmon by gill nets), and the south east side of McCauley Island and the south west side of Pitt Island (used to catch prawns and crabs by traps). Fishing for salmon using gill nets in Principe Channel has reportedly been prohibited since the 1980s. Halibut long lines are fished by setting gear parallel to shore, following the contours of the bottom. Long line gear is not fished in the centre of the channel (Kitseles Community Engagement 2014, pers. comm.). Kitseles have indicated marine fishing use throughout Chatham Sound and Principe Channel more generally.
Vegetation gathering	Food harvesting - marine	NS	No information on specific sites currently used is available; however, Kitseles have indicated marine fishing use throughout Chatham Sound and Principe Channel

NOTES:

NS = None Specified – specific use and/or targeted species has not been identified by a particular Aboriginal Group

Source: Berthiaume (1999); Kitsault Mine Project (2011); Kitseles Band Council n.d.

14.15.1.2.5 Kitsumkalum First Nation Current Use and Harvesting-Related Aboriginal Interests in LSA #3

Kitsumkalum First Nation members exercise their Aboriginal Interests in their traditional territory and Kitsumkalum First Nation states that its members have used, occupied, governed, and exercised exclusive ownership of Kitsumkalum First Nation traditional territory “from time immemorial” (Kitsumkalum First Nation and the Province of British Columbia 2011, 2013).

Kitsumkalum First Nation members report that they fish and harvest marine resources in areas within the Project marine access route that overlap with the Aboriginal Interests LSA including within Edey Passage, Chatham Sound and Hecate Strait.

Kitsumkalum currently harvest cod, ling cod, octopus, and halibut, as well as other species for subsistence and commercial purposes in marine areas of their traditional territory, including certain parts of LSA #3 (Kitsumkalum Band 2012). Herring eggs from the area around Stephens Island and salmon from the Skeena River are also harvested (Kitsumkalum Band 2012). Kitsumkalum historically inhabited marine fishing camps in Hecate Strait, Edey Passage, Stephens Island, and Work Channel, and they continue to use these same locations (Kitsumkalum Band 2012). They also conduct transportation and anchorage activities throughout their traditional territory for traditional purposes including trade (Kitsumkalum Band 2012).

Table 14.15-4 summarizes information on current use by the Kitsumkalum First Nation in LSA #3.

Table 14.15-4: Kitsumkalum First Nation Harvesting in LSA #3

Use Category	Specific Use	Species	Identified Use Locations
Fishing	Marine fishing	Salmon, herring, and halibut*	Information on specific sites currently used are Edey Passage and the north end of Porcher island. Kitsumkalum have previously indicated marine fishing use throughout Chatham Sound and Hecate Strait
Marine harvesting	Invertebrate harvesting	Shellfish and invertebrates	Kitsumkalum have indicated marine use of these resources throughout Chatham Sound and Hecate Strait

Source: McDonald (2003); Kitsumkalum Band (2012), Crossroads (2014)

14.15.1.2.6 Gitxaala Nation Current Use and Harvesting-Related Aboriginal Interests in LSA #3

Gitxaala Nation has asserted Aboriginal rights throughout its territorial lands and waters (Calliou 2011). Gitxaala Nation members hunt, trap, fish, harvest intertidal resources and gather vegetation in areas that overlap with the Project marine access route within the Aboriginal Interests LSA #3 (e.g., around Dolphin Island, islands at the mouth of Douglas Channel, throughout Principe Channel and Otter Channel and around Goschen Island, on Porcher Island) (Menzies 2011; Calliou 2014c).

During the Enbridge JRP hearing, the panel noted that “Gitxaala Nation said that over 90 per cent of their diet comes from traditionally harvested food, that this food is shared amongst community members, and that this sharing brings great pride to members” (NEB 2014). Over several days of oral evidence at the hearing, Gitxaala Nation described the species it harvested, where fishing camps were located, how place names were given based on the harvesting that occurred there, and how various traditional methods of harvesting resources, such as roe on kelp and seaweed, are been passed on from Elders to the community's youth.

Current Gitxaala Nation community members report a similar seasonal round to that documented by early ethnographers (see Section 13.1). The people of Gitxaala Nation traditionally moved throughout a large expanse of territory, including the particular territories for which a House held governance and

stewardship obligations, and other areas for which they held various customary rights and forms of ownership (Menzies 2011: 22).

Currently, Gitxaala Nation members use the areas around Dolphin Island, which is the heart of their traditional territory (Menzies 2011; Caillou 2014c), marine areas stretching along Hecate Strait north to the Skeena River, and south to the islands along the mouth of the Douglas Channel. Gitxaala Nation members also currently use areas throughout Principe Channel and Otter Channel and areas around Goschen islands (Calliou 2014c).

Table 14.15-5 summarizes information on current use by the Gitxaala Nation in the Aboriginal Interests LSA #3.

Table 14.15-5: Gitxaala Nation Current Use

Use Category	Species	Identified Use Locations
Hunting	Harbour seal	Present in Aboriginal Interests LSA #3 around Goschen Island and Principe Channel
	Sea lion	Present in Aboriginal Interests LSA #3 around Goschen Island
	Deer	Present in Aboriginal Interests LSA #3 around Goschen Island, Principe and Otter channels, and in Wright Sound
	Mountain goat	One identified area in Port Stephen's in Principe Channel
	Duck	Present in Aboriginal Interests LSA #3 in areas around Goschen, Gurd, McCauley and Dolphin islands and the northwest portion of Banks Island
	Goose	Present in Aboriginal Interests LSA #3 the LSA in areas around Goschen, Gurd, and Dolphin islands and the northwest portion of Banks Island
	Swan	Present in Aboriginal Interests LSA #3 in areas around Goschen, Gurd, and Dolphin islands
Fishing	Salmon	Present in Aboriginal Interests LSA #3; reported in areas west of Porcher Island; Principe, Otter, and Douglas channels; south of Fin Island and Wright Sound, as well as along Stephen's Island and the Tree Knob group
	Herring	Present in Aboriginal Interests LSA #3; specific locations are Goschen Island and Principe Channel
	Eulachon	Specific locations of current fishing are restricted to areas outside Aboriginal Interests LSA #3, south of Hawkesbury Island and coastal waters west of Aristazabal Island
	Prawns	Present in Aboriginal Interests LSA #3; specific location is Principe Channel
	Halibut and cod	Present in Aboriginal Interests LSA #3 LSA; specific locations around Goschen Island, Principe and Otter channels, in Wright Sound, and areas around Gurd and Dolphin islands
	Octopus and other invertebrates	All around Dolphin Island, all around Banks Island, north end of Principe Channel, north of Anger Island, Otter Passage
	Greenling, rock fish and other species	Present in Aboriginal Interests LSA #3; reported in areas around Goschen Island, Principe and Otter channels, and South of Fin Island
	Salmon	Throughout Aboriginal Interests LSA #3; identified streams are areas around Goschen Island, Principe, Otter, and Douglas Channels, south of Fin Island and Wright Sound

Use Category	Species	Identified Use Locations
Marine harvesting	Shellfish	Present in Aboriginal Interests LSA #3; reported in areas west of Banks Island, Principe Channel, and Otter Channel, south of Fin Island and Wright Sound
Trapping	Mink	Specific locations in Aboriginal Interests LSA #3 restricted to Otter Channel and west Porcher Island
Vegetation gathering	Marine food harvesting includes kelp and seaweed	Throughout Aboriginal Interests LSA #3; specific locations around Goschen, Dolphin, and Gurd Islands, throughout Principe Channel, and in Otter Channel
Cultural areas	NS	Sacred places occur in Aboriginal Interests LSA #3 and surrounding areas, including around Gurd Island, west Porcher Island, between Dolphin and north Banks Islands, throughout Principe Channel, along the northwest corner of Banks Island, around Port Simpson, Anger Island, Otter Passage, Otter Channel, between Gil and Campania islands, between Gil and Fin islands, through Wright Sound, and around Ferrant Island.
Transportation-Marine navigation	NS	Throughout Aboriginal Interests LSA #3, with a particularly high concentration of travel up Principe and Petrel Channels and to Dolphin Island
Transportation-Canoe journeys	NS	In 2012, the Gathering Strength Canoe journey included Dolphin Island and travelled routes along Greenville Channel, through Write Sound, and along the Douglas Channel
Camps (canoe journey)	NS	Of the current camps associated with the Gathering Strength Canoe Journey along Douglas Channel, two are in the Aboriginal Interests LSA #3, and one is located nearby
Sites and Settlements	NS	Two current reported camp sites occur on Petrel Channel, in Keecha 11, along Principe Channel. Past settlements and sites exist throughout Principe channel, the west side of Banks Island, the northwest side of Campania Island, Calamity Bay and in the areas surrounding Dolphin, Goschen, Gurd and Porcher Island

NOTES:

NS = None Specified – specific use and/or targeted species has not been identified by a particular Aboriginal Group

Source: Calliou 2011, Calliou 2014c

14.15.1.2.7 Lax Kw’alaams First Nation Current Use and Harvesting-Related Aboriginal Interests in LSA #3

Lax Kw’alaams First Nation asserts that it has Aboriginal rights (including the right to fish and harvest marine resources) within its asserted traditional territory. Lax Kw’alaams First Nation members harvest in intertidal areas within the shipping component of the Aboriginal Interests LSA #3, including throughout Chatham Sound, along Stephens Islands and within Edey Passage, on Dundas and Melville islands, and the northern section of Porcher Island. Lax Kw’alaams First Nation members also hunt marine mammals, trap furbearers, hunt for deer and other terrestrial mammals, and harvest vegetation, cut trees, and gather marine plants throughout their traditional territory, including at Stephens Island, Triple Island, Dundas, Melville Islands (Lax Kw’alaams First Nation 2004).

The Lax Kw’alaams First Nation *Land and Marine Resources Plan* identifies three “Cultural and Natural Areas” and one “Special Management Area”, and both may experience potential Project interactions. The three “Cultural and Natural Areas” include areas around Dundas and Melville islands, Stephens Island,

and the northern section of Porcher Island and are identified as areas of importance, especially for the collection of marine resources. For more information on these management areas, see Section 13.1.7.4.

Lax Kw'alaams states that culturally modified trees (CMT) are present on Porcher Island in the LSA (BCEAO 2008). In their *Land and Marine Resources Plan*, Lax Kw'alaams First Nation (2004) claims an “ongoing right to harvest forest resources for both cultural and economic purposes arising both from aboriginal title, and from the modern exercise of traditional harvesting as an aboriginal right.”

Table 14.15-6 summarizes information on current use by Lax Kw'alaams First Nation in Aboriginal Interests LSA #2 and Aboriginal Interests LSA #3.

Table 14.15-6: Lax Kw'alaams First Nation Current Use

Use Category	Species	Identified Use Locations
Hunting	Seal and sea lion	Throughout Aboriginal Interests LSA #3; specific areas are Stephens, Triple, Prescott, Dundas, Zayas, Duniia, and Melville islands, and all surrounding islands and islets
	Mallard duck, geese, swan, grouse	Specific locations in LSA #3 are Stephens and Prescott island
	Deer (including young)	Specific locations along the Aboriginal Interests LSA #3 are Stephens and Prescott islands
Fishing	Salmon - all species	Throughout Chatham Sound; specific locations along in Aboriginal Interests LSA #3 Stephens, Prescott, Dundas, Zayas, Duniia, and Melville islands; and all surrounding islands and islets
	Herring (including roe)	Specific locations are Edye Passage, the interior coastlines along Chatham Sound, and North Porcher Island
	Halibut	Specific locations in Aboriginal Interests LSA #3 are Stephens, Prescott, Dundas, Zayas, Duniia, and Melville islands, and all surrounding islands and islets
	Greenling, rock fish and other species	Specific locations in Aboriginal Interests LSA #3 are Stephens, Prescott, Dundas, Zayas, Duniia, and Melville islands, and all surrounding islands and islets
	Crabs	Specific locations in Aboriginal Interests LSA #3 are Stephens, Prescott, Dundas, Zayas, Duniia, and Melville islands, and all surrounding islands and islets
Marine harvesting	Shellfish	Specific locations in Aboriginal Interests LSA #3 are Stephens, Prescott, Dundas, Zayas, Duniia, and Melville islands, and all surrounding islands and islets
	Mussels	Specific locations in Aboriginal Interests LSA #3 are Stephens, Prescott, and Dundas islands
Trapping	Small fur-bearing animals e.g., beaver, mink, marten, and sea otter	Dundas, Zayas, Duniia, and Melville islands, and all surrounding islands and islets

Use Category	Species	Identified Use Locations
Vegetation Harvesting- terrestrial	Various tree species ^b (e.g., spruce root, red-cedar bark, yellow-cedar, and alder)	the interior islands in Chatham Sound; other specific locations along the LSA are Stephens, Prescott, Dundas, Zayas, Duniia, and Melville islands, and all surrounding islands and islets
	Various species (e.g., salal berries, creeping raspberries, saskatoon berries, bunch berries)	interior islands in Chatham Sound; other specific locations are Stephens, Prescott, Dundas, Zayas, Duniia, and Melville islands, and all surrounding islands and islets
Vegetation Harvesting- terrestrial	Seaweed	Specific locations in Aboriginal Interests LSA #3 are Stephens and Prescott islands
Transportation Marine navigation	NS	Throughout Aboriginal Interests LSA #3 throughout Chatham Sound

Sources: Lax Kw'alaams (2004); Seguin Anderson (2006); BCEAO (2009)

14.15.1.2.8 Metlakatla First Nation Current Use and Harvesting-Related Aboriginal Interests in LSA #3

Metlakatla First Nation exercises Aboriginal Interests in its asserted traditional territory. Metlakatla First Nation has stated that it shares common territory and interests with its Tsimshian Nation neighbours (Metlakatla First Nation and the Province of British Columbia 2006). Metlakatla First Nation members fish and hunt marine mammals throughout marine areas of their traditional territory that overlap with shipping components of the Aboriginal Interests LSA #3, including at Stephens Island and Triple Island. Metlakatla First Nation members also hunt and trap terrestrial mammals, harvest vegetation, and harvest intertidal resources throughout their traditional territory, including areas that overlap with Aboriginal Interests LSA #3.

Metlakatla First Nation members have a strong connection to the resources found throughout their traditional territory. As an example of this close contact, they use *Sm'algayax* names to detail each month according to their seasonal use. For example, the terms for March and April translate to “Eulachon First Run” and “Time for Seaweed,” respectively (Metlakatla Fisheries 2013). Metlakatla First Nation community members have indicated that Triple Island is an important harvesting location and describe it as their “bread-basket” and “pantry” (Metlakatla First Nation 2014a). Due to the importance of this location, effects of marine transportation are of particular interest to Metlakatla First Nation (Metlakatla First Nation 2014b).

Table 14.15-7 summarizes information on current use by Metlakatla First Nation in LSA #3.

Table 14.15-7: Metlakatla First Nation Current Use

Use Category	Species	Identified Use Locations
Hunting	Seal	Throughout Aboriginal Interests LSA #3; specific areas are Metlakatla Pass, Stephens Island, and Triple Island
	Ungulates (general)	terrestrial areas in Chatham Sound (Aboriginal Interests LSA #3)
Fishing	Salmon- all species	Throughout Aboriginal Interests LSA #3; specific locations are Metlakatla Pass, Stephens Island, Triple Island, and throughout Chatham Sound
	Herring	Throughout Aboriginal Interests LSA #3; specific locations are Metlakatla Pass, Stephens Island, Triple Island, and throughout Chatham Sound
	Shrimps and prawns	Throughout Aboriginal Interests LSA #3; specific locations are the area around Prince Rupert, Stephens Island, and Triple Island
	Halibut and Cod	Throughout Aboriginal Interests LSA #3, including Metlakatla Pass, Stephens Island, Triple Island, and throughout Chatham Sound
	Crab	Throughout Aboriginal Interests LSA #3
Marine harvesting	Shellfish	Throughout Aboriginal Interests LSA #3, extensively
Trapping	Small fur-bearing animals	Presumably around terrestrial areas in Chatham Sound
Vegetation gathering	Food harvesting - terrestrial	Throughout Aboriginal Interests LSA #3, especially near past and present settlements in Chatham Sound
	Food harvesting - marine	Throughout Aboriginal Interests LSA #3, including Metlakatla Pass, Stephens Island, Triple Island, and throughout Chatham Sound
	Food harvesting- medicine and material	Throughout Aboriginal Interests LSA #3, especially near past and present settlements in Chatham Sound
Culturally important species	Sea-lion	Throughout Aboriginal Interests LSA #3, including Metlakatla Pass, Stephens Island, and Triple Island
	Porpoise	Throughout Aboriginal Interests LSA #3
	Blackfish (Killer Whale)	Throughout Aboriginal Interests LSA #3; specific locations are Metlakatla Pass, Stephens Island, and Triple Island
	Whales [4]	Throughout Aboriginal Interests LSA #3; specific locations are Metlakatla Pass, Stephen's Island, and Triple Island
	Eagles	Throughout territory; clan symbol highly protected and respected
	Ravens	Throughout territory; clan symbol highly protected and respected
	Wolves	Throughout territory; clan symbol highly protected and respected
Transportation- Marine navigation	NS	Throughout Aboriginal Interests LSA #3; specific locations are Metlakatla Pass, Lucy Island, Stephens Island, and Triple Island

NOTES:

NS = None Specified – specific use and/or targeted species has not been identified by a particular Aboriginal Group

Source: Metlakatla First Nation (2011); Metlakatla First Nation (2014a and 2014b)

14.15.1.3 Future Use of LSA #3

LNG Canada acknowledges that predicting future use is complex, and a number of interrelated and sometimes subtle factors may influence future use patterns, including demographic, economic, and cultural shifts in Aboriginal communities; the effect of increased development in the region; and wider

economic and population changes throughout the central coast region. However, LNG Canada has conservatively anticipated that Aboriginal consumptive and non-consumptive use of the three Aboriginal Interests LSAs would likely continue at or near current levels into the future.

14.15.1.4 Baseline for Harvested Species in LSA #3

14.15.1.4.1 Marine Birds

See detailed description in Section 5.6.3.2.

14.15.1.4.2 Marine Resources

See the detailed description in Section 5.8.3.

14.15.1.4.3 Visual Quality

See Section 2.2 for a description of the LSA and RSA for visual quality.

LNG Canada sought out feedback from Aboriginal Groups regarding visual quality baseline information. Direct discussions took place with Haisla Nation, Gitga'at First Nation, and Gitxaala Nation to determine relevant viewpoints, and each was provided with a blank map-book on which they could denote viewpoints related to the LNG facility or the marine access route. Haisla Nation suggested that a viewpoint from Kitamaat Village be included in the study; however, due to the timing of the inclusion, it was determined that a previously identified viewpoint from the marina near Kitamaat Village would be used instead because it offers a representative and equivalent view. Gitga'at First Nation identified 11 viewpoints for the assessment and 9 viewpoints were identified by Gitxaala Nation. Of the 20 candidate viewpoints cited along the marine access route through direct consultation, field assessments and photo-documentation were done at 17. The other three viewpoints were screened out because of their distance from and lack of view of the marine access route. These 17 identified viewpoints included burial sites, camping locations, areas for subsistence activities and harvesting, goose and duck hunting locations, or historical settlements or lookout sites.

Metlakatla First Nation, Kitselas First Nation, Kitsumkalum First Nation, and Lax Kw'alaams First Nation had the opportunity to comment on the viewpoints identified by Gitga'at First Nation and Gitxaala Nation, which also covered their traditional territory and current use areas along the marine access route. The Lax Kw'alaams Land and Marine Resources Plan (aka Laxyuup) (Allied Tsimshian Tribes of Lax Kw'alaams 2004) confirmed the importance of visual quality along the marine access route for quality of life and for recreation and tourism. The marine access route has high topographic variation, varied vegetation patterns, and expansive views of water, forming a distinct and visually appealing landscape. As a whole, the visual quality LSA for the marine access route exhibits limited human intervention with some recent and historical forest logging, and occasional human settlement. Marine traffic varies, with

views of local fishing boats interspersed with whale watching vessels, cruise ships, ferries and recreational vessels along much of the marine access route; and with barges, chemical tankers and aluminum vessels near Kitimat; and with vessels transporting grain, shipping containers, and coal near Prince Rupert.

Many of the 17 priority viewpoints with a view of the marine access route (Figure 7.3-4 and Table 7.3-9) have long and unobstructed views, often 180 degrees. These long and unobstructed views result in high visibility of the marine access route, with 84% (287,000 ha) of the lands and waters within 8 km of each of the 17 viewpoints (341,800 ha) having a view of the marine access route.

A review of current and historical data indicates that the frequency of existing large vessel movement along the marine access route is low, although it varies depending on the location. On average, 12 large vessel movements per month occur within Douglas Channel compared to 16 large vessel movements per month in Principe Channel; cruise ship traffic accounts for the difference.

The length of marine access route visible within a 10 km radius distance from each viewpoint ranges from 2.7 km to 20 km, with an average of 11.4 km. A large vessel will take between 8 minutes and 67 minutes to pass (with an average of 34 minutes), depending on the viewpoint. The duration that large marine vessels are visible ranges from 2 hours per month at Viewpoints 10S and 11S (Old Town and Hartley Bay) to 16 to 18 hours per month at Viewpoints 2S (Pitt Island SW), 3S (McCauley Island W), and 5S (Banks Island NE). The average duration across all viewpoints is 8 hours per month.

14.15.1.4.4 Acoustics

For TU areas with no industrial development located along the marine access route (i.e., Hartley Bay, Gil Island, Fin Island, Otter Channel, Anger Island, Banks Island, McCauley Island), the acoustic environment is characterized by sounds generated by the natural environment. In Aboriginal communities such as Hartley Bay, Kitimaat Village, Kitkatla, Metlakatla Village, and Lax Kw'alaams, the acoustic environment is influenced by local human activity (e.g., use of chainsaws, boat motors, children playing), aircraft flyovers, and natural sounds.

14.15.2 Project Effects Mechanisms

Project shipping activities could affect harvesting-related Aboriginal Interests through the following relevant sub-components within LSA # 3:

- effects on harvested species
- effects on harvesting methods
- effects on use or access to identified valued TU locations, and
- effects on the experience of traditional harvesting.

14.15.3 Mitigation Measures

Mitigation measures have been developed in response to the potential adverse effects on Aboriginal Interests. The mitigation measures from relevant VCs in Part B are summarized in this section.

A complete list of mitigation measures for each VC is provided in Section 20 (Summary of Mitigation Measures) as well as in each relevant VC assessment section (Section 5.2: Air Quality, Section 5.4: Acoustic Environment, Section 5.6: Wildlife Resources, Section 5.8: Marine Resources, Section 6: Economic Conditions, Section 7.3: Visual Quality, Section 7.4: Marine Transportation and Use, and Section 9.2: Human Health).

Mitigation measures to reduce the potential for adverse effects on marine fisheries and shoreline harvesting activities are:

- Regular communication on Project activities will occur with marine users, including recreationalists, commercial tourism operators, CRA fishers, Transport Canada, DFO, and relevant stakeholders (Mitigation 6.2-7).
- No planned anchoring along the marine access route (unless directed to do so by BC Coast Pilots due to weather or other unplanned conditions); LNG carriers will only be permitted to enter the marine access route if a berth at the terminal will be available (Mitigation 7.3-4).
- Use escort tugs between Triple Island and Kitimat during all LNG carrier transits (Mitigation 7.4-6).
- LNG carriers will travel at speeds up to 14 knots. Speeds will vary depending on navigational safety, weather conditions, location, and marine mammal presence, and will be determined based on the judgment of the ship's master who receives advice from the BC Coast Pilots on board. Subject to navigational safety needs, in areas of high whale density between the northern end of Campania Island and the southern end of Hawkesbury Island, LNG carriers will travel at speeds of 8 or 10 knots from July through October (recognizing predicted periods of high use by marine mammals) (Mitigation 5.8-12).
- Strict adherence to the prescribed route and passing restrictions so that LNG Canada carriers may only pass other large commercial vessels in straight sections of the route (Mitigation 7.4-7).
- LNG carriers will maintain safe operating distances from other marine craft (Mitigation 7.4-8).

Key mitigation measures to reduce the potential for adverse effects on harvesting-related interests related to wildlife include:

- A Wildlife Management Plan will be developed and will include requirements for reporting wildlife sightings, including bat or bird collisions. Reporting will include information such as species, location, and weather conditions (Mitigation 5.6-3).

LNG Canada is committed to ongoing consultation with Aboriginal Groups and will continue to consult and engage with communities with respect to their Aboriginal Interests, issues and concerns throughout the Application review phase and the life of the Project. As stated in the approved Aboriginal Consultation Plan, LNG Canada will work towards maintaining good, long term relationships through open dialogue about issues and concerns that arise during the construction and operation phases and work towards resolving Project related issues that may arise.

14.15.4 Characterization of Residual Effects on Harvesting-Related Aboriginal Interests

14.15.4.1 Harvesting Methods

During Project operation, up to one additional LNG vessel and escort tug will travel to and from Kitimat each day, increasing annual shipping traffic by approximately 172%. Vessel transits would be brief, would occur on a regular schedule, and are considered completely reversible as they would cease when the Project is decommissioned.

There is low likelihood that Project shipping activities would restrict access to fishing grounds, damage fishing gear, or displace shoreline harvesters. Section 7.4 provides an assessment of:

- Project shipping-related interference with, or displacement of, boat-based marine fishing due to the direct physical presence of LNG carriers (including consideration of disrupted access to fishing grounds and potential damage to fishing gear)
- interference with marine fisheries and shoreline harvesting due to wake waves generated by LNG carriers and their escort tugs (including consideration of both real and perceived effects from wake waves).

The assessment of Project interactions (with respect to access to fishing grounds, damage to fishing gear, and displacement of shoreline harvesters) considers the type of fishing potentially undertaken and the gear used (e.g., salmon fishing vs shoreline harvesting of geoducks or clams), the time that certain species could be harvested (such that shoreline harvesters would be dependent on tide schedules), displacement of shoreline harvesters attributed to wake waves, and the interaction of the LNG marine shipping vessels with other fishing vessels. For further information, see Section 7.4.6.2.

