# APPENDIX L

## MEKS REPORT

GOLDBORO LNG

# MI'KMAQ
# ECOLOGICAL KNOWLEDGE STUDY
# GOLDBORO LNG PROJECT

Submitted to:

**Pieridae Energy Inc.**
Halifax, Nova Scotia

Submitted by:

**AMEC Environment & Infrastructure**

**a division of AMEC Americas Ltd.**
Dartmouth, Nova Scotia

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# 1.0 Introduction

## *1.1 Project Background*

Pieridae Energy (Canada) Ltd. (Pieridae) is proposing to develop and operate a natural gas liquefaction plant, liquefied natural gas (LNG) tanker terminal and associated marine facilities in Goldboro, Guysborough County, Nova Scotia (NS). Pieridae is a Canadian energy infrastructure development company with extensive LNG experience and deep connections to the LNG industry worldwide (more information at: www.pieridaeenergy.com and www.GoldboroLNG.com). AMEC has been retained by Pieridae to prepare the Environmental Assessment (EA) to obtain approval for this Class II undertaking, in accordance with the NS Environmental Assessment Regulations (*Environment Act*).

The Goldboro LNG Project (the Project) encompasses the development and operation of a natural gas liquefaction facility and marine terminal with a capacity of 10 million tonnes per annum (Mtpa) (equivalent to approximately 1575 million cubic feet of non-liquefied natural gas per day) and a gross LNG storage capacity of about 690,000 cubic metres ($m^3$) in three 230,000 $m^3$ tanks. The Project proposal includes the development of a 180 MW on-site gas-fired power plant.

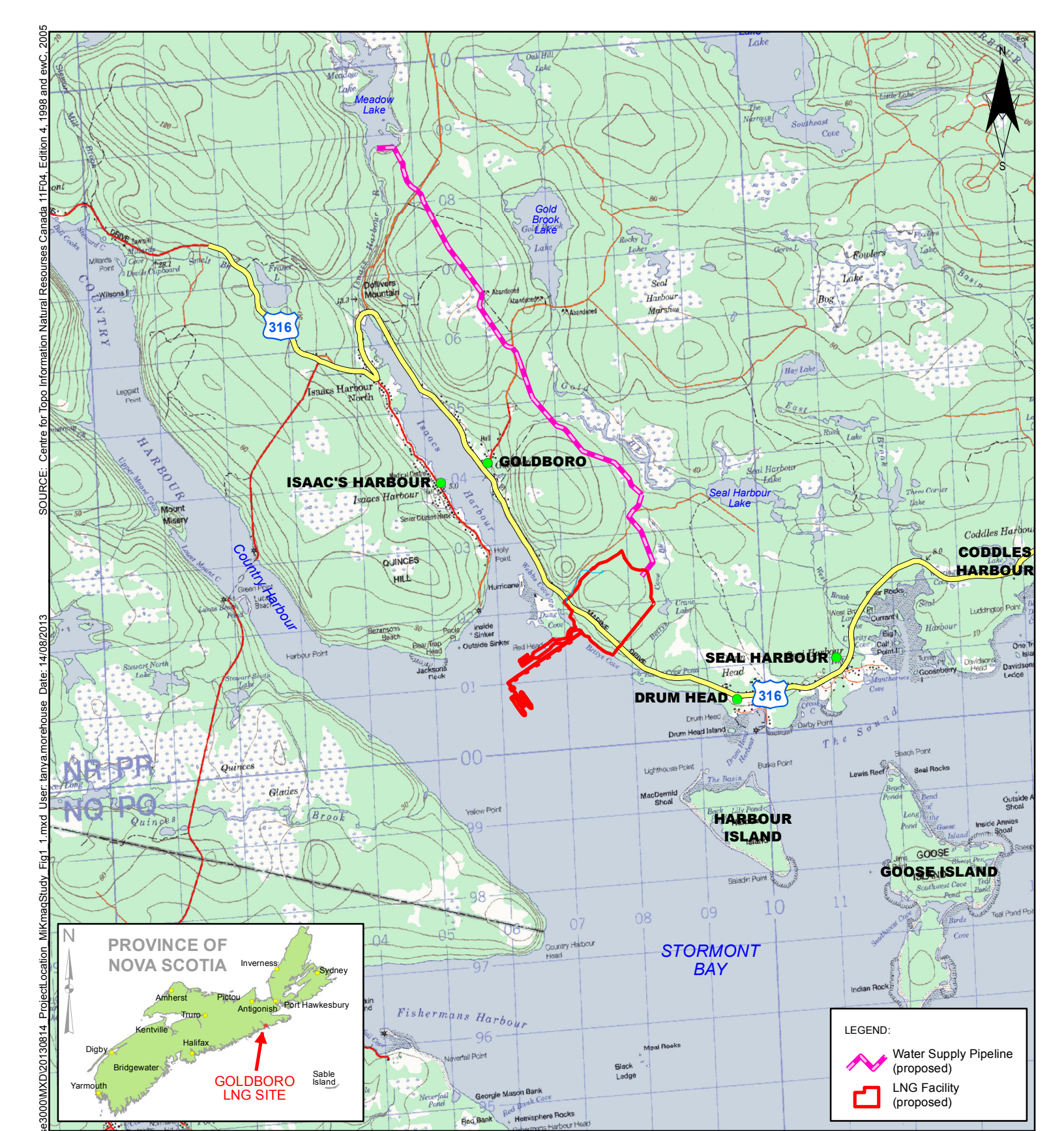
As part of the EA, AMEC conducted ecological surveys, effects evaluations, air quality modeling as well as comprehensive fisheries and community stakeholder consultations and Aboriginal engagement activities. AMEC also conducted a Mi'kmaq Historical and Ecological Knowledge Review of the Goldboro Project site (also referred to as Mi'kmaq Ecological Knowledge Study, or MEKS).

Figure 1.1 shows the location of the Goldboro LNG Project site in the context of the Atlantic coastal region.

## *1.2. Indigenous Knowledge and Knowledge Systems*

Early in the 1990's, governments and international development agencies became aware that Traditional Ecological Knowledge and associated Traditional Management Systems could be useful in improving development planning in areas populated by indigenous peoples (Johannes 1993). Traditional Ecological Knowledge, or as it is now more commonly known as, Indigenous Traditional Knowledge (ITK), is the accumulated knowledge of natural ecosystems, based on spiritual health, culture and language of the people that is passed between successive generations through stories, song and dance and myths to ensure their survival and the integrity of their socio-cultural and socio-economic systems. Indigenous knowledge is dynamic, based upon an intimate understanding of the components of non-living (abiotic) and living (biotic) environments. In most instances the management system aspects of indigenous peoples knowledge systems has been segregated from the endeavour of compiling information for decision-making and the ITK aspects have been the focus of study. In Nova Scotia, ITK is referred to as Mi'kmaq Ecological Knowledge (MEK).

Indigenous Traditional Knowledge has become the focus of considerable international discourse on intellectual property rights (Ritchie et al. 1996). Indigenous communities worldwide have felt that their knowledge has been used to advance commercialization and over exploitation of local renewable resources and as a result, have become vocal about the protection of their knowledge and its use. The value of indigenous knowledge is becoming increasingly recognized by scientists, managers and policy makers and is an evolving subject of both domestic and international law (Anaya 1996).




SOURCE:: Centre for Topo Information Natural Resources Canada 11F04 Edition 4, 1998 and ewC 2005

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| CLIENT: Pieridae Energy (Canada) Limited | SCALE: 1,000 500 0 1,000 Metres 1:75,000 | PROJECT: GOLDBORO LNG Mi'kmaq Ecological Knowledge Study | DWN BY: TM |
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| | | | DATE: June 2013 |
| AMEC Environment and Infrastructure A Division of AMEC Americas Ltd. 50 Troop Avenue, Unit 300 Dartmouth, N.S.,B3B 1Z1 (P) 902-468-2848 (F) 902-468-1314 | DATUM: UTM Zone 20 | TITLE: PROJECT LOCATION | REV. NO: N/A |
| | PROJECTION: NAD83 | | FIGURE NO: 1.1 |
| | PROJECT NO: TV121039 | | |

Indigenous people are aware that there is a value to their knowledge and that it can be used for exploitative purposes. In some cases this risk has been offset by the fact that knowledge holders often provided access to their knowledge and knowledge systems for a cost (fee), however, it is freely and openly shared, subject to intellectual property rights agreement, when it is used for protection of biodiversity and environmental condition.

Acquisition of knowledge of complex ecological systems is an ongoing and dynamic learning process. As such, indigenous knowledge often provides an informational foundation for, and is used by, indigenous people's institutions and organizations. Indigenous knowledge is seen to be a component of the cultural elements of a society, and the processes of acquiring knowledge involve institutional frameworks and social networks nested across social and geographic scales (Folke 2004). This requires multiple tools for data and information gathering and multiple approaches to information analysis.

Recent ITK studies have focused on the collection of information from elderly members of indigenous communities. In some instances, depending on the purpose of the study, present day hunters/trappers/fishers are interviewed to collect information on the specific location of plants and animals considered important as biologically important to the local ecosystem. This approach is a science-based research approach for data acquisition, and neglects some of the social, economic, cultural and spiritual elements.

It is now widely understood that traditional knowledge is greater than the sum of individual experiences, and that traditional knowledge is a significant component of the culture and identity of indigenous peoples (Orcherton 2012). Traditional Knowledge is founded in the collective experiences of a community and is transmitted between individuals and generation in accordance with traditional institutions and practices. It is also understood that a society's culture can evolve as a result changing resource abundance, environmental condition, technological changes and interaction with other cultural groups.

Studies that focus on individual's harvesting experience are founded upon a false assumption that individual resources users can provide a meaningful understanding of the relationship between a "People" and a "Place". Evidence suggests that this is an incomplete approach and that the gathered information will not enhance understanding of the relationship between the Indigenous community and the traditional territory, and does not resolve the issues regarding acceptability of new project development on local indigenous populations. To this end, the United Nations Permanent Forum on Indigenous Issues has hosted several workshops that have examined the process of indigenous input on project development (Mauro and Hardison 2000, Persoon and Minter 2011). Results of these efforts have substantiated the use of historical and archival research, information gathering through group workshops and discussions with political/traditional leadership.

In Nova Scotia MEK Studies have predominantly dealt with the collection of historical data from archival sources and data on the historical (living memory) and current use of resources. The focus of the knowledge studies has been the geographical region in or near the site of a proposed project. While this process is an effective means to meet the letter of the MEKSprotocol which has been adopted by the Assembly of NS Chiefs, it does not meet the intent of the protocol in areas where there may be limited activity or recoverable information on historical activity in a particular area. The principle of the MEKS is to understand the relationship between the Mi'kmaq and the region in which a new project is intended.

# 2.0 Project Site Background

## *2.1 Environmental Context*

The Goldboro LNG Project is located on the Atlantic Ocean coast, approximately 2 kilometres (km) each way from the communities of Goldboro in the west, and Drum Head and Seal Harbour to the east.

The centre of the Goldboro LNG Project site is located approximately at:

- Latitude: 45°10'N; and
- Longitude: 61°38'W.

The Project will be located in the Goldboro Industrial Park near the existing Sable Offshore Energy Inc. (SOEI) gas plant. The SOEI and Deep Panuke Pipelines run along the eastern boundary of the industrial park and Project site. The boundaries extend to include the southern section of the Red Head peninsula, with Betty's Cove located at the southern base of the peninsula, and Webb's Cove located the northern base, off the Project site. An area designated for use as a temporary work camp abuts the northern site boundary and, for the duration of the construction phase, is part of the Project footprint.

There are several small, unnamed streams within the Project site, of which only one is large enough to be included in a NS government topographical map. In addition, there are three ponds located in the Project area on the Red Head peninsula. They are separated from the ocean by barrier beaches. The largest, Dung Cove Pond, is freshwater and is fed by the above mentioned stream. The smaller ponds are brackish or saline. Crane Lake is located along Betty's Cove Brook, about 200 metres (m) east of the Project boundary.

This windswept zone is dominated by coniferous forests, which may be stunted on exposed headlands and barrens. Deciduous forests are restricted to higher areas with better drainage and some wind protection. Soils here are mostly hardpans resulting from excessive moisture, while bedrock is generally the old and very hard slate and greywacke of the Meguma Group. Terrestrial habitats in this region are mainly forests (mostly coniferous), barrens and bogs. Smaller areas of deciduous and mixed forests also occur. There is a wide range of coastal and marine habitats, such rocky shores, sandy beaches, dune systems, mud flats, salt marshes and islands, which in turn provide breeding and feeding areas for a wide range of resident and migratory birds. The extensive marine areas provide habitat for a wide variety of marine fauna. Human occupation has also led to the presence of clear cuts and disturbed areas (Davis and Browne 1999).

## *2.2 Historical Context*

### 2.2.1 Traditional Land Use

The Mi'kmaq[1] are the pre-contact inhabitants of the region comprised of Nova Scotia, New Brunswick, Prince Edward Island, the Gaspe region of Quebec, northern Maine and southern Newfoundland. While there are a wide range of estimates of the Mi'kmaq population before initial arrival of Europeans in North America, it is likely that the population at the time of contact was roughly 35,000 (Miller 1976).

[1] Lnu (plural: Lnu'k) is the self-recognized term for the Míkmaq of New Brunswick, Newfoundland, Nova Scotia, Quebec and Maine, which translated to "human being" or "the people". (http://museum.gov.ns.ca/MiKmaq/)

The Mi'kmaq territory was divided into seven traditional "districts". Each district had its own independent government and boundaries. The independent governments had a district chief (Keptinaq or Saqmaw) and a council. The council members were band (family groupings or “clans”) chiefs, elders and other worthy community leaders. The district council was charged with performing all the duties of any independent and free government by enacting laws, justice, apportioning fishing and hunting grounds, making war, suing for peace, etc. The seven Mi'kmaq Districts are Kespukwitk, Sikepnékatik, Eskíkekik, Unamákik, Piktuk aqq Epekwitk, Sikniktewaq and Kespékewaq (see Figure 2.1).

