

## 16.0 Lax Kw'alaams Band

Lax Kw'alaams Band informed Cedar, the EAO and Impact Assessment Agency of Canada that it was interested in directly preparing the assessment of effects of the Cedar LNG Project (the Project) on Lax Kw'alaams interests. Therefore, this section of the Application, including relevant background information and key interests, is authored, presented and assessed in a manner determined by Lax Kw'alaams Band.

This section assesses the potential effects of the Project on Coast Tsimshian Interests, which was prepared jointly by Lax Kw'alaams Band and Metlakatla First Nation. This assessment is specific to the Project and shall not be relied on for any other application, project, amendment, or any other purpose without Lax Kw'alaams Band's (Lax Kw'alaams) and Metlakatla First Nation's (Metlakatla) express and written consent. The assessment presented below is also directly applicable to the Application Information Requirements for the Metlakatla First Nation's interest and is not duplicated in Section 17 of this Application.

### 16.1 Overview and Context

The project shipping route bisects a key and integral marine area within the Coast Tsimshian territories (see Figure 16.1.1 and Figure 16.1.2). The area of particular concern is from the northwest side of Porcher Island to the Triple Islands area and out to Dixon Entrance (these areas are inclusive of Stephens Island, the Tree Knob Group, Melville Island, Dundas Island, Dunira Island, Zayas Island, and all of Chatham Sound more generally).

Though now independent Nations under the *Indian Act*, Metlakatla and Lax Kw'alaams are comprised of *waap* (house groups) of the nine Allied Tribes of the Coast Tsimshian<sup>1</sup>, whose acquisition, defense, and long-term use and occupancy of their territories is documented through their *Adaawx* and *Ayaaxw*<sup>2</sup>. These living oral histories and Indigenous laws provide the framework for how Lax Kw'alaams and Metlakatla assert their rights and Title to their marine territories and conceptualize and practice responsible stewardship.

As the northernmost of the Tsimshian peoples, Coast Tsimshian are culturally and linguistically related to the Southern Tsimshian and the Interior (Canyon) Tsimshian. The Coast Tsimshian territories extend from the mouth of the Nass River to south of the mouth of the Skeena River, covering the Lower Skeena to east of the Zymoetz River near Terrace and west to the adjacent mainland coasts and islands into the Hecate Strait. While the Prince Rupert Harbour is a "flagship region" for Coast Tsimshian (Ames and Martindale, 2014), the Coast Tsimshian marine territories have also been part of core Coast Tsimshian cultural, political, economic, and spiritual territories for at least ten thousand years (Letham et al. 2015).

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<sup>1</sup> Prior to European settlement, the Coast Tsimshian organized into the following nine Allied Tribes: Gitwilgyoots, Gits'iis, Gitzaxlaal, Ginaxangiik, Ginandoiks, Gitando, Giluts'aaw, Gispaxlo'ots, and Gitlaan (Halpin and Anderson, 1990; MacDonald, 2006; 2009; Martindale and Marsden, 2011); a tenth tribe, the Gitwilkseba, gradually became so reduced in size during the contact period that its remnants were absorbed by the other tribes (Anderson 2006; Martindale and Marsden 2011). The present-day communities of Lax Kw'alaams and Metlakatla are both descended from these Allied Tribes.

<sup>2</sup> Oral records which document the living histories and legal system of the houses of the Coast Tsimshian peoples (Martindale and Marsden 2011).

1 *Adaawx* make specific reference to the occupation and use of the offshore islands as well as to significant  
2 events that took place there (Marsden 2000). Prior to European contact, extensive Coast Tsimshian  
3 settlements flourished on the Dundas Islands group and Stephens Island group (Martindale et al. 2017).

4 According to *Adaawx* and *Ayaaxw*, which have been analyzed alongside the archaeological record, the  
5 outer islands of Coast Tsimshian marine territory were densely settled during the second half of the  
6 Holocene era, with village layouts corresponding to those located in the Prince Rupert Harbour (Letham  
7 et al. 2015). Many of these villages were occupied year-round through the eighth century AD, at which  
8 point they became seasonal resource-gathering sites affiliated with more populous villages in the Prince  
9 Rupert Harbour (Letham et al. 2015). According to Coast Tsimshian oral history, this inward migration  
10 occurred as populations concentrated at defensive sites in Prince Rupert Harbour to protect against  
11 Tlingit invaders from the north (Marsden 2000). In spite of this move, Coast Tsimshian people maintained  
12 their use and occupancy of the marine territories and outer islands, where they travelled seasonally to  
13 camp and harvest. One of many examples throughout the territory that has been continuously occupied is  
14 Dundas Island. Clear historic, continuous, and recent occupation of the Dundas Islands includes culturally  
15 modified trees, and fishing and seaweed collecting cabins used by Coast Tsimshian members who reside  
16 on the mainland (Letham et al. 2015; Martindale et al. 2017). There are many other places in Coast  
17 Tsimshian Territory that people continuously occupy and use.

18 Since time of contact, Coast Tsimshian territory has undergone many changes, with Coast Tsimshian  
19 peoples being confined to reserves and their way of life altered by colonial forces such as missionaries  
20 and residential schools. While the seasonal round became more sedentary as a result, the peoples of Lax  
21 Kw'alaams and Metlakatla continued to harvest and maintain cultural and spiritual connections throughout  
22 their territories, including their marine territories and the outer islands. These marine territories continue to  
23 play an important role in food security, traditional harvesting, and cultural continuity for Metlakatla and Lax  
24 Kw'alaams members. Coast Tsimshian peoples harvest in the marine areas as well as the intertidal zones  
25 and terrestrial areas of the outer islands for food, social, and ceremonial purposes (DMCS and Metlakatla  
26 First Nation 2014). Current use practices documented by Metlakatla and Lax Kw'alaams members in the  
27 proposed project shipping route area include fishing<sup>3</sup> and marine resource gathering for halibut,  
28 groundfish, shellfish (marine invertebrates, mollusks), herring, seaweed (marine plants), gull eggs, and  
29 marine mammals; aquatic and terrestrial transportation routes; seasonal coastal camping and fishing  
30 sites; harvesting plants and medicines; and spiritual and cultural sites including tangible heritage such as  
31 a high concentration of archaeological sites (DMCS and Metlakatla First Nation 2014; Letham et al.  
32 2015).

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<sup>3</sup> While typically harvested closer to mainland freshwater systems, anadromous fish (salmonids and eulachon) saltwater habitat also falls within the proposed project shipping route.

## 16.2 Cedar's Summary of Engagement

Cedar has been engaging with Lax Kw'alaams regarding the Project since summer 2019. Engagement began with an introductory letter and meeting with Haisla Nation leadership (Haisla Nation wholly owned the Project at that time). Technical discussions between Cedar and Lax Kw'alaams began in late 2019. The primary purpose of these technical discussions is to understand potential project-related effects to Lax Kw'alaams' interests as well as identify measures to avoid or mitigate those effects.

Cedar's approach to engagement includes the following activities:

- Sign a Communication and Cooperation Agreement that provides funding for Lax Kw'alaams to undertake studies to understand project-related effects to their Interests and to participate in the environmental assessment process.
- Provide preliminary drafts of environmental assessment documents and technical data reports for review in advance of submission to the EAO.
- Meet with Lax Kw'alaams representatives regularly to provide updates regarding the Project and the environmental assessment process.
- Provide updates regarding project design.

Based on feedback shared by Lax Kw'alaams during the pre-Application phase of the assessment process, Cedar understands that key areas of concern for Lax Kw'alaams are as follows:

- Appropriate characterization of baseline conditions
- Keystone species
- Marine shipping
- Cumulative effects
- Accidents and malfunctions

Additional information regarding engagement between Cedar and Lax Kw'alaams is provided in the Indigenous Consultation Report.

## 16.3 Information Sources and Limitations

The assessment of project effects on Coast Tsimshian interests draws on information regarding the Project contained in the *Cedar LNG Project Liquefaction and Export Terminal: Detailed Project Description* (Cedar 2019) and information regarding the Project's potential effects on the biophysical and human environments, particularly Section 7.7 (Marine Resources) and Section 7.10 (Marine Use) of this Application. Information regarding Coast Tsimshian interests is primarily obtained from secondary sources, including traditional use studies prepared for the Vopak LNG Project environmental assessment (DMCS and Lax Kw'alaams Band 2019; Kwon and Roberts 2019; DMCS and Metlakatla First Nation, 2014).

1 As no primary information was collected to support this assessment, the level of detail regarding site-  
2 specific and community-specific data is limited at this time without resources for a project-specific  
3 traditional use study<sup>4</sup>. Wherever baseline traditional land use data is limited in detail, the assessment  
4 makes reasonable assumptions regarding project interactions based on experience with similar projects  
5 regarding likely interaction pathways.

6 The EAO's (2019) section 11 Order for the project limits the scope of project shipping and other  
7 supporting marine traffic to "the marine shipping route between the project location and the pilot boarding  
8 location at or near Triple Islands." The assessment of project effects on marine resources (Section 7.7)  
9 and marine use (Section 7.10); therefore, limit the spatial boundaries of the shipping assessment area to  
10 Triple Islands. Lax Kw'alaams and Metlakatla do not agree with this limitation, as project-related shipping  
11 and marine traffic will continue within Coast Tsimshian marine territories past Triple Islands, with similar  
12 effects on Coast Tsimshian interests. The assessment presented below; therefore, extends the  
13 assessment boundary related to the shipping route throughout the full extent of Coast Tsimshian marine  
14 territories.