14.15.4.2 Use and Access to Identified Traditional Use Locations and Access Corridors

Shipping activities are not expected to displace Aboriginal shoreline harvesters. Potential interruption from wake waves is only expected to occur if LNG Canada vessels pass by an active harvesting site (an multiple irregular occurrence). Waves generated by LNG Canada vessels are predicted to be well within the range of naturally generated waves in the region. In addition, many clam beds are located in small inlets and bays and are typically sheltered from wake waves. Mitigation measures would also reduce or

eliminate potential effects on shoreline harvesters. Damage to crab and prawn trapping gear is not expected under normal circumstances. LNG Canada is confident that mitigation measures described in Section 7.4.6.2 would reduce or eliminate potential effects on other types of fishing gear. Damage to fishing gear from vessel wake waves is unlikely.

As described in Section 7.4, the presence of LNG carriers and escort tugs associated with the Project is not expected to have an adverse effect on Aboriginal and non-Aboriginal fisheries because of minimal overlap with the marine access route. While Aboriginal Groups fish for geoduck and red sea urchin in areas where there would be overlap with the marine access route, these fisheries take place in shallow waters away from shipping traffic and displacement by LNG carrier traffic is not predicted. In addition, it is likely that the majority of other Aboriginal and non-Aboriginal fisheries would not interact with shipping traffic due to fishery specific practices and gear configurations.

With regard to salmon fishing, for areas where salmon fishing does overlap with the marine access route, there may be temporary displacement for an estimated 10 to 15 minutes while an LNG carrier and escort tug pass by. The estimated maximum lost fishing time would be a half hour per day, with a worst case scenario of an hour a day due to two transits at peak fishing times and areas.

During construction and decommissioning there would be additional shipping traffic travelling to Kitimat. These vessels would be small cargo barges, floating cranes, work boats and a very small number of large barges. With the exception of large construction barges, the vessels used for construction are common around the port of Kitimat. In addition, construction related vessels would work at the head of the channel and would not be travelling up and down the access route.

Wake from LNG carriers and escort tugs are predicted to be less than 20 cm at 100 m distance (well within the size of waves naturally occurring in the Marine Transportation and Use RSA). Other large craft use the area and it is expected that Aboriginal mariners would be experienced dealing with wake. Wake waves are not expected to pose a safety risk to typical Aboriginal fishing vessels operating in the area and would not disrupt access to fishing locations.

Mitigation measures would ensure that potential effects are reduced or eliminated. For example, regular communication on Project activities will be undertaken with commercial, recreational and Aboriginal fishers (including guided angling), DFO, Transport Canada, and other relevant parties. LNG Canada has also committed to conduct, at a minimum, two safe-shipping workshops aimed at promoting safe navigation around shipping traffic for mariners prior to operation. Subject to navigational safety needs, in areas of high whale density between the northern end of Campania Island and the southern end of Hawkesbury Island, LNG carriers will travel at speeds of 8 to 10 knots from July through October (recognizing predicted periods of high use by marine mammals). LNG carriers will only pass each other in

straight sections, will not enter the routing during extreme weather, will file Notice to Shipping for every transit, and will monitor VHF radio at all times.

14.15.4.3 Harvested Species

14.15.4.3.1 Marine Birds

The effect of Project shipping on marine birds would be local in extent and low magnitude. LNG Canada will adhere to recommended mitigation measures and best management practices for the protection of marine birds and their habitat. As a result, Project shipping would potentially affect only a small number of marine birds and would not adversely affect the sustainability of regional populations. Residual effects and how indicator species use habitat within the marine bird RSA is generally understood and, as a result, prediction confidence is high. For these reasons, residual effects on marine bird harvesting from Project shipping-related effects on marine birds will have low magnitude.

14.15.4.3.2 Marine Resources

With implementation of mitigation measures set out in Section 5.8, residual effects resulting from Project shipping are not predicted to affect the ongoing viability of marine fish or marine mammal populations, or to cause harm to species listed as *endangered* or *threatened* under SARA. Mitigation measures have been developed to reduce change in behaviour of fish and marine mammals due to underwater noise or pressure waves. Residual effects on marine resources from Project-related shipping activities are expected to be low to moderate in magnitude, long-term in duration, extend throughout the Marine Resources (shipping) RSA, and will be reversible. Residual effects on marine resources from shipping activities are predicted to be not significant. Given this, LNG Canada has concluded that any residual effects on marine resource harvesting that would result from effects on marine resources would be low to moderate in magnitude.

14.15.4.4 Qualitative Changes in the Experience of Traditional Harvesting

14.15.4.4.1 Visual Quality

The reduction in visual quality is predicted to be, on average, of moderate magnitude. During operation, there will be a high probability of viewing a large vessel, on any given day, at a low to moderate visual prominence. While some viewpoints will be subject to an increase of over 2 hours daily duration for visibility of large vessels, the average increase in duration is 1.4 hours per day. Considering the low to moderate visual prominence estimated for LNG carriers at sensitive viewpoints, the effect on visual quality is predicted to be not significant. For these reasons, LNG Canada predicts that residual effects on the experience of traditional harvesting resulting from Project shipping-related effects on visual quality would be moderate in magnitude.

14.15.4.4.2 Acoustics

As described in Section 5.4, during the operation and construction phases for the LNG facility, sound levels within the acoustics LSA for Project shipping are expected to increase when compared to the existing acoustic environment. The magnitude of those changes for all identified receptors (e.g., Hartley Bay, Otter Channel, Kitkatla, Metlakatla Village) is rated as low, and there will be negligible to little effect. Noise effects from shipping activities will be in compliance with both federal and provincial noise guidelines and will be not significant.

14.15.5 Summary of Residual Effects on Harvesting-Related Aboriginal Interests

Residual effects on harvesting-related Aboriginal Interests from Project shipping activities will be low magnitude. Residual effects will be limited to areas within the boundaries of Aboriginal Interests LSA #3, with certain effects on harvested marine species extending into the marine resources (shipping) RSA. The majority of effects would be long-term, but would be reversible. The likelihood of predicted residual effects is medium to high.

There is the potential for effects from shipping to be experienced more acutely should some or all of the following factors occur simultaneously:

- More than one LNG Canada vessel and associated escort tug in the same location at the same time
- The LNG Canada vessel transit occurring during a critical harvesting season
- The LNG Canada vessel transit occurring during a rare tidal period
- Harvesting activities occurring along a narrower part of the marine access route where LNG Canada vessels would be closest to the shore
- Other large vessels transiting that same area during the same time period

In the event that enough of these factors overlap together for a specific harvester or a group of harvesters, the effects on the quality of use of sites, the access to harvesting locations, and access to harvested species would be expected to have a higher degree of potential interference than on average for Aboriginal users in LSA # 3. While such simultaneous occurrences are estimated to be rare due to most factors being occasional events on their own, and combinations of events, therefore, even more rare, it is impossible to accurately quantify the likelihood of such events occurring simultaneously. Therefore, it is difficult to predict with any certainty the potential for interactions and level of interference for these circumstances but it is recognized that such events could occur.

14.15.5.1 Haisla Nation Harvesting-related Aboriginal Interests

Project shipping will result in a low level of interference with Haisla Nation harvesting-related Aboriginal Interests. Due to predicted effects on harvested species and marine/intertidal harvesting activities and locations, LNG Canada has concluded that there would be a very small but measurable interference with Haisla Nation harvesting-related Aboriginal Interests. However, LNG Canada predicts that any resulting limitation would not impose added burden on Haisla Nation harvesters and shipping-related residual effects are unlikely to deny Haisla Nation members their preferred means of exercising their harvesting-related Aboriginal Interests.

14.15.5.2 Gitga'at First Nation Interests

Project shipping will result in a low level of interference with Gitga'at First Nation harvesting-related Aboriginal Interests. Due to predicted effects on harvested species and marine/intertidal harvesting activities and locations, LNG Canada has concluded that there would be a very small but measurable interference with Gitga'at First Nation harvesting-related Aboriginal Interests. LNG Canada predicts that any resulting limitation would not impose added burden on Gitga'at First Nation harvesters and shipping-related residual effects are unlikely to deny Gitga'at First Nation members their preferred means of exercising their harvesting-related Aboriginal Interests.

14.15.5.3 Gitxaala Nation Interests

Project shipping will result in a low level of interference with Gitxaala Nation harvesting-related Aboriginal Interests. Due to predicted effects on harvested species and marine/intertidal harvesting activities and locations, LNG Canada has concluded that there would be a very small but measurable interference with Gitxaala Nation harvesting-related Aboriginal Interests. LNG Canada predicts that any resulting limitation would not impose added burden on Gitxaala Nation harvesters and shipping-related residual effects are unlikely to deny Gitxaala Nation members their preferred means of exercising their harvesting-related Aboriginal Interests.

14.15.5.4 Kitselas First Nation Interests

Project shipping will result in a low level of interference with Kitselas First Nation harvesting-related Aboriginal Interests. Due to predicted effects on harvested species and marine/intertidal harvesting activities and locations, LNG Canada has concluded that there would be a very small but measurable interference with Kitselas First Nation harvesting-related Aboriginal Interests. LNG Canada predicts that any resulting limitation would not impose added burden on Kitselas First Nation harvesters and shipping-related residual effects are unlikely to deny Kitselas First Nation members their preferred means of exercising their harvesting-related Aboriginal Interests.

14.15.5.5 Kitsumkalum First Nation Interests

Project shipping will result in a low level of interference with Kitsumkalum First Nation harvesting-related Aboriginal Interests. Due to predicted effects on harvested species and marine/intertidal harvesting activities and locations, LNG Canada has concluded that there would be a very small but measurable interference with Kitsumkalum First Nation harvesting-related Aboriginal Interests. LNG Canada predicts that any resulting limitation would not impose added burden on Kitsumkalum First Nation harvesters and shipping-related residual effects are unlikely to deny Kitsumkalum First Nation members their preferred means of exercising their harvesting-related Aboriginal Interests.

14.15.5.6 Lax Kw'alaams First Nation Aboriginal Interests

Project shipping will result in a low level of interference with Lax Kw'alaams First Nation harvesting-related Aboriginal Interests. Due to predicted effects on harvested species and marine/intertidal harvesting activities and locations, LNG Canada has concluded that there would be a very small but measurable interference with Lax Kw'alaams First Nation harvesting-related Aboriginal Interests. LNG Canada predicts that any resulting limitation would not impose added burden on Lax Kw'alaams First Nation harvesters and shipping-related residual effects are unlikely to deny Lax Kw'alaams First Nation members their preferred means of exercising their harvesting-related Aboriginal Interests.

14.15.5.1 Metlakatla First Nation Aboriginal Interests

Project shipping will result in a low level of interference with Metlakatla First Nation harvesting-related Aboriginal Interests. Due to predicted effects on harvested species and marine/intertidal harvesting activities and locations, LNG Canada has concluded that there would be a very small but measurable interference with Metlakatla First Nation harvesting-related Aboriginal Interests.

LNG Canada predicts that any resulting limitation would not impose added burden on Metlakatla First Nation harvesters and shipping-related residual effects are unlikely to deny Metlakatla First Nation members their preferred means of exercising their harvesting-related Aboriginal Interests.

14.15.6 Prediction Confidence and Risk

Overall, there is a moderate level of confidence in the prediction of Project residual and cumulative effects on marine navigation and fishing activity. Confidence in the prediction of residual effects on wildlife, including marine birds, is high. The quality and quantity of available scientific information on fish species and habitats, effectiveness of mitigation, and understanding of Project mechanisms are sufficient to have a high level of confidence in predictions for both Project residual effects and cumulative effects. For marine mammals, there is moderate confidence in the prediction of residual effects on behaviour for most marine mammal species (including harvested species such as seal and sea lion). There is a moderate

level of confidence in the prediction of Project residual effects and cumulative effects on visual quality and acoustics.

Given these conclusions, LNG Canada’s confidence in its predictions regarding residual effects on harvesting-related Aboriginal Interests within LSA #3 is rated as moderate. The primary risks are that LNG Canada has underestimated the effect of Project shipping on harvested species, or has underestimated residual adverse effects on harvesting activities. Since LNG Canada’s confidence in its prediction of residual effects is not low, no additional risk analysis has been conducted.

14.15.7 Degree of Residual Adverse Effect

Consistent with the AIR, a determination of significance of residual adverse effects is not provided. This recognizes the unique nature of Aboriginal Interests and the potential inappropriateness of determining whether any effects on a protected Aboriginal Interest is “significant” or “not significant.” Instead, conclusions are provided regarding whether the predicted residual effects may interfere with the exercise of Aboriginal Interests and the predicted level of seriousness of that interference.

Given the residual effects described above, LNG Canada has concluded that Project shipping would result in a low level of interference with the harvesting-related Aboriginal Interests of each of the potentially affected Aboriginal Groups. Due to predicted effects on harvested species and marine/intertidal harvesting activities and locations, LNG Canada has concluded that there would be a very small but measurable interference with harvesting-related Aboriginal Interests. Any resulting limitation would be negligible, would not impose added burden on Aboriginal traditional harvesters, and would not deny them their preferred means of exercising Aboriginal Interests.

Table 14.15-8 lists LNG Canada’s conclusions regarding the predicted degree of interference with harvesting-related Aboriginal Interests due to shipping associated with the Project.

Table 14.15-8: Degree of Interference with Harvesting-Related Aboriginal Interests¹

	Limitation on Aboriginal Interest imposes “undue” hardship	Limitation would deny rights-holder preferred means of exercising Aboriginal Interest	Limitation interferes with Aboriginal Interest in “more than insignificant or trivial” way	Level of Interference
Harvesting-related Aboriginal Interests	No	No	No	Low

NOTES:

¹ Language adapted from *William v. British Columbia*, 2012 BCCA 285 (CanLII)

14.16 Assessment of Changes in Use of Ritual Sites, Sacred and Culturally Important Sites and Landscape Features in LSA #1

14.16.1 Introduction

This section assesses the LNG facility's potential adverse effects on the use of ritual sites, sacred and culturally important sites, and sacred and culturally important landscape features by Haisla Nation members. Potential adverse effects of the LNG facility on sacred and culturally important sites and landscape features (not related to use by Aboriginal people) are addressed in Section 14.25.

14.16.2 Baseline Information

Haisla Nation has asserted Aboriginal rights to spiritual and cultural use of its traditional territory (Powell 2013). They report that there are no community or personal ritual sites in the actual Project footprint (Powell 2013) and there are also no known Haisla Nation member burial sites in the area of the LNG facility (Powell 2013).

LNG Canada is aware that several locations within LSA #1 may have particular cultural or spiritual importance and may be used for culturally important rituals, ceremonies or practices by Haisla Nation members. LNG Canada recognizes that Project-related interference with the use of these sites, or access to them, by Haisla Nation members, could have important adverse effects on Haisla Nation members, their culture and their traditions. For example, certain pools (of about a meter in depth) near the mouths of creeks are preferred places for the solitary Haisla Nation *nakwelagila* bathing ritual (Powell 2013) and the destruction of such sites or disturbance of users at those locations may have serious consequences both for the individual user and the cultural integrity of the wider Haisla Nation community. Based on information available at the time of writing, LNG Canada is aware of the existence of the locations listed in Table 14.16-1 that are (or may be) sites used for ritual, sacred, or culturally important purposes and sacred and culturally important landscape features. Table 14.16-1 specifies a number of identified Haisla Nation named sites; LNG Canada has assumed for the purposes of this assessment that named locations may have a higher level cultural or spiritual importance and potential interactions with those sites should be included in the analysis.

LNG Canada acknowledges that Aboriginal Groups may be unwilling or unable to share specific information about the existence, location and use of certain sites or landscape features.

Table 14.16-1: Identified Sacred and Culturally Important Sites, Landscape Features, Landforms and Natural Features

Figure Reference #	Aboriginal Group	Name	Location	Description
H1	Haisla Nation	<i>Miya'nexaas</i> "Old Town"		Named site - Old settlement area with cultural value, site of eulachon fishing settlement with 29 houses in existence until mid-1960s.
H2	Haisla Nation	<i>Yixc'uwas</i>	Entrance to Kitimat River	Named site – a traditional harvesting site
H3	Haisla Nation	<i>Waxdlai</i> - "place where fresh river water meets brackish saltwater"		Named site – details on use unavailable
H4	Haisla Nation	<i>Awazois</i>	The boggy flats on western side of the mouth of Kitimat River	Named site – details on use unavailable
H5	Haisla Nation	<i>K'uis</i>	Large pools near mouth of Kitimat river	Named site – details on ritual/spiritual use unavailable
H6	Haisla Nation	<i>Amsilac'i</i>	– "place for shutting things off or away"/"place of maidens"	Traditional shelter area for young women during puberty rituals
H7	Haisla Nation	<i>Dendenyac'is</i> – ("grove of red cedar")	"on both sides, close to the river and easy access for the old people"	Named site – ritual/spiritual use undetermined "important stand of red and yellow cedar"
H8	Haisla Nation	<i>Gelcistis</i> - "long bend/–" long bent beach"	"about a mile below the Service Centre bridge"	Named site – ritual/spiritual use undetermined
H9	Haisla Nation	<i>Aq'wen</i>	The high bare sand hill rising up and behind the Service Centre area - originally was southern part of Haisla IR #9	Named site – part of old Haisla IR#9. Exact use/cultural importance not identified
H10	Haisla Nation	<i>Xinamac'l</i>	North side of Service Centre bridge – Kildala area	Named site – an early Haisla Nation settlement site before Haisla Nation members moved to Paxw (Paxw = marine terminal area). It "provided excellent view point to keep watch against raiding parties coming up the river" (Powell 2013) Name refers to "whittling" "men used to congregate there to whittle, gossip and pass the time together if they had a clean mind, body and soul (Powell 2013). Place for song writers, singers and carvers. Important traditional Haisla Nation site.
H11	Haisla Nation	<i>Lhilaq'ac'iyuq'wes</i>	On west side of the river	Named site - Traditional village site - "provided excellent view point to keep watch against raiding parties coming up the river" (Powell 2013) – important traditional site

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Figure Reference #	Aboriginal Group	Name	Location	Description
H12	Haisla Nation	<i>Paxw</i>	Current marine terminal docks area	Named site of early Gitamaat settlement – important traditional Haisla Nation site
H13	Haisla Nation	<i>Daduqwelac’l</i>		Named site - lookout point – spiritually charged and culturally important rock
H14	Haisla Nation	<i>Hahengagastem</i>	Pond high up west of the river above Beaver Creek	Named site – TU site
H15	Haisla Nation	<i>Gel’wa/Gel’wanuxw</i> (“Canoe”)	Ridge running southward from Project site to Bish Creek – the southern outcrop (<i>wa’hi</i> means “herring”) and northern outcrop (<i>zaxwan</i> – means eulachon)	Named geographic feature - Used by elders as a resource calendar; when sun sets over southern outcrop (in late March) it is time for herring runs. When sun sets over northern outcrop it is traditionally the time for eulachon in Kitimat River
H16	Haisla Nation	<i>Zagwis</i>	Northern tip of Minette Bay	Early Gitamaat village site
H17	Haisla Nation	<i>Laguxw</i>	Shoreline to south of RTA facility	Named area
H18	Haisla Nation	Kwengad	Frog Falls	Named area – southern boundary of Yaksda wa’wais
H19	Haisla Nation		TSN 2013-STL-5	Archaeological site
H20	Haisla Nation		TSN 2013-STL-9	Archaeological site
H21			CMT Site	

Sources: Powell 2013

14.16.3 Project Effects Mechanisms

Construction, operation, and decommissioning of the LNG facility could potentially result in changes in the use of ritual sites, sacred and culturally important sites and landscape features through:

- qualitative changes in the experience of using sites and landscape features for ritual or spiritually important purposes through acoustic and visual quality changes
- physical disturbance or destruction of ritual sites, sacred sites, and culturally or spiritually important sites through Project-related clearing and infrastructure construction
- changes in use of or access to ritual sites, sacred sites and culturally or spiritually important sites as a result of Project activities such as clearing, infrastructure construction, and fencing, and
- physical disturbance of landforms and natural features associated with ritual or spiritual use.

14.16.4 Mitigation Measures

A complete list of mitigation measures for each relevant VC is provided in Section 20 (Summary of Mitigation Measures).

14.16.4.1 Acoustics

14.16.4.1.1 Construction Phase

The following mitigation measures will be implemented to address noise effects during construction and decommissioning activities:

- Most construction activities, including pile installation, will be planned to occur between the daytime hours of 7 a.m. and 10 p.m. Night shifts will be required to complete specific activities or meet schedules (Mitigation 5.4-1).
- Vibro-hammer piling equipment will be considered for use where conditions permit for land-based piling operations (Mitigation 5.4-2).
- Fit gas or diesel engine exhausts with noise mufflers, where available (Mitigation 5.4-3).
- Rubber-wheeled equipment will be used instead of steel-tracked equipment, where practical (Mitigation 5.4-4).
- Construction equipment will be turned off when not in use, where practical, to minimize idling (Mitigation 5.4-5).
- Develop and implement a Traffic Management Plan (Mitigation 5.4-6).
- Equipment enclosure doors will be kept closed unless safe operations require otherwise (Mitigation 5.4-7).

- LNG Canada will develop a notification plan with input from the local community and other stakeholders for advance notification of planned substantial noise-causing activities at the LNG facility (Mitigation 5.4-8).
- A process will be implemented to address all noise complaints in a timely manner (Mitigation 5.4-9).

14.16.4.1.2 Operation Phase

A combination of the following mitigation measures will be implemented to meet regulatory limits. The measures will address potential noise effects during the operation phase:

- Regularly maintain all machinery and equipment to ensure that air and noise emissions are within range set by manufacturer when available (Mitigation 5.4-11).
- Ensure that project related noise generated during operation complies with the OGC Noise Control Best Practices Guidelines at sensitive receptor locations (Mitigation 5.4-12).
- A Noise Management Plan will be developed and implemented (Mitigation 5.4-10).
- A process will be implemented to address all noise complaints in a timely manner (Mitigation 5.4-9).

14.16.4.2 Human Health

Human health effects are based on CAC concentrations predicted air quality modelling; mitigation measures to reduce the CAC concentrations also mitigate human health effects. See Section 5.2 for air quality-specific mitigation measures. Mitigation measures specific to the protection of human health are not required. A follow-up program and compliance reporting are not required.

14.16.4.3 Visual Quality

Mitigation measures identified by the visual quality assessment (Section 7.3) relevant to the use of sacred and culturally important sites and landscape features are:

- A minimum 30 metre (m) wide mature riparian vegetation buffer will be maintained between the Project site and the Kitimat River, where practicable. If required, disturbance would be minimized and adhere to applicable regulatory process (Mitigation 7.3-1).
- Tree and vegetation clearing for the Project components will be reduced to the extent possible outside of the Project footprint but some clearing may be required to enable construction. Where temporary tree and vegetation clearing occurs during construction, revegetation activity will occur as soon as possible (with the exception of areas cleared within the safety zone) (Mitigation 7.3-2).

14.16.4.4 Archaeological and Heritage Resources

Mitigation measures for the archaeological and heritage resources (see Section 8.2) include those developed for CMTs and terrestrial archaeological or heritage sites. See Section 8.2.5.2 for a complete list of mitigation measures for CMTs and Section 8.2.5.3 for terrestrial archaeological or heritage sites.

- Archaeological sites GaTe-4 and GaTe-5, which were recorded in the LSA, will be managed in consultation with the Archaeology Branch and Haisla Nation and in accordance with the Heritage Investigation Permit issued by the Archaeology Branch (Mitigation 8.2-4).
- A Project-specific Archaeological and Heritage Resources Management Plan, including a Chance Find Protocol, will be developed and implemented prior to construction (Mitigation 8.2-6).

LNG Canada is committed to ongoing consultation with Aboriginal Groups and will continue to consult and engage with communities with respect to their Aboriginal Interests, issues and concerns throughout the Application review phase and the life of the Project. As stated in the approved Aboriginal Consultation Plan, LNG Canada will work towards maintaining good, long term relationships through open dialogue about issues and concerns that arise during the construction and operation phases and work towards resolving Project-related issues that may arise.

14.16.5 Characterization of Residual Effects on Use of Sacred and Culturally Important Sites and Landscape Features

14.16.5.1 Qualitative Changes in the Experience of Using Sites and Landscape Features for Ritual or Spiritually Important Purposes

14.16.5.1.1 Acoustics

As described in Section 5.4, during the operation and construction phases for the LNG facility, sound levels within the acoustics LSA (an area 3.5 km around the facility where a number of identified Haisla Nation TU sites are located) are expected to increase when compared to the existing acoustic environment. However, the magnitude of those changes for all receptors within the acoustics LSA is rated as low. During construction, noise effects will be lower or equal to Health Canada criteria. During operation, noise effects resulting from the LNG facility will be barely perceptible at all receptors and will not exceed the baseline sound level by more than 3 dB. For receptors greater than 5 km from the LNG facility and marine terminal, noise effects from construction and operation activities will attenuate to a level well below the threshold of human hearing perception. Acoustic effects resulting from the operation and construction of the LNG facility will be in compliance with federal and provincial noise guidelines and those residual effects will be not significant. Therefore, acoustics-related residual effects on the use of sacred and culturally important sites and landscape features are low magnitude.

14.16.5.1.2 Visual Quality

The LNG facility will intersect areas with established Visual Quality Objectives (VQO) of modification and partial retention and will intersect or influence Visual Sensitivity Units (VSU) that are moderately to highly visually sensitive to alteration, with a moderate ability to absorb human interventions and maintain visual quality. It is unknown what the residual effects would be on the Aboriginal experience of using sites and landscape features for ritual or spiritually important purposes but if they exist they would be likely to occur, continuous and long term. Visual quality effects are reversible after Project decommissioning. However, since the area is already an area of industrial development, LNG Canada can predict that the Aboriginal Groups' visual experience associated with using sites and landscape features for ritual or spiritually important purposes in and around the LNG facility will not be affected by the Project. The LNG facility area has moderately to highly visually sensitive to alteration. Since the area is already an area of industrial development Aboriginal Groups' visual experience in and around the LNG facility site will be not significantly affected by the Project.