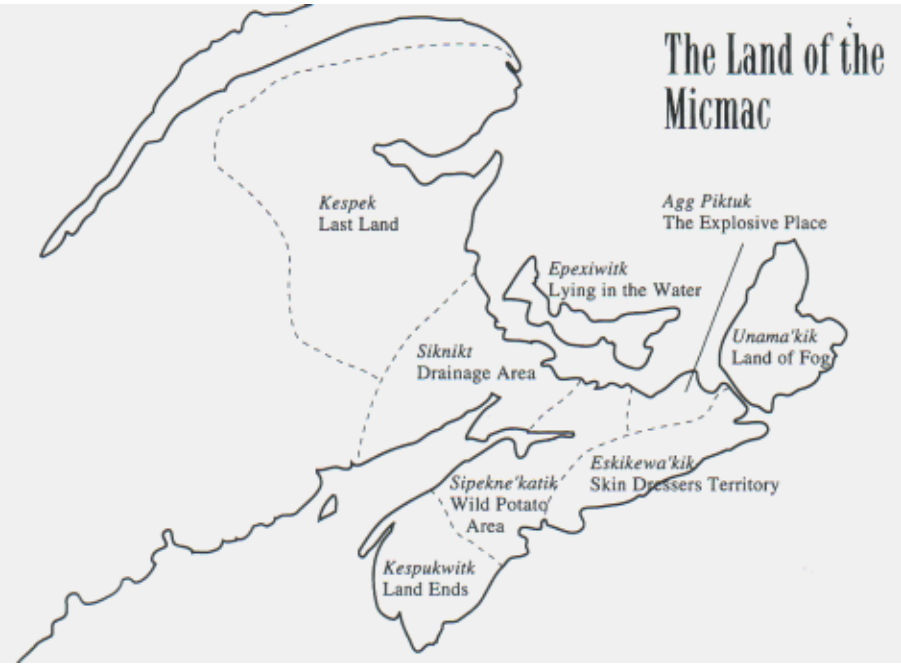


***Figure 2.1: Traditional Mi’kmaq Districts*** *(from [http://www.danielnpaul.com/Map-Mi'kmaqTerritory.html](http://www.danielnpaul.com/Map-Mi'kmaqTerritory.html))*

In addition to the district councils, there was also a Grand Council or Santé Mawiómi. The Grand Council was composed of "keptinaq”. There were also Elders, the Putús (Wampum belt readers and historians, who also dealt with the treaties with the non-natives and other Native tribes), the women council and the Grand Chief (kji’saqmaw). The Grand Chief was a title given to one of the district chiefs.

The local Mi’kmaq communities seasonally moved throughout the region to occupy areas of abundant food and shelter. Much of this travel was along waterways which facilitated transportation and food harvesting. It is therefore likely that the coastal rivers and streams were used during coastal travel as they provided opportunity for harvesting and for inland excursion in search of suitable encampments.

Ancient First Nations people using this area would have lived a migratory life, travelling throughout the Unama’kik district, as noted above. This migratory cycle involved seasonal movement between areas where shelter and food resources were most abundant.

While it is difficult to fully comprehend the undisturbed forests and riverine habitats that existed before colonial influences, it is possible to understand the relationship between landscape and human use activities.

The Goldboro LNG project site falls within the Eskikewa’kik district, which in English means “skin wearers” possibly due to the common presence of marine seals and other marine mammals whose skins

provided suitable materials for winter protection (Rand 1875). According to oral tradition, the people of the Eskikewa'kik district have used the lands and coastal waters of the area since the beginning of time.

Many of the families that traditionally occupied the district were relocated to the Millbrook Reserve (once part of the Shubenacadie Band) as part of Canada's centralization policies. Some families in the northern and eastern regions of the district, near the proposed Goldboro LNG terminal site moved to the Paq'tnkek First Nation which is approximately 50 km northwest of Goldboro. The District is today home only to the Cole Harbour Reserve. This community is part of the Millbrook Band and is administered from the larger Millbrook Reserve near Truro, NS. The Cole Harbour Reserve is approximately 150 km from the proposed wind farm.

Both archaeology and oral history add to the knowledge of how these ancestors lived in pre-contact times. Dates and time periods were not important to the Mi'kmaq in understanding their history, and many hold the belief that they have occupied the region since it was possible to sustain life. Historically, Mi'kmaq stories, which were passed down through generations from one storyteller to another, describe how the earth came into being and how the animals and the People came to inhabit the region (Lockerby 2004).

Mi'kmaq way of life changed after contact with the French, the first European settlers to this area. Colonial conflicts between France and England during the seventeenth and eighteenth centuries shaped the cultural development of the indigenous population (Thorp 1996), and eventual permanent European settlement would further challenge the survival of Mi'kmaq culture and Mi'kmaq as a people.

On June 24 1610, Grand Chief Membertou (who was from Kespukwitk) converted to Catholicism and was baptized. This relationship with the Europeans changed with the conclusion of European wars and the transfer of Acadia to British control through Treaty. The first treaty of a series of treaties (referred to as the Covenant Chain of Treaties) between the British Crown and the Micmac Nation was signed in 1725. All were treaties were reaffirmed in 1752, and culminated in the Treaty and Royal Proclamation of 1763. The treaties were an exchange of Micmac loyalty for a guarantee that "Micmacs" would be able to continue hunting and fishing in their territory. These treaties have been recognized by the Supreme Court of Canada as legal and binding

Even after the adoption of western religious beliefs, the Mi'kmaq continued to harvest food and resources in accordance with long held spiritual understanding of the relationship between living things referred to as "Netukulimk". While some have argued that the eventual dominance of British colonial rule eroded traditional Mi'kmaq worldviews, there is strong evidence that Mi'kmaq harvests are still governed by Netukulimk principles (Prosper *et al.* 2011).

### 2.2.2 Traditional Food Resources

Historically, the Mi'kmaq families who lived in this area annually migrated between hunting and fishing grounds (Chute 1999). These seasonal migrations were heavily dependent upon riverine and coastal transportation. As a result, food resources were heavily biased toward fish and seafood.

In late winter, the Mi'kmaw in Nova Scotia generally moved closer to the marine coast and the river mouths. Such positions allowed them to take advantage of the numerous shallow water coastal fish and shellfish exposed by the melting ice (such as winter flounder and clams) as well as the spring fish run in the rivers. In early spring, smelts and alewife were abundant in the rivers, followed by salmon and

sturgeon. Brook trout and striped bass began swimming upstream, followed by white perch and "elvers" or young eels. American plaice appeared off the coast, as did cod, various skate species, whitling or silver hake and mackerel. Freshwater and marine fish and shellfish species historically utilized by Mi'kmaq in Nova Scotia are listed in Table 2.1.

***Table 2.1 Freshwater And Marine Fish And Shellfish Species Traditionally Harvested by Nova Scotia Mi'kmaw.***

| Common Name | Mi'kmaq Name | Habitat[6] | Uses | Source |
|---|---|---|---|---|
| American lobster | Wŏlŭmkwĕch'[4]; Chŭgĕch'[4] | Marine, subtidal rocky areas | Food and commerce | Rand, 1875 |
| American Plaice | | Marine, subtidal sandy areas | | Hoffman 1955 |
| Brook Trout | ADAGWAASOO[2] | Freshwater streams, marine | | Hoffman 1955 |
| Clam | Āās[4]; Ā'sŭk[4]; Ŭpkwāāsk[4]; Sebooāās[4]; Boogoonŭmowāās[4], e's [3] | Marine, sand flats | Food and commerce | Rand 1875, Hoffman 1955 |
| Cod | Pějoo[1], PEJOO[2] | Marine subtidal | Food | Rand 1875, Hoffman 1955 |
| Rand 1875 Squid[5] | SEDAASOO[2] seta'su[3] | Pelagic | Food | Hoffman 1955 |
| Eel, Elvers | Kat[1], KATEL[2] | Marine, freshwater | Food | Rand 1875, Hoffman 1955 |
| Gaspereau | Segoonŭměkw'[4] | Marine, ascends streams to breed in freshwater | Food and bait | Rand 1875 |
| Haddock | Poodomkŭněch'[1] | Marine subtidal | Food | Rand 1875 |
| Mackerel | Amlaměkw'[4] | Marine pelagic | Food and bait | Rand 1875, Hoffman 1955 |
| Northern Crab [5] | NUMJINEGECH[2] | Marine subtidal | Food | Hoffman 1955 |
| Oysters | NUMTUMOO[2] mntmu[3] | | Food | Hoffman 1955 |
| Quahog Or Hard Clam | UPKWAASK[2] or BOOGOONUMOWAAS[2] | Marine, subtidal sandy areas | Food and commerce, Utensils | Rand 1875 |
| Salmon | Pălămoo[1], PULAMOO[2] | Marine, ascends streams to breed in freshwater | Food, commerce and ceremony | Rand 1875, Hoffman 1955 |
| Scallops | SAKSKALAAS[2,] sasqale's[3] | Marine subtidal | Food | Hoffman 1955 |
| Shad | msamu[3] | Marine, ascends streams to breed in freshwater | Food | |
| Skate ( Various Species) | KEGUNALOOECH[2] | Marine subtidal | Food | Hoffman 1955 |
| Smelt | Kákpāsow'[1], KAKPASOW[2] gaqpesaw[3] | Marine, ascends streams to breed in freshwater | Food | Rand 1875, Hoffman 1955 |
| Soft Clam | A'SUK [2], | Marine, sand flats | Food | Hoffman 1955 |
| Striped Bass | Chegaoo [1] | Marine, ascends streams to breed in freshwater | Food and commerce | Rand 1875, Hoffman 1955 |
| Sturgeon | KOMKUDAMOO[2] | Marine, ascends | Food | Hoffman 1955 |

| Common Name | Mi'kmaq Name | Habitat[6] | Uses | Source |
|---|---|---|---|---|
| | | streams to breed in freshwater | | |
| Trout | Adagwaasoo[1] , atoqwa'su[3] | Freshwater, marine | Food | Rand 1875, Hoffman 1955 |
| Whelks | | Marine subtidal | Food | Hoffman 1955 |
| White Perch | | Marine, ascends streams to breed in freshwater | Food | Hoffman 1955 |
| Whitling/ Silver Hake | NAGABETULOW[2] | Marine subtidal | Food | Hoffman 1955 |
| Winter Flounder | ANAGWAACH[2], anagwe'j[1] | Marine subtidal | Food | Hoffman 1955 |

[1] Accepted Current Smith-Francis Othography
[2] Phonetic spelling from reference document ( Hoffman 1955) (also capitalized)
[3] Listuguj spelling
[4] Marshall spelling
[5] Unclear what species this refers to. See discussion in text.
[6] Habitat reference for fishes are from Scott and Scott (1988), while marine invertebrate references are from Peterson and Gosner (1999).

In later spring and summer, as the ice retreated and the water warmed, Mi'kmaq in coastal NS could also harvest whelks, scallops, quahogs or hard clams, soft clams, "common "squid, American lobster and "northern" crab (Note: that it is unclear which species are intended when Hoffman refers to 'Common Squid' and 'Northern Crab', as these are not accepted common names of any species in Nova Scotia today). The squid is presumably the Northern Shortfin Squid *(Illex illecebrosus*), while the crab may be Jonah or Rock Crab (*Cancer borealis* or *C. irroratus*), or possibly Snow Crab (*Chionoecetes opilio*). A Mi'kmaq Knowledge Study published in 2004 for the Bear Head LNG project stated that Mi'kmaq have traditionally harvested American eel, scallop, green sea urchin, rock crab and Jonah crab in the Canso Strait area of NS and that eel and scallop harvesting continues today (Mi'kmaq Environmental Services Ltd. 2004). As these species occur throughout the province in suitable habitats, is it is likely that First Nations people may harvest them in the area encompassing the project site.

In addition to this abundance of fish, spring was also a time when migratory birds returned and began nesting, providing plenty of fresh meat and eggs. Hoffman (1955) provided a list of bird species traditionally harvested by Mi'kmaw in Nova Scotia (Table 2.2).