## 15 **16.4 Assessment Methodology**

16 The Project's effects on Coast Tsimshian Interests were assessed in accordance with the following steps:

- 17 1. Identify key Coast Tsimshian Interests, associated effects to be assessed and assessment indicators
- 18 2. Define spatial and temporal assessment boundaries
- 19 3. Characterize existing conditions for each Coast Tsimshian Interest
- 20 4. Assess the Project's potential effects on Coast Tsimshian Interests
- 21 5. Identify and evaluate relevant mitigation measures from Cedar's Part B assessment, mitigation  
22 measures proposed by Coast Tsimshian
- 23 6. Characterize residual effects on Coast Tsimshian Interests
- 24 7. Assess the seriousness of residual effects in the context of past, current, anticipated future and  
25 desired future conditions

26 The sections below describe each assessment step in more detail.

### 27 **16.4.1 Selection of Coast Tsimshian Interests**

28 A preliminary list of seven Coast Tsimshian Interests were identified to screen for potential interactions  
29 with the Project (Table 16.4.1). These Interests were selected based on issues and concerns about the  
30 Project raised by Lax Kw'alaams and Metlakatla, experience with other environmental assessments in  
31 Coast Tsimshian traditional territories, and consistency with the United Nations Declaration on the Rights  
32 of Indigenous Peoples. This list of Interests has been defined for the purposes of this effects assessment  
33 and is not exhaustive, nor should be assumed or applied to any other proposed project in Lax Kw'alaams  
34 territories.

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<sup>4</sup> Cedar worked with Lax Kw'alaams to develop a workplan under the Communication and Cooperation Agreement.

**TABLE 16.4.1 COAST TSIMSHIAN INTERESTS**

Coast Tsimshian Interest	Definition
Terrestrial harvesting	Right to hunt, fish, trap and gather terrestrial resources
Marine harvesting	Right to fish, hunt, and gather marine resources
Sense of place	Right to maintain emotional and spiritual attachment to special places. Right to peaceful enjoyment of the lands and waters.
Access and travel	Right to access lands and waters
Governance and decision-making	Right to make decisions about land and marine use in accordance with Coast Tsimshian governance and decision-making rights
Health and safety	Right to the highest attainable standard of physical, mental and social health
Economic development/self-sufficiency	Right to derive economic benefit from land and waters
Cultural identity	Right to maintain cultural distinctiveness and integrity

1 The preliminary list of Coast Tsimshian Interests was screened to identify interactions with project  
 2 components and activities that are likely to result in adverse effects (Table 16.4.2). The Project is  
 3 anticipated to interact with the full range of Coast Tsimshian interests identified in Table 16.4.1. In  
 4 addition, project impacts on socio-economic values (infrastructure and services), as well as increased  
 5 recreational and harvesting pressure on terrestrial and aquatic resources in and around Terrace and the  
 6 Lakelse area are anticipated as a result of incoming workforce. However, this assessment focuses on  
 7 Coast Tsimshian Interests that have the greatest potential for adverse effects: Marine Harvesting and  
 8 Sense of Place. Table 16.4.2 provides the rationale for selection of Coast Tsimshian Interests for further  
 9 assessment. Each assessment section identifies effects to be assessed and assessment indicators.

**TABLE 16.4.2 SELECTION OF COAST TSIMSHIAN INTERESTS FOR ASSESSMENT**

Coast Tsimshian Interest	Selected?	Rationale for Selection Decision
Terrestrial harvesting	No	The Project has the potential to interfere with Coast Tsimshian people's marine access to terrestrial harvesting locations on islands adjacent to the marine shipping route due to presence of LNG carriers, tug escorts and increased marine traffic, as well as safety concerns related to potential vessel strikes and marine vessel wake. In addition, unanticipated spills of fuel from LNG carriers and supporting marine traffic have the potential to adversely impact shoreline and terrestrial resources. Project activities at the marine terminal have the potential to adversely affect terrestrial harvesting in the eastern sections of Coast Tsimshian territories due to habitat effects and alteration of wildlife movement patterns. While the Project is anticipated to contribute to cumulative effects on Coast Tsimshian terrestrial harvesting rights due to habitat effects and alteration in wildlife movement patterns in the eastern sections of Coast Tsimshian territories, Terrestrial Harvesting is not selected for further assessment as Lax Kw'alaams and Metlakatla have chosen to focus the assessment primarily on the project shipping route. Project effects on marine access are addressed in the marine harvesting assessment.
Marine harvesting	Yes	Project-related marine traffic has the potential to adversely affect with Coast Tsimshian marine harvesting due to change in marine resource availability, as well as the location, timing and duration of Coast Tsimshian marine harvesting activities due to interference with access to preferred harvesting sites, marine and shoreline safety concerns, and sensory disturbance. Project-related population influx resulting from hiring and procurement has the potential to affect Coast Tsimshian marine harvesting effort and success due increased competition for marine resources. Project interactions with marine harvesting have the potential to result in key effects, thereby warranting further assessment.
Sense of place	Yes	Project-related marine traffic has the potential to adversely affect Coast Tsimshian marine and shoreline users' attachment to and emotional connection with place due to sensory disturbance (visual effects, noise), increased unwanted interactions with other marine users, and further industrialization of Coast Tsimshian marine territories. Project interactions with sense of place have the potential to result in key effects, thereby warranting further assessment.
Access and travel	No	Project-related marine traffic has the potential to adversely affect marine navigation along Coast Tsimshian travel routes and harvesting areas, due to increased vessel traffic and changes in marine safety as a result of potential for marine collisions and vessel wake. Access and Travel is not selected for further assessment as effects on marine access are assessed in the marine harvesting assessment.

**TABLE 16.4.2 SELECTION OF COAST TSIMSHIAN INTERESTS FOR ASSESSMENT**

Coast Tsimshian Interest	Selected?	Rationale for Selection Decision
Governance and decision-making	No	The Project has the potential to interact with Lax Kw'alaams' and Metlakatla's ability to enforce and transfer Indigenous laws and norms, achieve stewardship and management targets and exercise Indigenous authority to make decisions about how Coast Tsimshian territorial waters are used, due to changes in the use of Coast Tsimshian marine territories, potential effects on Coast Tsimshian marine resources and project approval processes taking place outside of the auspices of Coast Tsimshian authority. In addition, project effects on socio-economic values as well as wildlife and habitat values are anticipated in the eastern reaches of Coast Tsimshian Territory, with consequent effects on Coast Tsimshian governance and decision-making. While project-related effects on Coast Tsimshian governance and decision-making are expected, they are not anticipated to cross thresholds of seriousness. Consequently, governance and decision-making are not selected for further assessment. Lax Kw'alaams and Metlakatla reserve the right to make independent consent-based decisions about the Project and expect that any Coast Tsimshian-developed conditions will be considered for inclusion in any provincial environmental assessment certificate conditions or federal decision statement conditions.
Health and safety	No	Project-related marine traffic has the potential to adversely affect Coast Tsimshian peoples' physical and mental health due to reduced engagement in physically demanding marine harvesting activities, increased air emissions from the FLNG facility and shipping operation, altered sense of place, and safety risks from potential marine collisions and marine and shoreline vessel wake. Health and Safety is not selected for further assessment as the Project is not anticipated to greatly reduce Coast Tsimshian involvement in marine harvesting activities, and safety issues and concerns are considered in the Marine Harvesting assessment. Emotional impacts from altered sense of place are considered in the sense of place assessment.
Economic development / self-sufficiency	No	Project-related marine traffic has the potential to adversely affect Coast Tsimshian economic development plans relating to the shipping route, such as commercial fishing and ecotourism. Economic development / self-sufficiency is not selected for further assessment as Coast Tsimshian economic development plans relating to the shipping route are not sufficiently developed to support an assessment.
Cultural identity	No	Project-related marine traffic has the potential to adversely affect Coast Tsimshian cultural identity due to reduced access and avoidance of marine use areas, resulting in loss of place-based knowledge and reduced ability to transmit knowledge between older and younger generations. Cultural identity is not selected for further assessment. While project-related marine traffic is anticipated to interfere with Coast Tsimshian marine use activities and may result in some members avoiding the area, overall effects on Coast Tsimshian place-based knowledge and knowledge transmission are not anticipated to be significant.

## 16.4.2 Assessment Boundaries

The spatial boundaries for the assessment are as follows:

- LAA: Marine shipping route within Coast Tsimshian marine territories plus a 6 km buffer on either side of the route and extending past Triple Islands throughout Coast Tsimshian Territories<sup>5</sup>
- RAA: Coast Tsimshian traditional territories

The temporal boundary for the study ranges from the pre-contact period (prior to 1830) to a future development period (2070). These temporal boundaries were selected to characterize baseline conditions and trends over time with which the Project is anticipated to interact.

## 16.4.3 Description of Existing Conditions

Information to describe existing conditions was derived from Lax Kw'alaams and Metlakatla-specific traditional use studies for comparable projects (DMCS and Lax Kw'alaams Band 2019; Kwon and Roberts 2019; DMCS and Metlakatla First Nation 2014) and Cedar's Application

Where possible, existing conditions for each Coast Tsimshian interest include a description of the pre-contact baseline, trends over time resulting from historical and cumulative pressures, current conditions and anticipated and/or desired future states.