14.16.5.2 Quantity of Affected Sacred and Culturally or Spiritually Important Sites, Landforms and Natural Features

Specific to LSA # 1, the construction of the LNG facility will result in the direct long-term loss of cultural and spiritual use sites, related landforms and natural features located within the Project footprint. An estimated 430 ha will be required to accommodate the full build out of the LNG facility. Clearing areas contain 66 ha of old-growth forest and 27 ha of marine habitat (Table 5.6-9). The largest loss of habitat will be on young deciduous forests (112 ha), followed by old-growth coniferous forest (62 ha), and young mixed-wood stands (42 ha)..

Results of the archaeological impact assessment for the Project indicate that there are two terrestrial archaeological or heritage sites located within the archaeology and heritage resources LSA, but no CMTs or intertidal sites. Of the two identified terrestrial archaeological sites, the potential for development to conflict with site TSN 2013-STL-9 is high. Project effects cannot be mitigated through avoidance, because the site is located in an area that would be covered during construction. Because much of the Project footprint area has been substantially disturbed, effects could occur in either a disturbed or an undisturbed archaeological context. While the Project effects on terrestrial archaeological and heritage resources will occur only once, the effects will be permanent and irreversible. LNG Canada has determined that TSN 2013-STL-5 can likely be avoided, but that avoidance of TSN 2013-STL-9 is not feasible or practical.

Table 14.16-2 sets out in detail identified sites that are or may be used for spiritual and cultural purposes and shows whether interaction with the Project and selected residual effects on relevant VCs is predicted.

Table 14.16-2: LNG Facility Interactions with Spiritual and Cultural Use Sites

Figure Reference #	Aboriginal Group	Name/Location/Description	Physical Components of LNG Facility (X indicates predicted interaction)													
			Safety Zone	LNG loading line Corridor (Including Associated Infrastructure)	Potential Workforce accommodation Access Road	LNG Processing and Storage Site	Bund	Water Supply System ROW	Temporary Construction ROW for Water Supply System Upgrades	Potential Workforce accommodation Lands	Haul Road Widening	Marine Terminal	Dredging Area	Material Offloading/Laydown Area	Potential Tree Clearing	
H1	Haisla Nation	<i>Miya'nexaas</i> (Simgas) "Old Town" Named site - Old settlement area – cultural value - site of oolichan fishing settlement with 29 houses until mid-1960s.														
H2	Haisla Nation	Yixc'uwas - Entrance to Kitimat River Named site – a traditional harvesting site														
H3	Haisla Nation	Waxdlai - "place where fresh river water meets brackish saltwater" Named site – use uncertain														
H4	Haisla Nation	Awazois – boggy flats on left side of Kitimat River mouth Named site – use uncertain	X													
H5	Haisla Nation	K'uis – large pools near mouth of river Named site - ritual/spiritual use undetermined														
H6	Haisla Nation	Amsilac'i – "place for shutting things off or away"/"place of maidens" - Traditional shelter area for young women during puberty rituals														

Figure Reference #	Aboriginal Group	Name/Location/Description	Physical Components of LNG Facility (X indicates predicted interaction)												
			Safety Zone	LNG loading line Corridor (Including Associated Infrastructure)	Potential Workforce accommodation Access Road	LNG Processing and Storage Site	Bund	Water Supply System ROW	Temporary Construction ROW for Water Supply System Upgrades	Potential Workforce accommodation Lands	Haul Road Widening	Marine Terminal	Dredging Area	Material Offloading/Laydown Area	Potential Tree Clearing
H7	Haisla Nation	Dendenyac'is – (“grove of red cedar”) “important stand of red and yellow cedar” – “on both sides, close to the river and ease of access for the old people” Named site – ritual/spiritual use undetermined						X	X						
H8	Haisla Nation	Gelcistis – “long bend” - long “bent” beach – “about a mile below the Service Centre bridge” - Named site – ritual/spiritual use undetermined						X	X						
H9	Haisla Nation	Aq'wen – high bare sand hill rising up and behind the Service Centre area - originally was southern part of Haisla IR #9 – Named site – part of old Haisla IR#9. Exact use/cultural importance not identified													
H10	Haisla Nation	Xinamac'l – north side of Service Centre bridge – Kildala area - Named site – an early Haisla Nation settlement site before Haisla Nation members moved to Paxw (marine terminal area). Place for song writers, singers and carvers. Important traditional Haisla Nation site.													

Figure Reference #	Aboriginal Group	Name/Location/Description	Physical Components of LNG Facility (X indicates predicted interaction)												
			Safety Zone	LNG loading line Corridor (Including Associated Infrastructure)	Potential Workforce accommodation Access Road	LNG Processing and Storage Site	Bund	Water Supply System ROW	Temporary Construction ROW for Water Supply System Upgrades	Potential Workforce accommodation Lands	Haul Road Widening	Marine Terminal	Dredging Area	Material Offloading/Laydown Area	Potential Tree Clearing
H11	Haisla Nation	Lhilaq'ac'iyuq'wes – important traditional Haisla Nation site – west side of the river - Named site - Traditional village site - "provided excellent view point to keep watch against raiding parties coming up the river" (Powell 2013)													
H12	Haisla Nation	Paxw – current marine terminal docks area - named site of early Gitamaat settlement – important traditional Haisla Nation site	X	X								X	X	X	X
H13	Haisla Nation	Daduqwelac'l –named site - lookout point – spiritually charged and culturally important rock													
H14	Haisla Nation	Hahengagastem – pond high up west of the river above Beaver Creek - Named site – TU site													
H15	Haisla Nation	Gel'wa/Gel'wanuxw ("Canoe") (ridge running southward from Project site to Bish Creek) – southern outcrop (wa'ni – herring) and northern outcrop ("zaxwan – oolichan) Named geographic feature - Used by elders as a resource calendar													
H16	Haisla Nation	Zagwis — northern tip of Minette Bay - early Gitamaat village site													
H17	Haisla Nation	Laguxw – shoreline to south of the RTA facility Named area													

Figure Reference #	Aboriginal Group	Name/Location/Description	Physical Components of LNG Facility (X indicates predicted interaction)												
			Safety Zone	LNG loading line Corridor (Including Associated Infrastructure)	Potential Workforce accommodation Access Road	LNG Processing and Storage Site	Bund	Water Supply System ROW	Temporary Construction ROW for Water Supply System Upgrades	Potential Workforce accommodation Lands	Haul Road Widening	Marine Terminal	Dredging Area	Material Offloading/Laydown Area	Potential Tree Clearing
H18	Haisla Nation	Kwengad – Frog Falls - Named area – southern boundary of Yaksda wa'wais													
H19	Haisla Nation	TSN 2013-STL-5	X			X									X
H20	Haisla Nation	TSN 2013-STL-9	X			X									X
H21	Haisla Nation	CMTs	X			X									X

14.16.6 Summary of Residual Effects on Use of Sacred and Culturally Important Sites and Landscape Features

Acoustic effects resulting from the operation and construction of the LNG facility will be in compliance with federal and provincial noise guidelines and those residual effects will be not significant.

Overall, the potential adverse residual effects from the LNG facility on visual quality will be minor because the setting is already subject to considerable visual alteration and Visual Quality Objectives (which are an indicator of public expectations and acceptance for changes to visual quality) on adjacent visually sensitive units will still be met.

Two recorded archaeological sites were identified within the Project footprint area that would experience interaction with LNG facility (Powell 2013:11). The water supply system ROW and temporary construction ROW for water supply system upgrades will cross through the *Dendenyac'is* ("grove of red cedar") area and may cross through *Gelcistis* (the "long bend/long "bent" beach), resulting in removal of some available areas that may currently be used for spiritual and cultural purposes. Based on available information, LNG Canada is unable to determine whether any of those identified sites are actually used for spiritual or cultural use by Aboriginal people. LNG Canada expects that residual effects on use of sacred and culturally important sites and landscapes features will be low in magnitude.

14.16.7 Residual Effects on Haisla Nation Use of Sacred and Culturally Important Sites and Landscape Features

Based on the analysis set out in detail above, overall residual effects on Haisla Nation use of sacred and culturally important sites and landscape features attributable to construction, operation, and decommissioning of the LNG facility are predicted to be low in magnitude. Given the lack of identified spiritually and culturally important sites that will experience interaction with the LNG facility, the existing industrial nature of the Project footprint, the current level of human activity and disturbance within those areas that will be most affected by the LNG facility, residual effects will not deny Haisla Nation members their preferred means of exercising their asserted spiritual and cultural rights.

14.16.8 Prediction Confidence and Risk

Confidence in the prediction of residual adverse effects on spiritual and cultural use is rated as high, as the information provided to LNG Canada by Haisla Nation specifically addressed any known spiritual or ceremonial site in the Aboriginal Interests LSA #1.

The primary risk is that information provided to LNG Canada by Haisla Nation has underestimated the potential for effects on use of spiritual and cultural use. Since LNG Canada's confidence in its prediction of residual effects is not low, no additional risk analysis has been conducted.

14.16.9 Degree of Residual Adverse Effect

Consistent with the AIR, a determination of significance of residual adverse effects is not provided. This recognizes the unique nature of Aboriginal Interests and the potential inappropriateness of determining whether any effects on a protected Aboriginal Interest is “significant” or “not significant.” Instead, conclusions are provided regarding whether the predicted residual effects may interfere with the exercise of Aboriginal Interests and the predicted level of seriousness of that interference.

LNG Canada estimates that the degree of adverse effects on the use of sacred and culturally important sites is low. One archaeological site will be destroyed, and three other sites or areas may experience some interaction (but it is not clear whether any of those sites are actually used for spiritual and cultural purposes). It is unlikely that any resulting limitation on the use of sacred and culturally important sites and landscape features would impose “undue” hardship or would deny Aboriginal people their preferred means of using sacred and culturally important sites and landscape features. It is unlikely that any resulting limitation would interfere with that use in “more than insignificant or trivial” way. Table 14.16-3 summarizes LNG Canada’s conclusions regarding the predicted degree of interference with Aboriginal Interests associated with the use of sacred and culturally important sites and landscape features due to the LNG facility.

Table 14.16-3: Degree of Interference with Aboriginal Interests Associated with Use of Sacred and Culturally Important Sites and Landscape Features for LSA # 1¹

	Limitation on Aboriginal Interest imposes “undue” hardship	Limitation will deny rights-holder preferred means of exercising Aboriginal Interest	Limitation interferes with Aboriginal Interest in “more than insignificant or trivial” way	Predicted Degree of Interference
The use of sacred and culturally important sites and landscape features	No	No	No	Low

NOTES:

¹ Language adapted from *William v. British Columbia*, 2012 BCCA 285 (CanLII)

14.17 Assessment of Changes in Use of Ritual Sites, Sacred and Culturally Important Sites and Landscape Features in LSA #2

14.17.1 Introduction

This section assesses the LNG facility’s potential adverse effects within LSA #2 on the use of ritual sites, sacred and culturally important sites, and sacred and culturally important landscape features by Aboriginal people. Potential adverse effects of the LNG facility on sacred and culturally important sites and landscape features (not related to use by Aboriginal people) are addressed in Section 14.25.

14.17.2 Baseline Information

Numerous places in Aboriginal Interests LSA #2 are identified by Haisla Nation, Kitselas First Nation, Kitsumkalum First Nation, and Lax Kw’alaams First Nation as having a particular cultural or spiritual importance. Haisla Nation has reported that there are no community or personal ritual sites in the actual Project footprint (Powell 2013) and there are also no known Haisla Nation member burial sites in the area of the LNG facility (Powell 2013).

LNG Canada recognizes that Project-related interference with the use of these sites, or access to them, could have adverse effects on Aboriginal people and their culture. Based on information available at the time of writing, LNG Canada is aware of the existence of the locations listed in Table 14.17-1 that are (or may be) sites used for ritual, sacred or culturally important purposes and sacred and culturally important landscape features. LNG Canada acknowledges that Aboriginal Groups may be unwilling or unable to share specific information about the existence, location and use of certain sites or landscape features.

Table 14.17-1: Identified Sacred and Culturally Important Sites, Landscape Features, Landforms and Natural Features

Figure Reference #	Aboriginal Group	Name	Location	Description
H1	Haisla Nation	<i>Miya’nexaas/</i> “Old Town”		Named site - Old settlement area with cultural value, site of eulachon fishing settlement with 29 houses in existence until mid-1960s.
H2	Haisla Nation	<i>Yixc’uwas</i>	Entrance to Kitimat River	Named site – a traditional harvesting site
H3	Haisla Nation	<i>Waxdlai</i> - “place where fresh river water meets brackish saltwater”		Named site – details on use unavailable
H4	Haisla Nation	<i>Awazois</i>	The boggy flats on western side of the mouth of Kitimat River	Named site – details on use unavailable
H5	Haisla Nation	<i>K’uis</i>	Large pools near mouth of Kitimat River	Named site – details on ritual/spiritual use unavailable

Figure Reference #	Aboriginal Group	Name	Location	Description
H6	Haisla Nation	<i>Amsilac'i</i>	– “place for shutting things off or away”/“place of maidens”	Traditional shelter area for young women during puberty rituals
H7	Haisla Nation	<i>Dendenyac'is</i> – (“grove of red cedar”)	“on both sides, close to the river and ease of access for the old people”	Named site – ritual/spiritual use undetermined “important stand of red and yellow cedar” –
H8	Haisla Nation	<i>Gelcistis</i> - “long bend/–” long bent beach”	“about a mile below the Service Centre bridge”	Named site – ritual/spiritual use undetermined
H9	Haisla Nation	<i>Aq'wen</i>	The high bare sand hill rising up and behind the Service Centre area - originally was southern part of Haisla IR #9	Named site – part of old Haisla IR#9. Exact use/cultural importance not identified
H10	Haisla Nation	<i>Xinamac'l</i>	North side of Service Centre bridge – Kildala area	Named site – an early Haisla Nation settlement site before Haisla Nation members moved to Paxw (Paxw = marine terminal area). It “provided excellent view point to keep watch against raiding parties coming up the river” (Powell 2013) Name refers to “whittling” “men used to congregate there to whittle, gossip and pass the time together if they had a clean mind, body and soul (Powell 2013). Place for song writers, singers and carvers. Important traditional Haisla Nation site.
H11	Haisla Nation	<i>Lhilaq'ac'iyuq'wes</i>	On west side of the river	Named site - Traditional village site - “provided excellent view point to keep watch against raiding parties coming up the river” (Powell 2013) – important traditional site
H12	Haisla Nation	<i>Paxw</i>	Current marine terminal docks area	Named site of early Gitamaat settlement – important traditional Haisla Nation site
H13	Haisla Nation	<i>Daduqwelac'l</i>		Named site - lookout point – spiritually charged and culturally important rock
H14	Haisla Nation	<i>Hahengagastem</i>	Pond high up west of the river above Beaver Creek	Named site – TU site
H15	Haisla Nation	<i>Gel'wa/Gel'wanuxw</i> (“Canoe”)	Ridge running southward from Project site to Bish Creek – the southern outcrop (<i>wa'hi</i> means “herring”) and northern outcrop (<i>zaxwan</i> – means eulachon)	Named geographic feature - Used by elders as a resource calendar; when sun sets over southern outcrop (in late March) it is time for herring runs. When sun sets over northern outcrop it is traditionally the time for eulachon in Kitimat River
H16	Haisla Nation	<i>Zagwis</i>	Northern tip of Minette Bay	Early Gitamaat village site
H17	Haisla Nation	<i>Laguxw</i>	Shoreline to south of the RTA facility	Named area
H18	Haisla Nation	Kwengad	Frog Falls	Named area – southern boundary of Yaksda wa'wais
H19	Haisla Nation		TSN 2013-STL-5	Archaeological site
H20	Haisla Nation		TSN 2013-STL-9	Archaeological site

Figure Reference #	Aboriginal Group	Name	Location	Description
H21	Haisla Nation		CMT Site – see chapter x.	CMTs
K1	Kitselas First Nation		Throughout the Kitselas Canyon, specific sites are Ringbolt and Dry islands	Rock art
K2	Kitselas First Nation		Throughout the Kitselas Canyon, specific sites are three along the river in the Kitselas Canyon	Archaeological sites
L1	Lax Kw'alaams First Nation		Some reported locations at the mouth of Lakelse River.	Archaeological sites, including CMTs and shell middens

Sources: Powell 2013, Calliou 2011, 2014c, Satterfield Et Al 2012, Seguin Anderson 2006, Metlakatla First Nation 2011

14.17.3 Project Effects Mechanisms

LNG facility emissions could potentially result in changes in the use of ritual sites, sacred and culturally important sites and landscape features through adverse effects on health of Aboriginal traditional users as a result of Project air emissions.

14.17.4 Mitigation Measures

Human health effects are based on CAC concentrations in air predicted by the air quality assessment, and mitigation measures to reduce the predicted CAC concentrations in air are therefore also mitigate residual human health effects. See section 5.2 for air quality specific mitigation measures.

Mitigation measures specific to the protection of human health are not required and have not been incorporated in the assessment of residual effects associated with inhalation exposures to Project-related chemicals.

LNG Canada is committed to ongoing consultation with Aboriginal Groups and will continue to consult and engage with communities with respect to their Aboriginal Interests, issues and concerns throughout the Application review phase and the life of the Project. As stated in the approved Aboriginal Consultation Plan, LNG Canada will work towards maintaining good, long term relationships through open dialogue about issues and concerns that arise during the construction and operation phases and work towards resolving Project-related issues that may arise.

14.17.5 Characterization of Residual Effects on Use of Sacred and Culturally Important Sites and Landscape Features

With regard to direct inhalation exposures of LNG facility emissions (e.g., SO₂) by Aboriginal traditional users at terrestrial TU locations and access corridors, Project-related effects are rated as negligible and not significant for the assessed areas. Predicted human health effects of direct inhalation exposure would be even lower (from a human health perspective) for individuals (including Aboriginal traditional users) who frequent sacred and culturally important sites and landscape features located outside of the immediate Kitimat area within LSA #2. Therefore, the magnitude of residual effects on the use of sacred and culturally important sites and landscape features will be negligible.

14.17.6 Degree of Residual Adverse Effect

Consistent with the AIR, a determination of significance of residual adverse effects is not provided. This recognizes the unique nature of Aboriginal Interests and the potential inappropriateness of determining whether any effects on a protected Aboriginal Interest is “significant” or “not significant.” Instead, conclusions are provided regarding whether the predicted residual effects may interfere with the exercise of Aboriginal Interests and the predicted level of seriousness of that interference.

LNG Canada estimates that the degree of adverse effects on the use of sacred and culturally important sites is low. No limitations on the use of sacred and culturally important sites and landscape features within LSA #2 will result from Project emissions. Project emissions will not impose “undue” hardship or deny Aboriginal people their preferred means of using sacred and culturally important sites and landscape features. No interference is predicted.

Table 14.17-2 summarizes LNG Canada’s conclusions regarding the predicted degree of interference with spiritual and cultural use within LSA #2.

Table 14.17-2: Degree of Interference with Aboriginal Interests Associated with Use of Sacred and Culturally Important Sites and Landscape Features for LSA # 2¹

	Limitation on Aboriginal Interest imposes “undue” hardship	Limitation will deny rights-holder preferred means of exercising Aboriginal Interest	Limitation interferes with Aboriginal Interest in “more than insignificant or trivial” way	Predicted Degree of Interference
The use of sacred and culturally important sites and landscape features	No	No	No	No interference

NOTES:

¹ Language adapted from *William v. British Columbia*, 2012 BCCA 285 (CanLII)

14.17.7 Residual Effects on Aboriginal Interests

No effects on the use of sacred and culturally important sites and landscape features by any of the listed Aboriginal Groups are predicted.

14.17.8 Prediction Confidence and Risk

Confidence in the prediction of residual adverse effects on spiritual and cultural use is rated as high.

The primary risk is that information provided to LNG Canada by Haisla Nation has underestimated the potential for emissions-related effects on spiritual and cultural use. Since LNG Canada's confidence in its prediction of residual effects is not low, no additional risk analysis has been conducted.

14.18 Assessment of Changes in Use of Sacred and Culturally Important Sites and Landscape Features in LSA #3

14.18.1 Introduction

This section assesses the LNG facility's potential adverse effects within LSA #3 on the use of ritual sites, sacred and culturally important sites, and sacred and culturally important landscape features by Aboriginal people. Potential adverse effects of the LNG facility on sacred and culturally important sites and landscape features (not related to use by Aboriginal people) are addressed in Section 14.27

14.18.2 Baseline Information.

Numerous places in the Aboriginal Interests LSA #3 are identified by Aboriginal Groups as particularly sacred or culturally important. Table 14.18-1 lists information about sites that available to LNG Canada at the time of Application submission, such as historic trails, archaeological sites, and other identified spiritual and cultural areas. LNG Canada acknowledges that many spiritual or culturally important sites have protocols associated with them, and as a result, LNG Canada may not be aware of them. LNG Canada will continue to consult with the potentially affected Aboriginal Groups and work to incorporate, where possible, any new information about the existence, use and importance of the sacred and culturally important sites and landscape features and relevant mitigation measures.

Table 14.18-1: Identified Sacred and Culturally Important Sites and Landscape Features – Marine Access Route

Aboriginal Group	Description	Locations (LSA/RSA)
Haisla Nation	Human Remains	Gobeil Islands, Emsley Cove,
Haisla Nation	Archaeological Sites, including CMTs and rock art	Clio and Mud bays, Markland Point (and bay), Echo Bay, Miskatla and Giltoeyes Inlet
Haisla Nation	Grease Trails	Giltoeyes Inlet and Creek
Haisla Nation	Historic Places and campsites	Throughout the LSA #3 along islands and mainland shores
Haisla Nation	Ceremonial Site	Gobeil Island
Haisla Nation	Location of legendary creatures	Jesse Lake and Jesse Creek, Foch Lagoon, River and Lake
Gitga'at First Nation	Rock Art	Throughout the Aboriginal Interests LSA #3 within 200 m of the ocean
Gitga'at First Nation	Human Remains	Hartley Bay, Old Town, Campania Island, Otter Channel.
Gitga'at First Nation	Shell midden	Throughout Aboriginal Interests LSA #3.
Gitga'at First Nation	Fish trap	Throughout Aboriginal Interests LSA #3
Gitxaala Nation	Spanoxnox location	South end ("at the point") of McCauley Island
Gitxaala Nation	Spanoxnox	East side of Banks Island
Gitxaala Nation	Spanoxnox	"In" Principe Channel
Gitxaala Nation	Spanoxnox	"Around" Aristizabal Island
Gitxaala Nation	Spanoxnox	Otter Channel (Kwil dooyks)
Gitxaala Nation	Identified Sacred Place	Keecha (IR 11)
Gitxaala Nation	Identified Sacred Place	Bear Bay
Gitxaala Nation	Identified Sacred Place	"Near Larsen Harbour"
Gitxaala Nation	Identified Sacred Place	"On the west coast of Porcher Island"
Gitxaala Nation	Identified Sacred Place	"in Squally Channel"
Gitxaala Nation	Identified Sacred Place	"in Lewis Passage near McDonald Bay"
Gitxaala Nation	Identified Sacred Place	"Off the North Tip of Gill Island"
Gitxaala Nation	Identified Sacred Place	"near Keswar Point and End Hill in Principe Channel"
Gitxaala Nation	Identified Sacred Place	"off west coast of Dolphin Island"
Gitxaala Nation	Identified Sacred Place	"at Calamity Bay" "near Calamity Bay on the south end of Banks Island"
Gitxaala Nation	Identified Sacred Place	"Camps around Ka'oiya [IR Kooryet 19]"
Gitxaala Nation	Identified Sacred Place	End Hill
Gitxaala Nation	Identified Sacred Place	Wright Sound
Gitxaala Nation	Identified Sacred Place	In Principe Channel across from Mink Trap Bay
Gitxaala Nation	Identified Sacred Place	In Principe Channel across from Port Stephens
Gitxaala Nation	Identified Sacred Place	In Principe Channel across from Anger Island
Gitxaala Nation	Identified Sacred Place	In Principe Channel near Colby Bay
Gitxaala Nation	Identified Sacred Place	In Principe Channel near Whelan Point
Gitxaala Nation	Identified Sacred Place	In Browning Entrance

Aboriginal Group	Description	Locations (LSA/RSA)
Gitxaala Nation	Identified Sacred Place	On Pitt Island near Port Stephens
Gitxaala Nation	Identified Sacred Place	“by Anger Island
Gitxaala Nation	Spanoxnox location	East side of Banks Island
Gitxaala Nation	Spanoxnox location	“In” Principe Channel
Gitxaala Nation	Spanoxnox location	“Around” Aristizabal Island
Gitxaala Nation	Spanoxnox location	Otter Channel (Kwil dooyks)
Lax Kw’alaams First Nation	Rock Art	Throughout LSA #3 near the shorelines.
Metlakatla First Nation	Rock Art	Throughout LSA #3 near the shore
Metlakatla First Nation	Archaeological Sites, including CMTs and shell middens	Throughout LSA #3 near the shore, specific locations are areas around Stephens Island

Sources: Powell 2013, Calliou 2011, 2014c, Satterfield Et Al 2012, Seguin Anderson 2006, Metlakatla First Nation 2011, Marsden 2011 and Gitxaala final written submissions to Enbridge JRP.

14.18.3 Project Effects Mechanisms for Use of Sacred and Culturally Important Sites and Landscape Features

Activities associated with Project shipping could affect the use of sacred and culturally important sites and landscape features within the Aboriginal Interest LSA #3 through:

- qualitative changes in the experience of using sites and landscape features for ritual or spiritually important purposes
- effects on ritual sites, sacred sites, and culturally or spiritually important sites, including access, and
- effects on landforms and natural features associated with ritual or spiritual use.

14.18.4 Mitigation Measures

A complete list of mitigation measures for each relevant VC is provided in Section 20 (Summary of Mitigation Measures).

14.18.4.1 Visual Quality

The following mitigation measure will be implemented to reduce Project-related visual quality effects:

- Project-related marine traffic including LNG carriers will use the Coast Guard Marine Communication and Traffic System (MCTS) to provide notice of planned arrival time at Triple Island, and encourage Aboriginal Groups and stakeholders to use the system to plan their routing and scheduling (Mitigation 7.3-3).