***Table 2.2 Bird Species Reported as Traditionally Harvested by Nova Scotia Mi'kmaq (Hoffman 1955) with Habitat Information***

| Mi'kmaq Name | Common Name | Species Name | Habitat (Tufts 1986) | Season |
|---|---|---|---|---|
| | Pied-billed Grebe | *Podilymbus podiceps* | Shallow freshwater ponds | Fall migrant |
| | Semipalmated Plover | *Charadrius semipalmatus* | Marine coastal flats, shores | Fall migrant |
| | Black-bellied Plover | *Pluvialis squatarola* | Marine coastal flats, shores | Fall migrant |
| | American Golden Plover | *Pluvialis dominica* | Marine coastal flats | Fall migrant |
| | Hudsonian Whimbrel /Hudsonian Curlew | *Numenius phaeopus hudsonicus* | Marine coastal flats, wetlands | Fall migrant |
| | Eskimo Curlew | *Numenius borealis* | Marine coastal flats, wetlands | Fall migrant |
| | Willet | *Catoptrophorus semipalmatus* | Marine coast, wetlands, shores | Fall migrant |
| | Lesser Yellowlegs | *Tringa flavipes* | Marine coastal flats, wetlands, shores | Fall migrant |

| Mi'kmaq Name | Common Name | Species Name | Habitat (Tufts 1986) | Season |
|---|---|---|---|---|
| | Red Knot | *Calidrus canutus* | Marine coastal flats, shores | Fall migrant |
| | Long-billed Dowitcher | *Limnodromus scolopaceus* | Marine coast, wetlands | Fall migrant |
| | Passenger Pigeon | *Ectopistos migratorius* | Forested habitats | Fall migrant |
| | Yellow Rail | *Coturnicops noveboracensis* | Freshwater wetlands | Fall migrant |
| | Black-crowned Night Heron | *Nycticorax nycticorax* | Coastal marshes | Fall migrant |
| | Canada Goose[1] | *Branta canadensis* | Freshwater lakes | Fall migrant |
| Apchechk | Mallard | *Anas platyrhnchos* | Freshwater lakes | Fall migrant |
| | American Wigeon (Baldpate) | *Anas americana* | Marine coast, freshwater lakes | Fall migrant |
| Apchechk | Common Goldeneye | *Bucephala islandica* | Shallow coastal bays and inlets | Fall migrant |
| | Green-winged Teal | *Anas crecca* | Freshwater lakes | Fall migrant |
| | Bufflehead | *Bucephala albeola* | Marine coast, freshwater lakes | Fall migrant |
| | Mourning Dove | *Zenaidura macroura* | Fields, forests | Fall migrant |
| | Lesser Scaup | *Aythya affinis* | Marine coast | Fall migrant |
| | Northern Gannet | *Morus bassana* | Marine coast | Spring & Fall migrant[1] |
| | American Black Duck | *Anas rubripes* | Marine coast, freshwater lakes | Resident |
| | Red-Breasted Merganser | *Mergus serrator* | Marine coast, freshwater lakes | Resident |
| Nabaoo | Ruffed Grouse | *Bonasa umbellus* | Forests | Resident |
| Nabaoo | Spruce Grouse | *Dendragapus canadensis* | Forests | Resident |
| | Great Black-backed Gull | *Larus marinus* | Marine coast | Resident |
| | Herring Gull | *Larus argentatus* | Marine coast | Resident |
| | Common Murre | *Uria aalge* | Marine coast | Resident |
| | Atlantic Puffin | *Fractercula arctica* | Marine coast | Resident |
| | Great Horned Owl | *Buba virginianus* | Forests | Resident |
| | Barred Owl | *Strix varia* | Forests | Resident |
| | Common Loon | *Gavia immer* | Marine coast in winter, freshwater lakes in summer | Spring migrant |
| | Great Blue Heron | *Ardea herodias* | Edges of shallow water bodies, generally nest in trees | Spring migrant |
| | American Bittern | *Botaurus lentiginosus* | Freshwater wetlands | Spring migrant |
| Senŭmkw' | Canada Goose[4] (eggs also important in spring) | *Branta canadensis* | Freshwater ponds and lakes | Spring migrant |
| | Brant | *Branta bernicla* | Freshwater ponds and lakes | Spring migrant |
| | White-winged Scoter | *Melanitta fusca* | Marine coast | Spring migrant |
| | Black Scoter ("American Scoter" ) | *Melanitta americana* | Marine coast | Winter resident[3] |
| | Osprey | *Pandion haliaetus* | Forested areas close to water bodies | Spring migrant |
| | American Woodcock | *Philohela minor* | Wooded swamps, forests, fields | Spring migrant |
| | Wilson's Snipe | *Gallinago delicata* | Fields, freshwater wetlands | Spring migrant |
| | Razorbill (" Razor Billed Auk") | *Alca torda* | Marine coast | Spring migrant |
| | Black Guillemot | *Uria lomvia* | Marine coast | Winter resident[2] |

[1] Note Hoffman listed this as a Resident species
[2] Note Hoffman listed this as a Fall migrant

[3]Note Hoffman listed this as a Spring migrant
[4] The Canada Goose is the "bustard" often mentioned by European writers in old literature as being an important food species for the Mi'kmaq in NS. (True bustards are large Old World game birds).

A more recent report by Benoit (2007) summarized waterfowl species recently hunted by Mi'kmaq in mainland NS. Species mentioned by Benoit (2007) are listed in Table 2.3 and are presumably all species traditionally hunted by Mi'kmaq people. Most of these species utilize both freshwater and marine habitats throughout the year, while others, such as eider and scoter species occur primarily in marine coastal areas. Snipe and pin-tailed ducks occur primarily in freshwater environments, while woodcock are found in forested areas, often treed wetlands. All of these species, with the exception of the Barrow's goldeneye, are relatively common in suitable habitats throughout NS during the appropriate season. Barrow's goldeneye in NS belongs to the eastern population, which is currently listed as SARA of Special Concern and are quite rare in NS. It is unlikely to occur in the vicinity of the Gaetz Brook site.

***Table 2.3 Waterfowl[1] Species Harvested by First Nations Hunters in NS in 2003 and 2004 (Benoit 2007), along with general habitats and seasons of occurrence.***

| **Species** | **Season of Occurrence** |
|---|---|
| Barrow's Goldeneye | Winter |
| Common Goldeneye | Winter |
| Red-Breasted Merganser | Summer |
| Common Merganser | Summer |
| Hooded Merganser | Summer |
| Greater Scaup | Winter |
| Lesser Scaup | Winter |
| Black Scoter | Winter |
| White Winged Scoter | Winter |
| Surf Scoter | Winter |
| Common Eider | Year round (mainland NS) |
| King Eider | Winter |
| Canada Goose | Year round |
| Long-Tailed Duck | Winter |
| Northern Pintail | Summer |
| Wilson's Snipe | Summer |
| Mallard | Year round |
| American Woodcock | Summer |
| Black Duck | Year round |
| Blue-winged Teal | Summer |

[1]While Wilsons' Snipe and American Woodcock are not strictly waterfowl, they were treated as such in the Benoit (2007) report

Waterfowl species not mentioned specifically by Benoit which are likely also hunted by First Nations in NS included Blue-winged Teal and Ring-Necked Duck.

Other, non-waterfowl species are hunted in NS by First Nations hunters. Grouse (both Ruffed and Spruce) have traditionally been targeted species, and are presumably still hunted by First Nations hunters in the areas encompassing the Project Site. Ring-necked pheasant, an introduced species which now occurs through most if not all of NS, may also currently be targeted by First Nation hunters. Other

bird species not typically hunted today may have been used as a traditional food source, especially in lean times.

In addition to fish, invertebrate and bird species, the marine coast in summer also provided the Mi'kmaq with various marine mammal species which provided meat, oil and hides. Throughout Nova Scotia, Mi'kmaq people harvested dolphins, belugas ("white whales"), long-finned pilot whales ("common blackfish"), Atlantic walrus and harbour seals (Table 2.4).

***Table 2.4 Mammal Species Traditionally Harvested by Mi'kmaq in Nova Scotia (Sources: Hoffman 1955, Wallis and Wallis 1955, Speck 1917)***

| Common Name | Mi'kmaq Name | Habitat [1] | Uses |
|---|---|---|---|
| Moose | Team'[1] , tia'm[2] | Forested areas, wetlands | Food |
| Deer | Lŭntook'[1], lentug[2] | Edges of forested areas, thickets | Food |
| Black Bear | Mooin[1] | Forested areas | Food, spiritual |
| Hare | Able'gŭmocch[1] | Forested areas | Food |
| Porcupine | Năbegŏk[1], matues[2] | Forested areas | Food, cultural industry |
| Beaver | Kobet[1], gopit[2] | Water bodies and wetlands adjacent to forested areas | Food and pelts |
| Groundhog/Woodchuck | mulumgwej[1] | Fields, open areas adjacent to forests | Food and pelts |
| Caribou | | | Food and pelts |
| Mink | jiagewj[2] | Coasts | Pelts |
| Otter | giwnig[2] | Rivers and lakes, coasts | Food and pelts |
| Whale | Năbeák'[1] | Oceans | Food and oil |
| Dolphins | | Oceans | Food and oil |
| Porpoise | Năbeák'[1] | Oceans | Food and oil |
| Beluga /White Whale | | Oceans | Food and oil |
| Pilot Whale/ Common Blackfish | | Oceans | Food and oil |
| Atlantic walrus | | Oceans | Food |
| Harbor Seal | | Oceans | Food and oil, skins |
| Muskrat | | Freshwater ponds, wetlands | Skins |
| Squirrel | | Forested areas | Food |

[1] Deblois, 1997
[2] Listiguj (www.mikmaqonline.org)
[3] Banfield 1974

The arrival of spring also meant that new plant growth, such as fiddleheads and other greens, was increasingly available to harvest. As the growing season progressed, wild fruits and other edible plant parts became available. Many foods were eaten fresh, while others which were more plentiful, such as blueberries, were dried and preserved for the leaner winter months. Edible wild plants traditionally consumed by Mi'kmaq people in Nova Scotia are listed in Table 2.5.

***Table 2.5 Native Plant Species Traditionally Consumed by Nova Scotia Mi'kmaq.***

| Mi'kmaq Name | Common Name | Scientific Name | Habitat[1, 2] | Mi'kmaq Traditional Use | Source |
|---|---|---|---|---|---|
| Stoqn | Balsam Fir | *Abies balsamea* | Various | Bark used for beverage and medicine | Speck and Dexter 1951, Lacey 1977 |
| Mimkutaqo'q | Striped maple/ moosewood | *Acer pensylvanicum* | Rocky woods, rich deciduous forests, wooded slopes and along streams | Bark used for tea | Speck and Dexter 1951, 1952, Lacey 1977, Wallis and Wallis 1955 |
| Snawey | Sugar maple | *Acer saccharum* | Well-drained soils | Sap boiled into syrup, and a beverage tea was made from the bark and twigs, Used as cooking broth | Speck and Dexter 1951, Stoddard 1962 |
| kiw'eswa'skul | Sweetflag[3] | *Acorus americana* | Wet places and the borders of quiet streams. marshes, the edges of ponds and wet meadows. Coastal marshes just above high tides. | Rootstocks used to make a beverage and medicinal tea. Tubers eaten raw, or more commonly boiled or roasted | Yanovsky 1936, Speck and Dexter 1951, Wallis and Wallis 1955, Lacey 1977 |
| | Wild leek | *Allium tricoccum* | Rich deciduous forests and intervales | Bulbs, fresh and dried | Speck and Dexter 1952 Stoddard 1962 |
| | Groundnut | *Apios americana* | Thickets and along rivers in alluvial soils | Groundnuts used | Speck and Dexter 1951 |
| Wopapa'kjukal | Wild Sarsaparilla | *Aralia nudicaulis* | Dry woodlands and old forests | Used to make a beverage. | Speck and Dexter 1951 |
| Kinnickick | Bearberry | *Arctostaphylos uva-ursi* | Sandy or gravelly soils | Berries eaten | Speck and Dexter 1951, 1952 |
| | Common Milkweed | *Asclepias syriaca* | Light soils | The young shoots, stems, flower buds, immature fruits, and even the roots were boiled and eaten as a vegetable The Micmac cooked the young pods and flowers with meat | Stoddard 1962 |
| Nimnoqn | Yellow Birch | *Betula alleghaniensis* | Various | Drank sap, rendered it into syrup and sugar, made tea from the twigs | Waugh 1916, Stoddard 1962, Lacey 1977. |
| | Lambsquarters, Pigweed or Goosefoot | *Chenopodium album* and closely related species | A weed of cultivated and waste ground | Leaves and plants eaten as green, edible greens and seeds. The young | Speck and Dexter 1951, 1952 |

| Mi'kmaq Name | Common Name | Scientific Name | Habitat[1, 2] | Mi'kmaq Traditional Use | Source |
|---|---|---|---|---|---|
| | | | | plants were cooked as a potherb | |
| Wjkulje'manaqsi | Red Osier Dogwood/ Red Willow | *Cornus sericea ssp. sericea* | The edges of intervales, brook sides, wet meadows, and ditches along roadsides. Most common in rich, alkaline soils | Micmac people made a tea from the bark of dogwood probably this species. | Wallis and Wallis 1955 |
| Malipqwanj | Beaked Hazelnut | *Corylus cornuta* | Dry and open woods. Sometimes ine climax forests, scattered along roadside thickets, along edges of fields and along margins of woods. | Nuts used | Speck and Dexter 1951, 1952, Stoddard 1962 |
| KAWIKSA'QOAQSI | thornapple, hawthorn | *Crataegus spp.* | Various, depending on species | Fruit used fresh and to make beverage | Rousseau 1945, Speck and Dexter 1951, 1952, Black 1980, Speck and Dexter 1951, 1952, Adney 1944 |
| | Trout lily/ Dogtooth violet | *Erythronium americanum (presumably)* | Upland woods of beech and maple, and along the edges of intervales | Bulbs eaten raw, boiled, or baked in the hot ashes of a fire | Stoddard 1962 |
| | American Beech | *Fagus grandifolia* | Fertile uplands, rarely in swamps | Nuts used | Speck and Dexter 1951, 1952 |
| Atuomkminaqsi | Virginia and Woodland Strawberries | *Fragaria virginiana , F. vesca* | Old fields and road sides | Berries used fresh or preserved, or made into beverage | Speck and Dexter 1951, 1952, Adney 1944, Rousseau 1945 |
| | Red Ash | *Fraxinus pennsylvanica* | Near lakes or ponds, or in other low-lying areas | Sap of ash was added to maple and yellow birch sap | Stoddard 1962 |
| Ka'qaju'mannaqsi | Wintergreen, Teaberry, or Checkerberry | *Gaultheria procumbens* | Woods, barrens, pastures | Berries eaten , Micmac were said to make juice from the berries | Stoddard 1962, Speck and Dexter 1952, Lacey 1977 |
| | Huckleberry | *Gaylussacia sp.* | Barrens and bogs | Berries eaten | Waugh 1916, Speck and Dexter 1951, 1952 |
| | Witch-hazel | *Hamamelis virginiana* | Rocky woods or near cliffs where there is underground water | A decoction of this plant, sweetened with maple sugar, was | Waugh 1916, Stoddard 1962, Lacey 1977 |