Table 16.4.3 identifies past and current projects and activities and Table 16.4.4 identifies reasonably foreseeable projects and activities that informed the effects assessment.

**TABLE 16.4.3 PAST AND PRESENT PROJECTS AND ACTIVITIES**

Project / Activity	Location	Status
William Duncan and missionary activities	Territory wide	1800s
Port-related industrial development	Ridley Island and Prince Rupert area	Early 1900s–present
Large vessel traffic	Territory wide	1970s–present
Commercial and recreational fishing and small vessel traffic	Territory wide	1800s–present
Urban development	Prince Rupert area	Early 1900s–present
Industrial development and activities	Territory wide	1800s–present
Logging, forestry, and land-clearing activities	Territory wide	1800s–present
Construction of roads, utilities, railways, and other infrastructure	Territory wide	Late 1800s–present
Subdivision and privatization of lands	Territory wide	1800s–present
Aquaculture	Territory wide	1960s–present
Hatcheries	Territory wide	1960s–present
Canneries	Skeena River	Late 1800s–mid-late 1900s
Government and colonial policies	Territory wide	Contact–present

<sup>5</sup> Note: The study areas assessed herein differ from the valued component assessments, which extend to Triple Islands.

**TABLE 16.4.4 REASONABLY FORESEEABLE PROJECTS AND ACTIVITIES**

Project / Activity	Location	Status
Vopak Pacific Canada	Ridley Island	Under review
Pembina Prince Rupert Terminal	Prince Rupert	Under operation
Westcoast Connector Gas Transmission	Chatham Sound to Ridley Island	EAC received
Prince Rupert Gas Transmission	Chatham Sound to Lelu Island	EAC received
Fairview Phase 2B Expansion	Kaien Island	EAC received
Fairview-Ridley Connector Road	Kaien Island	Under construction
South Kaien Logistics Project	Kaien Island	Under construction (some permits still required for further works)
Wolverine Terminals	Prince Rupert	Under construction
CN Rail Expansion Projects from Kaien Island to North Pacific Cannery	Prince Rupert	Construction complete
Ridley Island Export Logistics Platform	South Ridley Island	Under review
Kitimat LNG Project	Bish Cove	Certificate issued. Project on hold/for sale.
Kitimat LPG Export Project	Kitimat	On hold
LNG Canada Export Project	Kitimat	Under construction
Port Edward Small Scale LNG	Port Edward	Permits largely received
Skeena LNG	Terrace	Permits received.
Ridley Terminals Inc. berth expansion	Prince Rupert	<i>Fisheries Act</i> Authorization is under review
Fairview Northern Expansion	Prince Rupert	Recently announced, though environmental review had not commenced.

1

2 **16.4.4 Effects Assessment**

3 Effects of the Project on each Coast Tsimshian Interest was assessed by considering:

- 4
- 5 • Impact pathways between project components and activities and each Coast Tsimshian Interest
  - 6 • Project's likely change in each indicator compared against baseline conditions, trends over time and anticipated future conditions

7 **16.4.5 Mitigation Measures**

8 Following the assessment of potential project effects on each Coast Tsimshian Interest, the assessment  
 9 identified relevant mitigation measures proposed by Cedar and measures proposed by Coast Tsimshian.  
 10 Mitigation measures were evaluated for likely effectiveness and remaining gaps were identified. Where  
 11 possible, additional mitigation measures were suggested to address predicted effects.

1 **16.4.6 Characterization of Residual Effects**

2 Residual effects (effects predicted to remain following the application of mitigation measures) were  
3 characterized using Coast Tsimshian-specific residual effects characterization criteria (Table 16.4.5).

**TABLE 16.4.5 RESIDUAL EFFECTS CHARACTERIZATION CRITERIA**

Criterion	Definition	Ranking
Context	The current and future sensitivity and resilience of the Indigenous Interest to change caused by the Project. Context draws on the descriptions of the existing conditions for the Indigenous Interest, which reflect cumulative effects of other projects and activities.	<p><b>Low</b>—the Interest has low sensitivity and/or high resilience to change.</p> <p><b>Moderate</b>—the Interest has moderate sensitivity and/or moderate resilience to change.</p> <p><b>High</b>—the Interest has high sensitivity and/or low resilience to change.</p>
Magnitude	The expected size or severity of the residual effect based on qualitative or quantitative evaluation of change in baseline conditions and trends.	<p><b>Negligible</b>—a change that is small such that it is not detectable nor measurable and would not noticeably affect the Indigenous Interest.</p> <p><b>Low</b>—a small but detectable change from baseline conditions that is within historic norms and within the Coast Tsimshian's capacity to adapt.</p> <p><b>Moderate</b>—a demonstrable change from baseline conditions that is within historic norms and within the Coast Tsimshian's capacity to adapt.</p> <p><b>High</b>—a demonstrable change from baseline conditions that is beyond historic norms and beyond the Coast Tsimshian's capacity to effectively adapt.</p>
Extent	The spatial area in which the residual effect is expected to occur.	<p><b>Site-specific</b>—Residual effect is limited to the project footprint.</p> <p><b>Local</b>—Residual effect is limited to the LAA</p> <p><b>Regional</b>—Residual effect is limited to the RAA</p> <p><b>Beyond Regional</b>—Residual effect extends beyond the RAA</p>
Duration	The length of time the residual effect is expected to persist or be experienced by the Coast Tsimshian.	<p><b>Short-term</b>—Residual effect is restricted to the construction, decommissioning or reclamation phases</p> <p><b>Long-term</b>—Residual effect persists for 25 years (one human generation) or less</p> <p><b>Permanent</b>—Residual effect persists for longer than 25 years</p>
Frequency	How often the effect occurs within a given time period.	<p><b>Single/ Rare</b>—Residual effect occurs one time or rarely occurs</p> <p><b>Infrequent</b>—Residual effect occurs infrequently at multiple times</p> <p><b>Frequent/ Regular</b>—Residual effect occurs frequently, at regular intervals</p> <p><b>Continuous</b>—Residual effect occurs continuously</p>
Reversibility	Whether or not the residual effect on the Indigenous Interest can return to pre-impact condition once the physical work or the activity causing the disturbance ceases.	<p><b>Reversible</b>—Residual effect is likely to recover to current conditions</p> <p><b>Irreversible</b>—Residual effect not likely to recover to current conditions</p>

## 16.4.7 Evaluation of Likelihood, Seriousness and Confidence

The likelihood of residual effects was evaluated. Likelihood may be influenced by a variety of factors, such as the likelihood of a causal disturbance occurring or the likelihood of mitigation being successful. Generally speaking, the residual effects described comprise the best prediction of what is likely to occur as a result of a proposed Project, assuming a suite of proposed mitigation is implemented. Likelihood rankings are as follows:

- **Low**—there is a low likelihood of the potential residual effect occurring
- **Moderate**—there is a moderate likelihood of the potential residual effect occurring
- **High**—there is a high likelihood of the potential residual effect occurring
- **Certain**—the residual effect will occur

The seriousness of residual effects was assessed by considering residual effects characterization rankings in the context of the pre-contact baseline, cumulative pressures on the Interest and thresholds of acceptable change. The Project's potential impacts on Coast Tsimshian Interests must be understood in the context of existing and ongoing cumulative impacts on the ability of Coast Tsimshian peoples to practice their rights. For example, if a given project-specific effect is predicted to be small, it will be deemed to be serious if it contributes to an existing effect that is near or past thresholds of acceptable change. On the contrary, if a moderate sized project-specific effect occurs on an Interest that is resilient and well below thresholds of acceptable change, it may be considered to be of minor seriousness. Seriousness was considered at the regional level, but considered the value, importance and rarity of local values within the regional frame of reference.

Seriousness was ranked as follows:

- **Minor**: Coast Tsimshian peoples' ability to practice their rights is modified by the Project, but can continue at or near current conditions.
- **Moderate**: Coast Tsimshian peoples' ability to practice their rights is modified by the Project, and are reaching a threshold of acceptable change.
- **Severe**: Coast Tsimshian peoples' ability to practice their rights is modified by the Project, and has surpassed a threshold of acceptable change.

Following the seriousness ranking, confidence in the assessment was evaluated. The level of confidence characterizes the level of uncertainty associated with both the potential impact rating and likelihood determinations. Confidence rankings are as follows:

- **Low**—the likelihood and potential impact rating for residual effects is determined with low confidence
- **Moderate**—the likelihood and potential impact rating for residual effects is determined with moderate confidence
- **High**—the likelihood and potential impact rating for residual effects is determined with high confidence

## 16.5 Marine Harvesting

### 16.5.1 Background and Existing Conditions

Marine harvesting—including fishing, collecting shellfish and marine vegetation, and hunting marine mammals—has formed a central part of Coast Tsimshian’s economic, subsistence and cultural activities (DMCS and Lax Kw’alaams Band 2019). Prior to contact, coastal waters were highly productive, resulting in a consistent supply of resources for subsistence and trade. Beginning in early spring, Coast Tsimshian peoples harvested oolichan from fishing sites on the lower Nass River and in the Observatory Inlet/Portland Canal areas. In late spring, some Coast Tsimshian tribes harvested seaweed and herring roe in Prince Rupert Harbour and offshore, while other tribes travelled to fishing stations on the coast of Chatham Sound to harvest marine resources including spring salmon, abalone, octopus, sea urchins and sea cucumbers. Spring and summertime seaweed harvest took place at ancient seaweed camps that continue to be used and maintained by families for generations (DMCS and Lax Kw’alaams Band 2019). During the summer and early fall, Coast Tsimshian peoples harvested all five species of salmon from fishing villages on the Skeena River and its tributaries. During the winter months, Coast Tsimshian peoples harvested marine invertebrates and shellfish from their permanent winter villages in the Prince Rupert Harbour area. They also hunted marine species such as sea lion, seal, and sea otter (DMCS and Lax Kw’alaams Band 2019, EAO 2014).