14.18.4.2 Marine Transportation and Use

Key mitigation measures developed by LNG Canada to reduce the potential for adverse effects are:

- Regular communication on Project activities will occur with marine users, including recreationalists, commercial tourism operators, CRA fishers, Transport Canada, DFO, and relevant stakeholders (Mitigation 6.2-7).
- No planned anchoring along the marine access route (unless directed to do so by BC Coast Pilots due to weather or other unplanned conditions); LNG carriers will only be permitted to enter the marine access route if a berth at the terminal will be available (Mitigation 7.3-4).
- Use escort tugs between Triple Island and Kitimat during all LNG carrier transits (Mitigation 7.4-6).
- LNG carriers will travel at speeds up to 14 knots. Speeds will vary depending on navigational safety, weather conditions, location, and marine mammal presence, and will be determined based on the judgment of the ship's master who receives advice from the BC Coast Pilots on board. Subject to navigational safety needs, in areas of high whale density between the northern end of Campania Island and the southern end of Hawkesbury Island, LNG carriers will travel at speeds of 8 or 10 knots from July through October (recognizing predicted periods of high use by marine mammals) (Mitigation 5.8-12).
- Strict adherence to the prescribed route and passing restrictions so that LNG Canada carriers may only pass other large commercial vessels in straight sections of the route (Mitigation 7.4-7).
- LNG carriers will maintain safe operating distances from other marine craft (Mitigation 7.4-8).

In addition to those measures outlined in Sections 7.4.5.3 and 7.4.6.2, LNG Canada's has developed mitigation measures for reducing the potential for adverse effects on marine recreation which will, in turn, reduce effects on the use of sacred and culturally important sites and landscape features by reducing the need for recreation activities to expand into other areas. To offset increased demands on outdoor recreation areas resulting from Project-associated population changes LNG Canada will:

- Work with local parks and recreation planning entities to provide input into the development and improvement of outdoor recreation areas (including parks and trails) (Mitigation 7.2-13).

LNG Canada is committed to ongoing consultation with Aboriginal Groups and will continue to consult and engage with communities with respect to their Aboriginal Interests, issues and concerns throughout the Application review phase and the life of the Project. As stated in the approved Aboriginal Consultation Plan, LNG Canada will work towards maintaining good, long term relationships through open dialogue about issues and concerns that arise during the construction and operation phases and work towards resolving Project-related issues that may arise.

14.18.5 Characterization of Residual Effects on the Use of Sacred and Culturally Important Sites and Landscape Features in LSA #3

14.18.5.1 Qualitative changes in the experience of using sites and landscape features for ritual or spiritually important purposes

14.18.5.1.1 Acoustics

As described in Section 5.4, during the operation and construction phases for the LNG facility, sound levels within the acoustics LSA for Project shipping are expected to increase when compared to the existing acoustic environment. The magnitude of those changes for all identified receptors (e.g., Hartley Bay, Otter Channel, Kitkatla, Metlakatla Village) is rated as low and there will be negligible to little effect. Noise effects from shipping activities would be in compliance with both federal and provincial noise guidelines and will be not significant. For these reasons, any residual effects on the use of sacred and culturally important sites and landscape features stemming from acoustic changes in LSA #3 would be low in magnitude.

14.18.5.1.2 Visual Quality

Candidate viewpoints along the marine access route were identified through consultation with interested Aboriginal Groups. Field studies were undertaken to validate 17 locations and photo-document the baseline view of the marine access route from each location.

The Project would intersect areas with established VQOs of modification and partial retention and would intersect or influence VSUs that are moderately to highly visually sensitive to alteration, with a moderate ability to absorb human interventions and maintain visual quality. The 17 viewpoints assessed in the visual quality shipping RSA were identified as places of importance by Gitga'at First Nation and Gitxaala Nation and are areas of important historic, cultural, and TU, such as Otter Passage, Turtle Point, Hartley Bay, Dolphin Island, see table 7.3-9 for full details. The average increase in large vessel viewing time in these locations is 37 hours per month.

No effects on the experience of using sites and landscape features for ritual or spiritually important purposes from ecological effects are anticipated. These sites may be affected in a way that affects cultural identify through visual quality effects; however, if effects do occur, they would be of low magnitude and reversible. The effect may be continuous for the life of the Project (i.e., long-term) and occur through the entire marine access route. Aboriginal Groups are predicted to exhibit high resilience to the effects as their experiences are already affected by shipping and other marine traffic. The likelihood any residual adverse effects on the experience of using site and landscape features for ritual or spiritually important purposes is low.

Whereas the frequency and duration of large vessels would increase considerably over baseline conditions with the addition of the Project's LNG carriers, prominence is limited across all viewpoints and the average duration across all viewpoints is 41.1 hours per month (1.4 hours per day).

14.18.5.2 Quantity of Affected Sacred and Culturally or Spiritually Important Sites

Table 14.18-1 lists over forty separate reported places of spiritual importance within the Aboriginal Interests LSA #3. LNG Canada has assumed for the purposes of this assessment that numerous sacred and culturally important sites (many of them used for cultural or spiritual purposes by members of the potentially affected Aboriginal Groups) exist in terrestrial areas along the entirety of the marine access route.

Shipping activities are not expected to displace Aboriginal shoreline users. Potential interruption from wake waves is only expected to occur if LNG Canada vessels pass by an active spiritual use site (a multiple but irregular occurrence). Waves generated by LNG Canada vessels are predicted to be less than 10 cm in height upon reaching shoreline (well within the range of naturally generated waves in the region). In addition, spiritual and cultural use sites located in inlets and bays would be partially sheltered from wake waves. Mitigation measures would also reduce or eliminate potential effects on shoreline users.

14.18.5.3 Quantity of Affected Landforms and Natural Features Associated with Ritual or Spiritual Use

Residual adverse effects on any ritual or spiritual important landforms and natural features along the shipping lanes will be negligible, as Project shipping effects, such as wake, are predicted to have no or negligible residual effect on landforms or natural features.

14.18.6 Summary of Residual Effects on Use of Sacred and Culturally Important Sites and Landscape Features in LSA #3

Overall, Project related shipping activities are expected to have a low magnitude residual effect on the use of sacred and culturally important sites for all of the potentially affected Aboriginal Groups. The magnitude of acoustics changes for all identified receptors (e.g., Hartley Bay, Otter Channel, Kitkatla, Metlakatla Village) is rated as low and there will be negligible to little effect. Shipping activities are not expected to displace Aboriginal shoreline users. Residual adverse effects on any ritual or spiritual important landforms and natural features along the shipping lanes will be negligible. The visual quality effects on important sites and features will be moderate, occur throughout the operating life of the LNG facility and exist on a regular, but predictable basis.

14.18.7 Prediction Confidence and Risk

LNG Canada has a high level of confidence in its assessment of residual adverse effects of Project related shipping activities on the use of spiritual, cultural or sacred places, landforms and natural features. LNG Canada has a high level of confidence in the conclusions of Project wake effect models and predictions related to Project accidents and malfunctions. With regard to visual quality, the lack of detail about the exact locations of landforms makes prediction confidence moderate. However, assuming that at least some of these areas occur along shorelines, the residual effect from the visual quality viewpoints is assumed to be accurate. The primary risk is that LNG Canada has underestimated the potential for effects on use of spiritual and cultural areas or has not identified specific spiritual and cultural areas that may experience unique effects attributable to Project shipping. Since LNG Canada’s confidence in its prediction of residual effects is not low, no additional risk analysis has been conducted.

14.18.8 Degree of Residual Adverse Effect

Consistent with the AIR, a determination of significance of residual adverse effects is not provided. This recognizes the unique nature of Aboriginal Interests and the potential inappropriateness of determining whether any effects on a protected Aboriginal Interest is “significant” or “not significant.” Instead, conclusions are provided regarding whether the predicted residual effects may interfere with the exercise of Aboriginal Interests and the predicted level of seriousness of that interference.

Table 14.18-2 summarizes LNG Canada’s conclusions regarding the predicted degree of interference with the use of sacred and culturally important sites and landscape features due to shipping associated with the Project.

Table 14.18-2: Degree of Interference with Use of Sacred and Culturally Important Sites and Landscape Features for LSA # 3

	Limitation on Aboriginal Interest imposes “undue” hardship	Limitation will deny rights-holder preferred means of exercising Aboriginal Interest	Limitation interferes with Aboriginal Interest in “more than insignificant or trivial” way	Predicted Degree of Interference
Changes in the use of sacred and culturally important sites and landscape features	No	No	No	Low

NOTES:

¹ Language adapted from *William v. British Columbia*, 2012 BCCA 285 (CanLII)

14.19 Assessment of Changes in Aspects of Traditional Aboriginal Governance in LSA #1

14.19.1 Introduction

During consultation activities, one issue raised by some Aboriginal Groups was the potential effect of the Project on their traditional governance systems. Based on information provided by interested Aboriginal Groups, LNG Canada understands that natural resource harvesting activity (e.g., fishing, trapping, hunting, vegetation gathering), ownership, access to, and control of key natural resource harvesting locations is integral to traditional aspects of Aboriginal governance. Recognizing the close connection between traditional harvesting and traditional aspects of Aboriginal governance, this section assesses the residual adverse effects (within LSA #1) on those aspects of traditional aspects of Aboriginal governance that are closely linked to harvesting activity. For the purposes of this assessment, the term “governance” refers to Aboriginal Groups’ political institutions that are location-based and hereditary.

LNG facility construction, operation, and decommissioning may affect traditional aspects of Aboriginal governance structures in other ways besides those assessed in this section and will continue to consult with potentially affected Aboriginal Groups to better understand the nature of those potential effects and identify potential mitigation measures.

14.19.2 Baseline Information

Haisla Nation has stated that it exercises aspects of Aboriginal governance rights within its traditional territory and that it intends to manage its traditional territory in accordance with its laws, policies, customs, and traditions (Haisla FOTA 2012).

In their submissions to the Enbridge Northern Gateway Project Joint Review Panel (Haisla Nation 2011), Haisla Nation described the central role that traditional foods play in important Haisla feasting ceremonies. A central aspect of the ceremony is the serving of a meal with a variety of traditional foods gathered locally (Haisla Nation 2011).

In the Haisla Nation’s 2013 TK/TLU report for the Project (Powell 2013), the author notes that the most important cultural activities among Haisla Nation are community feasts which serve a number of functions: providing a venue for the complex inheritance ritual called a *t’laqwagila* (settlement feast) and other feasts such as the *c’uxwa* (cleansing, apology feast), the *menca* (insult feast to shame members of a clan for inappropriate behaviour); the *kuxwagila* (a thank feast for someone who has done a great service to the host); and the *mamatlud* (wedding feast). They serve the function of allowing things to be “put on record” by their public announcement in front of witnesses, and maintain the cultural tradition common to all Northwest Coast Aboriginal cultures, in which the guests are paid with gifts for witnessing

an event or announcement (Powell 2013). Powell notes that Haisla Nation traditional foods are served “with great pride” at feasts and that a major expense associated with feasting is the purchasing of large quantities of traditional foods or paying others to harvest those foods for the purposes of the feast (Powell 2013).

14.19.3 Project Effects Mechanisms

Construction, operation, and decommissioning of the LNG facility have the potential to adversely affect preferred harvested species and to interfere with the use of and access to TU locations (see Section 14.12.4 for a detailed analysis of residual adverse effects on Aboriginal harvesting-related harvesting rights). Given these residual adverse effects, it is possible that the Project may have indirect adverse effects on traditional aspects of Aboriginal governance through quantitative and qualitative changes in harvesting levels of high-value foods used for governance-related events and ceremonies.

14.19.4 Mitigation Measures

Mitigation measures for changes to harvesting locations and levels are detailed in Section 14.13.3. Further mitigation measures are in Sections 5.5, 5.6, 5.7, 5.8, 7.4 and 9.2, such as marine activities plans and restricted transit routes, habitat compensation and offsetting plans, timing and restricted construction areas. A complete list of mitigation measures for each relevant VC is provided in Section 20 (Summary of Mitigation Measures).

LNG Canada is committed to ongoing consultation with Aboriginal Groups and will continue to consult and engage with communities with respect to their Aboriginal Interests, issues and concerns throughout the Application review phase and the life of the Project. As stated in the approved Aboriginal Consultation Plan, LNG Canada will work towards maintaining good, long term relationships through open dialogue about issues and concerns that arise during the construction and operation phases and work towards resolving any Project related issues that may arise.

14.19.5 Characterization of Residual Effects on Aspects of Haisla Nation Traditional Governance Systems within LSA #1

Residual effects on Haisla Nation traditional harvesting activities (including effects on valued harvested species and access to harvesting locations) within LSA #1 are predicted to be moderate in magnitude. The majority of effects on harvested species and harvesting locations would be highly localized and limited to the Project footprint; neighboring harvesting areas would remain available and largely unaffected by the Project. Quantitative changes in the production of high-value foods harvested within LSA #1 for governance-related events and ceremonies would be similarly moderate in magnitude. Residual adverse effects will be experienced primarily by traditional users who use harvesting areas

within the Project footprint; they could encounter a high level of interference during operations because the Project footprint will be fenced and will therefore restrict access to harvesting locations. Residual effects from the LNG facility will not deny Haisla Nation members their preferred means of exercising their harvesting rights. Given these predicted effects, residual effects within LSA #1 on harvesting-related aspects of Haisla Nation traditional governance systems will be moderate in magnitude, meaning that a variation from baseline, and changes to traditional Haisla Nation governance systems that depend on foods harvested primarily or solely within LSA #1 are predicted. Predicted interference would take place within LSA #1 and would be long-term, relatively continuous, and largely reversible. There is a high likelihood that predicted effects on harvested species and harvesting activity within LSA #1 would occur. Given that conclusion, LNG Canada has also concluded that there is a high likelihood that predicted effects on harvesting-related aspects of Haisla Nation traditional governance systems will also occur.

14.19.6 Degree of Residual Adverse Effect

Consistent with the AIR, a determination of significance of residual adverse effects is not provided. This recognizes the unique nature of Aboriginal Interests and the potential inappropriateness of determining whether any effects on a protected Aboriginal Interest is “significant” or “not significant.” Instead, conclusions are provided regarding whether the predicted residual effects may interfere with the exercise of Aboriginal Interests and the predicted level of seriousness of that interference.

LNG Canada has concluded that the Project would result in a moderate level of interference with Haisla Nation Aboriginal Interests associated with traditional governance. Table 14.19-1 summarizes LNG Canada’s conclusions regarding the LNG facility’s predicted degree of interference within LSA #1:

Table 14.19-1: Degree of Interference with Harvesting-Related Aspects of Haisla Nation Traditional Governance Systems for LSA #1¹

	Limitation on Aboriginal Interest imposes “undue” hardship	Limitation will deny rights-holder preferred means of exercising Aboriginal Interest	Limitation interferes with Aboriginal Interest in “more than insignificant or trivial” way	Predicted Degree of Interference
Aspects of Aboriginal governance	No	No	No	Moderate

NOTES:

¹ Language adapted from *William v. British Columbia*, 2012 BCCA 285 (CanLII)

14.19.7 Prediction Confidence and Risk

LNG Canada's confidence level for predictions regarding effects on traditional governance associated with traditional harvesting is moderate given uncertainties about the percentage of high-value traditional foods harvested within LSA #1 versus other harvesting areas nearby. The primary risk is that LNG Canada has underestimated the residual adverse effects of the LNG facility on Aboriginal traditional harvesting activities within LSA #1, and by extension, has underestimated residual adverse effects on Aspects of Aboriginal governance systems linked to traditional harvesting.

14.20 Assessment of Changes in Aspects of Traditional Aboriginal Governance in LSA #2

14.20.1 Introduction

This section assesses the potential adverse effects of LNG facility emissions in LSA #2 on certain aspects of traditional aspects of Aboriginal governance that are integrally linked to traditional harvesting activity. As stated previously, LNG Canada acknowledges that it is possible that emissions from the LNG facility could affect traditional aspects of Aboriginal governance structures in ways not considered here, and will continue to consult with potentially affected Aboriginal Groups to better understand the nature of those potential effects and effects mechanisms and identify potential mitigation measures where practicable.

14.20.2 Baseline Information

Many aspects of traditional aspects of Aboriginal governance are closely tied to the harvesting of natural resources. First Nations' feasting is strongly linked to traditional governance, as food is used as a means of recognizing the ownership of territories by House leaders. Certain Houses, and their respective leadership, hold title to specific areas of land and their relative level of status is often based, in part, on the quantity and types of resources harvested in their territories (Satterfield et al. 2012).

14.20.3 Project Effects Mechanisms

Air emissions from the Project could result in adverse effects on Aboriginal traditional harvesting activity through:

- Potential adverse effects on harvested vegetation species
- Potential adverse effects on surface water quality, and
- Potential adverse effects on the health of Aboriginal traditional harvesters.

Given these potential adverse effects, it is possible that the Project could also have indirect adverse effects on traditional aspects of Aboriginal governance through quantitative and qualitative changes in traditional foods relied on for governance-related events and ceremonies.

14.20.4 Mitigation Measures

Measures to mitigate effects of Project emissions on traditional harvesting in LSA #2 are adapted from the assessment of relevant VCs in Part B (Section 5.2: Air Quality, Section 5.5: Vegetation Resources, Section 5.9: Water Quality, and Section 9.2: Human Health). A complete list of mitigation measures for each relevant VC is provided in Section 20 (Summary of Mitigation Measures).

LNG Canada is committed to ongoing consultation with Aboriginal Groups and will continue to consult and engage with communities with respect to their Aboriginal Interests, issues and concerns throughout the Application review phase and the life of the Project. As stated in the approved Aboriginal Consultation Plan, LNG Canada will work towards maintaining good, long term relationships through open dialogue about issues and concerns that arise during the construction and operation phases and work towards resolving any Project related issues that may arise.

14.20.5 Characterization of Residual Effects on Aspects of Aboriginal Governance in LSA #2

As described in detail in Section 14.14.6, residual effects on traditional harvesting connected to emissions from the LNG facility are predicted to be low to moderate in magnitude (moderate for Haisla Nation traditional harvesting, low for other potentially affected Aboriginal Groups). As described in detail in Section 9.2, emissions from the LNG facility will not accumulate in the tissues of traditionally harvested species and the quality and safety of traditional foods and medicines will not be affected by emissions from the facility. No added health risk is predicted for Aboriginal consumers of country foods and traditional medicines. Given these conclusions it follows that aspects of Aboriginal traditional governance systems that are integrally linked to traditional harvesting activity that takes place within LSA #2 would also experience low (a very small but detectable change from baseline) to moderate (a variation from baseline that may result in noticeable changes to traditional practices) magnitude changes. It is likely that the duration of those changes will range from medium to long term. The majority of residual effects would be relatively continuous and reversible. Based on the conclusions regarding likelihood for effects on harvested species and effects on the experience of harvesting, the likelihood for predicted residual effects is considered high.

14.20.6 Prediction Confidence and Risk

Confidence in the prediction of residual adverse effects on harvesting-related Aboriginal Interests within LSA #2 is rated as moderate. As a result, LNG Canada’s confidence in its predictions regarding effects on traditional aspects of Aboriginal governance within LSA #2 is also moderate. The primary risk is LNG Canada has underestimated the residual adverse effects of the LNG facility emissions on Aboriginal traditional harvesting activities, and by extension, has also underestimated residual adverse effects on Aboriginal traditional governance systems that are integrally linked to traditional harvesting.

14.20.7 Degree of Residual Adverse Effect

Consistent with the AIR, a determination of significance of residual adverse effects is not provided. This recognizes the unique nature of Aboriginal Interests and the potential inappropriateness of determining whether any effects on a protected Aboriginal Interest is “significant” or “not significant.” Instead, conclusions are provided regarding whether the predicted residual effects may interfere with the exercise of Aboriginal Interests and the predicted level of seriousness of that interference.

Table 14.19-1 summarizes LNG Canada’s conclusions regarding the LNG facility’s predicted degree of interference with Aboriginal Interests associated with traditional aspects of Aboriginal governance.

Table 14.20-1: Degree of Interference with Aboriginal Governance (Facility)

	Limitation on Aboriginal Interest imposes “undue” hardship	Limitation will deny rights-holder preferred means of exercising Aboriginal Interest	Limitation interferes with Aboriginal Interest in “more than insignificant or trivial” way	Predicted Degree of Interference
Aboriginal Governance	No	No	No	Low to moderate (Haisla Nation) Low (Aboriginal Groups other than Haisla Nation with traditional territory in LSA #2)

NOTES:

¹ Language adapted from *William v. British Columbia*, 2012 BCCA 285 (CanLII)

14.20.8 Residual Effects on Aspects of Haisla Nation Traditional Governance in LSA #2

Given the low to moderate predicted effect on traditional harvesting resulting from the Project and the lack of qualitative changes in harvested traditional foods, LNG facility-related residual adverse effects on aspects of Haisla Nation traditional governance structures linked to traditional harvesting activity will, at most, be moderate in magnitude (matching the predicted residual effects from LNG facility emissions on their traditional harvesting-related Aboriginal Interests).

14.20.9 Residual Effects on Aspects of Traditional Governance for Non-Haisla Nation Aboriginal Groups in LSA #2

Given the low predicted effect on traditional harvesting resulting from emissions generated by the LNG facility and the lack of qualitative changes in harvested traditional foods resulting from LNG facility emissions, LNG facility-related residual adverse effects on aspects of traditional governance structures for potentially affected Aboriginal Groups (other than Haisla Nation) that are linked to traditional harvesting activity will be low in magnitude (matching the predicted residual effects of the LNG facility on their traditional harvesting-related Aboriginal Interests).

14.21 Assessment of Changes in Aspects of Traditional Aboriginal Governance in LSA #3

14.21.1 Introduction

This section assesses the potential adverse effects of Project shipping (in LSA #3) on certain aspects of traditional aspects of Aboriginal governance that are clearly linked to traditional harvesting activity. LNG Canada acknowledges that Project shipping may affect traditional aspects of Aboriginal governance structures in other ways and will continue to consult with potentially affected Aboriginal Groups to better understand the nature of those potential effects and identify potential mitigation measures where practicable.

14.21.2 Baseline Information

Many aspects of traditional aspects of Aboriginal governance are closely tied to the harvesting of natural resources. First Nations' feasting is strongly linked to traditional governance, as food is used as a means of recognizing the ownership of territories by House leaders. Certain Houses, and their respective leadership, hold title to specific areas of land and their relative level of status is often based, in part, on the quantity and types of resources harvested in their territories (Satterfield et al. 2012). The baseline conditions that relate to traditional governance follow those describe in section 14.15 and 14.17.

14.21.3 Project Effects Mechanisms

Project-related shipping activity has the potential to adversely affect preferred harvested species and has the potential to interfere with the use of and access to, TU locations (in particular marine use locations) (see Section 14.15 for a detailed analysis of potential adverse effects on Aboriginal harvesting rights). Given these potential adverse effects, it is possible that the Project may have indirect adverse effect on traditional aspects of Aboriginal governance linked to harvesting activity.

14.21.4 Mitigation Measures

Mitigation measures for changes to harvesting locations and levels are detailed in Section 14.15.3. Further mitigation measures are in Sections 5.5, 5.6, 5.7, 5.8, 7.4 and 9.2, such as marine activities plans and restricted transit routes, habitat compensation and offsetting plans, timing and restricted construction areas. A complete list of mitigation measures for each relevant VC is provided in Section 20 (Summary of Mitigation Measures).

LNG Canada is committed to ongoing consultation with Aboriginal Groups and will continue to consult and engage with communities with respect to their Aboriginal Interests, issues and concerns throughout the Application review phase and the life of the Project. As stated in the approved Aboriginal Consultation Plan, LNG Canada will work towards maintaining good, long term relationships through open dialogue about issues and concerns that arise during the construction and operation phases and work towards resolving any Project related issues that may arise.

14.21.5 Characterization of Residual Effects within LSA #3

Residual effects on harvesting-related Aboriginal Interests from Project shipping activities are predicted to be low in magnitude. LNG Canada concludes that predicted effects on harvested species and marine/intertidal harvesting activities and locations will result in a small but measurable interference with harvesting-related Aboriginal Interests. No shipping-related qualitative changes in harvested traditional foods are predicted.

14.21.6 Summary of Residual Effects on Aspects of Aboriginal Governance within LSA #3

LNG Canada has concluded that Project shipping would result in low magnitude (a very small but detectable change from baseline) effects on the harvesting of traditional foods. Given this conclusion, low magnitude residual effects on aspects of Aboriginal governance as a result of Project shipping are also predicted. Predicted interference could potentially occur at various locations throughout LSA #3 where interactions with Project shipping and generated wake may occur. Effects of shipping on aspects of Aboriginal governance would be long-term (extending 20 years or more) and would take place multiple times and in an irregular way and would be reversible once Project shipping ended. Based on the conclusions regarding likelihood for effects on harvested species and traditional harvesting activity, the likelihood for predicted residual effects within LSA #3 on aspects of Aboriginal governance is considered medium to high.

14.21.7 Degree of Residual Adverse Effect

Consistent with the AIR, a determination of significance of residual adverse effects is not provided. This recognizes the unique nature of Aboriginal Interests and the potential inappropriateness of determining whether any effects on a protected Aboriginal Interest is “significant” or “not significant.” Instead, conclusions are provided regarding whether the predicted residual effects may interfere with the exercise of Aboriginal Interests and the predicted level of seriousness of that interference.

Table 14.21-1 summarizes LNG Canada’s conclusions regarding the LNG facility’s predicted degree of interference with Aboriginal Interests associated with aspects of traditional Aboriginal governance. A low level of interference with traditional governance-related Aboriginal Interests is predicted for all Aboriginal Groups.

Table 14.21-1: Degree of Interference with Aboriginal Governance LSA # 3

	Limitation on Aboriginal Interest imposes “undue” hardship	Limitation would deny rights-holder preferred means of exercising Aboriginal Interest	Limitation interferes with Aboriginal Interest in “more than insignificant or trivial” way	Predicted Degree of Interference
Aboriginal Governance	No	No	No	Low

NOTES:

¹ Language adapted from *William v. British Columbia*, 2012 BCCA 285 (CanLII)

14.21.8 Prediction Confidence and Risk

LNG Canada’s confidence in its prediction of residual adverse residual effects on Aboriginal harvesting activity within LSA #3 is moderate. Confidence in predictions regarding effects within LSA #3 on traditional aspects of Aboriginal governance is also rated as moderate. The primary risk is LNG Canada has underestimated the residual adverse effects of Project shipping on Aboriginal traditional harvesting activities, and by extension, has also underestimated residual adverse effects on aspects of Aboriginal governance that are integrally linked to traditional harvesting.