| Mi'kmaq Name | Common Name | Scientific Name | Habitat[1, 2] | Mi'kmaq Traditional Use | Source |
|---|---|---|---|---|---|
| | | | | used as a tea. Also ate the "nuts". Twigs used for beverage | |
| | Jerusalem Artichoke | *Helianthus tuberosus* | Waste ground, intervales, rich soils | Tubers eaten. | Speck and Dexter 1951 |
| | Butternut | *Juglans cinerea* | NOT IN NS | Nuts used | Speck and Dexter 1951 |
| Kini'skweji'jik | Low Bush (Common Juniper) | *Juniperus communis* | Sandy areas, old pastures, heaths and bogs | Boughs, with or without the fruits, were used to make a beverage tea | Wallis and Wallis 1955, Lacey 1977 |
| Alawey | Beach pea | *Lathyrus maritimus* | Coastal, along the strand line, mostly in beach gravel. Occasionally a considerable distance from shore | Pea used | Speck and Dexter 1951, 1952 |
| Ma'susi'l | Ostrich Fern | *Matteuccia struthiopteris* | Rich, moist soils, often on floodplains. Occasionally in low-lying areas and swamp borders. Often in pure stands | The young vegetative shoots, or "fiddleheads," and sometimes the entire crown, were traditionally eaten, boiled or roasted, as a spring vegetable | |
| | Partridge Berry | *Mitchella repens* | Moist places, forest ground cover | Berries were eaten fresh or preserved. Used the plant for a beverage tea | Speck 1917, Speck and Dexter 1951, 1952, |
| Kawatkw | White Spruce (Cat Spruce) | *Picea glauca* | Old fields and along the coast | Bark used for beverage and medicine | Speck and Dexter 1951, Wallis and Wallis 1955, Stoddard 1962, Lacey 1977 |
| Kawatkw | Black Spruce (Bog Spruce) | *Picea mariana* | Bogs, swamps and poorly drained areas | The bark of black spruce was used to make a beverage or medicinal tea by the Micmac of the Maritimes | Speck and Dex-ter 1951, Wallis and Wallis 1955, Lacey 1977 |
| | Eastern White Pine | *Pinus strobus* | Bogs, swamps and poorly drained areas | Bark used for beverage, Inner bark grated and eaten | Speck and Dexter 1951 , Wallis and Wallis 1955, Lacey 1977 |
| | American plum | *Prunus americana* | Does not occur in NS, suspected to be received in trade from outside region | Fruit and beverage | Speck and Dexter 1951,1952, Leonard 1996 |

| Mi'kmaq Name | Common Name | Scientific Name | Habitat[1, 2] | Mi'kmaq Traditional Use | Source |
|---|---|---|---|---|---|
| | | | (Leonard 1996) | | |
| | Wild cherries | *Prunus spp.* | Thickets, clearings and open woods | Boiled cherry twigs and bark for tea | Stoddard 1962, Lacey 1977, Speck and Dexter 1951, 1952, Adney 1944 |
| | Oak | *Quercus sp.* | In light or well drained soils and granitic areas | Nuts used | Speck and Dexter 1951, 1952 |
| | Handsome Harry/ Meadow Beauty | *Rhexia virginica* | Peaty lake margins and swales or wet thickets | Leaves were steeped to produce a sour drink | Speck 1917, Lacey 1977 |
| Apuistekie'ji'jit | Labrador Tea | *Rhododenrdon (syn. Ledum) groenlandicum* | Bogs, wooded swamps, wet barrens, and poorly-drained clearings and pastures | The leaves, and sometimes the whole leafy twigs and flowers, of both species were used, fresh or dried, for tea | Speck 1917, Speck and Dexter 1951,1952, Wallis and Wallis 1955, Stoddard 1962, Lacey 1977 |
| | Wild Black Currant | *Ribes americanum* | Fertile thickets and slopes | Berries eaten fresh or dried and preserved | Speck and Dexter 1951, 1952 |
| | Wild gooseberry/ currant | *Ribes spp.* | Various, depending on species | Fruit | Speck and Dexter 1951, 1952 |
| Ajioqjominaqsi | Canada blackberry | *Rubus canadensis* | Clearing, thickets, and the edges of woods. | Berries used fresh or preserved, made into beverage | Waugh 1916, Gilmore 1933, Speck and Dexter 1951, 1952, Arnason *et al.* 1981 |
| Klitawmanaqsi'k | Red Raspberry | *Rubus idaeus* | Roadsides, deforested land, talus slopes, and rocky ground | Berries used fresh or dried, juice made from berries | Speck and Dexter 1951, 1952, Stoddard 1962 |
| | Blackberry | *Rubus sp.* | Various, depending on species | Fruit & beverage | Speck and Dexter 1951, 1952 |
| Pukulu'skwimanaqsi'l | European Elder | *Sambucus nigra* | Rich soil, open woods, around old fields and along brooks. On damp ground or wet floodplains | Berries were eaten fresh or dried for winter storage | Speck and Dexter 1951, 1952, Stoddard 1962 |
| Pukulu'skwimanaqsi'l | Red Elderberry | *Sambucus racemosa* | Meadows, wet places, rocky hillsides and along streams. In rich soils | The juicy, tart berries were eaten fresh or dried for winter storage | Speck and Dexter 1951, 1952 |
| | Common Dandelion | *Taraxacum officinale* | An aggressive weed in lawns, pastures, and even cultivated | Young leaves eaten raw or cooked | Rousseau 1945, Speck and Dexter |

| Mi'kmaq Name | Common Name | Scientific Name | Habitat[1, 2] | Mi'kmaq Traditional Use | Source |
|---|---|---|---|---|---|
| | | | soil. | | 1951, 1952 |
| | Canada Yew | *Taxus canadensis* | Cool damp woods, ravines, climax coniferous forest, and wooded swamps. | Twigs made into beverage | Lacey 1977 |
| | Eastern Hemlock | *Tsuga canadensis* | Lakesides and swamps or old pastures, northern slopes or ravines | The inner bark of was grated and eaten by the Micmac of the Maritimes, and the bark was also used as a beverage and medicinal tea | Speck and Dexter 1951, Wallis and Wallis 1955, Stoddard 1962, Lacey 1977 |
| | Blueberries, bilberries,cranberries | *Vaccinium spp.* | Various, depending on species | Berries used fresh or dried and also the Micmac made juice from blueberries and bilberries for drinking, but did not state which species were involved. | Speck and Dexter 195 1,1952, Adney 1944, Lacey 1977 |
| | Large -fruited Cranberry | *Vaccinum macrocarpon* | Bogs | Berries eaten fresh | Waugh 1916, , Speck and Dexter 1951,1952, Stoddard 1962, Black 1980 |
| Poqomannaqsi | Foxberry (Mountain Cranberry) | *Vaccinum. vitis-idaea* | Cooler regions, such as exposed, coastal headlands and barrens | Berries | |
| Nipanmaqsi'l | Highbush Cranberry | *Viburnum opulus* | Swamps and along streams | Berries used fresh or in preserve | Speck and Dexter 1951, 1952 |

[1] Zinck 1998, Hinds 2000
[3] Many references mention Calamus or Sweetflag, *A. calamus*, which does not occur in the Maritime provinces. The species present in this region is actually *A. americana*.

In the late summer and fall, the southward migrations brought many more bird species to Nova Scotia which could be harvested

Table *2.2*). Around the middle of September, Mi'kmaq withdrew from the coast, moving inland where they began to harvest the eels now migrating downstream. In October and November, they began hunting moose and beavers, as well as bear, otter, muskrat and caribou (Table 2.4). They fished the salmon which were now returning downstream after spawning. In December, they fished tomcod, which spawn under the ice at that time. In January, seals were hunted as they came ashore on certain

islands or areas of the coast to give birth. In February and March, the hunt for beavers, otters, moose, bears and caribou continued. As the winter waned, the people moved closer to the coast again and the annual cycle was renewed.

### 2.2.3 Traditional Medicines

A use of traditional lands that continues throughout Canada, and in particular, Mi'kmaq territory, is the collection and harvest of medicinal plants. Often overlooked in these times of over-the-counter medicines, Aboriginal peoples had developed an in-depth and intimate knowledge of various local plants and how they could be used for sustenance and, in some instances, to cure ailments. This knowledge, which formed part of the spiritual understanding of the balance between people and the local environment, continues to be informally passed on from generation to generation in aboriginal communities, often as guarded family secrets that provide position within the community. It is estimated that 70-80% of people worldwide rely on traditional herbal medicines to meet their primary health care needs (Farnsworth 1991).

In Canada, traditional medicines still provide an increasingly important source of income for rural and aboriginal communities (Uprety 2012). Many Mi'kmaq elders continue to harvest and prepare traditional medicines and provide them to friends and relatives to treat common health conditions (K. Prosper, personal communication, 2010), however, it has been noted that harvesting areas are becoming increasing limited due to continuous development that alters the natural ecosystem (F. Meuse, Personal Communication, 2012).

Due in part to the long history of territorial occupation by immigrant populations, the Mi'kmaq are one of the most studied people for the use and nature of their traditional medicines (Speck 1917, Wallis and Wallis 1955), and several guide books have been published on the subject. Table 2.6 provides an overview of plants known to have been used by Mi'kmaq for traditional medicines.

### 2.2.4 Traditional Materials and Other Useful Plants

Aside from food and medicines, Mi'kmaw people utilized various natural resources for a wide range of other purposes. Animal, bird and fish skins were tanned using animal materials or smoked, and then used to make clothing, footwear and baby blankets. Pelts were used to make fur robes. Sinew from animal carcasses served as thread (Nova Scotia Museum factsheet, ND).

***Table 2.6 Native Plant Species Traditionally Used for Medicinal Purposes by Nova Scotia Mi'kmaw.***

| Mi'kmaq Name | Common Name | Scientific Name | Habitat[1, 2] | Mi'kmaq Traditional Medicinal Use | Sources |
|---|---|---|---|---|---|
| Stoqn | Balsam Fir | *Abies balsamea* | Various | ▪ Buds, cones and inner bark used to treat diarrhea<br>▪ Gum used to make dressing to treat burns<br>▪ Gum used as cold remedy<br>▪ Cones used to treat colic<br>▪ Gum and sap used to treat bruises, sores, and wounds<br>▪ Buds used as a laxative.<br>▪ Gum used to treat fractures.<br>▪ Inner bark boiled and used to treat sores and swelling<br>▪ Used to prevent colds and influenza.<br>▪ Tea from cones and tops used to relieve colic, asthma and tuberculosis<br>▪ Sap used to treat stomach ulcers<br>▪ Bark used to treat gonorrhea | Chandler *et al.*1979<br>Wallis 1922<br>Lacey 1993 |
| Mimkutaqo'q | Striped maple/ moosewood | *Acer pensylvanicum* | Rocky woods, rich deciduous forests, wooded slopes and along streams | ▪ Wood used to treat "spitting blood"<br>▪ Bark used to treat colds and coughs<br>▪ Wood used to treat kidney trouble.<br>▪ Bark used to treat "grippe."<br>▪ Unspecified plant parts used to treat "trouble with the limbs"<br>▪ Wood used to treat gonorrhea | Chandler *et al.*1979<br>Wallis 1922 |
| | Maple | *Acer sp.* | Various, depending on species | ▪ Bark used externally to treat cold and congestion, as well as swollen limbs. | Lacey 1993 |
| | Mountain Maple | *Acer spicatum* | Characteristic of high slopes, ravines, along streams in wet thickets and moist forest openings, infrequent in dense woods | ▪ Bark used to treat sore eyes. | Chandler *et al.*1979 |
| | Common Yarrow | *Achillea millefolium* | Disturbed areas, old fields, meadows, roadsides and sandy shores. Acidic soils | ▪ Tea from plant used to treat fevers.<br>▪ Plant pulverized and used externally on bruises, sprains and swellings<br>▪ Dried, powdered bark or green leaves rubbed over swellings, bruises, and sprains<br>▪ Herb used to treat colds.<br>▪ Decoction of plant taken with milk to cause a sweat to treat colds. | Lacey 1993<br>Wallis 1922<br>Chandler *et al.*1979 |
| kiw'eswa'skul | Sweetflag | *Acorus americana* | Wet places and the borders of quiet streams. marshes, the edges of ponds and wet meadows. Coastal marshes just above high tides. Always in open sunlight and often mixed with cattails | ▪ Root used to treat colds.<br>▪ Root used to treat coughs.<br>▪ Root used to treat cholera, smallpox and other epidemics.<br>▪ Plant (root and herb) used as a panacea.<br>▪ Root used to treat lung ailments, pneumonia and pleurisy.<br>▪ Root was placed in water and steamed in the house to prevent illness.<br>▪ Root was chewed to relieve indigestion and stomach cramps.<br>▪ Roots chewed to treat 'medicinal use' | Speck 1917<br>Chandler *et al.*1979<br>Lacey 1993<br>Speck and Dexter 1951 |
| | Northern Maidenhair Fern | *Adiantum pedatum* | In fertile or quite alkaline soils. Under oak-birch-sugar maples-elm trees , on intervales | ▪ Herb used to treat fits and taken as an "agreeable decoction." | Chandler *et al.*1979 |
| | Witch Grass | *Agrostis hyemalis* | Disturbed areas, along roadsides, lakeshores, and headlands | ▪ Used as a general tonic to tune-up the body | Lacey 1993 |
| Tupsi | Speckled Alder | *Alnus incana* | Low ground in alluvial soils | ▪ Bark used to treat ulcerated mouth. | Chandler *et al.*1979 |