Coast Tsimshian peoples’ ability to harvest marine resources has been constrained following contact (Kwon and Roberts 2019). The introduction of disease, of land-based fur trade, and the establishment of commercial canneries in the 1800s contributed to a transformation of the dominant Coast Tsimshian economy to a wage-based economy (Kwon and Roberts 2019). Commercial and sportfishing, urban development in the Prince Rupert Harbour, port-related industrial development, increased boat traffic and habitat declines for important marine species has further compounded the ability of Coast Tsimshian to effectively harvest marine resources (Kwon and Roberts 2019). The quantity and health of marine species has declined compared to pre-contact and pre-industrial levels (Kwon and Roberts 2019). To harvest the same quantities of marine resources as their ancestors, the Coast Tsimshian peoples have had to increase their efforts or move to other harvesting areas that are further away (Kwon and Roberts 2019).

Despite declining quantities and quality of marine resources in Coast Tsimshian territories since industrialization, marine harvesting remains a key aspect of Coast Tsimshian peoples’ subsistence economy and culture. Marine species harvested by Coast Tsimshian peoples include, but are not limited to, several varieties of salmonoid (chinook, chum, coho, pink, sockeye, and steelhead), other fish species (abalone, char, halibut, trout, oolichan, lingcod, black cod, grey cod, sturgeon, red snapper, herring, flounder, sablefish, rockfish, dogfish, pollock, pilchard), shellfish (butter clam, Chinese slippers, cockles, crabs, mussels, abalone), marine mammals (seals, sea lions, sea otters), birds (black ducks, mallard, seagulls, swans, Canada geese), seagull and oystercatcher eggs, herring roe, multiple varieties of marine plants (red laver seaweed, bull kelp, giant kelp, seagrass, sea prunes), and a variety of other marine species such as octopus, eel, shrimp and prawn, crab, sea cucumber, barnacle, snail, sea urchin, and squid (DMCS and Lax Kw’alaams Band 2019, Section 5.8 in EAO 2015). Particularly important marine species include seaweed, salmonids, halibut, cod, herring, oolichan, mollusks, shellfish, and crab (DMCS and Lax Kw’alaams Band 2019), which were and continue to be commonly harvested at the seasonal fishing village sites.

1 Within the project shipping route (as well as access adjacent marine harvesting sites via the shipping  
2 route), Coast Tsimshian peoples continue to harvest a variety of marine resources. The area from the  
3 northwest side of Porcher Island to the Triple Islands area and out to Dixon Entrance (inclusive of  
4 Stephens Island, the Tree Knob Group, Melville Island, Dundas Island, Dunira Island, Zayas Island, and  
5 all of Chatham Sound more generally) is particularly important, and includes, but is not limited to the  
6 following marine harvesting activities (DMSC and Metlakatla First Nation 2014; EAO 2014, 2015; DMCS  
7 and Lax Kw'alaams Band 2019).

- 8 • **Fishing:** Salmon harvesting season typically lasts from June to October and represents the most  
9 important resource for Coast Tsimshian (Kwon and Roberts 2019). Halibut is generally caught in the  
10 spring using set lines with sinkers and floats (DMCS and Lax Kw'alaams Band 2019). Within the  
11 project shipping route, Coast Tsimshian peoples fish for species such as (but not limited to): Coho,  
12 sockeye, spring, and pink salmon; pacific halibut; pacific herring; lingcod; rock cod; pacific cod;  
13 yelloweye rockfish; red snapper; and pacific herring (DMCS and Lax Kw'alaams Band 2019, Kwon and  
14 Roberts 2019).
- 15 • **Marine Mammal Harvesting:** From November through February, the Coast Tsimshian hunt marine  
16 mammals including sea otter and hair seal (DMCS and Lax Kw'alaams Band 2019). During the month  
17 of June, seagull and oystercatcher eggs are collected from the islands west of Prince Rupert Harbour  
18 (Kwon and Roberts 2019). Within the project shipping route, Coast Tsimshian peoples hunt for marine  
19 species such as (but not limited to): ducks; geese; mink; otter; seal; and Steller sea lion (DMCS and  
20 Lax Kw'alaams Band 2019).
- 21 • **Marine Plant, Roe, and Shellfish Harvesting:** Seaweed continues to be used for dietary and medical  
22 purposes, as well as giant kelp, which has social and cultural significance (Kwon and Roberts 2019;  
23 DMCS and Lax Kw'alaams 2019). Spring and summertime seaweed harvest takes place at ancient  
24 seaweed camps that have been used and maintained by families for generations (DMCS and Lax  
25 Kw'alaams 2019). The herring roe that is caught on seaweed is an important food source as well as  
26 for ceremonial and trade purposes (Kwon and Roberts 2019). Crab is one of the most consumed and  
27 harvested species by members of the Metlakatla and Lax Kw'alaams today; however, they have  
28 identified a decline in the quantity, health, and shell quality of crab over time (Kwon and Roberts  
29 2019). Within the project shipping route, Coast Tsimshian peoples gather marine species such as (but  
30 not limited to): herring roe on kelp; chiton; chinese slippers; cockle; mussel; rock scallops; geoduck;  
31 butter clam; urchin; northern abalone; sea cucumber; crab; octopus; and seaweed (lavers) (DMCS and  
32 Lax Kw'alaams Band 2019).

### 33 **16.5.2 Potential Project Effects**

34 The ability of Coast Tsimshian peoples to exercise their right to hunt, fish, trap and gather marine  
35 resources within their traditional territories has been impacted by historical and ongoing pressures, such  
36 as the settlement and development of the Prince Rupert Harbour, vessel traffic, and the settler  
37 commercial fishery (Section 16.5.1). The Project has the potential to compound impacts on Coast  
38 Tsimshian marine harvesting by reducing marine resource availability (due to mortality from vessel strikes  
39 and habitat alteration from invasive species and underwater noise) and increasing competition for  
40 resources (due to population influx resulting from project hiring and procurement). Table 16.5.1 identifies  
41 project interaction pathways, potential effects and indicators for marine harvesting.

**TABLE 16.5.1 PROJECT INTERACTIONS, POTENTIAL EFFECTS AND INDICATORS FOR MARINE HARVESTING**

Definition	Project Interactions	Potential Effects	Indicators
Right to fish, hunt, and gather marine resources	Shipping activities resulting in change in the abundance and distribution of marine resources due to vessel strikes and underwater noise.  Shipping activities and increased marine traffic resulting in interference with Coast Tsimshian marine harvesting activities due to impeded access to harvesting sites, lost fishing time, damage to fishing gear, and safety concerns (potential vessel collisions and wake effects).  Project-related population influx from hiring and procurement resulting in increased competition for resources and interference with marine harvesting activities from recreational fishers.	Change in harvesting success	Abundance of harvestable resources
		Change in level of harvesting effort	Distance travelled  Time spent

1 **16.5.2.1 CHANGE IN HARVESTING SUCCESS**

2 As described in Section 16.5.1, Coast Tsimshian peoples engage in extensive marine harvesting  
 3 activities (fishing, hunting and gathering) in areas that are intersected by or adjacent to the project  
 4 shipping route, particularly in areas adjacent to Porcher Island, Stephens Island, Triple Islands and the  
 5 Tree Knob group, Melville Island, Dundas Island, Dunira Island, Zayas Island, and Chatham Sound more  
 6 generally (DMCS and Lax Kw'alaams Band 2019). These areas are used by Coast Tsimshian peoples to:  
 7 fish for species such as salmon, halibut, herring and rock fish; hunt for species such as ducks, geese,  
 8 mink, otter, seal and Steller sea lion; and gather shellfish and seaweed (lavers).

9 Marine transport of materials during construction (two times per week) and shipping during operation  
 10 (50 LNG carriers per year) have the potential to adversely affect Coast Tsimshian harvesting success by  
 11 altering the abundance and distribution of fish and marine mammals in Coast Tsimshian marine  
 12 harvesting areas. Underwater noise from project vessels is predicted to result in avoidance behaviour or  
 13 change in swimming direction for fish to approximately 400 m in front of a transiting vessel in a 40° sector  
 14 surrounding the bow (Section 7.7.7.5). However, the effects of underwater noise on fish are not well  
 15 studied and may also affect schooling behaviour and mask biologically important sound cues, leading to  
 16 other unknown effects on fish abundance and distribution.

17 Project-related shipping is predicted to exceed behavioural disturbance thresholds for marine mammals  
 18 (Section 7.7.7.5). Project-related shipping thereby has the potential to change marine mammal  
 19 abundance and distribution as a result of factors such as increased stress, reduced reproduction,  
 20 impeded communication, changed foraging patterns, disrupted migration and avoidance behaviours  
 21 (Section 7.7.7.5). The marine resources assessment notes that some at risk whale populations have  
 22 experienced recovery at levels of underwater noise above the behavioural disturbance threshold  
 23 (Section 7.7.7.5). However, uncertainty remains about how marine mammals harvested by Coast

1 Tsimshian peoples will respond to project-related noise, including seal and Steller sea lion, as well as  
2 mink, otter, ducks, and geese. Coast Tsimshian anticipates that project-related noise will alter the  
3 behaviour and distribution of marine species hunted by Coast Tsimshian peoples, thereby adversely  
4 affecting harvesting success.