14.22 Assessment of Changes in Aspects of Aboriginal Cultural Identity in LSA #1

14.22.1 Introduction

This section assesses the potential adverse effects of the LNG facility (except those associated with facility emissions – see LSA #2) on certain aspects of traditional Aboriginal cultural identity. LNG Canada acknowledges that construction, operation, and decommissioning may affect Aboriginal cultural identity in other ways and will continue to consult with potentially affected Aboriginal Groups to better understand the nature of those potential effects and identify potential mitigation measures where practicable.

14.22.2 Baseline Information

Aboriginal cultural and heritage values are reflected in their ecological, spiritual, and landscape ideals, and are reinforced through the use of traditional foods for feasting, trade and daily diet. In general, ethnographic and anthropological sources for the Aboriginal Groups on the Northwest Coast place a strong emphasis on the interaction between living creatures, spiritual beings, and the world in general. The act of harvesting traditional foods is important among Haisla, and there is a distinction between regular employment opportunities (i.e., working on a construction project) and the labour involved in traditional harvesting activities (i.e., fishing when the fish are running or digging cockles at a minus tide). Harvesting activities are important, not just for the collection of the resources, but because they are essential ways to strength community identity and present opportunities to connect with one's identity, and share knowledge and stories between generations. As Powell writes, "it is the Haisla thing to do to live off their lands" (Powell 2013). In their submissions to the Enbridge Northern Gateway Project Joint Review Panel (Haisla Nation 2011), Haisla Nation provided the following description of the cultural importance of traditional harvesting activities:

The very acts of gathering and processing traditional foods are central to Haisla culture. The harvesting and processing of traditional foods plays a central role in the transmission of Haisla culture and ways from one generation to the next. It is a time for sharing language, for sharing knowledge between generations, and for sharing the stories and concepts associated with Haisla traditional nuyem – the Haisla law – that governs the relationship of the Haisla people to their lands and resources.

For the Hails, oral histories can illustrate the interconnectivity of ecological, spiritual, and cultural values. These histories cover a variety of topics, ranging from the establishment of permanent settlements, the origin of chiefly names, crest ownership, and the proper treatment of resources (Berthiaume 1999:54-75). Other stories contain lessons on respect or descriptions of crest ownership and territorial holdings. The majority of these stories are also embedded within concepts of respect, environmental stewardship and

cultural identity. These stories are often associated with the land, or spiritual places on the land, and the ability to access these areas is important. The use of traditional language is an important symbol of group identity for Haisla. Currently, approximately 30 Haisla Nation community members speak Haisla “well” and another 45, while not fluent, can make a sentence in the language. Most Haisla speakers are in their 60s or are older. In general, most Haisla Nation members know at least 30 or 40 Haisla words. Those words tend to be regularly used among Haisla Nation members when they are speaking English and relate to greetings, the names of resources, or hereditary titles and roles. Haisla Nation children may learn the Haisla language at home, but often lose proficiency when they enter all-day English speaking schools (Powell 2013). In recognition of the cultural importance of continued traditional language use, Haisla Nation recently invited proposals to develop a graded language and culture program in 2013 (Powell 2013).

Feasts are a chance to use traditional languages, sing family songs, display clan crest and insignias, acknowledge and pay respect to elders and the holders of noble and chiefly names, and serve, share and eat traditional foods. For Haisla, feasts occur often throughout the year. In traditional times, they were mostly during the winter (called winter ceremonies) and each lasted for several days. In recent times, these feasts take place throughout the year and are completed in a single day. However, the planning on such an event may take up to a year (Powell 2013). In their submissions to the Enbridge Northern Gateway Project Joint Review Panel (Haisla Nation 2011), Haisla Nation described the central role that traditional foods play in important Haisla Nation feasting ceremonies. In addition, in “Traditional Haisla ownership, use and occupancy of the stewardship areas along the Alcan and BC transmission lines in Haisla traditional territory” by the Kitamaat Village Council Environment Department (Powell 2006), the author states the following:

Traditional Haisla had the technology to get, preserve and store subsistence foods. Although the tools and techniques involved in almost every aspect of Haisla subsistence have changed dramatically, their diet, tastes and lifeways remain distinctly Haisla and traditional. Feast tables will include several types of fish, wild meats, sprouts, roots and berries, and other traditional delicacies.

Powell notes that the most important cultural activities among the Haisla Nation are community feasts. These are dinners that have a number of functions:

- They are a sit-down meal that the community participates in together.
- They provide a venue for the complex inheritance ritual called a t’laqwagila (settlement feast) and other feasts such as the c’uxwa (cleansing, apology feast), the menca (insult feast to shame members of a clan for inappropriate behaviour), the kuxwagila (a thank feast for

someone who has done a great service to the host), and the mamatlud (wedding feast, different from a simple wedding dinner).

- They serve the function of allowing things to be “put on record” by their public announcement in front of witnesses.
- They maintain a cultural tradition called the potlatch (or give-away ceremonial) common to all Northwest Coast Aboriginal cultures, in which the guests are paid with gifts for witnessing an event or announcement (Powell 2013).

Powell also comments that Haisla Nation traditional foods are served “with great pride” at feasts and that a major expense associated with feasting is the purchasing of large quantities of traditional foods or paying others to harvest those foods for the purposes of the feast (Powell 2013).

As described in detail in Section 13.3, the Haisla Nation social system is based on matrilineal clans. Traditionally, eight clans (Eagle, Beaver, Crow, Killer Whale, Wolf, Frog, Raven and Salmon) made up the community, with each clan having its own chief, its own resources areas and its own winter village. Satterfield, Robertson, Turner and Pitts (2012) have analyzed the the relative importance of different traditional foods to Gitga’at First Nation feasting activities. For the purposes of this assessment, LNG Canada has assumed that this ranking can be generalized to other Aboriginal Groups in the region, including the Haisla Nation. Based on that ranking and other available information on the use of harvested species by Haisla, LNG Canada has identified the species in Table 14.22-1 as culturally important for traditional feasting activities (for Haisla Nation and Tsimshian groups), either because they are important foods served at feasts or because they are symbolic (crest) species. LNG Canada acknowledges that this list, while representative, is not a complete list of all culturally important species for Haisla.

Table 14.22-1: Identified Culturally Important Species

Type	Fish	Invertebrates	Marine Plants	Marine Mammals	Terrestrial Mammals and Amphibians	Birds	Plants	
Species Consumed at Feasts	Eulachon*** Hai Halibut*** Salmon*** Grey cod* Flounder* Ling cod* Rockfish* Sablefish* Snapper* Steelhead* Cutthroat*	Abalone*** Cockles*** Crab*** Prawns*** Chiton** Clam** Mussels** Shrimp**	Red & purple urchin** Octopus* Rock scallop* Swimming Scallop* Sea cucumber* Green urchin*	Edible seaweed*** Herring eggs on kelp*** Giant kelp*** Rockweed* Eelgrass (herring eggs)*	Harbour seal*** Steller sea lion*	Deer ^{Git} Moose ^{Git} Black bear ^{Git Hai}	Canada goose** Scoter** Goldeneye* Harlequin duck* Mallard* Snow goose* Eagle (feathers) ^{Hai} Seagull (eggs)* Oystercatcher*	Blueberries ^{Git} High-bush cranberries ^{Git} Low-bush cranberries ^{Hai/Git} Wild crab-apples ^{Git}
Clan Symbol Species				Killer Whale ^{Hai} _{Tsim}	Beaver ^{Hai} Wolf ^{Hai/Git} Frog ^{Hai}	Eagle ^{Hai/Git} Crow ^{Hai} Raven ^{Hai/Git}		
Other Noted Culturally Important Species					grizzly bear ^{Hai}			

KEY:

Haisla Identified Species: Hai

“Critically Important” Feasting Species = ***

House or Clan Group Crest Symbol Species = hg

Gitga’at Identified Species (Satterfield et.al. 2012): Git

“Very Important” Feasting Species= **

“Important” Feasting Species = *

Sources: Haisla Nation 2011; Satterfield et al. 2012; Haisla Nation 2013

14.22.3 Project Effects Mechanisms for Aboriginal Cultural Identity

Construction, operation, and decommissioning of the LNG facility could result in the following potential adverse effects on aspects of Haisla Nation cultural identity:

- effects on participation in teaching trips, cultural camps and traditional harvesting activities
- effects on the use of Aboriginal languages
- effects on culturally important species, and
- effects on the quantity and quality of harvested traditional foods used for feasting and other cultural uses.

14.22.4 Mitigation Measures

Mitigation measures have been developed in response to potential adverse effects on harvesting-related Aboriginal Interests. In many cases, these mitigation measures are adapted from the assessment of relevant VCs from Part B and are summarized in Section 14.13.3. A complete list of mitigation measures for each relevant VC is provided in Section 20 (Summary of Mitigation Measures).

LNG Canada is committed to ongoing consultation with Aboriginal Groups and will continue to consult and engage with communities with respect to their Aboriginal Interests, issues and concerns throughout the Application review phase and the life of the Project. As stated in the approved Aboriginal Consultation Plan, LNG Canada will work towards maintaining good, long term relationships through open dialogue about issues and concerns that arise during the construction and operation phases and work towards resolving Project-related issues that may arise.

14.22.5 Characterization of Residual Effects on Aboriginal Cultural Identity in LSA #1

14.22.5.1 Participation in Teaching Trips, Cultural Camps and Traditional Harvesting

As described in Section 14.13.5, given the existing industrial nature of the Project footprint area and the current level of human activity and disturbance within those areas most affected by the LNG facility, the remaining availability of other harvesting areas in areas surrounding the Project footprint area (including north within the Kitimat River watershed) that would remain largely unaffected by the LNG facility, residual effects on traditional harvesting activities are predicted to be low to moderate in magnitude and localized. Similar low to moderate interference with participation in teaching trips and cultural camps will result as well, given that those trips and camps tend to take place during harvesting.

14.22.5.2 Use of Aboriginal languages

Haisla Nation has indicated that the Project would likely have no effect on language retention or education for the Haisla Nation population (Powell 2013). Given the information from the Haisla Nation Report, it is expected the LNG facility will have minor effects on the use of Aboriginal languages.

14.22.5.3 Species of Cultural Importance

14.22.5.3.1 Freshwater and Estuarine Fish

As described in detail in Section 5.7, residual effects on freshwater and estuarine fish (including culturally important freshwater species such as salmon and eulachon) within LSA #1 are anticipated to be not significant. Habitat offsetting and mitigation measures would result in no net loss of productive capacity. Harm to fish by way of physical injury or mortality is not anticipated because all areas proposed for in-stream works would be isolated from fish, and any fish present would be removed before beginning in-stream works. Effects on eulachon and Pacific salmon habitat and access to fishing location are specifically considered in mitigation measures, in particular in design of the realignments of Beaver Creek and the Kitimat River side channel, and in the water withdrawal practices in Kitimat River.

Although loss of an individual fish is a permanent loss for that individual, the reduced fitness or loss of a small number of fish that are part of a secure population would be a reversible effect at the population level. Fish injuries and mortalities can be reduced to very low levels, and even avoided completely through diligent application of mitigation measures. Reduced fitness or loss of a small number of individuals would have a negligible-magnitude effect on a population, replacement of individuals would occur within one or two generations (i.e., short to medium-term duration). The confidence level for predictions in the assessment of residual effects on freshwater fish and fish habitat is high.

14.22.5.3.2 Marine Species

With implementation of mitigation and offsetting measures, residual effects on marine resources (including culturally important species such as salmon and harbour seal) are not predicted to affect the viability of marine fish and mammal populations, or to cause harm to species listed as *endangered* or *threatened* under the SARA. With implementation of the offsetting plan, there would be no net loss in total area or productive capacity of marine fish habitat in the marine resources RSA for the facility. Mitigation measures will reduce effects on fish habitat, fish health, and behaviour of fish and marine mammals, and will reduce the risk of harm to fish and marine mammals. Overall, residual effects on marine resources attributable to the LNG facility will be negligible to moderate in magnitude, short to long term in duration, and to extend into the marine resources facility RSA, depending on the effect. Project-related changes in fish habitat, fish health, and behaviour of fish and marine mammals because of underwater noise or pressure waves would be reversible. While harm to fish and marine mammals would be irreversible at the

individual level, it would be reversible at the population level. Residual effects on marine resources from the LNG facility are predicted to be not significant.

14.22.5.3.3 Terrestrial Mammals, Amphibians and Birds

Effects on terrestrial mammals, amphibians and birds (including culturally important species) will be local and affect only a small proportion of regional wildlife populations (estimated to be a few individuals). The populations of most wildlife species with potential to be affected by the Project are considered regionally secure.

There is the potential for loss of important habitats that provide suitable fall and spring feeding habitat for provincially blue-listed grizzly bears, known to regularly use the areas around the LNG facility site when accessing the Kitimat River estuary. Fencing of the LNG loading line corridor will interrupt wildlife passage and use of established movement corridors for grizzly bears and other small to large wildlife species and represents a substantial disturbance effect. Mitigation measures to reduce the effect will include:

- Wildlife movement through the estuary will be maintained during construction and operation of the LNG loading line, where practicable (Mitigation 5.6-14).
- Design of the LNG loading line corridor will consider and incorporate, where practicable, ways to maintain tidal flow and wildlife passage (Mitigation 5.5-8).

The intent of these mitigation measures is to allow effective passage for wildlife to reach the eastern riparian zones and the river. Overall, loss of mature and old-growth patches of forest has potential to affect grizzly bear, Pacific marten, western screech-owl, and western toad.

The number of individuals potentially affected within LSA #1 is expected to be low and is not expected to affect the regional populations of any of the key species or other wildlife species. Regional terrestrial and marine areas provide alternate habitat for use by most species. Residual effects within the terrestrial wildlife LSA are low to moderate in magnitude, except during the construction phase where the effect is high for some species. The likelihood of habitat loss is high, sensory disturbance is moderate to high, and mortality risk is low. The combined effects from the Project are not significant, given identified thresholds and negligible effects on regional populations. The loss of high suitability habitat for specific species is of concern; however, this loss should be mitigated by restricting clearing to approved areas and developing management plans as noted above.

Given the quality of data available, habitat modelling, the anticipated effectiveness of mitigation measures, and professional judgment and experience, the confidence in conclusions regarding residual effects on terrestrial wildlife is high.

14.22.5.3.4 Vegetation

Construction of the LNG facility is predicted to result in a local reduction in abundance of TU plants and change in native vegetation health and diversity due to air emissions is also predicted. An estimated 430.0 ha will be required to accommodate the full build out of the LNG facility, which will result in a direct and permanent loss of habitat for key species, or an alteration of habitat to early seral plant communities. Clearing areas contain 66 ha of old-growth forest and 27 ha of marine habitat (Table 5.6-9). The largest loss of habitat will be on young deciduous forests (112 ha), followed by old-growth coniferous forest (62 ha), and young mixed-wood stands (42 ha). This will result in removal of TU plant species from the Project footprint. With mitigation and environmental protection measures in place, the effect of changes to the abundance of TU plant species (such as blueberries, high-bush cranberries, low-bush cranberries and wild crabapples which are used by Haisla Nation as feast foods) due to the Project will be not significant and the viability of TU plant species would not be impaired.

14.22.5.4 Qualitative Changes in Harvested Traditional Foods Used for Feasting

As described in detail in Section 9.2, emissions from the LNG facility will not accumulate in the tissues of traditionally harvested species. The quality and safety of traditional foods and medicines will not be affected by emissions from the facility. No added health risk is predicted for Aboriginal consumers of country foods and traditional medicines.

14.22.6 Summary of Residual Effects on Aspects of Aboriginal Cultural Identity in LSA #1

As described above, it is expected that the Project would result in low to moderate magnitude effects on participation in traditional harvesting, teaching trips and cultural camps within LSA #1. LNG Canada predicts that there will be low or no effects on the use of Aboriginal languages. Residual effects on freshwater and estuarine fish species are negligible. With implementation of mitigation and offsetting measures, residual effects on marine resources (including culturally important species such as salmon and harbour seal) are not predicted to affect the viability of marine fish and mammal populations, or to cause harm to species listed as *endangered* or *threatened* under the SARA, and will range from low to medium in magnitude. Project residual effects in LSA #1 on terrestrial wildlife are low to moderate in magnitude, except during the construction phase where the residual effect is high for some species (including grizzly bear). Residual effects on TU vegetation species are low to moderate in magnitude, with adverse residual effects experienced primarily by traditional users who use harvesting areas within the Project footprint would experience a high level of interference during operation because the Project footprint will be fenced and will therefore restrict access to harvesting locations. Emissions from the LNG facility will not accumulate in the tissues of traditionally harvested species. The quality and safety of

traditional foods and medicines will not be affected by emissions from the LNG facility. No added health risk is predicted for Aboriginal consumers of country foods and traditional medicines.

Given these results, the predicted Project effects on aspects of Haisla Nation cultural identity, as described above and in the relevant VC sections, indicates a low (a very small but detectable change from baseline) to moderate (a variation from baseline that may result in noticeable changes to traditional practices, TK or community perception of traditional territory) magnitude effect.

14.22.7 Degree of Residual Adverse Effect

Consistent with the AIR, a determination of significance of residual adverse effects is not provided. This recognizes the unique nature of Aboriginal Interests and the potential inappropriateness of determining whether any effects on a protected Aboriginal Interest is “significant” or “not significant.” Instead, conclusions are provided regarding whether the predicted residual effects may interfere with the exercise of Aboriginal Interests and the predicted level of seriousness of that interference.

Given the conclusions regarding residual effects of the LNG facility on Aboriginal cultural identity, the LNG facility, after appropriate mitigation measures are in place, will have a low to moderate magnitude effect on aspects of Aboriginal cultural identity for Haisla Nation. Residual adverse effects will be experienced primarily by traditional users who use harvesting areas within the Project footprint; they could experience a high level of interference during operations because the Project footprint will be fenced and will, therefore, restrict access to harvesting locations.

Table 14.22-2 summarizes LNG Canada’s conclusions regarding the LNG facility’s predicted degree of interference with aspects of Haisla Nation cultural identity.

Table 14.22-2: Degree of Interference with Aboriginal Cultural Identity (Facility)

	Limitation on Aboriginal Interest imposes “undue” hardship	Limitation will deny rights-holder preferred means of exercising Aboriginal Interest	Limitation interferes with Aboriginal Interest in “more than insignificant or trivial” way	Predicted Degree of Interference
Aboriginal Cultural Identity	No	No	No	Low to Moderate

NOTES:

¹ Language adapted from *William v. British Columbia*, 2012 BCCA 285 (CanLII)

14.22.8 Prediction Confidence and Risk

LNG Canada's confidence in its prediction of residual adverse residual effects on Aboriginal cultural identity is high, given the in-depth analysis provided to LNG Canada by Aboriginal Groups.

The primary risk is LNG Canada has underestimated the residual adverse effects of LNG facility on Aboriginal traditional harvesting activities, and by extension, has also underestimated residual adverse effects on Aboriginal cultural identity that are integrally linked to traditional harvesting. Since LNG Canada's confidence in its prediction of residual effects is not low, no additional risk analysis has been conducted.

14.23 Assessment of Changes in Aspects of Aboriginal Cultural Identity in LSA #2

14.23.1 Introduction

This section assesses the potential adverse effects of emissions from the Project on certain aspects of Aboriginal cultural identity. LNG Canada acknowledges that emissions may affect Aboriginal cultural identity in other ways not described below, and will continue to consult with potentially affected Aboriginal Groups to better understand the nature of those potential effects and identify potential mitigation measures.

14.23.2 Baseline Information

See baseline information provided above for LSA #1 and LSA #3 (below).

14.23.3 Project Effects Mechanisms

Emissions from the LNG facility could result in the following potential adverse effects on Aboriginal cultural identity:

- effects on participation in teaching trips, cultural camps and traditional harvesting activities
- effects on culturally important vegetation species, and
- effects on the quality of harvested traditional foods (especially those used for feasting activities).

14.23.4 Mitigation Measures

Mitigation measures have been developed in response to potential adverse effects on harvesting-related Aboriginal Interests. In many cases, these mitigation measures are adapted from the assessment of relevant VCs from Part B and are summarized in Section 14.13.3. A complete list of mitigation measures for each VC is provided in Section 20 (Summary of Mitigation Measures).

LNG Canada is committed to ongoing consultation with Aboriginal Groups and will continue to consult and engage with communities with respect to their Aboriginal Interests, issues and concerns throughout the Application review phase and the life of the Project. As stated in the approved Aboriginal Consultation Plan, LNG Canada will work towards maintaining good, long term relationships through open dialogue about issues and concerns that arise during the construction and operation phases and work towards resolving Project-related issues that may arise.

14.23.5 Characterization of Residual Effects on Aboriginal Cultural Identity

14.23.5.1 Participation in Teaching Trips, Cultural Camps and Traditional Harvesting Activities

As described in Section 14.14.6, no adverse effects on human health (or related constraints on access due to health concerns) due to Project emissions are predicted for LSA #2. No emissions-related effects on access to LSA #2 by Aboriginal people is predicted. Therefore, no adverse effects on participation in teaching trips, cultural camps or traditional harvesting activities are predicted for LSA #2 as a result of Project emissions.

14.23.5.2 Vegetation Species of Cultural Importance

As described in detail in Section 5.5.6, the construction and operation LNG facility may result in low magnitude changes in native vegetation health and diversity due to air emissions effects of sulphur dioxide fumigation, nitrogen deposition and acid deposition. As described in Section 5.5.5.6, vegetation communities potentially affected by air emissions from the LNG facility will continue to persist within LSA #2, although their health may be reduced within the areas where critical loads for sulphur dioxide, nitrogen, sulphate and acid are exceeded during the period of operation. In addition, rare occurrence of vegetation damage from emissions at baseline is possible. With these considerations, residual effects from sulphur dioxide fumigation and nitrogen, acid, and sulphate deposition are assessed as not significant.

14.23.5.3 Qualitative Changes in Harvested Traditional Foods

As described in detail in Section 9.2, emissions from the LNG facility will not accumulate in the tissues of traditionally harvested species. The quality and safety of traditional foods and medicines will not be affected by emissions from the LNG facility. No added health risk is predicted for Aboriginal consumers of country foods and traditional medicines.

14.23.6 Summary of Residual Effects on Aboriginal Cultural Identity for All Aboriginal Groups

The predicted Project effects on aspects of Aboriginal cultural identity, as described above and in the relevant VC sections, indicate no effect on teaching trips, cultural camps and traditional harvesting activities, low magnitude changes on culturally important TU vegetation, and no changes in the quality or safety of traditional foods because of Project emissions. The overall predicted effect on aspects of Aboriginal cultural identity is low for LSA #2.

14.23.7 Degree of Residual Adverse Effect

Consistent with the AIR, a determination of significance of residual adverse effects is not provided. This recognizes the unique nature of Aboriginal Interests and the potential inappropriateness of determining whether any effects on a protected Aboriginal Interest is “significant” or “not significant.” Instead, conclusions are provided regarding whether the predicted residual effects may interfere with the exercise of Aboriginal Interests and the predicted level of seriousness of that interference.

Given the conclusions regarding residual effects of the LNG facility on Aboriginal cultural identity, the LNG facility, after appropriate mitigation measures are in place, will have a low level effect on aspects of Aboriginal cultural identity for all Aboriginal Groups with traditional territories that overlap with LSA #2.

Table 14.22-2 lists LNG Canada’s conclusions regarding the LNG facility’s predicted degree of interference with aspects of the cultural identity of Aboriginal Groups whose traditional territories overlap with LSA #2.

Table 14.23-1: Degree of Interference with Aboriginal Cultural Identity (Facility)

	Limitation on Aboriginal Interest imposes “undue” hardship	Limitation will deny rights-holder preferred means of exercising Aboriginal Interest	Limitation interferes with Aboriginal Interest in “more than insignificant or trivial” way	Predicted Degree of Interference
Aboriginal Cultural Identity	No	No	No	Low

NOTES:

¹ Language adapted from *William v. British Columbia*, 2012 BCCA 285 (CanLII)

14.23.8 Prediction Confidence and Risk

The quality and quantity of available scientific information on the air quality modelling predictions are sufficient to have a high level of confidence in predictions for both Project residual effects and cumulative effects on air quality in the Kitimat air shed. However, as described in Section 5.5.8, LNG Canada's conclusions with respect to the effect of change in native vegetation health and diversity (including TU plants) from sulphur dioxide fumigation, nitrogen deposition, sulphate, and acid deposition is low.

Given these conclusions, prediction confidence for effects on Aboriginal cultural identity associated with Project emissions is moderate.

The primary risk is LNG Canada has underestimated the residual adverse effects of Project emissions on culturally important and/or harvested species, and by extension, has also underestimated residual adverse effects on Aboriginal cultural identity that are integrally linked to traditional harvesting and consumption of those species. Since LNG Canada's confidence in its prediction of residual effects is not low, no additional risk analysis has been conducted.

14.24 Assessment of Changes in Aspects of Aboriginal Cultural Identity in LSA #3

14.24.1 Introduction

This section assesses the potential adverse effects of Project shipping within LSA #3 on certain aspects of traditional Aboriginal cultural identity. LNG Canada acknowledges that Project shipping could possibly affect Aboriginal cultural identity in ways not discussed below and will continue to consult with potentially affected Aboriginal Groups to better understand the nature of those potential effects and identify potential mitigation measures where practicable.

14.24.2 Baseline Information

Oral histories can illustrate the interconnectivity of ecological, spiritual, and cultural values and cover a variety of topics, including the founding of settlements, origins of names, ownership of crests and how to interact with the natural world (Berthiaume (1999:54-75). Concepts of respect, environmental stewardship and cultural identity are embedded in many of the oral histories. This oral knowledge is often transmitted from one generation to the next as part of traditional land and marine use activities. As an example, elders from Gitga'at First Nation pass on songs, knowledge about the environment and traditional medicines, and teach their language during harvesting trips. Extended families use these trips to nurture and maintain their ties and children and youth learn traditional stories and family histories. Many Gitga'at residing in Prince Rupert return to Hartley Bay and/or join their families at harvest sites for seasonal food production during these trips (Satterfield et al 2012).