| Mi'kmaq Name | Common Name | Scientific Name | Habitat[1, 2] | Mi'kmaq Traditional Medicinal Use | Sources |
|---|---|---|---|---|---|
| Tupsi | Alder | *Alnus sp* | Low ground in alluvial soils | ▪ Bark used to treat bleeding<br>▪ Bark used to treat hemorrhage of lungs<br>▪ Bark used to treat fever<br>▪ Bark used to treat dislocations and fractures<br>▪ Bark used to treat diphtheria<br>▪ Bark used as painkiller to treat cramps<br>▪ Bark used to treat retching.<br>▪ Bark used to treat rheumatism.<br>▪ Bark used as a physic.<br>▪ Bark used to treat wounds.<br>▪ Bark and leaves used to treat fevers and festers.<br>▪ Tea from bark used to treat neuralgic pain.<br>▪ Bark and leaves used externally to treat festering wounds | Chandler *et al.*1979<br>Lacey 1993 |
| | Woodland Angelica | *Angelica sylvestris* | Spreading out along roadsides and in fields, An aggressive weed where found- an introduced species | ▪ Infusion of roots and spikenard roots used to treat head colds.<br>▪ Infusion of roots and spikenard roots used to treat coughs.<br>▪ Infusion of roots and spikenard roots used to treat sore throats. | Mechling 1959<br>Chandler *et al.*1979 |
| | Everlasting | *Antennaria sp or Anaphalis sp* | Pastures, old fields, roadsides, borders of woods | ▪ Smoked, used spiritually | Lacey 1993 |
| | Indian Hemp | *Apocynum cannabinum* | Open ground, thickets and borders of woods | ▪ Tea was used to kill and expel worms | Lacey 1993<br>Chandler *et al.*1979 |
| Wopapa'kjukal | Wild Sarsaparilla | *Aralia nudicaulis* | Dry woodlands and old forests | ▪ Used externally to treat wounds.<br>▪ Root can be used to treat colds, coughs, and flu. | Lacey 1993<br>Chandler *et al.*1979 |
| | American Spikenard | *Aralia racemos* | Rich or calcareous wooded slopes and deciduous forests. Usually as solitary plants | ▪ Root used to treat headaches and female pains.<br>▪ Root used to treat spitting blood.<br>▪ Infusion of roots and angelica roots used to treat head colds.<br>▪ Roots used to treat wounds<br>▪ Infusion of roots and angelica roots used to treat coughs.<br>▪ Roots used to treat sore eyes<br>▪ Root used to treat kidney troubles.<br>▪ Root used to treat fatigue.<br>▪ Root used to treat consumption Tuberculosis.<br>▪ Root used to treat gonorrhea. | Chandler *et al.*1979<br>Lacey 1977<br>Wallis 1922<br>Mechling (1959) |
| | Lesser Burrdock | *Arctium minus* | Disturbed soils | ▪ Tea from roots were used to treat and purify blood<br>▪ Roots used to treat boils and abscesses. | Lacey 1993<br>Chandler *et al.*1979 |
| Kinnickick | Bearberry | *Arctostaphylos uva-ursi* | Sandy or gravelly soils | ▪ Tea from leaves and berries used as a general tonic, with antiseptic effects on the urinary passage | Lacey 1993 |
| | Indian turnip, Jack-in-the Pulpit | *Arisaema triphyllum* | Common in wet woods, mucky areas and in alluvial soils | ▪ Slices of the dried bulb were taken internally to treat tuberculosis and other chest complaints<br>▪ Dried bulb usedbto treat general stomach problems<br>▪ Parts of plant used to treat boils and abscesses.<br>▪ Parts of plant used as a liniment used to treat external use. | Lacey 1993<br>Lacey 1977<br>Chandler *et al.*1979 |
| | Horse Radish | *Armoracia rusticana* | Old gardens | ▪ Tea of root used as a stomach medicine and to promote an appetite | Lacey 1993 |
| | Common Milkweed | *Asclepias syriaca* | Light soils | ▪ White juice from this plant used to ease the rash caused from poison ivy | Lacey 1993 |
| | Common Barberry | *Berberis vulgaris* | Thickets, pastures and fencerows | ▪ Bark and root used to treat ulcerated gums.<br>▪ Bark and root used to treat sore throat. | Chandler *et al.*1979 |
| Nimnoqn | Yellow Birch | *Betula alleghaniensis* | Various | ▪ Wood used as a hot-water bottle.<br>▪ Bark used to treat rheumatism<br>▪ Bark is also chewed for nourishment<br>▪ Tea from bark used to relieve indigestion , treat stomach cramps and diarrhea | Chandler *et al.*1979<br>Lacey 1993<br>Lacey 1977 |
| | Gray Birch | *Betula populifolia* | On light soils, in pastures, burnt-over land, and barrens | ▪ Inner bark used to treat infected cuts.<br>▪ Inner bark used as an emetic. | Chandler *et al.*1979 |

| Mi'kmaq Name | Common Name | Scientific Name | Habitat[1, 2] | Mi'kmaq Traditional Medicinal Use | Sources |
|---|---|---|---|---|---|
| Kaju | Crinkleroot/ toothwort | *Cardamine diphylla* | Moist, rich soil along brooks and in low-lying , wet, or rocky woods, both mixed and deciduous | ▪ Root used as a sedative.<br>▪ Root used to clear the throat and to treat hoarseness.<br>▪ Root used as a tonic. | Chandler *et al.*1979 |
| | White Turtlehead | *Chelone glabra* | Swamps, wet roadsides, meadows, along rocky streams and estuarine rivers above the influence of salt water | ▪ Herb used to prevent pregnancy. | Chandler *et al.*1979 |
| | Pipsissewa/ prince's pine | *Chimaphila umbellata* | Dry soils sometimes in spruce or fir woods | ▪ Used to treat consumption/ tuberculosis<br>▪ Used as stomach medicine<br>▪ Herb used to treat rheumatism.<br>▪ Herb used as a blood purifier.<br>▪ Herb used to treat blisters.<br>▪ Herb used to treat stomach trouble.<br>▪ Herb used to treat kidney trouble and pains<br>▪ Herb used to treat smallpox.<br>▪ Infusion of roots, hemlock, parsley and curled dock used to treat "colds in the bladder". | Lacey 1977<br>Rousseau 1948<br>Chandler *et al.*1979<br>Mechling 1959<br>Lacey 1993 |
| | Yellow Clintonia/Bride's Bonnet | *Clintonia borealis* | Deciduous to mixed woods | ▪ Root juice taken with water to treat "gravel" (kidney stones) | Speck 1917 |
| | Sweetfern | *Comptonia peregrina* | Open, sandy or barren soils | ▪ Used to treat rheumatism and external sores<br>▪ Root used to treat headache and inflammation.<br>▪ Leaves used to treat sprains, swellings, poison ivy, and inflammation.<br>▪ Leaves used to treat catarrh<br>▪ Berries, bark and leaves used as an "exhilarant" and beverage. | Lacey 1993<br>Chandler *et al.*1979 |
| | Chinese Hemlock parsley | *Conioselinum chinense* | Swamps, mossy coniferous woods or swales and seepy slopes near the coast | ▪ Infusion of roots, hemlock, prince's pine , and curled dock used to treat colds in the bladder. | Mechling (1959) |
| Wisawtaqji'jkl | Goldthread | *Coptis trifolia* | Coniferous forests, swamps, hummocks on bogs, and roadside banks | ▪ Herb used to treat treat sore or chapped lips and mouth ulcers.<br>▪ Roots used to treat sore eyes,<br>▪ Roots used to treat stomach medicine<br>▪ Roots chewed to treat unspecified medicinal use.<br>▪ Used to promote an appetite | Chandler *et al.*1979<br>Lacey 1977<br>Speck and Dexter 1951<br>Lacey 1993 |
| Wso'qmanaqsi'l | Bunchberry/ Dwarf Dogwood | *Cornus canadensis* | Various | ▪ Leaf tea used to treat bed wetting and kidney ailments<br>▪ Berries, roots and leaves used to treat seizures<br>▪ Used to treat kidney ailments.<br>▪ Used to treat stomach problems<br>▪ Leaves were applied to wounds to stop bleeding and promote healing | Lacey 1977<br>Chandler *et al.*1979<br>Lacey 1993 |
| Wjkulje'manaqsi | Red Osier Dogwood/ Red Willow | *Cornus sericea ssp. sericea* | The edges of intervales, brook sides, wet meadows, and ditches along roadsides. Most common in rich, alkaline soils | ▪ Herb used to treat headache.<br>▪ Herb used to treat sore eyes.<br>▪ Herb used to treat catarrh.<br>▪ Herb used to treat sore throat. | Chandler *et al.*1979 |
| | Dogwood | *Cornus sp.* | Various | ▪ Smoke used spiritually with parts of other plants such as willows | Lacey 1993 |
| | Pink Lady's Slipper | *Cypripedium acaule* | Acid soil in dry or wet woods; open areas | ▪ Tea of roots used to treat nervousness.<br>▪ Tea of roots used treat tuberculosis | Chandler *et al.*1979<br>Lacey 1993 |
| | Queen Anne's Lace, Wild Carrot | *Daucus carota* | Hayfields and along roadsides | ▪ Leaves used as a purgative. | Chandler *et al.*1979<br>Wallis 1922 |
| | Moosewood, Leatherwood | *Dirca palusiris* | Rich deciduous or mixed woods | ▪ Colds, coughs, influenza , bark tea | Wallis 1922 |
| | Common Boneset | *Eupatorium perfoliatum* | Wet shores, meadows, the edge of swamps and bogs, along ditches and streams | ▪ Used to treat stomach ulcers,<br>▪ Used to treat colds<br>▪ Used to treat arthritic pain<br>▪ Used to treat kidney trouble.<br>▪ Used to treat spitting blood<br>▪ Used to treat gonorrhea. | Lacey 1993<br>Chandler *et al.*1979 |
| | American Beech | *Fagus grandifolia* | Fertile uplands, rarely in swamps<br>Dry forest ridges and hilltops, scattered elsewhere | ▪ Leaves used to treat chancre.<br>▪ Tea from leaves used to treat tuberculosis and other chest ailments.<br>▪ Leaves used to sooth nerves and stomach. | Chandler *et al.*1979<br>Lacey 1993 |

| Mi'kmaq Name | Common Name | Scientific Name | Habitat[1, 2] | Mi'kmaq Traditional Medicinal Use | Sources |
|---|---|---|---|---|---|
| Atuomkminaqsi | Virginia and Woodland Strawberries | *Fragaria virginiana , F. vesca* | Old fields and road sides | ▪ Parts of plant used to treat irregular menstruation.<br>▪ Tea from plant used as a good general tonic<br>▪ Tea from plant used to treat dysentery,<br>▪ Tea from plant used to treat weakness of the intestines<br>▪ Tea from plant used to treat infections of the urinary organs.<br>▪ Leaves used to treat stomach cramps. | Chandler *et al.*1979<br>Lacey 1993 |
| | White Ash | *Fraxinus americana* | Intevale forests, low grounds and open woods | ▪ Leaves used to treat cleansing after childbirth. | Chandler *et al.*1979 |
| | Cleavers/ Sticky Willy | *Galium aparine* | Ballast heaps and waste places | ▪ Parts of plant used to treat persons spitting blood<br>▪ Parts of plant used to treat gonorrhea.<br>▪ Parts of plant used to treat kidney trouble.<br>▪ Parts of plant used to treat gonorrhea. | Chandler *et al.*1979 |
| Kna'ji'jk | Creeping Snowberry | *Gaultheria hispidula* | Mossy woodland knolls, barrens, and mature bogs, usually in partial shade | ▪ Decoction of leaves or whole plant taken to treat unspecified purpose. | Speck 1917 |
| Ka'qaju'mannaqsi | Wintergreen, Teaberry, or Checkerberry | *Gaultheria procumbens* | Woods, barrens, pastures | ▪ Used to prevent and treat heart attack.<br>▪ Tea from plant thins and regulates the blood to prevent blood clots. | Lacey 1993 |
| | Yellow Avens | *Geum aleppicum* | Along roadsides, riverbanks, waste places and occasionally around outbuildings | ▪ Roots used to treat coughs and croup. | Chandler *et al.*1979 |
| | Chocolate root, purple avens | *Geum rivale* | Swamps, wet fields, and meadows | ▪ Root used to treat diarrhea<br>▪ Root decoction used to treat Dysentery,<br>▪ Root decoction used to treat coughs and colds in children, | Chandler *et al.*1979<br>Speck 1917 |
| | Witch Hazel | *Hamamelis virginiana* | Shade tolerant, in rocky woods or near cliffs | ▪ Leaves steeped and used as an aphrodisiac<br>▪ Leaves steeped and used to treat headache | Lacey 1993 |
| Pako'si | Cow Parsnip / masterwort | *Heracleum lanatum* | Wet meadows and brook sides in alluvial soils | ▪ Root tea used as General preventative medicine,<br>▪ Used to treat cold and influenza as well as tuberculosis. | Lacey 1977<br>Lacey 1993 |
| | Rough cow parsnip/ Eltrot | *Heracleum sphondylium* | Along roadsides and in vacant lots | ▪ Green and light color plant used as gynaecological medicine to treat women.<br>▪ Dark and ripe plant used as urinary medicine to treat men. | Wallis 1922<br>Chandler *et al.*1979 |
| Kjimskiku | Sweet Grass | *Hierochloe odorata* | Moist heavy soils, generally in the upper reaches of tidal marshes | ▪ Important ceremonial and spiritual use | Lacey 1993 |
| | Live to treatever/ Witch's Moneybags | *Hylotelephium telephium ssp. telephium* | Shaded areas with rich soil | ▪ Dermatological Aid, Leaves used to treat boils and carbuncles. | Chandler *et al.*1979 |
| | English Holly | *Ilex aquifolium* | Cultivated non-native species | ▪ Root used to treat cough.<br>▪ Part of plant used to treat fevers<br>▪ Root used to treat consumption.<br>▪ Root used to treat gravel. | Chandler *et al.*1979 |
| | Jewelweed | *Impatiens capensis* | Moist open places, wet ground, along brooks and ditches, and in wet thickets. Prefers alluvial ground where organic matter and nutrient content are high | ▪ Herbs used to treat jaundice. | Chandler *et al.*1979 |
| | Elecampane | *Inula helenium* | Damp roadsides and neighbouring fields, as an escape | ▪ Root used to treat headaches.<br>▪ Root used to treat colds.<br>▪ Root used to treat heart trouble. | Chandler *et al.*1979 |
| | Blue Flag Iris | *Iris versicolor* | Meadows, swamps, along streams and grazed pastures | ▪ Used as an emetic to rid the stomach of poison<br>▪ Root used to treat wounds<br>▪ Herb used to treat sore throat.<br>▪ Root used to treat cholera and the prevention of disease.<br>▪ Root used as a "basic medical cure"<br>▪ Herbs used to treat sore throat and root used to treat wounds. | Lacey 1993<br>Chandler *et al.*1979 |
| Kini'skweji'jik | Low Bush (Common Juniper) | *Juniperus communis* | Sandy areas, old pastures, heaths and bogs | ▪ Bark used to treat tuberculosis<br>▪ Stems used in hair wash<br>▪ Cones used to treat ulcers.<br>▪ Gum used to heal cuts, sores, burns and sprains<br>▪ Inner bark used to treat stomach ulcers.<br>Roots used to treat rheumatism.<br>▪ Used to treat kidney ailments and as a urinary tract medicine | Lacey 1993<br>Chandler *et al.*1979<br>Wallis 1922 |