5 Marine mammal abundance may also be reduced as a result of direct mortality from vessel strikes, which  
6 is considered to be a moderate magnitude effect due to the risk of mortality to individual marine mammals  
7 (Section 7.7.7.6).

8 Additionally, the Project has the potential to adversely affect Coast Tsimshian peoples' marine harvesting  
9 success as a result of increased competition with recreational fishers. The Project will require an  
10 estimated peak workforce in the Kitimat area of approximately 350 to 500 people at the peak of  
11 construction and an estimated 70 to 100 people during operation (Stantec 2019). Coast Tsimshian  
12 anticipates that project-related population influx will translate into increased fishing pressure, with  
13 consequent adverse effects on Coast Tsimshian peoples marine harvesting success.

14 Coast Tsimshian peoples are also highly concerned about the potential for accidents and malfunctions  
15 from transiting project vessels. Unanticipated release of hydrocarbons, or spill of bunker fuel, from project  
16 supply vessels during construction or from an LNG carrier during operation could have severe effects on  
17 fish and marine wildlife abundance and distribution, resulting in potentially complete destruction of Coast  
18 Tsimshian peoples' harvesting success in the areas within and adjacent to the shipping route.

#### 19 **16.5.2.2 CHANGE IN HARVESTING EFFORT**

20 Coast Tsimshian peoples invest substantial time and effort in marine harvesting activities. The journey  
21 from the communities of Lax Kw'alaams and Metlakatla to marine harvesting sites in the vicinity of the  
22 shipping route typically takes a minimum of several hours. Harvesters must expend considerable money  
23 on fuel, gear and their vessels, as well as substantial time deploying and retrieving nets, traps and other  
24 harvesting gear when out on the water and shoreline. The level of Coast Tsimshian marine harvesting  
25 effort has increased over time due to access restrictions and declining resource availability in Coast  
26 Tsimshian territories, in some cases resulting in abandonment of specific harvesting sites (Kwon and  
27 Roberts 2019).

28 The Project has the potential to increase Coast Tsimshian peoples' marine harvesting effort in the vicinity  
29 of the shipping route. Marine transport of construction materials during construction and LNG carrier  
30 transit during operation, together with ancillary project-related marine traffic and increased recreational  
31 fishing, are anticipated to increase Coast Tsimshian peoples' travel time, fuel use, time spent harvesting  
32 and gear repair.

33 Project-related vessels will be equipped with an automatic identification system to inform authorities of  
34 position, speed and estimated time of arrival. This information will be available to marine users through  
35 marine communications and traffic services via a VHF radio (Section 7.10.7.3). However, where marine  
36 users remain unaware of vessel movements, or are unable to plan to avoid project-related vessels,  
37 marine users may require extra time and a longer route to reach their destination. Marine harvesters may  
38 also require additional time to deploy fishing gear in different locations or to retrieve gear due to the  
39 presence of project-related vessels. Where gear cannot be retrieved before interaction with project-  
40 related vessels, it may be damaged resulting in additional costs for repair or replacement.



1 Coast Tsimshian peoples are also concerned about the effects of project-related vessel wake on marine  
 2 harvesting activities, including shoreline harvesting. Marine harvesters are often out in small boats that  
 3 are susceptible to the wake of passing vessels. Vessel wake can require fishing boats to reduce their  
 4 speed and interfere with or delay deploying and retrieving fishing gear due to safety concerns.  
 5 Additionally, shoreline harvesters are susceptible to vessel wake landing on harvesting sites, thereby  
 6 interfering with harvesting activities and causing a safety risk.

7 Where Coast Tsimshian peoples determine that project-related interference with marine harvesting  
 8 activities is too great, or where impacts to sense of place are too great (see Section 16.6), they may  
 9 choose to avoid the shipping route, which has the potential to increase effort to access and utilize other  
 10 harvesting sites.

11 **16.5.3 Proposed Mitigations**

**TABLE 16.5.2 PROPOSED MITIGATION MEASURES FOR MARINE HARVESTING**

Potential Effect	Cedar’s Proposed Mitigation Measures	Coast Tsimshian Evaluation of the Cedar’s Proposed Mitigation Measures	Residual effect (Y/N)
Change in harvesting success	No mitigation measures have been proposed to address the effects of project-related vessels on marine resource abundance and distribution	As no mitigation measures have been proposed, a residual effect on change in harvesting success is anticipated and the effect is carried forward into residual effects characterization.	Y
Change in harvesting effort	Regular communication of project activities that may affect marine use Provide notice of planned vessel arrival time at Triple Islands via MTS Establish LNG carrier shipping schedule notification process with Indigenous Nations Use escort tugs between Triple Islands and Kitimat LNG carriers will adhere to prescribed route and passing restrictions LNG carriers will maintain safe operating distances from other marine craft Cedar will follow the Northcoast Waterway Management Guidelines’ recommendations regarding vessel speed and position	Communication and advanced notice will help Coast Tsimshian peoples to plan marine harvesting activities around the project marine transport and LNG carrier schedules. However, there may be occasions where notification is not received by all marine users or it is not practicable to plan around the project schedule. Additionally, safety concerns about interactions with project-related vessel will not be fully mitigated through adherence to the Northcoast Waterway Management Guidelines’ recommendations regarding vessel speed and position. Coast Tsimshian requires ongoing monitoring of project-related wake effects. As this effect will not be fully mitigated, it is carried forward into residual effects characterization.	Y

## 16.5.4 Characterization of Residual Effects

### 16.5.4.1 CHANGE IN HARVESTING SUCCESS

The incremental effect of the Project on Coast Tsimshian harvesting success is likely to be low. Mortality due to vessel strikes is likely to be limited and alterations in species distribution are not anticipated to substantially reduce marine harvester’s catch. However, Coast Tsimshian fishers and marine harvesters have already observed significant declines in critical marine species populations in Coast Tsimshian marine territories. Because any additional impacts on harvesting success would be experienced in combination with existing effects, the magnitude of residual effects on harvesting success is rated high. While effects would occur most prominently in the vicinity of project-related vessels within the LAA, change in harvesting success may extend into the RAA due to the nature of marine species movement patterns. Residual effects are permanent, lasting for longer than one generation, and will occur frequently at regular intervals. The Project’s effect on marine harvesting success would reverse following cessation of shipping activities. Table 16.5.3 provides ratings for this effect across the residual effects characterization criteria.

**TABLE 16.5.3 RESIDUAL EFFECTS CHARACTERIZATION FOR CHANGE IN HARVESTING SUCCESS**

Criteria	Rating	Rationale
Context	High	Coast Tsimshian fishers and marine harvesters have already observed significant declines in critical marine species populations in Coast Tsimshian marine territories. Climate change poses additional and reasonably foreseeable challenges for marine species populations during the life of the Project.
Magnitude	High	Project-specific effects on Coast Tsimshian harvesting success would occur within an impacted baseline already beyond historic norms, and therefore any additional impacts represent a high magnitude of effect.
Extent	Regional	Any project effects on marine species abundance and distribution would be experienced at least within the RAA, given the nature of marine species movements.
Duration	Permanent	The residual effect would occur for the life of the Project, which is greater than 25 years (one human generation).
Frequency	Frequent, regular	The residual effect will occur frequently at regular intervals.
Reversibility	Reversible	The Project’s effect on marine harvesting success would reverse following cessation of shipping activities.

### 16.5.4.2 CHANGE IN HARVESTING EFFORT

Coast Tsimshian peoples’ level of marine harvesting effort has increased over time within their marine territories, due to access restrictions, declining resource abundance, degraded conditions, and increased competition. The Project is likely to create additional strains on Coast Tsimshian harvesters’ level of harvesting effort. Interference with Coast Tsimshian access to preferred harvesting sites due to the presence of project-related marine traffic, as well as interference with harvesting activities due to safety concerns regarding ship wake and change in the timing and location for deploying and retrieving

1 harvesting gear, are anticipated to result in a moderate magnitude change in harvesting effort. Harvesting  
 2 effort will increase but is not anticipated to preclude Coast Tsimshian peoples' ability to continue  
 3 harvesting activities. The effect will likely be limited to the LAA and thus local in extent. Project-related  
 4 change in harvesting effort will occur at frequent, regular intervals and will be effectively permanent  
 5 (greater than 25 years, or one human generation), but potentially reversible for future generations  
 6 following project decommissioning.

**TABLE 16.5.4 RESIDUAL EFFECTS CHARACTERIZATION FOR CHANGE IN HARVESTING EFFORT**

Criteria	Rating	Rationale
Context	High	Coast Tsimshian marine harvesting effort has been increasing over time.
Magnitude	Moderate	The Project will increase Coast Tsimshian peoples' marine harvesting effort, but marine harvesting will continue.
Extent	Local	Limited to the local study area.
Duration	Permanent	The effect will persist through the life of the Project (40 years) which is longer than one human generation (25 years), so is effectively permanent.
Frequency	Frequent, regular	Change in harvesting effort will be tied to the scheduled presence of project-related marine traffic, as well as recreational fishing (which is tied to particular runs and seasons).
Reversibility	Reversible	Potentially reversible for future generations following project decommissioning.