See above for background information on Haisla Nation cultural camps and teaching trips, the importance of traditional harvesting, traditional language, and the importance of feasting activities for Haisla.

For the Gitxaala Nation, cultural identity is formed through identification with consciously shared elements that nation members recognize as being distinctly Gitxaala. These elements include a shared language, histories and experiences, as well as shared belief systems, values, laws, and meanings (Calliou 2014a). While the Gitxaala Nation Use Study (Calliou 2014b and 2014c) does not reference “teaching” locations specifically, it does provide a discussion about the value of “Teaching Places” that underlines the degree to which intergenerational transfer of TK and TU information happens while out on the land and water during harvesting (Calliou 2014c:136).

Satterfield et al. (2012) write that, for the Gitga’at (and it is assumed that this description is applicable to neighboring Tsimshian groups as well), “traditional food is identity, and its potential loss is associated with the loss of reasons for feasting and for passing on cultural knowledge.”

The procurement of food and resources from their traditional lands is important to the Tsimshian, not just as subsistence, but as a way of maintaining a connection and ties to their territory. The collection of traditional foods, visiting of harvesting areas and spiritual places, and the acts of feasting and story-telling that accompany these places and their resources is an integral part of Aboriginal identity for communities in the area. This is evident in the ethno-historic notes of William Beynon, who recorded the consumption of traditional foods as a means of acknowledging a specifically leader and House’s access to their lands and territories

“...one of the Gitsiis head headman stood up saying ‘Eat slowly and peacefully chiefs. Eat quietly and peacefully, this is as your grandfathers done, what you are doing and the meat you eat is the flesh of mountain goat from the Valley of Kiyaks.’ Then another stood up and he said “Eat peacefully you chiefs, some [= the rest] of the meat you eat was caught by the chief in his seal traps at the head of Ktsam’at’in, his own territory... And another one headman stood up and said ‘Eat peacefully chiefs, the highbush cranberry and crabapples which you eat were gathered by this chief on his own berry grounds on the North Arm of Wark’s Canal.’ And all the rivers of the Gitsiis were announced. To the Tsimshian tribes to show the ownership, this was why it was done” (Beynon, ND quoted in Seguin Anderson 2006:55).

In their analysis of the importance of traditional harvesting to Gitga’at culture the authors of *Being Gitka’a’ata: A Baseline Report on Gitka’a’ata Way of Life, a Statement of Cultural Impacts Posed by the Northern Gateway Pipeline, and a Critique of the ENGP Assessment Regarding Cultural Impacts* write:

Nowhere are connections between culture and traditional food more evident than in discussions about feasting – a cultural institution that demonstrates well the interconnected phenomena important to *Gitka'a'ata*.

They further describe the meaning attached to traditional feasting as follows:

Feasts include important ceremonial expressions like dances and songs, speeches, the display of crests and retellings of parts of the *adawx*. Feasts are important occasions for celebrating collective memory and adding to the cultural archive of the nation; they include acts of commemoration and grieving but also life-renewing activities like naming, intended to “look after” younger generations. Traditional foods have an important role in feast ceremonies - to feed the dead, to feed the living who are recuperating from a family death, to welcome the people home from a funeral elsewhere (ref: commemorating the ancestors) (Satterfield et al. 2012).

The authors of that report noted that in a 2009 survey of 120 members of Gitga'at First Nation living in Hartley Bay and Prince Rupert, 94.2% reported that feasting was “very important” to their identity as Gitga'at. The average number of large, traditional feasts per year was 3.5. Spring and winter harvest feasts (for harvests) are held twice per year. Medium–large feasts are hosted for babies' birthdays (average five per year), elders' birthdays (average five per year) and by the school (average three per year). In addition, small feasts include clan gatherings (held three times per year) and feasts held on behalf of the school, the medical clinic and the Band Office (up to 12 per year). In Tsalgiw, each year, approximately 2,285 guests are served traditional (and other) foods at feasts. Collectively, Gitga'at First Nation community hosts an average of 33.5 feasts per year.

Satterfield et al. (2012) provide a detailed ranking of traditional food species used as part of feasting within Gitga'at First Nation communities. In their report, feast foods were identified and ranked according to their degree of use in feasting and the exclusivity of that species for feasting activities (particularly traditional feasting). In particular, ranking depended on whether certain foods were described as “key to multiple feasts and ceremonial practice within traditional feasting, such as naming, looking after your name, commemoration, referencing or displaying *adawx*/crests, used in dancing, or the witnessing of cultural ‘business’ conducted at traditional feasts”.

Satterfield writes:

To lose access within Gitka'a'ata traditional territory of feast foods as important as seal, seaweed, halibut or salmon is to bring serious impacts to a central institution of Gitka'a'ata cultural life – an institution already once the subject of a ban by the Canadian government through to the 1950s. To lose two or more of any of these already critically

important feast foods (as is the case in even a small spill and most certainly a medium level spill) would result in an irreparable cultural impact.

As described in detail in Section 13, a Tsimshian person generally belongs to one of four clans (Seguin Anderson 2006): *Ginhada* (raven), *Gispuwudha* (blackfish), *Lasgiik* (eagle), and *Laxgibuu* (wolf). Based on the analysis in Satterfield et al. (2012) and other information on the use of harvested species by Tsimshian groups and Haisla Nation, LNG Canada has listed those species that are particularly culturally important both for the potentially affected Aboriginal Groups, either because they are important foods served at feasts or because they are symbolic (crest) species. LNG Canada acknowledges that this list, while representative, is not a complete list of all culturally important species for the potentially affected Aboriginal Groups.

See Table 14.22-1 for a detailed listing of species that have particular cultural importance for both Haisla Nation and Tsimshian groups.

14.24.3 Project Effects Mechanisms

Project-related shipping could potentially result in adverse effects on the cultural identity of Aboriginal people who live and use areas located along the designated marine access route through the following sub-effects:

- effects on participation in teaching trips and cultural camps and traditional harvesting activities
- effects on the use of Aboriginal languages
- effects on culturally important species (e.g., species linked to clans, species served during feasting), and
- effects on the quality of harvested traditional foods (especially those used for feasting activities).

14.24.4 Mitigation Measures

Mitigation measures have been developed in response to potential adverse effects on Aboriginal Interests. In many cases, these mitigation measures are adapted from the assessment of relevant VCs in Part B and are summarized in Section 14.13.3. A complete list of mitigation measures for each relevant VC is provided in Section 20 (Summary of Mitigation Measures). Example measures include; marine activities plans and restricted transit routes, habitat compensation and offsetting plans, timing and restricted construction areas.

LNG Canada is committed to ongoing consultation with Aboriginal Groups and will continue to consult and engage with communities with respect to their Aboriginal Interests, issues and concerns throughout the Application review phase and the life of the Project. As stated in the approved Aboriginal Consultation Plan, LNG Canada will work towards maintaining good, long term relationships through open dialogue about issues and concerns that arise during the construction and operation phases and work towards resolving Project-related issues that may arise.

14.24.5 Characterization of Residual Effects on Aboriginal Cultural Identity in LSA #3

14.24.5.1 Participation in Teaching Trips, Cultural Camps and Traditional Harvesting

During Project operation, up to one LNG vessel and escort tug will travel to and from Kitimat each day. While this would increase annual shipping traffic along the route by approximately 172%, those vessel transits would be brief and would occur on a regular schedule. The majority of vessel types associated with construction and decommissioning are common around the port of Kitimat. In addition, construction related vessels would work at the head of the channel and would not travel up and down the access route. Wake from LNG carriers and escort tugs would be well within the size of waves naturally occurring in the area, and it is expected that Aboriginal mariners are experienced dealing with similar wake. LNG carrier generated wake waves are not expected to pose a safety risk to typical Aboriginal vessels operating in the area and would not disrupt access to fishing locations. Potential interruption of shoreline harvesting activities would be a multiple but irregular event and any waves generated by LNG Canada vessels would be less than 10 cm in height upon reaching the shore (well within the range of naturally generated waves in the region).

LNG Canada has concluded that the physical presence of LNG carriers and escort tugs would have a low magnitude effect on participation in traditional harvesting activities. Given this conclusion, LNG Canada also expects that shipping traffic would have a low magnitude adverse effect on participation in cultural teaching trips that may involve traditional harvesting and/or use of areas near the marine access route. There is the potential for residual effects to be experienced more acutely in the unlikely event of a combination of some or all of the following factors occurring at a specific time:

- more than one LNG carrier and associated tugs in the marine access route at a single time
- transits occurring during critical seasons
- transits occurring during important tidal harvesting times, and
- harvesting activities occurring along narrowest part of marine access route and where ships are transiting past.

In the event that enough of these factors combine together for a specific harvesters or a group of harvesters, the residual effects on the quality of use sites, the access to harvesting locations and access to harvested species will have a higher degree of noticeable effect than on average for Aboriginal users in LSA # 3.

14.24.5.2 Use of Aboriginal Languages

Given the amount of available information on the effects of industrial development and shipping activity on Aboriginal traditional languages, it is not possible to assess with confidence how shipping effects may alter the use of Aboriginal languages among the potentially affected Aboriginal Groups. However, LNG Canada acknowledges that the use of traditional languages is linked to the health of Aboriginal culture more generally, and any adverse residual effects on participation in traditional harvesting and other land and marine use activities may also adversely affect the use and transmission of Aboriginal languages.

14.24.5.3 Species of Cultural Importance

14.24.5.3.1 Marine Resources

With implementation of mitigation measures, residual effects from shipping activities are predicted to be low to moderate in magnitude and will not affect the ongoing viability of culturally important marine fish (e.g., eulachon, halibut, salmon, cod) or marine mammal (e.g., harbour seal, killer whale) populations.

With regard to changes in behaviour, while mitigation measures have been developed to reduce effects on fish and marine mammals due to underwater noise or pressure waves, even with mitigation there is a high likelihood that marine mammals will be exposed to noise above behavioural disruption thresholds from vessel berthing and shipping. It is predicted that individual mammals exposed to underwater noise above the threshold may be disturbed on a regular frequency (twice per day from LNG carriers, once during each vessel transit). This residual effect is long-term in duration (throughout operation), reversible, and moderate in magnitude for most marine mammal species. This is largely due to the effectiveness of decreasing speeds, which decreases the extent of noise above recommended thresholds, as well as the potential for animals to be exposed to that noise for short periods (28 minutes to 62 minutes, twice daily). For most culturally important marine mammals present within the marine resources shipping RSA (e.g., harbour seal), the predicted number of individual exposures within a species is low compared to the species abundance along the BC coast. However, there is low confidence in the predicted moderate magnitude of change in behaviour from underwater noise effects on killer whales, and potential high magnitude effect that could affect population viability cannot be ruled out (see Section 5.8.6.2 for more discussion).

14.24.5.3.2 Marine Birds

Residual adverse effects on culturally important marine birds include:

- sensory disturbance and behavioural alteration due to in-air acoustic emissions and the physical presence of ships, and
- risk of injury or mortality due to vessel strikes.

For detailed information on predicted effects on culturally important marine birds, see Section 5.6.6.2.

Passing vessels have the capacity to disturb breeding colonies of gulls, oystercatchers and other culturally important marine birds; however, shipping would be restricted to shipping lanes located several km away from known colonies, and behavioural alteration from distant shipping lanes are not expected to occur. Currently there are abundant populations of marine birds (including culturally important species) in areas that overlap with high levels of shipping activity in the region. Vessel traffic near seabird colonies in the region is not uncommon and Project-related shipping is not expected to present a new effect. Individual encounters would be relatively brief and are not expected to be detrimental to the overall wellbeing of culturally important marine bird populations. With adherence to mitigation measures, the potential for sensory disturbance from shipping operations is anticipated to be low and limited to the marine bird LSA. It is anticipated that there would be a low degree of marine bird displacement along the vessel transit routes during operation and it is expected that the Project would create a low magnitude of sensory disturbance for marine birds.

Accidental bird strikes or vessel collisions are expected to be uncommon and sporadic and the number of injured or killed birds is expected to be low. With mitigation, the Project would result in a low probability of accidental injury or mortality of marine birds. It is unlikely that the adverse effects would be detectable within the relatively large regional populations of marine birds considering the high volume of marine traffic within the Wildlife and Marine Bird (shipping) LSA. The magnitude of that effect is considered low.

For these reasons, overall Project-related effects on culturally important marine birds (scoter, seagull, oystercatchers) would be low magnitude, local in extent and are not significant. With adherence to recommended mitigation measures and best management practices, the Project would potentially affect only a small number of individuals within marine bird populations (including culturally important species) and would not adversely affect the sustainability of regional populations.

14.24.5.3.3 Quality of Harvested Traditional Foods

No effects on the quality of harvested traditional foods are predicted as a result of Project shipping.

14.24.6 Summary of Shipping-Related Residual Effects on Aboriginal Cultural Identity

The predicted residual effects on aspects of Aboriginal cultural identity (as described above and in the relating VC sections), indicates a low magnitude effect on participation in teaching trips and traditional harvesting activities, uncertain effects on Aboriginal languages, low magnitude effects on species of cultural importance, and no effects on the quality of harvested traditional foods. Given those conclusions, the overall effect of Project shipping on the assessed aspects of Aboriginal cultural identity is rated as low magnitude.

There is the potential for effects from shipping to be experienced more acutely should some or all of the following factors occur simultaneously:

- More than one LNG Canada vessel and associated escort tug in the same location at the same time
- The LNG Canada vessel transit occurring during a critical harvesting season
- The LNG Canada vessel transit occurring during a rare tidal period
- Harvesting activities occurring along a narrower part of the marine access route where LNG Canada vessels would be closest to the shore
- Other large vessels transiting that same area during the same time period

In the event that enough of these factors overlap together for a specific harvester or a group of harvesters, the effects on the quality of use of sites, the access to harvesting locations, and access to harvested species would be expected to have a higher degree of potential interference than on average for Aboriginal users in LSA # 3. While such simultaneous occurrences are estimated to be rare due to most factors being occasional events on their own, and combinations of events, therefore, even more rare, it is impossible to accurately quantify the likelihood of such events occurring simultaneously. Therefore, it is difficult to predict with any certainty the potential for interactions and level of interference for these circumstances but it is recognized that such events could occur.

14.24.7 Prediction Confidence and Risk

LNG Canada's confidence in its prediction of potential residual adverse effects on Aboriginal cultural identity is moderate, given the in-depth analysis provided to LNG Canada by Aboriginal Groups.

The primary risk is LNG Canada has underestimated the residual adverse effects of Project shipping on Aboriginal traditional harvesting activities, and by extension, has also underestimated residual adverse effects on Aboriginal cultural identity that are integrally linked to traditional harvesting. Since LNG Canada's confidence in its prediction of residual effects is not low, no additional risk analysis has been conducted.

14.24.8 Degree of Residual Adverse Effect

Consistent with the AIR, a determination of significance of residual adverse effects is not provided. This recognizes the unique nature of Aboriginal Interests and the potential inappropriateness of determining whether any effects on a protected Aboriginal Interest is “significant” or “not significant.” Instead, conclusions are provided regarding whether the predicted residual effects may interfere with the exercise of Aboriginal Interests and the predicted level of seriousness of that interference.

Based on the discussion of the sub-effects listed previously for assessing Project shipping effects on Aboriginal cultural identity, it is expected that the Project would have a low level of interference with the ability of Aboriginal communities to continue to practice and participate in activities that reinforce their cultural identity.

Table 14.24-1 summarizes LNG Canada’s conclusions regarding the predicted degree of interference of Project shipping with aspects of cultural identity of Aboriginal Groups whose traditional territories overlap with LSA #3.

Table 14.24-1: Degree of Interference with Aboriginal Cultural Identity (Shipping)

	Limitation on Aboriginal Interest imposes “undue” hardship	Limitation would deny rights-holder preferred means of exercising Aboriginal Interest	Limitation interferes with Aboriginal Interest in “more than insignificant or trivial” way	Predicted Degree of Interference
Aboriginal Cultural Identity	No	No	No	Low to moderate

NOTES:

¹ Language adapted from *William v. British Columbia*, 2012 BCCA 285 (CanLII)

14.25 Assessment of Changes in Aboriginal Spiritual Places in LSA #1

14.25.1 Introduction

For the purposes of the Application “spiritual places” are defined as geographic locations identified as having particular spiritual importance by interested Aboriginal Groups. For a detailed discussion of potential effects on archaeological and heritage sites important to Aboriginal people, see Section 8.2.

14.25.2 Baseline Information

Haisla Nation indicates that the entire area of Haisla Nation traditional territory is considered “spiritual”, and in particular, the area of the LNG facility “is presumed by traditional Haisla to have a spirit presence.” Traditional Haisla Nation members believe that the behavior of those spirits is monitored by a spiritual

power “who can be either appreciative or vengeful” (Powell 2013). Haisla Nation has stated that there are no known Haisla Nation member burial sites in the LNG facility area (Powell 2013), but that burials may exist throughout Haisla Nation traditional territory and that the Haisla Nation *nuyem* “demands respect” for those sites.

14.25.3 Project Effects Mechanisms

The Project has the potential to affect Aboriginal spiritual places by increasing the number of humans who may interact with those sites and not display the appropriate level of respect or who may not conform to behavioural rules associated with those sites or locations. In addition, LNG Canada has assumed for the purposes of this assessment that acoustic and visual quality changes at spiritual sites could, in some way, adversely affect those spiritual sites.

Potential mechanisms for effects on Aboriginal spiritual places include:

- change in number of humans interacting with spiritually places
- changes in the acoustic environment at spiritual places, and
- changes in visual quality at spiritual places.

14.25.4 Mitigation Measures

LNG Canada is committed to ongoing consultation with Aboriginal Groups and will continue to consult and engage with communities with respect to their Aboriginal Interests, issues and concerns throughout the Application review phase and the life of the Project. As stated in the approved Aboriginal Consultation Plan, LNG Canada will work towards maintaining good, long term relationships through open dialogue about issues and concerns that arise during the construction and operation phases and work towards resolving any Project-related issues that may arise.

14.25.4.1 Mitigation Measures

LNG Canada will:

- Develop a Worker Code of Conduct to communicate expectations for the behaviour of all workers when they are in Kitimat, Terrace, or any other local community. LNG Canada will ensure that all workers are familiar with the Worker Code of Conduct and expected standards of behaviour. Workers will sign a copy of the Code of Conduct at orientation acknowledging their commitment to comply with the Code (Mitigation 7.2-2).
- Require all Project workers to undertake worker orientation, including cross-cultural awareness, to help build awareness and respect of local issues of importance, including local facilities, recreational opportunities, and other community considerations, with expectation of reducing adverse interactions with the community (Mitigation 7.2-3).

LNG Canada will work to reduce any disrespectful or insensitive interactions between its employees and identified Aboriginal spiritual places. LNG Canada will continue to consult with potentially affected Aboriginal Groups to identify potential sensitive locations and other appropriate mitigation measures.

14.25.4.2 Acoustics Mitigation Measures

The following mitigation measures will be implemented to address noise effects during construction and decommissioning activities:

- Most construction activities, including pile installation, will be planned to occur between the daytime hours of 7 a.m. and 10 p.m. Night shifts will be required to complete specific activities or meet schedules (Mitigation 5.4-1).
- Vibro-hammer piling equipment will be considered for use where conditions permit for land-based piling operations (Mitigation 5.4-2).
- Fit gas or diesel engine exhausts with noise mufflers, where available (Mitigation 5.4-3).
- Rubber-wheeled equipment will be used instead of steel-tracked equipment, where practical (Mitigation 5.4-4).
- Construction equipment will be turned off when not in use, where practical, to minimize idling (Mitigation 5.4-5).
- Develop and implement a Traffic Management Plan (Mitigation 5.4-6).
- Equipment enclosure doors will be kept closed unless safe operations require otherwise (Mitigation 5.4-7).
- LNG Canada will develop a notification protocol with input from the local community and other stakeholders for advance notification of planned substantial noise-causing activities at the LNG facility (Mitigation 5.4-8).
- A process will be implemented to address all noise complaints in a timely manner (Mitigation 5.4-9).

A combination of the following mitigation measures will be implemented to meet regulatory limits. The measures will address potential noise effects during the operation phase:

- Regularly maintain all machinery and equipment to ensure that air and noise emissions are within range set by manufacturer when available (Mitigation 5.4-11).
- Ensure that project related noise generated during operation complies with the OGC Noise Control Best Practices Guidelines at sensitive receptor locations (Mitigation 5.4-12).
- A Noise Management Plan will be developed and implemented (Mitigation 5.4-10).
- A process will be implemented to address all noise complaints in a timely manner (Mitigation 5.4-9).

See Section 5.2.5.2 for more detail.

14.25.4.3 Visual Quality Mitigation Measures

Mitigation measures for the LNG facility are detailed in Section 14.13.3 and in Section 7.3, such as:

- A minimum 30 metre (m) wide mature riparian vegetation buffer will be maintained between the Project site and the Kitimat River, where practicable. If required, disturbance would be limited and adhere to applicable regulatory process (Mitigation 7.3-1).
- Tree and vegetation clearing for the Project components will be reduced to the extent possible outside of the Project footprint but some clearing may be required to enable construction. Where temporary tree and vegetation clearing occurs during construction, revegetation activity will occur as soon as possible (with the exception of areas cleared within the safety zone) (Mitigation 7.3-2).

14.25.5 Characterization of Residual Effects on Aboriginal Spiritual Places

14.25.5.1 Change in Number of Non-Aboriginal Interactions with Spiritually Important Areas

There are no specifically identified spiritual places within the LNG facility footprint area (Powell 2013). Four areas (two archaeological sites and two identified Haisla Nation named sites) may experience some Project-related interactions and may have a higher level of spiritual importance to Haisla Nation. LNG facility construction, operation, and decommissioning activities may result in an increase in the number of non-Aboriginal interactions with those areas. However, it is unclear whether those sites would be sensitive to, or affected by, changes in non-Aboriginal interaction levels.

14.25.5.2 Acoustics

As described in Section 5.4, during the operation and construction phases for the LNG facility, sound levels within the acoustics LSA (an area 3.5 km around the facility where a number of identified Haisla Nation TU sites are located) are expected to increase when compared to the existing acoustic environment. However, the magnitude of those changes for all receptors within the acoustics LSA is low and there will be negligible to little effect. For receptors greater than 5 km from the LNG facility and marine terminal, noise effects from construction and operation activities will attenuate to a level well below the threshold of human hearing perception. Acoustic effects resulting from the operation and construction of the LNG facility will be in compliance with federal and provincial noise guidelines and the residual effect is not significant. For these reasons, any effect on Aboriginal spiritual places stemming from acoustic changes will be low magnitude.

14.25.5.3 Visual Quality

Overall, the residual adverse effects from the LNG facility on visual quality will be minor because the setting already has an average of “maximum modification disturbance,” meaning that current human alteration is easy to see, is large in scale, and/or rectilinear and geometric in shape, and results in more than 20% modification. It is not possible, given available information and the nature of the subject matter, to reliably predict whether or how changes in visual quality may actually affect Aboriginal spiritual places. However, given that the area in question is already subject to industrial development and human disturbance, it is reasonable to conclude that any Project related effects on Aboriginal spiritual places linked to changes in visual quality would be minimal.

14.25.6 Summary of Residual Effects on Aboriginal Spiritual Places Identified by Haisla Nation in LSA #1

Residual effects of the LNG facility on Aboriginal spiritual places are predicted to be low in magnitude. Four areas (two archaeological sites and two identified Haisla Nation named sites) may experience some Project-related interactions and may have a higher level of spiritual importance to the Haisla Nation. LNG facility construction, operation, and decommissioning activities may result in an increase in the number of non-Aboriginal interactions with those areas. Acoustics changes at those sites are rated as low in magnitude. Visual quality residual effects are likely to be minor. Relevant residual effects would take place within the Aboriginal Interests LSA #1 or would be further restricted to the Project footprint. Effects would be long-term (until decommissioning), continuous but reversible. The likelihood of predicted residual effects is high.

14.25.7 Degree of Residual Adverse Effect

Consistent with the AIR, a determination of significance of residual adverse effects is not provided. This recognizes the unique nature of Aboriginal Interests and the potential inappropriateness of determining whether any effects on a protected Aboriginal Interest is “significant” or “not significant.” Instead, conclusions are provided regarding whether the predicted residual effects may interfere with the exercise of Aboriginal Interests and the predicted level of seriousness of that interference.

Table 14.25-1 summarizes LNG Canada’s conclusions regarding the LNG facility’s predicted degree of interference with Aboriginal spiritual places. Note that the four standard criteria LNG Canada has previously relied on to judge the predicted degree of interference with Aboriginal Interests (such as harvesting-related Aboriginal Interests) focus on interference with human activities and are not relevant to this section’s discussion of Project-related residual adverse effects on Aboriginal spiritual places because these places are of inherent value and importance, independent of human use.

Table 14.25-1: Degree of Interference with Aboriginal Spiritual Places (Facility)

	Limitation on Aboriginal Interest imposes “undue” hardship	Limitation will deny rights-holder preferred means of exercising Aboriginal Interest	Limitation interferes with Aboriginal Interest in “more than insignificant or trivial” way	Predicted Degree of Interference
Aboriginal Spiritual Places	Not applicable	Not applicable	Not applicable	Low

NOTES:

¹ Language adapted from *William v. British Columbia*, 2012 BCCA 285 (CanLII)

14.25.8 Prediction Confidence and Risk

Confidence in this prediction is rated as moderate. While LNG facility-related interactions with identified spiritual places are highly unlikely, LNG Canada recognizes that its understanding of how to predict and measure residual effects on spiritual places is limited. The primary risks are that LNG Canada has underestimated the likelihood of interactions with spiritual places, the consequences of those interactions, or that certain spiritual places have not been identified.

14.26 Assessment of Changes in Aboriginal Spiritual Places in LSA #2

14.26.1 Introduction

This section assesses Project potential effects on Aboriginal spiritual places within LSA #2, which is the LSA used for measuring interactions between LNG facility emissions and the Aboriginal Interests of Aboriginal Groups with traditional territories that overlap with LSA #2. For a detailed discussion of potential effects on archaeological and heritage sites important to Aboriginal people, see Section 8.2.