| Mi'kmaq Name | Common Name | Scientific Name | Habitat[1, 2] | Mi'kmaq Traditional Medicinal Use | Sources |
|---|---|---|---|---|---|
| | Sheep Laurel/ lambkill | *Kalmia angustifolia* | Open ground | ▪ Roasted leaves used to treat colds<br>▪ Herb used to treat pain, swellings and sprains.<br>▪ Poultice of crushed leaves bound to head to treat headache.<br>▪ Herb used to treat swellings, pain and sprains.<br>▪ Infusion of leaves considered valuable as a "non-specific remedy."<br>▪ Plant is boiled and used as bathing solution to reduce swelling, ease pain of rheumatism and treat sore legs and feet<br>▪ Plant considered very poisonous. | Black 1980<br>Wallis 1922<br>Chandler *et al.*1979<br>Speck 1917<br>Lacey 1993 |
| Apu'tam'kie'jit | Eastern Larch (Tamarack) | *Larix laricina* | Bogs and wet depressions in forests | ▪ Bark used to treat colds.<br>▪ Boughs brewed into tea and used to treat Sores and swelling, and as a diuretic<br>▪ Bark used to treat physical weakness.<br>▪ Tea from bark and twigs used to treat colds and influenza.<br>▪ Bark was used externally to treat festering wounds<br>▪ Bark used to treat consumption.<br>▪ Bark used to treat gonorrhea. | Speck 1917<br>Chandler *et al.*1979<br>Lacey 1993 |
| | Common Motherwort | *Leonurus cardiaca* | Scattered around old houses and gardens, not often a weed in cultivated land | ▪ Part of plant used to treat obstetric cases. | Chandler *et al.*1979 |
| | Canada Lily | *Lilium canadense* | Local, in meadows and on stream banks | ▪ Parts of plant used to treat irregular menstruation. | Chandler *et al.*1979 |
| | Carolina Sealavender | *Limonium carolinianum* | Characteristic of salt marshes and seashores | ▪ Roots pounded, ground, added to boiling water and used to treat consumption with hemorrhage. | Mechling 1959 |
| | Indian Tobacco | *Lobelia inflata* | Dry pastures, run-out fields, roadsides, barrens, and similar locations | ▪ Smoke from this plant used to treat earache<br>▪ Smoke from this plant used to treat asthma<br>▪ Smoke used spiritually | Lacey 1977<br>Lacey 1993 |
| | Clubmoss | *Lycopodium sp.* | Various species, mostly found in wooded areas | ▪ Herb used to treat fever. | Chandler *et al.*1979 |
| | Feather or False Solomon's Seal | *Maianthemum (syn. Smilacina) racemosum ssp. racemosum* | Scattered in open deciduous woods, along edges of thickets and clearings | ▪ Leaves and stems used to treat rashes and itch. | Chandler *et al.*1979 |
| Plamwipkl | Mint (Field Mint) | *Mentha arvensis* | Rich, damp soil | ▪ Herb used to treat children with an upset stomach.<br>▪ Herb used to treat croup. | Chandler *et al.*1979 |
| | Common Buckbean | *Menyanthes trifoliata* | Stagnant pools and bogs | ▪ Strong decoction of root taken to treat unspecified purpose | Speck 1917 |
| | Partridge Berry | *Mitchella repens* | Moist places, forest ground cover | ▪ Used in the late stages of pregnancy to ease the pain of childbirth | Lacey 1993 |
| Kljimanaqsi | Northern Bayberry | *Morella (syn. Myrica) pensylvanica* | Coastal, on headlands and beaches. Occasionally in bogs and on heavier soils | ▪ Tea, berries, bark,leaves used as exhilarant ,<br>▪ Plant used to treat headache<br>▪ Root poultice used to treat inflammation,<br>▪ Powdered root used to treat arthritic and rheumatic pain.<br>▪ Tea from dried roots and leaves used to treat mouth infections<br>▪ Roots pounded, soaked in hot water to treat inflammation | Wallis 1922<br>Lacey 1993 |
| Mujila'pij | Cow Lily (Yellow Pond Lily) | *Nuphar variegata* | Lakes, ponds, quite streams and stillwaters | ▪ Root brewed into tea or worn around neck as a general preventive<br>▪ Used externally to treat swollen limbs | Lacey 1977<br>Lacey 1993 |
| Mujila'pij | Sweet-scented Water Lily, American White Waterlily | *Nymphaea odorata* | Lakes, slow moving rivers and mucky ponds | ▪ Leaves used to treat colds.<br>▪ Juice of root taken to treat coughs.<br>▪ Root decoction used to treat Coughs, swellings<br>▪ Poultice of boiled root applied to swellings.<br>▪ Roots used to treat suppurating glands<br>▪ Leaves used to treat colds.<br>▪ Leaves used to treat grippe.<br>▪ Leaves used to treat limb swellings and colds. | Chandler *et al.*1979<br>Speck 1917<br>CLacey 1993 |
| Kawatkw | White Spruce (Cat Spruce) | *Picea glauca* | Old fields and along the coast | ▪ Bark used to treat a variety of purposes | Lacey 1993 |

| Mi'kmaq Name | Common Name | Scientific Name | Habitat[1, 2] | Mi'kmaq Traditional Medicinal Use | Sources |
|---|---|---|---|---|---|
| Kawatkw | Black Spruce (Bog Spruce) | *Picea mariana* | Bogs, swamps and poorly drained areas | ▪ Bark used as a cough remedy.<br>▪ Bark used to prepare a salve to treat cuts and wounds.<br>▪ Gum used to treat scabs and sores.<br>▪ Parts of plant used to treat stomach trouble.<br>▪ Bark, leaves and stems used to treat scurvy.<br>▪ Bark is chewed to treat laryngitis. | Chandler *et al.*1979<br>Lacey 1993<br>Wallis 1922 |
| | Eastern White Pine | *Pinus strobus* | Bogs, swamps and poorly drained areas | ▪ Tea from bark, needles and twigs used to treat colds and coughs<br>▪ Tea from bark, needles and twigs used to treat kidney problems<br>▪ Bark used to treat wounds<br>▪ Sap used to treat hemorrhaging.<br>▪ Boiled inner bark used to treat sores and swellings.<br>▪ Plant parts used to treat kidney trouble.<br>▪ Bark, leaves and stems used to treat grippe.<br>▪ Inner bark, bark and leaves used to treat scurvy. | Lacey 1993<br>Chandler *et al.*1979<br>Speck 1917 |
| Wijikanipkl | Common Plantain | *Plantago major* | Disturbed areas | ▪ Used to draw out poison from wounds and sores.<br>▪ Used to treat stomach ulcers | Lacey 1993 |
| | Tall Northern White Bog Orchid | *Platanthera (*syn. *Habenaria) dilatata* var. *dilatata* | A wide variety of habitats , preferring sunny and wet situations such as bogs, marshes and riverbanks | ▪ Root decoction used to treat kidney stones,<br>▪ Root juice taken with water to treat kidney stones | Speck 1917<br>Lacey 1977 |
| | Rock Polypody | *Polypodium virginianum* | Damp cliffs, on top of large boulders, preferring a rocky substrate with a covering of leaf mould | ▪ Infusion of plant used to treat urine retention.<br>▪ Roots used to treat pleurisy. | Rousseau 1948<br>Chandler *et al.*1979 |
| | Christmas Fern | *Polystichum acrostichoides* | Moist woods, cool ravines, wooded banks and thickets | ▪ Roots used to treat hoarseness. | Chandler *et al.*1979 |
| | Pickerelweed | *Pontederia cordata* | Growing in large pure colonies around the mucky margins of ponds and lakes, and in slow-moving streams | ▪ Herbs used to prevent pregnancy. | Chandler *et al.*1979 |
| A'maqansuti | Balsam Poplar | *Populus balsamifera* | Common along streams and open intervales | ▪ Buds and other parts of plant used as salve to treat sores.<br>▪ Buds and other parts of plant used as salve to treat chancre. | Chandler *et al.*1979 |
| | Poplar | *Populus* sp. | Various | ▪ Tea from bark used to treat colds and influenza<br>▪ Tea from bark used to treat worms | Lacey 1993<br>Lacey 1977 |
| Miti | Trembling Aspen (Poplar) | *Populus tremuloides* | Damp soils | ▪ Bark used to treat colds.<br>▪ Bark used to stimulate the appetite. | Chandler *et al.*1979 |
| Maskwe'smanaqsi | Pin Cherry | *Prunus pensylvanica* | Clearings, thickets, and the edges of fields on light soils | ▪ Wood used to treat chafed skin and prickly heat.<br>▪ Bark used to treat erysipelas. | Chandler *et al.*1979 |
| | Black Cherry | *Prunus serotina* | Thickets and open wood | ▪ Bark used to treat colds.<br>▪ Bark used to treat coughs.<br>▪ Bark used to treat smallpox.<br>▪ Fruit used as a tonic.<br>▪ Bark used to treat consumption. | Chandler *et al.*1979<br>Wallis 1922 |
| | Red cherry (species unspecified) | *Prunus sp.* | Thickets, clearings and open woods | ▪ Tea of the bark from 'red cherry' used to treat high blood pressure. | Lacey 1993 |
| | Wild Black Cherry | *Prunus serotina* | Thickets, clearings and open woods | ▪ Black cherry used to treat coughs and colds | Lacey 1993 |
| Luimanaqsi | Common Chokecherry | *Prunus virginiana* | Roadsides, fencerows, edges of intervales, and the edges of woods | ▪ Bark used to treat diarrhea. | Chandler *et al.*1979<br>Lacey 1993 |
| | Bracken | *Pteridium aquilinum* | Pastures, old fields, roadsides, borders of woods | ▪ Fronds of plant used as stimulant to treat weak babies and old people. | Chandler *et al.*1979 |
| | Liverleaf Wintergreen | *Pyrola asarifolia* ssp. *asarifolia* | Rich, mainly calcareous, woods and thickets | ▪ Parts of plant used to treat spitting blood.<br>▪ Parts of plant used to treat kidney trouble.<br>▪ Parts of plant used to treat gonorrhea. | Chandler *et al.*1979 |
| | Northern Red Oak | *Quercus rubra* | In light or well-drained soils and granitic areas | ▪ Bark and roots used to treat diarrhea. | Chandler *et al.*1979 |
| | Oak | *Quercus* sp. | In light or well drained soils and granitic areas | ▪ Used to treat haemorrhaging and intermittent fever | Lacey 1993 |
| | Tall Buttercup | *Ranunculus acris* | Fields , meadows, and roadsides, mainly in heavy or moist soil, | ▪ Herbs used to treat headache.<br>▪ Leaves used to treat headaches. | Chandler *et al.*1979 |
| | Buttercup | *Ranunculus* sp. | Various | ▪ Scent or juice from leaves applied to nostrils said to cure headache<br>▪ Used to treat cancer | Lacey 1993 |