7

### 8 **16.5.5 Evaluation of Likelihood, Seriousness and Confidence**

9 The likelihood that the Project will adversely affect Coast Tsimshian marine harvesting success and effort  
 10 is moderate. Project-related marine traffic is more likely than not to affect resource abundance and  
 11 distribution, and thereby Coast Tsimshian marine harvesting success. Similarly, project-related marine  
 12 traffic is more likely than not to interfere with Coast Tsimshian travel and harvesting activities, thereby  
 13 resulting in increased harvesting effort.

14 Coast Tsimshian are already experiencing severe constraints to their marine harvesting rights due to past  
 15 and current projects and activities, changing environmental conditions, and competition for resources.  
 16 The Project is anticipated to exacerbate this existing effect by reducing Coast Tsimshian harvesting  
 17 success and increasing Coast Tsimshian harvesting effort. Overall, the Project's effects on Coast  
 18 Tsimshian marine harvesting rights are considered to be moderate, as the Project's incremental effects  
 19 move Coast Tsimshian marine harvesting closer to a threshold of acceptable change (Table 16.5.5).

20 The level of confidence in the assessment is moderate. While marine traffic is known to interact with  
 21 Coast Tsimshian harvesting effort, uncertainties remain about the full extent of interference (e.g., relating  
 22 to the degree of induced recreational fishing) and the ability of Coast Tsimshian harvesters to plan around  
 23 project schedules. Additionally, uncertainties remain about the response of fish and invertebrates to  
 24 underwater noise. The response of marine mammals to the presence of project-related disturbance is  
 25 difficult to predict and may vary by species. Additionally, the level of habituation of marine species to  
 26 project-related disturbance is unknown. Consequently, ongoing effect monitoring and adaptive  
 27 management is required with Coast Tsimshian involvement.

**TABLE 16.5.5 SERIOUSNESS OF PROJECT-SPECIFIC RESIDUAL EFFECTS ON MARINE HARVESTING**

Project-specific residual effects on Marine Harvesting	Threshold of acceptable change for Marine Harvesting	Cumulative pressures on Marine Harvesting	Seriousness of Project-specific residual effects on Marine Harvesting, considering context
Harvesting success Harvesting effort	Ability to harvest sufficient marine resources to meet one’s family needs, with a reasonable surplus for sharing, within the bounds of reasonable time and effort.	The quantity and quality of marine harvesting sites and resources in the LAA is already reduced as a result of cumulative effects in Coast Tsimshian marine territories. Observed declines in the health and abundance of critical marine species is already impacting availability of marine resources and marine harvesting success. Coast Tsimshian marine harvesting is approaching a threshold of acceptable change.	Moderate

1 **16.6 Sense of Place**

2 **16.6.1 Background and Existing Conditions**

3 “Sense of place” refers to the emotional and spiritual attachment that Coast Tsimshian peoples have to  
 4 Coast Tsimshian traditional territories. Developed over time through individual and collective experiences  
 5 on the land and water, sense of place is tied to Coast Tsimshian histories, knowledge and stories,  
 6 connections with ancestors, cultural practices, and geographical features and place names (Cuerrier et al.  
 7 2015). Key conditions that support sense of place include continuity in the experience of place-defining  
 8 features and enjoyment of places in the absence of sensory disturbance, stress and harassment.

9 Industrial development, residential settlement, and commercial and sport fisheries have degraded Coast  
 10 Tsimshian peoples’ quiet enjoyment of and sense of attachment to important places throughout Coast  
 11 Tsimshian territories, including at key cultural and resource gathering locations. In particular, increased  
 12 noise, reduced air quality, reduced visual quality, reduced water quality, increased safety concerns,  
 13 increased competition for resources and presence of others, and diminished quantity and quality of  
 14 harvestable resources have combined to limit Coast Tsimshian members from accessing, connecting  
 15 with, and experiencing their territories as they would prefer (Kwon and Roberts 2019; Vopak  
 16 Development Canada Inc. 2020). Coast Tsimshian peoples have specifically identified that increased  
 17 small and large marine traffic, and associated risk of collisions, safety risks and pollution, has adversely  
 18 affected their quality of experience when out on the water (Kwon and Roberts 2019). Visual quality along  
 19 marine shipping routes remains a key condition for quality of life, according to the Lax Kw’alaams Land  
 20 and Marine Resources Plan (Section 14 in EAO 2015). The pressures on Coast Tsimshian peoples’  
 21 sense of place are anticipated to intensify in the future as a result of the development of the reasonably  
 22 foreseeable project identified in Table 16.4.4 and associated population influx.

1 Despite current stressors on their sense of place, Coast Tsimshian peoples maintain emotional and  
 2 spiritual connections to areas that are intersected by the project shipping route, where they engage in  
 3 cultural activities such as fishing, marine and terrestrial hunting and shellfish and marine vegetation  
 4 gathering.

## 5 **16.6.2 Potential Project Effects**

6 The Project has the potential to exacerbate current adverse effects on Coast Tsimshian peoples' sense of  
 7 place by increasing marine traffic and thereby reducing Coast Tsimshian peoples' quiet enjoyment of  
 8 marine and shoreline-based activities. Table 16.6.1 identifies project interaction pathways, potential  
 9 effects and indicators for sense of place.

**TABLE 16.6.1 PROJECT INTERACTIONS, POTENTIAL EFFECTS AND INDICATORS FOR SENSE OF PLACE**

Definition	Project Interactions	Potential Effects	Indicators
Right to maintain emotional and spiritual attachment to special places.	Marine transport of materials during construction (two times per week over eight months), shipping during operation (50 LNG carriers per year), as well as increased recreational fishing, resulting in increased marine traffic, sensory disturbance, and increased industrialization of Coast Tsimshian marine territories.	Change in peaceful enjoyment of Coast Tsimshian marine territories	Sensory disturbance

### 10 **16.6.2.1 CHANGE IN QUIET ENJOYMENT OF MARINE TERRITORIES**

11 Emotional and spiritual attachment to place is intrinsically linked to the quality of sensory experience  
 12 (Cuerrier et al. 2015). Project-related marine traffic will add to existing acoustic and visual environment  
 13 disturbance Coast Tsimshian marine territories, as well as increase Coast Tsimshian interaction with  
 14 other marine users.

15 LNG carriers will contribute to ambient noise in Coast Tsimshian marine territories due to marine vessel  
 16 engine noise and the potential use of a marine air horn. Overall noise is not anticipated to substantially  
 17 increase as a result of the Project, as modelled noise levels at sensitive receptor locations for traditional  
 18 and recreational use did not exceed Health Canada noise guidance thresholds (Section 7.10.7.3).

19 The increased visual presence of marine traffic as a result of the Project is anticipated to reduce Coast  
 20 Tsimshian peoples' enjoyment of their marine territories and thereby adversely affect Coast Tsimshian  
 21 sense of place. During construction, the number of barge movements could be in the range of two  
 22 movements per week (up to eight per month) (Section 7.10.6.1). During operation, 50 LNG carriers will  
 23 transit the shipping route (one carrier movement every 7 to 10 days), representing an increase of 87.7%  
 24 of piloted vessel movements to Kitimat Arm, or a 15.7% increase for all large vessel movements  
 25 (including piloted vessels, ferry traffic and cruise ship traffic; Section 7.10.7.3). Increased marine traffic is  
 26 known to detract from Coast Tsimshian marine users' feelings of solitude and quiet enjoyment (Kwon and  
 27 Roberts 2019). Additionally, Coast Tsimshian marine users ability to connect with important places is  
 28 anticipated to be diminished as a result of concerns about marine collisions, safety considerations due to  
 29 wake effects and increased unwanted interactions with recreational fishers.

1 **16.6.3 Proposed Mitigations**

2 Table 16.6.2 identifies proposed mitigation measures that are applicable to sense of place and evaluates  
 3 their effectiveness to avoid residual effects.

**TABLE 16.6.2 PROPOSED MITIGATION MEASURES FOR SENSE OF PLACE**

Potential Effect	Cedar’s Proposed Mitigation Measures	Coast Tsimshian’s Evaluation of Cedar’s Proposed Mitigation Measures	Residual effect (Y/N)
Change in peaceful enjoyment of marine territories	Regular communication of project activities. Use of MTCS to provide notice of planned vessel time at Triple Islands. Establish LNG carrier shipping schedule notification processes for Indigenous Nations.	Proposed mitigation measures will help Coast Tsimshian peoples to plan around project activities, but where such scheduling is not possible or desired, Coast Tsimshian marine users will experience reduced peaceful enjoyment of their marine territories due to increased visual presence of marine traffic and increase unwanted interactions with recreational fishers. Coast Tsimshian requires ongoing monitoring of project-related wake effects. As this effect will not be fully mitigated, it is carried forward into residual effects characterization.	Y

4 **16.6.4 Characterization of Residual Effects**

5 Residual effects on sense of place are anticipated as proposed mitigation measures are not sufficient to  
 6 avoid project-related reduced peaceful enjoyment of marine and shoreline activities.