14.26.2 Project Effects Mechanisms

No interactions between Aboriginal spiritual places and emissions from the Project are anticipated.

14.26.3 Mitigation Measures

No interactions predicted. No mitigation measures are proposed.

LNG Canada is committed to ongoing consultation with Aboriginal Groups and will continue to consult and engage with communities with respect to their Aboriginal Interests, issues and concerns throughout the Application review phase and the life of the Project. As stated in the approved Aboriginal Consultation Plan, LNG Canada will work towards maintaining good, long term relationships through open dialogue

about issues and concerns that arise during the construction and operation phases and work towards resolving Project-related issues that may arise.

14.26.4 Characterization of Residual Effects on Aboriginal Spiritual Places

No residual effects are anticipated.

14.26.5 Degree of Residual Adverse Effect

Consistent with the AIR, a determination of significance of residual adverse effects is not provided. This recognizes the unique nature of Aboriginal Interests and the potential inappropriateness of determining whether any effects on a protected Aboriginal Interest is “significant” or “not significant.” Instead, conclusions are provided regarding whether the predicted residual effects may interfere with the exercise of Aboriginal Interests and the predicted level of seriousness of that interference.

Table 14.25-1 summarizes LNG Canada’s conclusions regarding the LNG facility’s predicted degree of interference with Aboriginal spiritual places in LSA #2.

Table 14.26-1: Degree of Interference with Aboriginal Spiritual Places in LSA #2

	Limitation on Aboriginal Interest imposes “undue” hardship	Limitation will deny rights-holder preferred means of exercising Aboriginal Interest	Limitation interferes with Aboriginal Interest in “more than insignificant or trivial” way	Predicted Degree of Interference
Aboriginal Spiritual Places	Not applicable	Not applicable	Not applicable	None

14.26.6 Prediction Confidence and Risk

Confidence in this prediction is rated as moderate. LNG Canada has assumed that LNG facility emissions within LSA #2 would not affect spiritual places. LNG Canada recognizes that its understanding of how to predict and measure residual effects on spiritual places is limited. The primary risks are that LNG Canada has underestimated the likelihood of emissions-related interactions with spiritual places, the consequences of those interactions, or that certain spiritual places have not been identified. LNG Canada will continue to consult with potentially affected Aboriginal Groups concerning potential effects and, if necessary, mitigation measures.

14.27 Assessment of Effects on Aboriginal Spiritual Places in LSA #3

14.27.1 Introduction

This section assesses potential shipping-related effects on Aboriginal spiritual places within LSA #3.

These sites can include, but are not limited to, archaeological and heritage sites, including rock art and Culturally Modified Trees. For a detailed discussion of potential effects on archaeological and heritage sites important to Aboriginal people, see Section 8.2.

14.27.2 Baseline Information

Table 14.27-1 summarizes information available to LNG Canada regarding identified other spiritual places within LSA #3.

Table 14.27-1: Identified spiritual places within Aboriginal Interests LSA #3

Aboriginal Group	Description	Locations (LSA/RSA)
Haisla Nation	Human Remains	Gobeil Islands, Emsley Cove,
Haisla Nation	Archaeological Sites, including CMTs and rock art	Clio and Mud bays, Markland Point (and bay), Echo Bay, Miskatla and Giltoyees Inlet
Haisla Nation	Grease Trails	Giltoyees Inlet and Creek
Haisla Nation	Historic Places and campsites	Throughout the LSA #3 along islands and mainland shores
Haisla Nation	Ceremonial Site	Gobeil Island
Haisla Nation	Location of legendary creatures	Jesse Lake and Jesse Creek, Foch Lagoon, River and Lake
Gitga'at First Nation	Rock Art	Throughout the Aboriginal Interests LSA #3 within 200 m of the ocean
Gitga'at First Nation	Human Remains	Hartley Bay, Old Town, Campania Island, Otter Channel.
Gitga'at First Nation	Shell midden	Throughout Aboriginal Interests LSA #3.
Gitga'at First Nation	Fish trap	Throughout Aboriginal Interests LSA #3
Gitxaala Nation	Spanaxnox location	South end ("at the point") of McCauley Island
Gitxaala Nation	Spanaxnox location	East side of Banks Island
Gitxaala Nation	Spanaxnox location	"In" Principe Channel
Gitxaala Nation	Spanaxnox location	"Around" Aristizabal Island
Gitxaala Nation	Spanaxnox location	Otter Channel (Kwil dooyks)
Gitxaala Nation	Identified Sacred Place	Keecha (IR 11)
Gitxaala Nation	Identified Sacred Place	Bear Bay
Gitxaala Nation	Identified Sacred Place	"Near Larsen Harbour"
Gitxaala Nation	Identified Sacred Place	"On the west coast of Porcher Island"
Gitxaala Nation	Identified Sacred Place	"in Squally Channel"

Aboriginal Group	Description	Locations (LSA/RSA)
Gitxaala Nation	Identified Sacred Place	"in Lewis Passage near McDonald Bay"
Gitxaala Nation	Identified Sacred Place	"Off the North Tip of Gill Island"
Gitxaala Nation	Identified Sacred Place	"near Keswar Point and End Hill in Principe Channel"
Gitxaala Nation	Identified Sacred Place	"off west coast of Dolphin Island"
Gitxaala Nation	Identified Sacred Place	"at Calamity Bay" "near Calamity Bay on the south end of Banks Island"
Gitxaala Nation	Identified Sacred Place	"Camps around Ka'oiya [IR Kooryet 19]"
Gitxaala Nation	Identified Sacred Place	End Hill
Gitxaala Nation	Identified Sacred Place	Wright Sound
Gitxaala Nation	Identified Sacred Place	In Principe Channel across from Mink Trap Bay
Gitxaala Nation	Identified Sacred Place	In Principe Channel across from Port Stephens
Gitxaala Nation	Identified Sacred Place	In Principe Channel across from Anger Island
Gitxaala Nation	Identified Sacred Place	In Principe Channel near Colby Bay
Gitxaala Nation	Identified Sacred Place	In Principe Channel near Whelan Point
Gitxaala Nation	Identified Sacred Place	In Browning Entrance
Gitxaala Nation	Identified Sacred Place	On Pitt Island near Port Stephens
Gitxaala Nation	Identified Sacred Place	"by Anger Island"
Gitxaala Nation	Spanoxnox location	East side of Banks Island
Gitxaala Nation	Spanoxnox location	"In" Principe Channel
Gitxaala Nation	Spanoxnox location	"Around" Aristizabal Island
Gitxaala Nation	Spanoxnox location	Otter Channel (Kwil dooyks)
Lax Kw'alaams First Nation	Rock Art	Throughout LSA #3 near the shorelines
Metlakatla First Nation	Rock Art	Throughout LSA #3 near the shore
Metlakatla First Nation	Archaeological Sites, including CMTs and shell middens	Throughout LSA #3 near the shore, specific locations include areas around Stephens Island

Sources: Powell 2013; Gitxaala Nation 2013, Marsden 2011, Calliou 2011, MFN 2011

Gitxaala Nation has reported that many of its members have strongly believe in the existence and influence of supernatural beings called *Naxnox*. These beings are described as residing in various locations throughout Gitxaala Nation territory called *Spanaxnox*. Gitxaala Nation members reportedly observe specific protocols when encountering *Spanaxnox* areas (Calliou 2014c). In their final written submissions to the Enbridge Northern Gateway Joint Review Panel on May 31, 2013 (Gitxaala Nation 2013), legal counsel for Gitxaala Nation provided the following informative description:

In addition to *awaayx* and *adawx*, the practices, customs and traditions of Gitxaala continue to be guided by *naxnox* and *spanoxnox*, supernatural beings and their dens, respectively. Gitxaala believe that all living things in their territory have their own *naxnox*.

It is through experiences with *naxnox* that Gitxaala learned the values and beliefs that define Gitxaala culture and *ayaawx*. *Naxnox* also provide the rules and knowledge that taught Gitxaala ancestors the harvesting practices and principles that have allowed successive generations of Gitxaala to survive in their Traditional Territory (Gitxaala Nation 2013).

Gitxaala Nation in its evidence also provided the following:

The very landscape of Gitxaala's Traditional Territory resonates for Gitxaala people with deep meaning: it is the physical home of the spiritual beings that help Gitxaala structure their society (*naxnox*), the source of the histories that are unique to individual houses and clans (*adawx*), the basis for stories that provide teachings about resource utilization (*melsk*), and the core of the governance system (*gugwilx'ya'ansk*) that sustains Gitxaala people and determines the relationships between them.

Legal counsel for the Gitxaala Nation also underlined the concerns of Gitxaala Nation members that vessels travelling through *spanoxnox* areas might show disrespect to the *naxnox found there*. They wrote the following about that (original transcript references omitted):

Gitxaala's evidence establishes that the fear of angering *naxnox* remains strong for Gitxaala. Gitxaala's evidence documents numerous protocols and *ayaawx* that require that *naxnox* be treated with the greatest respect, including in some cases a requirement to give offerings to *naxnox*. If *naxnox* and their dens are not respected in accordance with Gitxaala *ayaawx*, they can withdraw resources from the territory (Gitxaala Nation 2013).

(...)

The experiences of Gitxaala ancestors with *naxnox* in specific locations are the source of hereditary names, hereditary crests and hereditary titles. The hierarchy of Gitxaala governance mirrors and finds its root in the hierarchy of the *naxnox*. Throughout Gitxaala's evidence, there are numerous stories of ancestor's experiences with *naxnox* that not only provide the history of hereditary names but which also serve as the basis for a *sm'oogyet's* authority. This is also true for the names of high ranking women. (...)

(...) syt guilm goot, of one heart, mind and spirit.

(...)

Gitxaala House Leaders also provided evidence that a second pillar of their governance authority is the *naxnox* within the territory. Any disrespect of the *naxnox*, whether through a spill, contamination or any display of a lack of respect for the *naxnox* within Gitxaala's

territory harms *naxnox* and therefore undermines Gitxaala's authority and jurisdiction (Gitxaala Nation 2013).

In the "Draft Gitxaala Nation Use Study LNG Canada Export Terminal Project" (Calliou 2014b) the authors noted that study participants had explained that throughout their traditional territory there were places associated with experiences, stories and events, and provided a list of "storied places, spanaxnox and adawx sites and teaching areas which they described under the general description as "Sacred Places". The authors also provided a map showing the locations of these sites.

14.27.3 Project Effects Mechanisms

Project-related shipping could result in adverse effects on Aboriginal spiritual places. Potential mechanisms for effects on Aboriginal spiritual places include:

- change in number of non-Aboriginal humans interacting with spiritually important areas
- changes in the acoustic environment at identified sites, and
- changes in visual quality at sites.

14.27.4 Mitigation Measures

14.27.4.1 General

LNG Canada is committed to ongoing consultation with Aboriginal Groups and will continue to consult and engage with communities with respect to their Aboriginal Interests, issues and concerns throughout the Application review phase and the life of the Project. As stated in the approved Aboriginal Consultation Plan, LNG Canada will work towards maintaining good, long term relationships through open dialogue about issues and concerns that arise during the construction and operation phases and work towards resolving Project-related issues that may arise.

14.27.4.2 Non-Aboriginal Interaction with Spiritually Important Areas

LNG Canada will work to reduce any disrespectful or insensitive interactions between its employees and identified Aboriginal spiritual places through the following mitigation measures:

- Develop a Worker Code of Conduct to communicate expectations for the behaviour of all workers when they are in Kitimat, Terrace, or any other local community. LNG Canada will ensure that all workers are familiar with the Worker Code of Conduct and expected standards of behaviour. Workers will sign a copy of the Code of Conduct at orientation acknowledging their commitment to comply with the Code (Mitigation 7.2-2).
- Require all Project workers to undertake worker orientation, including cross-cultural awareness, to help build awareness and respect of local issues of importance, including local

facilities, recreational opportunities, and other community considerations, with expectation of reducing adverse interactions with the community (Mitigation 7.2-3).

LNG Canada will continue to consult with potentially affected Aboriginal Groups to identify potential mitigation measures.

14.27.4.3 Changes in the Acoustic Environment at Identified Spiritual Sites

LNG Canada will continue to consult with potentially affected Aboriginal Groups to identify potential mitigation measures.

14.27.4.4 Changes in Visual Quality at Spiritual Sites

No mitigation measures are proposed. LNG Canada will continue to consult with potentially affected Aboriginal Groups to identify potential mitigation measures.

14.27.5 Characterization of Residual Effects on Aboriginal Spiritual Places

As presented in Table 14.27-1, there are a number of identified *Spanaxnox* or other spiritually important areas located along the Project marine access route. Project-related shipping, and construction and service-related vessel traffic would pass through or by many of these identified areas. The Project would increase shipping traffic traveling to Kitimat by up to 350 vessels per year, depending on the size of the LNG carriers. The percentage increase in shipping traffic as a result of the Project will range from 3% to 340%, depending on the data source compared (see Table 7.4-19). For example, shipping traffic would negligibly add to regional traffic patterns in the Prince Rupert traffic zone, since over 21,000 vessels transit the area annually. In contrast, 350 additional vessels traveling to Kitimat would increase vessel traffic along the marine access route by 172% to 340% (the smaller estimate more accurately reflects the true increase since it includes all vessels using the port of Kitimat and not only those that require pilotage due to their size).

LNG Canada acknowledges that an increase in vessel traffic along the marine access route would increase the level of non-Aboriginal human presence at identified *spanoxnox* and other sacred areas, and would increase the number of perceived violations (either intentionally or through ignorance) of relevant behavioural rules that are believed to apply within those areas. However, the identified spiritually important areas are already frequently disturbed by vessel traffic. As described in Section 7.4, on average, 203 vessels visit the port of Kitimat each year, including 107 large vessels that must be guided by the PPA.

In addition, nine vessels from seven different cruise companies made 50 collective trips through Principe Channel in 2013 (carrying large numbers of non-Aboriginal passengers). LNG Canada cannot reliably determine with reasonable confidence whether any actual adverse effect would actually result from this

added level of non-Aboriginal human presence. The fact that vessels (including large vessels) already routinely interact with the identified areas (and presumably violate applicable behavioral rules and trigger adverse effects associated with that nonconformity) suggests strongly that any added effect resulting from LNG Canada vessel traffic would be limited in nature.

14.27.5.1 Acoustics

As described in Section 5.4, during the operation and construction phases for the LNG facility, sound levels within the acoustics LSA for Project shipping are expected to increase when compared to the existing acoustic environment. The magnitude of those changes for all identified receptors (e.g., Hartley Bay, Otter Channel, Kitkatla, Metlakatla Village) is rated as low and there will be negligible to little effect. Noise effects from shipping activities will be in compliance with both federal and provincial noise guidelines and will be not significant. Low magnitude residual effects on spiritual places are predicted.

14.27.5.2 Visual quality

Of the 17 viewpoints assessed in the Visual Quality Shipping RSA, 14 overlap with recorded spiritual places. Two places of stated spiritual importance are Browning Entrance and Otter Passage (see Table 14.6-1). The average increase in large vessel viewing time in those locations is 37 hours per month. Low magnitude visual quality effects are predicted for LSA #3. For these reasons, visual quality-related residual effects on spiritual places would likely be low magnitude as well.

14.27.6 Summary of Residual Effects on Aboriginal Spiritual Places

Overall residual effects due to Project shipping on spiritually important areas is characterized as low to moderate in magnitude (due to the moderate magnitude residual effect on visual quality resulting from Project shipping activities). Likelihood is unknown.

14.27.7 Prediction Confidence and Risk

Confidence in these predictions is moderate, given conclusions regarding current level of disturbance of Aboriginal spiritual places by vessel traffic but acknowledging the inherent uncertainty involved in assessing residual effects on spiritual places. The primary risks are that LNG Canada has underestimated the adverse effect of Project-related vessel interactions with Aboriginal spiritual places, or that certain spiritual places have not been identified.

14.27.8 Degree of Residual Adverse Effect

Consistent with the AIR, a determination of significance of residual adverse effects is not provided. This recognizes the unique nature of Aboriginal Interests and the potential inappropriateness of determining whether any effects on a protected Aboriginal Interest is “significant” or “not significant.” Instead,

conclusions are provided regarding whether the predicted residual effects may interfere with the exercise of Aboriginal Interests and the predicted level of seriousness of that interference.

Table 14.27-2 summarizes LNG Canada’s conclusions regarding the predicted degree of interference with Aboriginal spiritual places associated with Project shipping. Note that the three criteria that LNG Canada has previously relied on to judge the predicted degree of interference with Aboriginal Interests (such as harvesting-related Aboriginal Interests) focus on interference with human activities and are not relevant to this section’s discussion of Project-related residual adverse effects on Aboriginal spiritual places as places of inherent value and importance, independent of human use.

Table 14.27-2: Degree of Interference with Aboriginal Spiritual Places (Shipping)

	Limitation on Aboriginal Interest imposes “undue” hardship	Limitation would deny rights-holder preferred means of exercising Aboriginal Interest	Limitation interferes with Aboriginal Interest in “more than insignificant or trivial” way	Predicted Degree of Interference
Aboriginal Spiritual Places	Not applicable	Not applicable	Not applicable	Low to moderate

14.28 Summary of Project Residual Effects on Aboriginal Interests

Table 14.28-1 summarizes the residual effects of the Project (facility and shipping) on Aboriginal Interests.

Table 14.28-1: Summary of Project Residual Effects: Aboriginal Interests

Project Phase	Mitigation Measures	Residual Effects Rating Criteria					Likelihood of Residual Effects	Degree of Adverse Effect on Aboriginal Interest	Prediction Confidence
		Magnitude	Geographic Extent	Duration	Frequency	Reversibility			
Facility Works and Activities									
Changes in Harvesting-related Aboriginal Interests (hunting, trapping, fishing, and vegetation harvesting)									
Construction	See Section 14.13.3 See Section 14.14.3	L to M	LSA 1 LSA 2	ST to LT	C	I(harvested vegetation) R(other)	H	H (Project footprint) L/M (Other areas)	M to H
Operation	See Section 14.13.3 See Section 14.14.3	L to M	LSA 1 LSA 2	ST to LT	C	R	H	H (Project footprint) L/M (Other areas)	M to H
Decommissioning	See Section 14.13.3	L to M	LSA 1	ST to LT	SE	R	H	H (Project footprint) L/M (Other areas)	M to H
Residual effect for all phases	See Section 14.13.3 See Section 14.14.3	L to M	LSA 1 LSA 2	ST to LT	C	I(harvested vegetation) R(other)	H	H (Project footprint) L/M (Other areas)	M to H
Changes in Use of Sacred and Culturally Important Sites and Landscape Features									
Construction	See Section 14.16.4 See Section 14.18.4	N - L	PF	P	SE	I	H(Arch) L(Other)	N - L	H
Operation	See Section 14.16.4 See Section 14.18.4	L	LSA 1 LSA 2	P	SE	I	L	L	H

Project Phase	Mitigation Measures	Residual Effects Rating Criteria					Likelihood of Residual Effects	Degree of Adverse Effect on Aboriginal Interest	Prediction Confidence
		Magnitude	Geographic Extent	Duration	Frequency	Reversibility			
Decommissioning	See Section 14.16.4 See Section 14.18.4	L	LSA 1 LSA 2	P	SE	I	L	L	H
Residual effect for all phases	See Section 14.16.4 See Section 14.18.4	L	LSA 1 LSA 2	P	SE	I	L	L	H
Changes in Aboriginal Governance									
Construction	See Section 14.19.4	L to M	LSA 1 LSA 2	ST to LT	MIE	I to R	H	L – M	M
Operation	See Section 14.19.4	L to M	LSA 1 LSA 2	ST to LT	MIE	I to R	H	L – M	M
Decommissioning	See Section 14.19.4	L to M	LSA 1 LSA 2	ST to LT	MIE	I to R	H	L – M	M
Residual effect for all phases	See Section 14.19.4	L to M	LSA 1 LSA 2	ST to LT	MIE	I to R	H	L - M	M
Changes in Aboriginal Cultural Identity									
Construction	See Section 14.22.4	L to M	LSA 1 LSA 2	ST to LT	MIE	I to R	L	L	M
Operation	See Section 14.22.4	L	LSA 1 LSA 2	ST to LT	MIE	R	L	L	M
Decommissioning	See Section 14.22.4	L	LSA 1 LSA 2	ST to LT	MIE	R	L	L	M
Residual effect for all phases	See Section 14.22.4	L	LSA 1 LSA 2	ST to LT	MIE	I to R	L	L	M

Project Phase	Mitigation Measures	Residual Effects Rating Criteria					Likelihood of Residual Effects	Degree of Adverse Effect on Aboriginal Interest	Prediction Confidence
		Magnitude	Geographic Extent	Duration	Frequency	Reversibility			
Changes in Aboriginal Spiritual Places									
Construction	See Section 14.25.4	L	LSA 1	ST to LT	C	R	L	L	M
Operation	See Section 14.25.4	L	LSA 1	ST to LT	C	R	L	L	M
Decommissioning	See Section 14.25.4	L	LSA 1	ST to LT	C	R	L	L	M
Residual effect for all phases	See Section 14.25.4	L	LSA 1	ST to LT	C	R	L	L	M
Shipping Activities									
Changes in Harvesting-related Aboriginal Interests (hunting, trapping, fishing, and vegetation harvesting)									
Construction	See Section 14.15.3	L	LSA #3	ST	MIE	R	M to H	L	M
Operation	See Section 14.15.3	L	LSA #3	LT	MRE	R	M to H	L	M
Decommissioning	See Section 14.15.3	L	LSA #3	LT	MIE	R	M to H	L	M
Residual effect for all phases	See Section 14.15.3	L	LSA #3	LT	MRE	R	M to H	L	M
Changes in Use of Sacred and Culturally Important Sites and Landscape Features									
Construction	See Section 14.18.4	L	LSA #3	LT	MRE	R	L	L	H
Operation	See Section 14.18.4	L	LSA #3	LT	MRE	R	L	L	H
Decommissioning	See Section 14.18.4	L	LSA#3	LT	MIE	R	L	L	H
Residual effect for all phases	See Section 14.18.4	L	LSA #3	LT	MRE	R	L	L	H
Changes in Aboriginal Governance									
Construction	See Section 14.21.4	L	LSA #3	LT	MIE	R	H	L	L
Operation	See Section 14.21.4	L	LSA#3	LT	MRE	R	H	L	L
Decommissioning	See Section 14.21.4	L	LSA #3	LT	MIE	R	H	L	L

Project Phase	Mitigation Measures	Residual Effects Rating Criteria					Likelihood of Residual Effects	Degree of Adverse Effect on Aboriginal Interest	Prediction Confidence
		Magnitude	Geographic Extent	Duration	Frequency	Reversibility			
Residual effect for all phases	See Section 14.21.4	L	LSA #3	LT	MRE	R	H	L	L
Changes in Aboriginal Cultural Identity									
Construction	See Section 14.23	L to M	LSA#3	LT	MIE	R	H	L to M	H
Operation	See Section 14.23	L to M	LSA #3	LT	MRE	R	H	L to M	H
Decommissioning	See Section 14.23	L to M	LSA #3	LT	MIE	R	H	L to M	H
Residual effect for all phases	See Section 14.23	L to M	LSA #3	LT	MRE	R	H	L to M	H
Changes in Aboriginal Spiritual Places									
Construction	See Section 14.27.4	L	LSA #3	LT	MIE	R	H	L to M	M
Operation	See Section 14.27.4	L	LSA #3	LT	MRE	R	H	L to M	M
Decommissioning	See Section 14.27.4	L	LSA #3	LT	MIE	R	H	L to M	M
Residual effect for all phases	See Section 14.27.4	L	LSA #3	LT	MRE	R	H	L to M	M

KEY:

Magnitude:

N—Negligible, no measurable change.
L—Low, very small detectable change from baseline; no exacerbation of existing conditions.
M—Moderate, varies from baseline and may result in noticeable changes to traditional practices, TK or community perceptions of traditional territory, practices or knowledge; moderate exacerbation of existing conditions.
H—High, varies from baseline to a high degree, has serious implication for the continuance of traditional practices and TK; greatly exacerbates existing conditions.

Geographic Extent:

PF = predicted interference with with Aboriginal Interests restricted to the Project footprint
 LSA = predicted interference with Aboriginal Interests extends into the LSA
 RSA = predicted interference with Aboriginal Interests extends into the RSA

Duration:

ST = Short-term—Effect on Aboriginal Interests restricted to construction phase (six years following issuance of permits)
 MT = Medium-term—Effect on Aboriginal Interests extends up to 20 years following issuance of permits
 LT = Long-term—Effect on Aboriginal Interests extends 20 years +years from issuance of permits (equivalent to a generation)
 P = Permanent— Aboriginal Interests unlikely to recover to baseline

Frequency:

SE = Single event
 MIE = Multiple irregular event (no set schedule)
 MRE = Multiple regular event
 C = Continuous—effect occurs continuously

Reversibility:

R = Reversible – would recover after Project closure and reclamation
 IRR = Irreversible – permanent

Likelihood of Residual Effect Occurring

:
 Based on professional judgment
 L = low likelihood that there would be a residual effect
 M = moderate likelihood that there would be a residual effect
 H = high likelihood that there would be a residual effect

Prediction Confidence:

Based on scientific information and statistical analysis, professional judgment and effectiveness of mitigation, and assumptions made.
 L = Low level of confidence
 M = Moderate level of confidence
 H = High level of confidence

Degree of Adverse Effect:

N = Negligible – no measurable interference or insignificant level of interference with Aboriginal Interests
 L = Low – very small but measurable interference with Aboriginal Interests; limitation impose no added burden on Aboriginal rights-holders; unlikely to deny preferred means of exercising Aboriginal Interests
 M = Moderate – a moderate level of potential interference with Aboriginal Interests; limitation may impose some burden on Aboriginal rights-holders but would not result in undue hardship; would not deny rights-holders preferred means of exercising Aboriginal Interests
 H = High – serious level of interference with Aboriginal Interests; would likely impose undue hardship on Aboriginal rights-holders; would deny rights-holder preferred means of exercising Aboriginal Interests

14.29 Views of Aboriginal Groups

As described in Section 13.2, LNG Canada sought the views of Aboriginal Groups on the mitigation measures and on the residual effects and degree to which their exercise of Aboriginal Interests are likely to be adversely affected. LNG Canada met with individual groups and then provided electronic copies of the draft of Part C to each Aboriginal Group. LNG Canada received comments during the meetings and directly from four First Nations following their review of Part C. Section 17, provides a summary of all comments received through Part C review meetings and comments submitted by Aboriginal Groups and action taken by LNG Canada to address them. Many of these comments have been addressed and incorporated into this Application, those that need further consideration and discussion have been included in this section to capture the views of Aboriginal Groups as requested in Section 14 of the AIR. LNG Canada is committed to ongoing consultation with Aboriginal Groups to further discuss these points during the Application review stage.