| Mi'kmaq Name | Common Name | Scientific Name | Habitat[1, 2] | Mi'kmaq Traditional Medicinal Use | Sources |
|---|---|---|---|---|---|
| | Handsome Harry/ Meadow Beauty | *Rhexia virginica* | Peaty lake margins and swales or wet thickets | ▪ Tea from plant used as a wash to clean and clear the throat. | Lacey 1993<br>Chandler *et al.*1979 |
| | Yellow Rattle | *Rhinanthus crista-galli* | Old fields, roadsides and waste places | ▪ Tea of plant used to treat epilepsy | Lacey 1993 |
| Apuistekie'ji'jit | Labrador Tea | *Rhododenrdon (syn. Ledum) groenlandicum* | Bogs, wooded swamps, wet barrens, and poorly-drained clearings and pastures | ▪ Leaves used to treat the common cold.<br>▪ Tea brewed from leaves used as dieretic<br>▪ Leaves used to treat scurvy<br>▪ Leaves used to treat asthma.<br>▪ Tea from leaves used as a tonic to treat variety of kidney ailments<br>▪ Infusion of leaves taken to treat a "beneficial effect on the system." | Chandler *et al.*1979<br>Speck 1917<br>Lacey 1993 |
| Ketaqnimusi | Starhorn Sumac | *Rhus typhina* | The edges of woods in dry or rocky soils, along roadsides and other open areas and hillsides | ▪ Used to treat coughs, sore throats, and earaches | Lacey 1993<br>Chandler *et al.*1979<br>Wallis 1922 |
| Ajioqjominaqsi | Common Blackberry | *Rubus alleghaniensis* | Sandy ground, old fields, open woodlands, and clearings | ▪ Berry used to treat diarrhoea.<br>▪ Tea from runners used to as stomach medicine.<br>▪ Tea from leaves and berries used to treat sores in mouth and throat. | Lacey 1993 |
| Mkuo'qminaqsi'k | Cloudberry (Bakeapple) | *Rubus chamaemorus* | Sphagnous bogs, heathlands, and meadows near the coast | ▪ Roots used to treat cough.<br>▪ Roots used to treat fever.<br>▪ Roots used to treat consumption/Tuberculosis | Chandler *et al.*1979 |
| | Bristly Dewberry/ Swamp Dewberry | *Rubus hispidus* | Peat bogs, but often on roadsides, damp hollows and barrens | ▪ Roots used to treat cough.<br>▪ Roots used to treat fever.<br>▪ Roots used to treat consumption/Tuberculosis | Chandler *et al.*1979 |
| Klitawmanaqsi'k | Red Raspberry | *Rubus idaeus* | Roadsides, deforested land, talus slopes, and rocky ground | ▪ Leaves and roots used to treat rheumatism.<br>▪ Berries are a good general tonic | Lacey 1993 |
| | Dwarf Red Blackberry/ Dwarf Raspberry | *Rubus pubescens var. pubescens* | Low-lying boggy land, talus slopes, and often growing luxuriantly under bushes in open woods | ▪ Parts of plant used to treat irregular menstruation. | Chandler *et al.*1979 |
| | Blackberry, Raspberry | *Rubus sp.* | Various, depending on species | ▪ Tea from runners used to treat stomach issues | Lacey 1977 |
| | Curly Dock | *Rumex crispus* | Waste places, cultivated ground, roadsides and around dwellings | ▪ Infusion of roots used as a purgative.<br>▪ Roots used as a purgative.<br>▪ Infusion of roots, hemlock, parsley and Prince's pine used to treat "cold in bladder." | Mechling 1959<br>Chandler *et al.*1979 |
| Lmu'ji'jmnaqsi | Pussy Willow | *Salix discolor* | On low ground, in wet pastures, in damp, open woods, and along the edges of swamps | ▪ Bark used externally to treat bruises, and skin cancer.<br>▪ Tea from bark also used to treat colds and kidney ailments | Lacey 1993 |
| | Heartleaf Willow | *Salix eriocephala* | Riverbanks and out on gravel bars. Bottomlands | ▪ Bark used to treat colds<br>▪ Bark used to stimulate the appetite.<br>▪ Bark used to treat blisters. | Chandler *et al.*1979 |
| | Shining Willow | *Salix lucida* | Along large streams and lakes, on sand bars, and occasionally in wet ground or ditches | ▪ Bark used to treat bleeding.<br>▪ Bark used to treat asthma. | Wallis 1922<br>Chandler *et al.*1979 |
| Pukulu'skwimanaqsi'l | European Elder | *Sambucus nigra* | Rich soil, open woods, around old fields and along brooks. On damp ground or wet floodplains | ▪ Berries, bark and flower used as a purgative<br>▪ Bark used as a physic.<br>▪ Bark used as an emetic.<br>▪ Berries, bark and flower used as a soporific | Chandler *et al.*1979 |
| Pukulu'skwimanaqsi'l | Red Elderberry | *Sambucus racemosa* | Meadows, wet places, rocky hillsides and along streams. In rich soils | ▪ Barked used to treat emetic and cathartic purposes | Lacey 1993<br>Chandler *et al.*1979 |
| Malteweknejkl | Bloodroot | *Sanguinaria canadensis* | Low ground in intervales along streams, in the shade | ▪ Tea of root used to treat tuberculosis.<br>▪ Leaves used to treat rheumatism<br>▪ Roots used to treat irregular menstruation.<br>▪ Infusion of roots used to treat colds.<br>▪ Roots used to treat infected cuts.<br>▪ Roots used to treat hemorrhages and to prevent bleeding.<br>▪ Used as an aphrodisiac.<br>▪ Infusion of roots used to treat sore throats.<br>▪ Roots used to treat consumption/tuberculosis with hemorrhage. | Lacey 1993<br>Rousseau 1948<br>Chandler *et al.*1979 |

| Mi'kmaq Name | Common Name | Scientific Name | Habitat[1, 2] | Mi'kmaq Traditional Medicinal Use | Sources |
|---|---|---|---|---|---|
| | Maryland Sanicle/ Black snakeroot | *Sanicula marilandica* | Rich woods and intervale soils, usually where the soil is quite damp and humus content good | ▪ Roots used to treat irregular menstruation.<br>▪ Roots used to treat rheumatism.<br>▪ Roots used to treat menstrual pain and slow parturition.<br>▪ Roots used to treat kidney trouble.<br>▪ Roots used as a snakebite remedy*** and to treat rheumatism. | Chandler *et al.*1979 |
| Mkoqewik | Northern Pitcher Plant | *Sarracenia purpurea* | Bogs | ▪ Herbs used to treat spitting blood.<br>▪ Strong decoction of root taken to treat "spitting blood" and pulmonary complaints.<br>▪ Herbs used to treat kidney trouble and consumption.<br>▪ Roots used to treat smallpox and herbs used to treat consumption.<br>▪ Tea from root used to treat tuberculosis, kidney ailments and relieve indigestion<br>▪ Infusion of root taken to treat sore throat.<br>▪ Herbs used to treat consumption. | Lacey 1993<br>Speck 1917<br>Chandler *et al.*1979 |
| | Panicled Bulrush | *Scirpus microcarpus* | Swamps, meadows, and along ditches and streams, especially where there is freshwater seepage | ▪ Roots used to treat abscesses.<br>▪ Herbs used to treat sore throats. | Chandler *et al.*1979 |
| | White Mustard | *Sinapis alba* | Cultivated, occasionally escaping | ▪ Parts of plant used to treat tuberculosis of lungs. | Chandler *et al.*1979 |
| | Climbing Nightshade/Bittersweet | *Solanum dulcamara* | Thickets, intervales, roadsides and dumps. Along fences and around buildings | ▪ Roots used to treat nausea. | Chandler *et al.*1979 |
| E'psemusi | American Mountainash | *Sorbus americana* | Open woods and along hedgerows | ▪ Tea from the bark used to treat stomach pains<br>▪ Bark used to treat "mother pains."<br>▪ Bark used to treat boils.<br>▪ Parts of plant used as an emetic.<br>▪ Infusion of root taken to treat colic.<br>▪ Infusion of bark taken to treat unspecified purpose. | Lacey 1993<br>Speck 1917<br>Chandler *et al.*1979 |
| | Claspleaf Twistedstalk | *Streptopus amplexifolius* | Scattered in moist deciduous or mixed woods, ravines, and wooded intervales | ▪ Parts of plant used to treat spitting blood<br>▪ Parts of plant used to treat kidney trouble | Chandler *et al.*1979 |
| | Waxberry | *Symphorcarpus albus* | Around buildings and in gardens | ▪ Parts of plant used to treat gonorrhea.<br>▪ Scent of plant used to treat headache | Chandler *et al.*1979<br>Lacey 1993 |
| | Skunk Cabbage | *Symplocarpus foetidus* | Springy swales, bogs, sphagnum woods and wet thickets | ▪ Tea from root used to treat diabetes.<br>▪ Tea from root used to cure toothache | Lacey 1993 |
| | Common Tansy | *Tanacetum vulgare* | In patches along roadsides, becoming a weed infields | ▪ Herbs used to prevent pregnancy.<br>▪ Leaves used to treat kidney trouble. | Chandler *et al.*1979<br>Chandler *et al.*1979 |
| | Canada Yew | *Taxus canadensis* | Cool damp woods, ravines, climax coniferous, and wooded swamps. | ▪ Bark used to treat bowel and internal troubles<br>▪ Parts of plant used to treat afterbirth pain and clots.<br>▪ Leaves used to treat fever.<br>▪ Parts of plant used to treat scurvy. | Wallis 1922<br>Chandler *et al.*1979<br>Lacey 1977 |
| | Eastern White Cedar | *Thuja occidentalis* | Lakesides and swamps or old pastures | ▪ Used externally to treat swollen hands and feet<br>▪ Stems used to treat headaches.<br>▪ Inner bark, bark and stems used to treat burns.<br>▪ Inner bark, bark and stems used to treat cough.<br>▪ Leaves used to treat swollen feet and hands and stems used to treat headaches.<br>▪ Gum used to treat toothache.<br>▪ Inner bark, bark and stems used to treat consumption. | Lacey 1993<br>Chandler *et al.*1979 |
| | Heartleaf Foamflower | *Tiarella cordifolia* | Deciduous forests and intervales. Gravelly roadsides | ▪ Roots used to treat diarrhea. | Chandler *et al.*1979 |
| | Clover | *Trifolium pratense* | Fields and roadsides | ▪ Tea from plant used to treat fevers | Lacey 1993 |
| | Eastern Hemlock | *Tsuga canadensis* | Northern slopes or ravines | ▪ Tea from bark and stems used to treat colds, coughs, "grippe" and influenza<br>▪ Inner bark used to treat diarrhea.<br>▪ Inner bark used to treat chapped skin.<br>▪ Parts of plant used to treat bowel, stomach and internal troubles.<br>▪ Roots and stems used to treat "cold in kidney." And "cold in bladder."<br>▪ Bark used to treat grippe<br>▪ Inner bark used to treat scurvy. | Lacey 1993<br>Chandler *et al.*1979<br>Wallis 1922 |

| Mi'kmaq Name | Common Name | Scientific Name | Habitat[1, 2] | Mi'kmaq Traditional Medicinal Use | Sources |
|---|---|---|---|---|---|
| | Narrow-leaved Cattail | *Typha angustifolia* | Brackish swales near the coast, inland swamps, ditches, along streams | ▪ Roots used to treat gravel. | Chandler *et al.*1979 |
| | Broadleaf Cattail | *Typha latifolia* | Swamps, ponds, and ditches in estuaries above the salt water, occasionally in floating bogs. | ▪ Leaves used to treat sores. | Chandler *et al.*1979 |
| | Slippery Elm | *Ulmus rubra* | Ornamental, planted about towns and villages. | ▪ Bark used to treat suppurating wounds. | Chandler *et al.*1979 |
| Pkumanaqsi | Low Bush Blueberry | *Vaccinium angustifolium* | Headlands, peaty barrens, fields, dry soils, sandy areas | ▪ Leaves and roots used to treat rheumatism.<br>▪ Berries a good general tonic | Lacey 1993 |
| | Large -fruited Cranberry | *Vaccinum macrocarpon* | Bogs | ▪ Stewed berries used as a general tonic | Lacey 1993 |
| Wo'jekunmusi | Common Mullein | *Verbascum thapsus* | Light soils, roadsides, hillsides, gravel plains, and pastures. A common weed on rough land | ▪ Leaves smoked or steeped (fumes inhaled) to treat asthma<br>▪ Parts of plant used to treat sores and cuts.<br>▪ Parts of plant used to treat catarrh | Lacey 1993<br>Chandler *et al.*1979 |
| Nipanmaqsi'l | Highbush Cranberry | *Viburnum opulus* | Swamps and along streams | ▪ Bark used to treat swollen glands and mumps. | Chandler *et al.*1979<br>Lacey 1993 |
| | Field Pansy | *Viola arvensis* | Fields and roadsides | ▪ Used to treat sore eyes | Lacey 1993 |

A variety of wood types were used in shelter construction. Spruce poles, birch bark sheets and flexible moosewood (striped maple) saplings were used in the construction of conical dwellings known as *"wikuom"* or wigwams. Various woods were also used in the construction of devices to aid in transportation, and to create fish traps and weirs (NS Museum factsheet, ND). Other woods were used to make storage containers and vessels. Tools such as axes, adzes and gouges were made from reworking suitable stone and wood materials. Stones such as chalcedony were used to make hunting, cooking, carving and hide-preparing tools, spears were made of bone and wood, while bone was also used to make needles, awls and painting tools. Copper, which was likely traded for from natives from outside the region, was used to make fish hooks and needles. Teeth from beavers were used for fine carving, while walrus tusks were used for ivory. Bags and mats were made from woven reeds, grasses, cattails, cedar and basswood bark. Baskets may have been woven from thin branches (Nova Scotia Museum factsheet, ND). Species-specific uses of many plant species are outlined in Table 2.7.

Dwellings and clothing were often decoratively painted using red and yellow ochre, charcoal and ground eggshell, mixed with fish roe or egg yolks as a binder. Clothing was also decorated with animal bones, teeth, and claws and quills, and sometimes feathers. Bird wings were sometime worn by men. Pipes were made from stone, bone, bark, wood and lobster claws. After 1600, Mi'kmaq women made decorative porcupine quillwork and shell beadwork for sale to Europeans. Dyes for quills and mats came from a variety of roots, bark, leaves and flowers (Nova Scotia Museum factsheet, ND).