7 **16.6.4.1 CHANGE IN PEACEFUL ENJOYMENT**

8 Coast Tsimshian peoples’ ability to peacefully enjoy their marine territories has already been severely  
 9 affected due increasing marine traffic, industrial development, commercial fishing and competition for  
 10 resources with recreational marine users. Coast Tsimshian harvesters specifically travel to areas in the  
 11 outer edges of the territories, including areas within the project shipping route, to avoid commercial  
 12 shipping routes and other industrial disturbance in the Chatham Sound area. While Coast Tsimshian  
 13 demonstrate a degree of resilience and maintain spiritual and emotional connections to place, it is  
 14 increasingly difficult to maintain this sense of connection. Project-related sensory disturbance will  
 15 exacerbate existing trends, resulting in a moderate magnitude effect. Coast Tsimshian peoples are  
 16 anticipated to be able to maintain their sense of place within areas impacted by the Project, albeit at  
 17 reduced levels and with increased levels of annoyance and stress. The effect will be primarily local in  
 18 extent, limited to the LAA. The effect will persist continuously over the life of the Project (40 years) due to  
 19 ongoing visual changes and industrial activity and is effectively permanent and irreversible as the effect  
 20 will persist for longer than one generation (25 years). Table 16.6.3 summarizes residual effects  
 21 characterization ratings for sense of place.

**TABLE 16.6.3 RESIDUAL EFFECTS CHARACTERIZATION FOR CHANGE IN PEACEFUL ENJOYMENT**

Criteria	Rating	Rationale
Context	High	Sense of place is highly sensitive to disturbance as it requires conditions that are supportive of quiet enjoyment, visually undisturbed landscapes and limited unwanted interactions with other marine users. Coast Tsimshian are highly vulnerable to degradation in sense of place due increasing levels of marine traffic, industrial development, commercial fishing and competition for resources. While Coast Tsimshian demonstrate a degree of resilience and maintain spiritual and emotional connections to place, it is an increasing struggle to maintain sense of place.
Magnitude	Moderate	Coast Tsimshian marine and shoreline users will experience increased project-related marine traffic and unwanted interactions with recreational fishers. Sense of place will be diminished.
Extent	Local	Residual effects will be primarily experienced within the LAA.
Duration	Permanent	The effect will persist through the life of the Project (40 years) which is longer than one human generation (25 years), so is effectively permanent.
Frequency	Frequent, regular	Change in sense of place will be tied to the scheduled presence of project-related marine traffic, as well as recreational fishing (which is tied to particular runs and seasons).
Reversibility	Irreversible	If the Project proceeds through its full anticipated life, the effect is effectively irreversible as it lasts for longer than one human generation. If the Project ceased during construction or operation, the effect is potentially reversible, although it would take time for sense of place to resume to pre-project levels.

**1 16.6.5 Evaluation of Likelihood, Seriousness and Confidence**

2 The likelihood that the Project will adversely affect Coast Tsimshian sense of place is moderate. Project-  
 3 related marine traffic is more likely than not to affect Coast Tsimshian marine and shoreline users'  
 4 peaceful enjoyment, and thereby their sense of place.

5 Coast Tsimshian are already experiencing moderate constraints to their sense of place due to past and  
 6 current projects and activities, changing environmental conditions, and competition for resources (Kwon  
 7 and Roberts 2019). The Project is anticipated exacerbate this existing effect by reducing Coast Tsimshian  
 8 peoples' peaceful enjoyment of their marine territories. Overall, the Project's effects on Coast Tsimshian  
 9 sense of place are considered to be moderate, as the Project's incremental effects move Coast  
 10 Tsimshian sense of place closer to a threshold of acceptable change (Table 16.6.4).

**TABLE 16.6.4 SERIOUSNESS OF PROJECT-SPECIFIC RESIDUAL EFFECTS ON SENSE OF PLACE**

Project-specific residual effects on Sense of Place	Threshold of acceptable change for Sense of Place	Cumulative pressures on Sense of Place	Seriousness of Project-specific residual effects on Sense of Place, considering context
Change in peaceful enjoyment	Sensory disturbances, including noise, visual effects and smells, are maintained at a level that enable continued emotional and spiritual connection to place.	Sensory disturbances caused by marine traffic and industrial development in the RAA have already impacted Coast Tsimshian peoples' peaceful enjoyment of their marine territories.	Project-specific residual effects are moderately serious as the Project will exacerbate negative trends in Coast Tsimshian sense of place, moving it closer to a threshold of acceptable change.

1 The level of confidence in the assessment is moderate. While marine traffic is known to interact with  
 2 Coast Tsimshian sense of place, uncertainties remain about the full extent of interference (e.g., relating to  
 3 the degree of induced recreational fishing) and the ability of Coast Tsimshian harvesters to plan around  
 4 project schedules. Consequently, ongoing effect monitoring and adaptive management is required with  
 5 Coast Tsimshian involvement.

## 6 **16.7 Conclusions**

7 This section limited the assessment of project effects on Coast Tsimshian interests to Marine Harvesting  
 8 and sense of place. While the Project is anticipated to contribute to cumulative effects on other Interests,  
 9 including terrestrial harvesting, decision making, and economic development and self-sufficiency, the  
 10 assessment is focussed on effects related to project-related marine traffic. Potential effects on access  
 11 and travel, health and safety and cultural identity were assessed within the marine harvesting and sense  
 12 of place interests.

13 The Project is anticipated to result in moderate effects on the two Coast Tsimshian Interests that have  
 14 been assessed in this report: marine harvesting and sense of place (Table 16.7.1). While Coast  
 15 Tsimshian peoples have demonstrated notable resilience to past and ongoing pressures on their  
 16 Interests, their ability to exercise their rights within their traditional territories is highly constrained.  
 17 Commercial and sportfishing, urban development in the Prince Rupert Harbour, port-related industrial  
 18 development, increased boat traffic and habitat declines for important marine species and climate change  
 19 (among other factors) have resulted in Coast Tsimshian marine harvesting and sense of place  
 20 approaching or exceeding thresholds of acceptable change. The Project will contribute to existing  
 21 pressures and combine with reasonably foreseeable projects and activities to accelerate downward  
 22 trends in the realization of these Coast Tsimshian Interests. In particular, project-related marine traffic and  
 23 increased recreational fishing will result in moderate residual adverse effects on Coast Tsimshian  
 24 peoples' marine harvesting effort and success, as well as Coast Tsimshian marine and shoreline users'  
 25 sense of place.



1 Lax Kw'alaams and Metlakatla require involvement in ongoing monitoring of project-related marine traffic  
 2 to confirm predicted effects and mitigation efficacy, as well as to identify any required adaptive  
 3 management measures. This involves direct, meaningful participation in the preparation of project  
 4 shipping and marine traffic-related mitigation and monitoring plans, as well as employment of Metlakatla  
 5 and Lax Kw'alaams monitors and traditional knowledge holders as advisors throughout project  
 6 development, construction, and operation.

7 To address uncertainty about project effects on Coast Tsimshian Interests, direct discussions are  
 8 required with both Metlakatla and Lax Kw'alaams to offset potential project impacts. Opportunities exist to  
 9 support ongoing community data collection and analysis (e.g., Metlakatla's Cumulative Effects  
 10 Management program) as well as sponsor events to bring youth and elders together to teach harvesting  
 11 and processing skills.

**TABLE 16.7.1 SUMMARY OF PROJECT EFFECTS ON COAST TSIMSHIAN INTERESTS**

Coast Tsimshian Interest	Project Residual Effects	Threshold of Acceptable Change	Seriousness	Rationale
Marine harvesting	Change in harvesting success  Change in harvesting effort	Ability to harvest sufficient marine resources to meet one's family needs, with a reasonable surplus for sharing, within the bounds of reasonable time and effort.	Moderate	The Project is anticipated exacerbate existing negative trends in Coast Tsimshian marine harvesting success and effort. The Project's incremental effects move Coast Tsimshian marine harvesting closer to a threshold of acceptable change
Sense of place	Change in peaceful enjoyment	Sensory disturbances, including noise, visual effects and smells, are maintained at a level that enable continued emotional and spiritual connection to place.	Moderate	The Project is anticipated to exacerbate existing negative trends in Coast Tsimshian sense of place by reducing Coast Tsimshian peoples' peaceful enjoyment of their marine territories. The Project's incremental effects move Coast Tsimshian sense of place closer to a threshold of acceptable change.



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## 1 **16.8 Cedar's Perspective on the Assessment**

2 Following receipt and review of the assessment conducted by Lax Kw'alaams Band, no major points of  
3 disagreement with the Nation have been identified.

4 Cedar will continue to work with Lax Kw'alaams Band to develop a shared understanding of how the  
5 Project may affect their Indigenous interests. Cedar will continue engaging with Lax Kw'alaams Band to  
6 discuss the Project and its effects, understand concerns that may arise and respond to those concerns.  
7 Through ongoing engagement (i.e., throughout the life of the Project) and in development of the Marine  
8 Transportation Management Plan, Cedar aims to maintain a positive long-term relationship with Lax  
9 Kw'alaams Band.

10 To verify compliance of the Project with commitments in this Application, and conditions of an EAC, Cedar  
11 is committed to the development of a CEMP that will contain the mitigation measures presented in this  
12 assessment. This plan will be provided to the OGC, EAO, and Impact Assessment Agency of Canada to  
13 document compliance with this commitment.