14.29.1 Views Expressed by Aboriginal Groups on Mitigation Measures

The views expressed to LNG Canada by Aboriginal Groups, through meetings and by written comments, regarding the avoidance, mitigation, or other management measures to address potential adverse effects on identified Aboriginal Interests are summarized in Table 14.29-1.

Table 14.29-1: Summary of Views of Aboriginal Groups on Mitigation Measures

Aboriginal Interest	First Nation	Summary of views on measures to avoid, mitigate or otherwise manage potential adverse effects
Harvesting-related Aboriginal Interests	Kitsumkalum First Nation	Mitigation measures related to an increase in marine traffic appear to refer to the harbor vicinity activities only. There should be mitigation measures for potential effects on marine and foreshore and shore systems as well as to the shipping traffic for our food fishers and our commercial fishers. The Safe Shipping Plan (now referred to as the Marine Activities Plan) may address some of these issues.
	Metlakatla First Nation	LNG Canada can commit to either participate in an existing suitable initiative/group or formulate its own initiative/group to ensure that there is a suitable forum to discuss fisheries issues.
	Metlakatla First Nation	The Safe Shipping Plan (now referred to as Marine Activities Plan), should include a lost gear compensation program.
	Lax Kw'alaams First Nation	Mitigation measures should not rely on international regulations as there needs to be a consideration of local concerns, particularly regarding invasive species.
Use of Ritual Sites, Sacred, and Culturally Important Sites and Landscape Features		No views specific to the mitigation measures for this Aboriginal Interest were received.
Aspects of Traditional Aboriginal Governance	Metlakatla First Nation	Many of the mitigations are linked to traditional harvesting and the biophysical effects as indicators. Suggest the use of more creative mitigations, for example, holding meetings differently.

Aboriginal Interest	First Nation	Summary of views on measures to avoid, mitigate or otherwise manage potential adverse effects
Aspects of Cultural Identity	Metlakatla First Nation	Would like to see more links to the mitigations proposed for socio-economic effects, as the effects on cultural identity are tied to socio-economic effects. For example, full-time employment may result in a lack of participation with children in cultural camps or in eulachon harvesting.
Changes in Aboriginal Spiritual Places	Metlakatla First Nation	LNG Canada should consider establishing a feedback mechanism for First Nations to report effects on spiritual places or effects on accessing spiritual places.
General (mitigation applies to more than one Aboriginal Interest)	Kitsumkalum First Nation	Would like to be consulted with on the various management plans proposed.
	Kitselas First Nation	Would like to see air quality monitoring at elevation and inside valleys, which is key to the watersheds, for the duration of the Project.
	Gitxaala Nation	Without information about the composition, mandate, and powers of these (mitigation) initiatives, it is not possible to conclude that they will be able to effectively mitigate the adverse effects identified in this subsection and others.

14.29.2 Views Expressed by Aboriginal Groups on Residual Effects

The views expressed to LNG Canada by Aboriginal Groups regarding the residual effects and the degree to which their exercise of Aboriginal Interests are likely to be adversely affected are summarized in Table 14.29-2. LNG Canada is committed to ongoing consultation with Aboriginal Groups to further discuss these points.

Table 14.29-2: Views Expressed by Aboriginal Groups Regarding Residual Effects

Aboriginal Interest	Aboriginal Group	View on residual effect
Harvesting-related Aboriginal Interest	Gitga'at First Nation	Salmon food fishing takes place throughout LSA#3 and in many cases in the middle of the shipping lane. In addition, many fishermen fish specifically with the tides. There are two fishable tides per day on average. There is about an hour per tide of optimal fishing time. If a fisherman can only fish during one of the tides (i.e., because of work schedule) it is very likely that fisherman would lose important/critical fishing time because of LNG carrier traffic.
	Gitga'at First Nation	LNG Canada does not recognize the extent of harvesting activities that also occur within the Project marine access route.
	Gitga'at First Nation	LNG Canada should take into consideration that even though for some species there may be alternative harvesting locations in Gitga'at territory that fall outside of the Project footprint, that certain locations within the footprint may be preferred due to distance, quality of food, traditional ownership etc.
	Gitga'at First Nation	LNG Canada should take into account the importance placed by Gitga'at members on harvesting locations that are within easy access to Hartley Bay.
	Gitga'at First Nation	People having to harvest outside of their preferred areas to avoid disruption or disturbance or the reduction in quality of food may place undue hardship on people.

Aboriginal Interest	Aboriginal Group	View on residual effect
	Gitxaala Nation	Throughout Section 14, LNG Canada references the fact that the wake from Project-related vessels will not exceed the size of “naturally occurring” waves. As has been previously raised by Gitxaala, the increase in vessel wake cannot be dismissed on this basis as it does not account for the fact that waves of this size do not occur constantly throughout the LSA #3. The presence of daily tanker wake will have a significant effect on Gitxaala harvesting activities including on otherwise calm days.
	Metlakatla First Nation	Cumulative effects on marine harvesting activities from LNG Canada and other projects may be significant.
	Metlakatla First Nation	Metlakatla is concerned that the Project's residual effects, as minor as they may be, will act cumulatively with other projects in such a way that the long-term sustainability of regional fish populations are significantly affected.
Use of Ritual Sites, Sacred, and Culturally Important Sites and Landscape Features	Gitga'at First Nation	LNG Canada has underestimated the potential for effects on use of spiritual and cultural areas. Further discussions are needed so that LNG Canada has a complete understanding of the cultural and sacred sites.
Aspects of Traditional Aboriginal Governance	Gitxaala Nation	The Gitxaala Nation has indicated its concern that one of the potential effects of the Project could be to negatively affect the status of Gitxaala hereditary chiefs whose territory will be subject to marine-related Project effects.
Aspects of Cultural Identity	Metlakatla First Nation	LNGC rated their confidence as low in predicting a moderate magnitude of change in behavior in killer whales due to underwater noise effects. There is concern about the potential for high magnitude effects that could affect population viability that cannot be ruled out.
Changes in Aboriginal Spiritual Places	Metlakatla First Nation	Disagrees with LNG Canada's reasoning that "shipping traffic would negligibly add to regional traffic patterns in the Prince Rupert traffic zone, since over 21,000 vessels transit the area annually." The increase in LNG carriers is viewed to significantly add to regional traffic patterns due to the size of the carriers compared to what currently makes up the majority of vessels transiting the area. The cumulative effects of LNG Canada carriers along with carriers from other proposed LNG projects and their associated smaller-vessel traffic (construction vessels, tugs, pilot boats, recreational vessels) may affect shipping patterns and the ability of First Nations to exercise their rights in the marine environment.
	Gitxaala Nation	This section attempts to deal with vessel transit through Spiritual Places, including Spanoxnox locations. LNG Canada indicates that they “cannot reliably determine with reasonable confidence where any actual adverse effect would actually result from this added level of non-Aboriginal human presence. The fact that vessels (including large vessels) already routinely interact with the identified areas (and presumably violate applicable behavioural rules and trigger adverse effects associated with nonconformity) suggest strongly that any added effect resulting from LNG Canada vessel traffic would be limited.” While Gitxaala recognizes the sensitive nature of this topic, and therefore the difficulty in reaching conclusions about adverse effects, Gitxaala takes exception to the idea that, just because it's happened before it's okay. Even though Gitxaala territory has been traversed by vessel traffic that does not know and understand the appropriate behaviours it does not mean that it is okay to conclude that it is fine for LNG Canada to continue/increase this intrusion.
General/relates to more than one residual effect	Gitxaala Nation	Conclusions rely on other sections of the EAC Application that were not made available for review; therefore, it is unclear how these conclusions were reached.
	Gitxaala Nation	For effects on Gitxaala's rights, effects that extend up to 20 years cannot be described as “Medium-term”. This represents effects spanning an entire generation which has serious implications for effects to cultural transmission.

14.30 Description of Cumulative Effects

This section describes the project's contributions cumulative effects on those VCs (i.e., wildlife, freshwater and estuarine fish, marine resources and vegetation resources) assessed in Part B that are associated with Aboriginal Interests.

14.30.1 Wildlife Resources Cumulative Effects

The Project contribution to cumulative loss or change in habitat, risk of injury or mortality, and sensory disturbance or behavioural alterations for wildlife will be primarily local and affect a few individuals of the regional populations. Consequently, the Project contribution to cumulative effects will not affect the long-term sustainability of key species or local or regional wildlife populations. Accordingly, the Project contribution to cumulative effects is determined to be not significant.

14.30.2 Surface Water Quality

The cumulative change in acidification potential and change in trophic status is low in magnitude, restricted to the LSA, continuous (throughout the operation), and reversible. As such, cumulative effects are not significant.

14.30.3 Freshwater and Estuarine Fish and Fish Habitat Cumulative Effects

Residual effects will be local and not anticipated to lead to population effects on eulachon or Pacific salmon, which are the CRA fisheries. As a result, the Project will not affect the long-term sustainability of regional fish populations; also cumulative effects are not significant.

Therefore, it is not anticipated that residual adverse effects associated with the Project would interact cumulatively with similar residual adverse effects of past, present and future projects to result in a serious interference on Aboriginal Interests related to fisheries resources.

14.30.4 Marine Resources Cumulative Effects

As reported in Part B, the cumulative change in fish habitat from past, present and foreseeable future projects are not significant, low in magnitude, occur within the marine resources facility RSA and to be reversible and continuous. The Project residual effect will be not significant because permanent alterations and destruction of fish habitat from Project activities and works will be offset through habitat creation, restoration and enhancement. Due to the negligible magnitude of Project adverse effects on fish habitat and low magnitude of past, present and foreseeable project cumulative effects, the Project contribution to cumulative change in fish habitat in the marine resources facility RSA will not adversely affect the long-term viability of populations of fish species that support or are part of CRA fisheries.

Cumulative change in fish health will be not significant and will not adversely affect the viability of fish populations and it is unlikely that individual SARA-listed species of fish would be affected. Levels of contaminants at other project sites in this RSA are likely to be similar or lower than those at the Project site and similar mitigation measures are expected to be used for all projects. Deposition of cleaner sediment over dispersed contaminants is expected to occur at all sites.

Cumulative harm to fish or marine mammals from past, current and foreseeable future projects through construction activities will be moderate in magnitude, short term and not significant. With mitigation, the Project's residual effect will be not significant, and negligible in magnitude for fish and moderate in magnitude for marine mammals. The Project contribution to cumulative harm will be not significant. The resulting cumulative effect will be moderate in magnitude, short term in duration and not significant because population viability will not be affected and species listed as *threatened* or *endangered* are not expected to be harmed.

The Project contribution to cumulative change in behaviour of fish due to underwater noise or pressure waves in marine resources facility and shipping LSAs is not significant due to the low magnitude and reversibility of this effect. The ongoing viability of fish populations would not be adversely affected by the cumulative change in behaviour. The Project contribution to the cumulative change in behaviour of marine mammals is not significant due to implementation of mitigation measures that would reduce the areal extent of underwater noise and reduce the time marine mammals are exposed to that noise. The Project contribution to cumulative effects is uncertain for marine mammals because of uncertainties in population level effects from changes in behaviour. The increase in vessel transits will increase the time when the behavioural disruption threshold is exceeded, but it is anticipated that for most species, when compared to provincial population estimates, relatively low numbers of marine mammals will be affected and their population viability will not be affected.

Therefore, it is not anticipated that residual adverse effects associated with the Project would interact cumulatively with similar residual adverse effects of past, present and future projects to result in a serious interference to Aboriginal Interests related to marine resources.

14.30.5 Vegetation Resources Cumulative Effects

The Project is situated within a designated industrial zone; and, the removal of the 251 ha of vegetation from the Project footprint comprises 0.2% of the vegetation resources RSA (Stantec 2008). With mitigation, the regional sustainability of listed and TU plant populations will not be reduced, residual adverse effects from invasive species will be negligible with adherence to well understood management approaches, and the overall sustainability of ecological communities of interest would be maintained in the vegetation resources RSA. The Wetlands Compensation Plan would result in no net loss of wetland

functions associated with the Project. Overall, the cumulative effects on vegetation resources will not impair the regional viability and sustainability of any of the measurable parameters and are, therefore, predicted to have not significant cumulative effects on vegetation resources.

Therefore, Project residual adverse effects will not interact cumulatively with similar residual adverse effects of past, present and future projects to result in a serious interference on Aboriginal Interests related to vegetation resources.

14.30.6 Air Quality Cumulative Effects

The cumulative effects are characterized as highly likely, adverse, permanent, and continuous over the operation phase, and are of moderate magnitude. Adverse effects occur only sporadically. The atmospheric environment is expected to demonstrate a high degree of resilience to changes in air quality caused by the Project. The cumulative effects are of moderate magnitude because the Project is not responsible either singly or as a substantial contributor in combination with other sources for causing exceedances or impingement upon levels and objectives beyond the Project fence line. The cumulative effects occur in a moderately disturbed environment; however, they are reversible immediately after emissions decrease or cease.

With the mitigation and environmental protection measures, the cumulative effects on air quality are predicted to be not significant.

14.30.7 Visual Quality Cumulative Effects

The other projects in the visual quality RSA (facility) that are proposed have the potential to contribute to additional changes to vegetation patterns and topography, as viewed from identified viewpoints.

Given the minimal predicted change in visible alteration from the projects (in the facility LSA), and because the projects are not expected to result in exceeding any established VQOs, it is predicted that the Project contribution to cumulative effects on visual quality in the facility RSA will be not significant.

The cumulative shipping requirements Project shipping RSA could result in a fundamental reduction in visual quality due to increased frequency and duration of large vessels that are visible from viewpoints of importance in the shipping RSA. However, the cumulative effects on visual quality in the shipping RSA are predicted to be not significant because:

- the prominence of large vessels travelling in the shipping RSA is predicted to be low to moderate, and
- effective communications can be used to enable other users to reduce unwanted views of LNG carriers.

Therefore, it is not anticipated that residual adverse effects associated with the Project would interact cumulatively with similar residual adverse effects of past, present and future projects to result in a serious interference on Aboriginal Interests related to visual quality.

14.30.8 Human Health Cumulative Effects

As stated in Section 9.2.8.4, changes in CAC concentrations in the Kitimat air shed that occur between the base and cumulative cases do not represent potential human health concerns for PM_{2.5}, CO, and NO₂. Although the cumulative effects of the existing projects, including the projected increases from the RTA facility are expected to be of some significance with respect to SO₂, the incremental increase in SO₂ concentrations that is predicted to occur between the base and cumulative cases is limited. The increase in potential respiratory events between the base and cumulative cases is predicted to be less than 0.01%. Therefore, changes in human health associated with changes in SO₂ exposures in the Cumulative case, beyond what would exist under the base case, would likely be negligible, and the effects would be reversible. Therefore, the Project contribution to cumulative changes in human health resulting from changes in air quality is predicted to be not significant.

14.30.9 Acoustics Cumulative Effects

Past and present regulated projects and activities in the acoustics RSA will not overlap with Project residual effect in such a way as to exceed regulatory thresholds on a persistent basis. Cumulative effects are, therefore, not significant.

14.31 Prediction Confidence and Risk

Prediction confidence and risk with respect to the assessment of residual adverse effects on Aboriginal Interests is summarized in Table 14.31-1 and Table 14.31-2.

Table 14.31-1: Prediction Confidence and Risk (Facility)

Aboriginal Interest	Prediction Confidence and Risk
Changes in Harvesting-Related Aboriginal Interests	<p>Confidence in the prediction of residual adverse effects on harvesting-related Aboriginal Interests is rated as moderate because of uncertainty regarding potential effects on harvested marine mammals (e.g., seals, sea lions).</p> <p>The primary risks are that there are Aboriginal harvesting activities that are unique to the Project footprint, that the Project footprint is much more important for Aboriginal harvesting activities than LNG Canada has concluded, or that LNG Canada has overestimated the available supply of alternative harvesting locations outside the Project footprint. Since LNG Canada's confidence in its prediction of residual effects is not low, no additional risk analysis has been conducted.</p>
Changes in Use of Sacred and Culturally Important Sites and Landscape Features	<p>Confidence in the prediction of residual adverse effects on spiritual and cultural use is rated as high, as the information provided to LNG Canada by Haisla Nation specifically addressed any known spiritual or ceremonial site within the LNG facility area.</p> <p>The primary risk is that information provided to LNG Canada by the Haisla Nation has underestimated residual effects on use of spiritual and cultural use. Since LNG Canada's confidence in its prediction of residual effects is not low, no additional risk analysis has been conducted.</p>

Aboriginal Interest	Prediction Confidence and Risk
Changes in Aboriginal Governance	<p>Confidence in this prediction is high, as data on the qualitative changes provided in Section 9.2, combined with the provided TU report from Haisla Nation, presents defined use in and around the LNG facility.</p> <p>The primary risk is LNG Canada has underestimated the residual adverse effects of the LNG facility on Aboriginal traditional harvesting activities, and by extension, has also underestimated residual adverse effects on Aboriginal governance systems that are integrally linked to traditional harvesting. Since LNG Canada's confidence in its prediction of residual effects is not low, no additional risk analysis has been conducted.</p>
Changes in Aboriginal Cultural Identity	<p>LNG Canada's confidence in its prediction of residual adverse residual effects on Aboriginal cultural identity is high, given the in-depth analysis provided to LNG Canada by Aboriginal Communities.</p> <p>The primary risk is LNG Canada has underestimated the residual adverse effects of LNG facility on Aboriginal traditional harvesting activities, and by extension, has also underestimated residual adverse effects on Aboriginal cultural identity that are integrally linked to traditional harvesting. Since LNG Canada's confidence in its prediction of residual effects is not low, no additional risk analysis has been conducted.</p>
Changes in Aboriginal Spiritual Places	<p>Confidence in this prediction is rated as moderate. While LNG facility-related interactions with identified spiritual places are highly unlikely, LNG Canada recognizes that its understanding of how to predict and measure residual effects on spiritual places is limited. The primary risks are that LNG Canada has underestimated the likelihood of interactions with spiritual places, or that certain spiritual places have not been identified. Since LNG Canada's confidence in its prediction of residual effects is not low, no additional risk analysis has been conducted.</p>

Table 14.31-2: Prediction Confidence and Risk (Shipping)

Aboriginal Interest	Prediction Confidence and Risk
Changes in Harvesting-related Aboriginal Interests	<p>Confidence in the prediction of residual effects on harvesting-related Aboriginal Interests is rated as moderate, specifically due to uncertainty regarding Project residual effects on harvested marine mammals (e.g., seals, sea lions). The primary risks are that LNG Canada has underestimated the residual effect of Project shipping on harvested species, or has underestimated residual adverse effects on harvesting activities. Since LNG Canada's confidence in its prediction of residual effects is not low, no additional risk analysis has been conducted.</p>
Changes in Use of Sacred and Culturally Important Sites and Landscape Features	<p>LNG Canada has a high level of confidence in its assessment of residual adverse effects of Project related shipping activities on the use of spiritual, cultural or sacred places, landforms and natural features. LNG Canada has a high level of confidence in the conclusions of Project wake effect models and predictions related to Project accidents and malfunctions. The primary risk is that LNG Canada has underestimated the potential for residual effects on use of spiritual and cultural areas or has not identified specific spiritual and cultural areas that may experience unique effects due to Project shipping. Since LNG Canada's confidence in its prediction of residual effects is not low, no additional risk analysis has been conducted.</p>
Changes in Aboriginal Governance	<p>LNG Canada's confidence in its prediction of residual adverse residual effects on traditional Aboriginal governance systems is high. The primary risk is LNG Canada has underestimated the residual adverse effects of Project shipping on Aboriginal traditional harvesting activities, and by extension, has also underestimated residual adverse effects on Aboriginal governance systems that are integrally linked to traditional harvesting. Since LNG Canada's confidence in its prediction of residual effects is not low, no additional risk analysis has been conducted.</p>
Changes in Aboriginal Cultural Identity	<p>LNG Canada's confidence in its prediction of residual adverse residual effects on Aboriginal cultural identity is high, given the in-depth analysis provided to LNG Canada by Aboriginal Communities.</p> <p>The primary risk is LNG Canada has underestimated the residual adverse effects of Project shipping on Aboriginal traditional harvesting activities, and by extension, has also underestimated residual adverse effects on Aboriginal cultural identity that are integrally linked to traditional harvesting. Since LNG Canada's confidence in its prediction of residual effects is not low, no additional risk analysis has been conducted.</p>

Aboriginal Interest	Prediction Confidence and Risk
Changes in Aboriginal Spiritual Places	Confidence in these predictions is high, given conclusions regarding current level of disturbance of Aboriginal spiritual places by LNG carrier traffic. The primary risks are that LNG Canada has underestimated the residual adverse effect of Project LNG carrier interactions with Aboriginal spiritual places, or that certain spiritual places have not been identified. Since LNG Canada's confidence in its prediction of residual effects is not low, no additional risk analysis has been conducted.

14.32 Follow-up Program and Compliance Reporting

This section provides a summary of follow-up programs and compliance reporting requirements for those VCs assessed in Part B that are associated with the exercise of Aboriginal Interests.

14.32.1 Air Quality

See Section 5.2 for details on the follow-up program and compliance reporting requirements for air quality.

14.32.2 Acoustic Environment

As set out in Section 5.4, no follow-up or monitoring is required.

14.32.3 Vegetation Resources

A number of monitoring programs will be developed, including:

- a follow-up monitoring program for the Wetland Compensation Plan and Fish Habitat Offsetting Plan will be implemented as per requirements determined in consultation with Canadian Wildlife Services.
- an Invasive Plant Management Plan will be implemented, which will include monitoring and control of invasive plants within the terrestrial LSA.

See Section 5.5-10 for details on the follow-up program and compliance reporting requirements for vegetation resources.

14.32.4 Wildlife Resources

A number of follow-up and monitoring programs to verify the accuracy of the environmental assessment and the effectiveness of recommended mitigation measures are recommended for wildlife resources. If required, aspects of follow-up and compliance programs will be developed through future consultation with regulators (e.g., Environment Canada, BC MFLNRO), Aboriginal Groups, and key stakeholders. Programs may include monitoring of relocated raptor nests, wildlife movement through new passages, amphibian breeding sites, and bird strikes and mortality on LNG facility structures and shipping vessels during operation.

See Section 5.6.10 for details on the follow-up program and reporting recommendations for wildlife resources.

14.32.5 Marine Resources

A number of follow-up and compliance monitoring programs will be required to verify the accuracy of the environmental assessment and effectiveness of the recommended mitigation measures related to Project effects on marine resources. These will include development and implementation of a Marine Activities Plan, and Post-construction Fish Habitat Offsetting Plan Monitoring Program.

See Section 5.8.10 for details on the follow-up program and compliance reporting requirements for marine resources.

14.32.6 Freshwater and Estuarine Fish and Fish Habitat

The Project will require an authorization from DFO to commit *serious harm to fish* under section 35(2)(a) of the *Fisheries Act* due to PAD of fish habitat. This will involve an offsetting plan that can achieve the guiding principle of no net loss of productive capacity. To be accepted, an appropriate follow-up program will be required and must be in compliance with DFO's fish protection policy and regulations.

See Section 5.9.7 for details on the follow-up program and compliance reporting requirements for freshwater and estuarine fish and fish habitat.

14.32.7 Visual Quality

It is recommended that shipping effects on visual quality be included within ongoing community, Aboriginal Group and stakeholder consultation to help understand and address the issues and concerns related to monitoring of visual quality parameters.

14.32.8 Marine Transportation and Use

LNG Canada will implement a number of follow-up programs, including monitoring and compliance reporting, for marine transportation and use. Follow-up programs will include LNG Canada's participation in the Fisheries Liaison Committee, the conducting of two Safe-Shipping Workshops, and completion of a Mitigation Effectiveness Survey.

Compliance monitoring will be conducted to verify that the marine terminal is constructed according to the Marine Construction Safety Plan.

See Section 7.4.10 for details on the follow-up program and compliance reporting requirements for marine transportation and use.

14.32.9 Human Health

See Section 9: Human Health Effects for details on the follow-up program and compliance reporting requirements for human health.

14.32.10 Heritage and Archaeology

Project construction within TSN-2013-STL-9 and other terrestrial archaeological and heritage sites, if present, will proceed under the authority of Alteration Permits obtained from the Oil and Gas Commission. Archaeological surveillance and monitoring of Project construction works are common requirements of these permits, depending on the results of the site assessments and related SDR studies, and the nature of effects to the sites in question.

See Section 8.2.9 for details on the follow-up program and compliance reporting requirements for heritage and archaeology.

As no CMTs or intertidal archaeological or heritage resources have been discovered in the LSA, no follow-up program is warranted. Nonetheless, a CFP will be adopted to increase the chances that, any new CMTs, intertidal sites or terrestrial sites found during operation will be properly recorded and mitigated.

14.33 Summary of Mitigation Measures

A complete list of mitigation measures for each VC is provided in Section 20 (Summary of Mitigation Measures) as well as in each relevant VC assessment section. Commitments made by LNG Canada to limit Project residual effects and cumulative effects on VCs assessed in Part B that are associated with the exercise of Aboriginal Interests are located in:

- Air Quality – See Section 5.2.11
- Acoustic Environment – See Section 5.4.11
- Vegetation Resources – See Section 5.5-11
- Wildlife Resources - See Section 5.6.11
- Freshwater and Estuarine Fish and Fish Habitat – See Section 5.7.10
- Marine Resources – See Section 5.8.11
- Visual Quality – See Section 7.3.11
- Marine Transportation and Use - See Section 7.4.11
- Human Health – See Section 9.11, and
- Heritage and Archaeology –See Section 8.2.10.