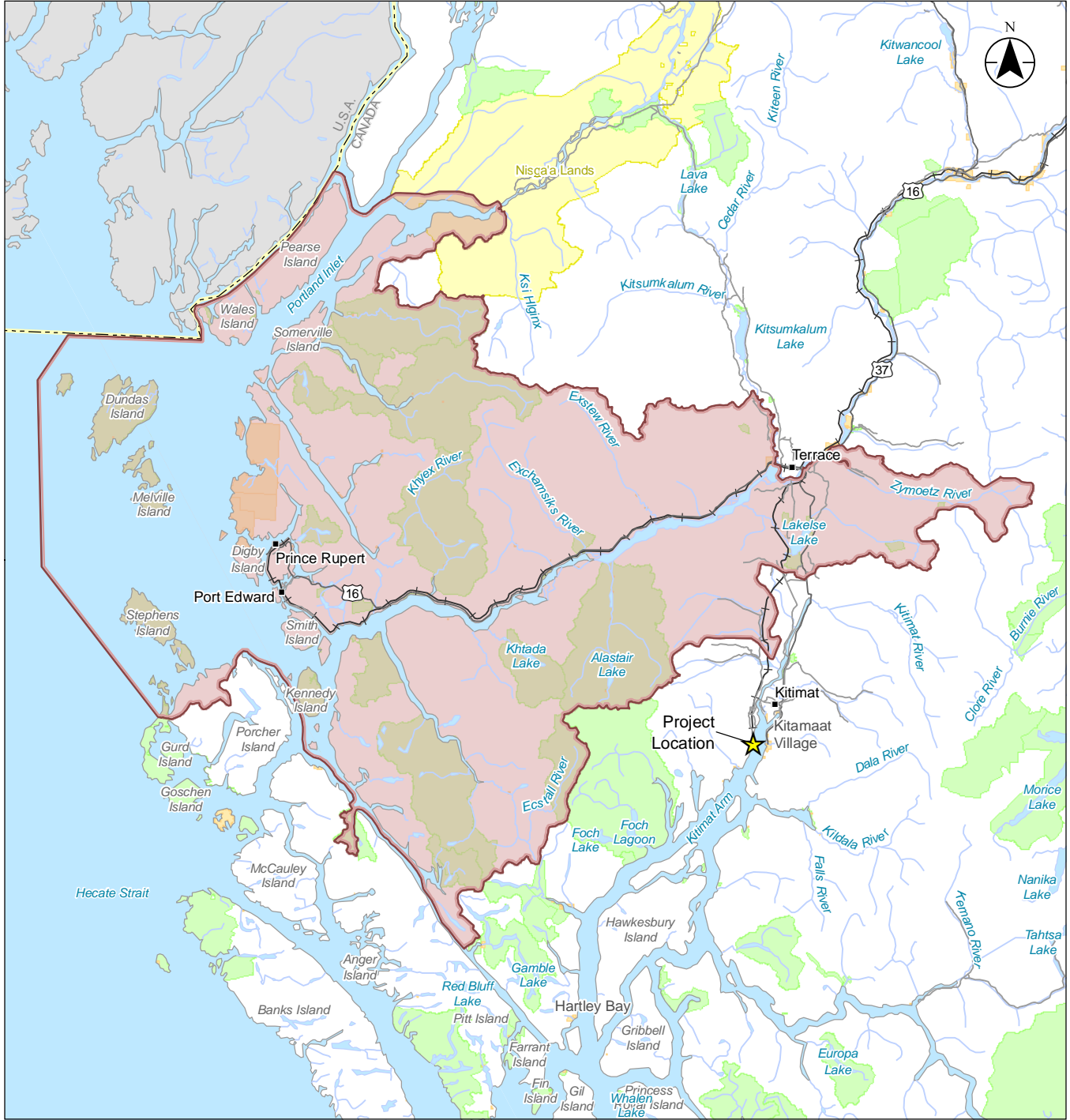
14 Cedar will continue to work with Lax Kw'alaams Band to communicate project information, including  
15 employment and contracting opportunities, with the aim of increasing local benefits of the Project.



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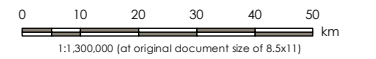
1 **16.9 Figures**

2



**Notes**  
 1. Coordinate System: NAD 1983 BC Environment Albers  
 2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada

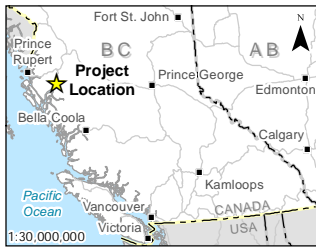
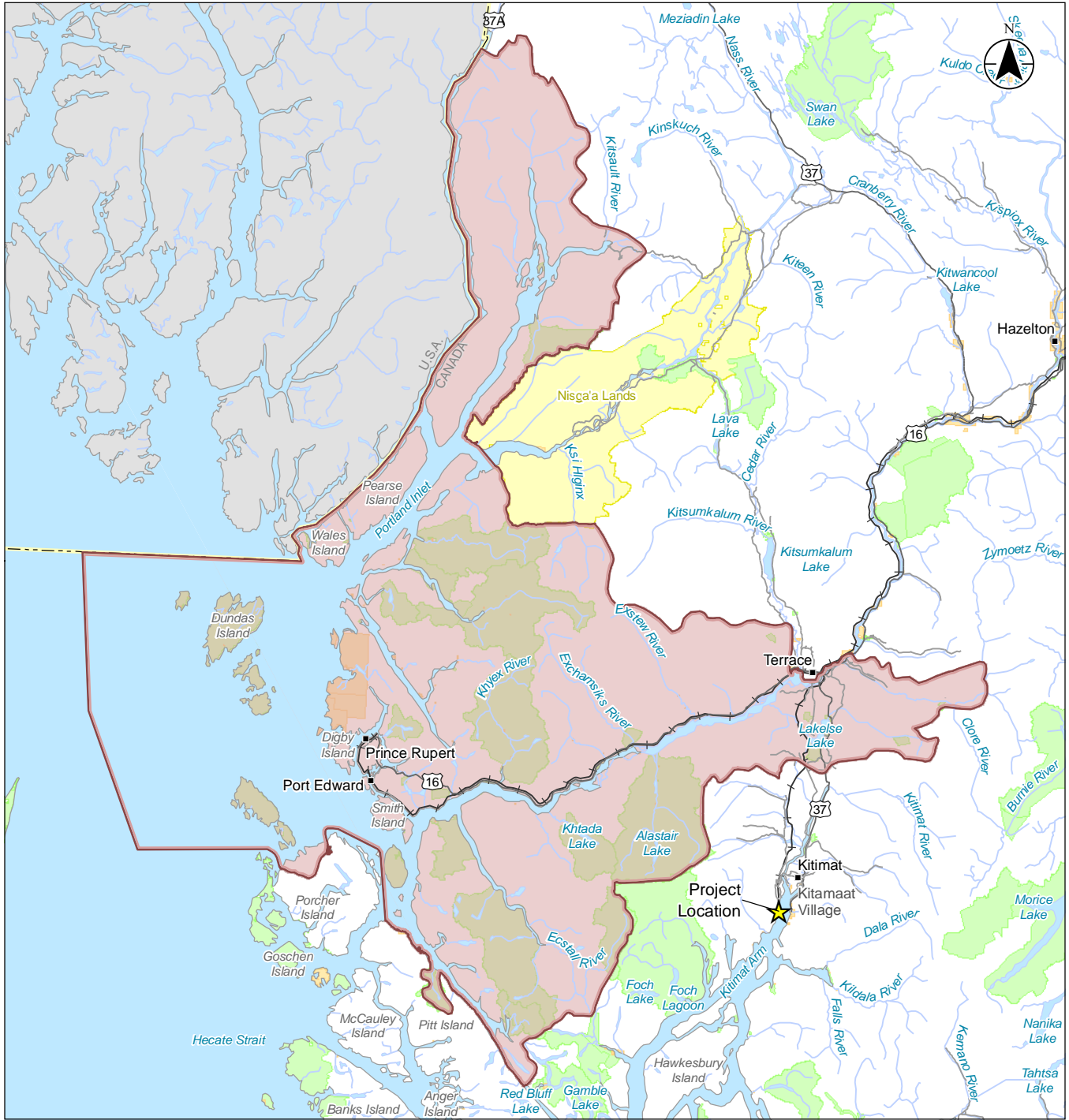
- Highway
- Road
- Railway
- Watercourse
- Waterbody
- First Nations Reserve
- Park, Ecological Reserve, Protected Area, or Conservancy Area
- Treaty Lands
- ★ Project Location
- Lax Kw'alaams Traditional Territory



Project Location: Kitimat, British Columbia  
 Project Number: 12321.301  
 Prepared by: ICARDINAL on 20190716  
 Discipline Review by: JMUNDY on 20190816

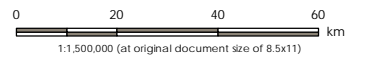
Client/Project/Report: Cedar LNG Export Development Ltd  
 Cedar LNG Project  
 Project Description

Figure No.: **16.1.1**  
 Title: **Lax Kw'alaams Traditional Territory**



Notes  
 1. Coordinate System: NAD 1983 BC Environment Albers  
 2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada

- Highway
- Road
- +— Railway
- Watercourse
- Waterbody
- First Nations Reserve
- Park, Ecological Reserve, Protected Area, or Conservancy Area
- Treaty Lands
- ★ Project Location
- Metlakatla Traditional Territory



Project Location: Kitimat, British Columbia  
 Project Number: 12321301  
 Prepared by: ICARDINAL on 20190716  
 Discipline Review by: JMUNDY on 20190816

Client/Project/Report: Cedar LNG Export Development Ltd  
 Cedar LNG Project  
 Project Description

Figure No.: **16.1.2**  
 Title: Metlakatla Traditional Territory