***Table 2.7 Other Useful Native Plant Species Traditionally Used by Nova Scotia Mi'Kmaw.***

| Mi'kmaq Name[1,] | Common Name | Scientific Name | Habitat[,3,2] | Mi'kmaq Traditional Use | Source |
|---|---|---|---|---|---|
| Stoqn | Balsam Fir | *Abies balsamea* | Various | ▪ Wood used for kindling and fuel.<br>▪ Boughs used to make beds. | Speck and Dexter 1951, Unama'ki Institute of Natural Resources 2012 |
| Mimkutaqo'q | Moosewood (striped maple) | *Acer pensylvanicum* | Rocky woods, rich deciduous forests, wooded slopes and along streams | ▪ Thin saplings used in wigwam construction | Nova Scotia Museum factsheet, ND |
| | Red Maple | *Acer rubrum* | Swamps, alluvial soils, and moist uplands | ▪ Used to make basketware. | Speck and Dexter 1951 |
| Snawey | Sugar Maple | *Acer saccharum* | Well-drained soils | ▪ Used to make bows and arrows. | Speck and Dexter 1951 |
| | Maple | *Acer sp.* | Various | ▪ Pins for securing clothing | Wallis and Wallis 1964 |
| Tupsi | Alder | *Alnus sp.* | Low ground in alluvial soils | ▪ Bark used to make a dye. | Speck and Dexter 1951 |
| Maskwi | White/Paper Birch | *Betula papyrifera* | Forests, especially on slopes | ▪ Bark used to make baskets.<br>▪ Bark used to make boxes, coffins and other containers.<br>▪ Bark used to make canoes.<br>▪ Bark used to make dishes and cooking utensils.<br>▪ Bark used to make house coverings. | Speck and Dexter 1951<br>Speck and Dexter 1951<br>Rousseau 1948<br>Speck and Dexter 1951<br>Speck and Dexter 1951 |
| | Yellow birch | *Betula alleghaniensis* | | Branches used as straps and thongs. | Wallis and Wallis 1960 |
| | Birch | *Betula sp.* | Various depending on species | ▪ Bark used to make torches for night fishing.<br>▪ Bark used to make trumpets for calling game.<br>▪ Bark used to construct containers, boxes, and cups<br>▪ Bark sheets used in wigwam construction | Speck and Dexter 1951<br>Speck and Dexter 1951<br>Wallis and Wallis 1955<br>Nova Scotia Museum factsheet, ND. |
| | Hazel root | *Corylus cornuta* | | ▪ Basketry | Wallis and Wallis 1955 |
| | American Beech | *Fagus grandifolia* | Fertile uplands, rarely in swamps | ▪ Used to make snowshoe frames. | Speck and Dexter 1951 |
| | White Ash | *Fraxinus americana* | Intervale forests, low ground, and open woods | ▪ Used to make axe and knife handles. | Speck and Dexter 1951 |
| Wiskoq | Black Ash | *Fraxinus nigra* | Low ground, damp woods and swamps | ▪ Used to make basketware. | Speck and Dexter 1951 |
| | Stiff Marsh Bedstraw/ Small Bedstraw | *Galium tinctorium* | Low-lying areas, brooks, marshes, and bogs | ▪ Roots used to make a red dye for porcupine quills. | Speck and Dexter 1951 |
| Kjimskiku | Sweetgrass | *Hierochloe odorata* | Moist heavy soils, generally in the upper reaches of tidal marshes | ▪ Used to make baskets.<br>▪ Used to make mats. | Speck and Dexter 1951<br>Speck and Dexter 1951 |
| | Red Cedar | *Juniperus sp.* | Various, depending on species | ▪ Wood used for kindling and fuel. | Speck and Dexter 1951 |
| Apu'tam'kie'jit | Eastern Larch/ Tamarack | *Larix laricina* | Bogs and wet depressions in forests | ▪ Wood used for kindling and fuel. | Speck and Dexter 1951 |
| Kawatkw | White Spruce (Cat Spruce) | *Picea glauca* | Old fields and along the coast | ▪ Boughs used to make beds.<br>▪ Wood used for kindling and fuel. | Speck and Dexter 1951<br>Speck and Dexter 1951 |
| Kawatkw | Black Spruce (Bog Spruce) | *Picea mariana* | Bogs, swamps and poorly drained areas | ▪ Boughs used to make beds.<br>▪ Roots used as sewing material for canoe birch bark products.<br>▪ Wood used for kindling and fuel. | Speck and Dexter 1951<br>Speck and Dexter 1951<br>Speck and Dexter 1951 |
| | Eastern White Pine | *Pinus strobus* | Bogs, swamps and poorly drained areas | ▪ Wood used for kindling and fuel. | Speck and Dexter 1951 |
| | Spruce | *Picea spp.* | See White and/or Black Spruce | ▪ Poles for wigwam construction<br>▪ Root used as twine, for sewing | Nova Scotia Museum factsheet, ND<br>Wallis and Wallis 1955 |
| | Willow | *Salix sp.* | Various, depending on species | ▪ Leaves used as tobacco. | Speck and Dexter 1951 |
| | Canada Yew | *Taxus canadensis* | Cool damp woods, ravines, climax coniferous, and wooded swamps. | ▪ Leaves used to make a green dye. | Speck 1917 |
| | Eastern White Cedar | *Thuja occidentalis* | Lakesides and swamps or old pastures | ▪ Used to make arrow shafts.<br>▪ Used to make canoe slats.<br>▪ Wood used for kindling and fuel.<br>▪ Woven into bags and mats<br>▪ Inner bark used as twine, for sewing | Speck and Dexter 1951<br>Speck and Dexter 1951<br>Speck and Dexter 1951<br>Nova Scotia Museum factsheet, ND<br>Wallis and Wallis 1955 |

| Mi'kmaq Name[1,] | Common Name | Scientific Name | Habitat[,3,2] | Mi'kmaq Traditional Use | Source |
|---|---|---|---|---|---|
| | Basswood[2] | *Tilia* spp.[2] | not native to NS | ▪ Bark woven into bags and mats | Nova Scotia Museum factsheet, ND |
| | Eastern Hemlock | *Tsuga canadensis* | Northern slopes or ravines | ▪ Bark used to make a dye.<br>▪ Wood used for kindling and fuel. | Speck and Dexter 1951<br>Speck and Dexter 1951 |
| | Cattails | *Typha* spp. | Marshes, wet depressions | ▪ Woven into bags and mats | Nova Scotia Museum factsheet, ND |

1 Unama'ki Institute of Natural Resources, 2012
2 There may be confusion over this common name, as basswood (*Tilia* species, or Linden) is not native to NS or NB.

# 3.0 Goldboro LNG MEKS Review Methodology

A MEKS was conducted by Membertou Geomatics Consultants for the Keltic Petrochemical Project in 2005. The Keltic MEKS consisted of a historical review and interviews of key knowledge holders with a broad regional focus. Since this time, there have been some changes in the purpose and approach to indigenous knowledge studies. This update was conducted to enhance the findings of the initial Keltic MEK Study. The methodology used for the update for the Goldboro LNG site consisted of two main exercises. A desktop review of existing historical and cultural resource data was performed to gather information specific to the site. Field surveys then confirmed and updated the available knowledge. Each of these exercises is described in further detail in the following subsections.

## *3.1 Gathering of Local Knowledge of Project Site*

### 3.1.1 Review of Available Data

A noted deficiency in many past ecological knowledge surveys has been the absence of any effort to determine the validity of information collected. An informant who is knowledgeable about historical activity or environmental matters is just as concerned about the accuracy of information as any researcher. However, there is always a temptation to embellish the facts to influence the outcome of any development initiative so that the final decisions favour the informant's community (Johannes 1993, Albert Marshall, Personal Communication, 2013). Furthermore, since many ecological knowledge studies require payment of an honorarium or fees to the informant, some informants may feel obligated to enhance information to justify earnings for information. Finally, some individuals (who have been referred to in Mi'kmaq communities as "glory seekers") may wish to gain recognition from outside communities by providing embellished information to researchers from outside the indigenous community (T.G. Poulette, Personal Communication, 1995). These do not intend to compromise the reliability of information compiled in an MEKS, but nonetheless, create a need to verify information collected through ground-truthing.

In many regions, indigenous organizations and researchers alike have adopted a process for traditional ecological knowledge data collection that moves away from individual informant interview and brings small groups of community members together in a workshop format. This system enables researchers an opportunity to observe and collect information from a variety of sources (such as youth, elders, women, hunters, community leaders, etc.) during focus group sessions (Persoon and Minter 2011). This process provides a number of benefits:

- Group dynamic provides an opportunity to dampen embellishment of information.
- Groups can provide multiple perspectives on past community experience and stories passed down in the community.
- Conversation amongst members of the group can trigger old memories.
- Groups can provide greater understanding on the "systems" used in the community to pass information between community members and between generations.
- Groups can provide insight into resource management decision-making processes in the community.
- Group sessions are more cost and time effective means to conduct surveys.

This workshop format has been widely adopted for ongoing indigenous knowledge studies. However, the Keltic MEKS report was built upon information through undocumented individual interviews. Since

completion of the Keltic MEKS, some informants may no longer be living, and many younger community members may not be actively involved in traditional harvesting activities, particularly in the Goldboro region. The continued use of traditional harvesting areas has been affected by a number of historical factors (most significantly government centralization policies to move aboriginal families to reserves) and recent demographic changes. A rapidly growing youth population which is pursuing education and alternative training has resulted in a slight de-emphasis on hunting, fishing and gathering within the reserve communities. As a result, additional desktop research and direct field studies have been used to augment the Keltic MEKS report data.

### 3.1.2 Historical Mi'kmaq Place Names

More recent MEK studies have provided enhanced information on Mi'kmaq place names for the Project area, and ongoing toponomy research by the Gorsebrook Research Centre (St. Mary's University) and the Treaty and Aboriginal Rights Research Centre has begun to increase available information on traditional place names within Nova Scotia. This research has demonstrated the significant cultural and environmental history that is tied to Mi'kmaq names of places throughout their traditional territory.

Generally, names given to places by Mi'kmaq are geographically descriptive or provide information regarding resources associated with a place. Due to the need to ensure continuity and effective communication, traditional place names were stable and long-lived, and their origins commonly pre-date European contact. As a result, many place names have been found in the writings of early missionaries. This is particularly true for many places near the Goldboro LNG Project area.

Some notable Mi'kmaq Place names in the region are:

Black Point – *Magteoatgeg* - black head
Canso – *Gamsog* – rock on the other side
Chedabucto – *Sedabuktook* - the deep extending harbour, or running far back
Cooks Cove – *Notogtetoalneg* - small Indian village
Durells Island – *Siplogagneg* - narrow passage
Fox Island – *Sebelogwokun* - where skins are stretched
Fox Island Cove – *Nasonigetjg* - rushy
Guysborough County – *Esigeoagig* (*Eskikewa'kik)* - skin dressing place
Half Island Cove – *Aoaganeg* - portage
Halfway Cove – *Oetonitjitjg (Wetuni'ji'jk)* - at the small opening
Indian Cove – *Elnoeigomi* - Indian cove
Philips Harbour – *Pilipgomimg* - Pilip's place, where Pilip was doing something

As previously noted, the traditional district name, *Eskikewa'kik*, translates to 'skin-dressing country' (or 'skin dressers place') which may refer to the region's ample supply of marine mammals (or possibly caribou) which would have been harvested for their skins. It is unlikely that there would have been abundant furbearers such as beaver, muskrat, otter, marten, mink, weasel, fox, etc., due to the lack of sufficient habitat for numbers to warrant the name. The fact that the traditional name for Fox Island, *Sebelogwokun*, implies that the island was used as a 'place where skins are stretched' supports this interpretation. While marine mammal abundance in the area may have declined after colonization, this coast has historically been noted for its marine mammal (particularly seal) population.

These place names provide insight into the nature of Mi'kmaq use of the region and provide clear evidence of the intimate longstanding relationship between the Mi'kmaq and the region near the

project site. The place names also provide some insight into the importance of the local marine environment to the historical and traditional use of the region by Mi'kmaq.

### 3.1.3 Interviews and Meetings with Local Residents

Interviews with local Knowledge holders were not undertaken, since much of the relevant information was already compiled and reported in the Keltic MEK Study (Membertou Geomatics Consultants, 2005). Information from these interviews, as reported in the final MEKS report, was useful in analysis of the desktop resource study and field survey findings.

## *3.2 Field Survey for Plant Species of Mi'Kmaq Cultural Significance*

### 3.2.1 Review of Available Data

The Natural History of Nova Scotia (Davis and Browne 1999) was consulted to provide some background as to the vegetation communities typical of the region encompassing the Goldboro LNG Project Site.

### 3.2.2 Field Survey

Vegetation surveys were conducted in September 2012 by AMEC Biologists to update the EA documents and to determine if there had been significant changes in plant species since the completion of the Keltic Petrochemical EA. Prior to conducting field surveys, the various habitats located within the Study Area were assessed and classified using information gathered during a desktop study (e.g. aerial photography and Nova Scotia Forest inventory database, etc.). Habitat modeling was conducted to identify the potential presence of plant species of significance to Mi'kmaq based on available habitat.

Vegetation surveys focused on plant species identified during the desk top review and consisted of optically controlled meanders through habitat polygons identified to potentially contain plants of significance to Mi'kmaq.

## *3.3 Wildlife Survey and Habitat Modeling Exercise*

A field survey for wildlife was conducted in April 2013. Information from this survey and a review of the historical use of wildlife and fish resources by Mi'kmaq, combined with known wildlife habitat preferences and the results of the habitat surveys, allowed a determination of wildlife species potentially using the project site. The results of the desktop reviews, field surveys and the public consultation exercises were compiled and a habitat modeling exercise conducted. This exercise consisted of comparing habitat preferences of NS wildlife species with the habitats known to occur on the site, in order to determine the likelihood of each species' presence on the Goldboro LNG Site.

# 4.0 RESULTS

## *4.1 Results of Local Knowledge Survey*

### 4.1.1 Results of Review of Available Data

The Gorsebrook Research Center and the Treaty and Aboriginal Rights Research Centre have an ongoing project that is putting a considerable effort into collecting information on all Mi'kmaq place names for all areas of the province. The rich history associated with Mi'kmaq place names strongly indicates that there was a Mi'kmaq presence throughout the province. Researchers have indicated that all place name data resulting from the research will be made available to the general public via a web site in the near future (T. Sable, Personal Communication, 2012).

Research conducted for the MEK Study for the previously proposed Keltic Petrochemical project (Membertou 2005) found that there has been significant use and occupation of the lands and waters in and near the Project site. Most notably:

- A 1722 census identified a Mi'kmaq community with a population of approximately 50 people with a Chief named Etienne Nabdouis.

- During the nineteenth century there was still a resident Mi'kmaq population consisting of several families, such as Lewis's, Lafford's, Joe's and Peter's; names that are now commonly found in the Paq'tnkek First Nation.

- Two Mi'kmaq burial grounds were identified on the nearby St. Mary's River (Glenelg Lake and Sherbrooke). Another burial ground is reportedly located on an island in the river between Upper Country Harbour and Cross Roads.

- Mi'kmaq who were baptized in the area by Father Maillard, subsequently constructed a chapel on an island called Nimnoqinuk (which means big, grey birch) for St Anne's (patron saint of the Mi'kmaq) gatherings.

- Two Mi'kmaq 18/19th century encampments were located at Isaac's Harbour another encampment was located at School House Brook and a larger encampment located at the head of the harbour. The School House Brook encampment is suspected to have also been a burial ground.

- There is evidence that the location of the community of Guysborough may have been the location of a central Mi'kmaq community. An 1860 report sent to the Indian Affairs Agent (Joe Howe) specifies that there were 66 Micmac men, women and children living there. In 1845 a petition was sent to Lord Falkland John Battis, Joseph Battis and Francis Cope requesting a land grant to an area adjoining the town of Guysborough

### 4.1.2 Field Survey Results

***General Habitats***

AMEC conducted field habitat surveys September 2012 and July 2013. The purpose of the site visit was to compare the current conditions on the site with the description presented in the Keltic Petrochemical

EA (AMEC, 2006) and available mapping, and to identify the extent of change and/or requirements for new information. The survey of the Goldboro LNG Facility footprint confirmed that terrestrial habitat conditions remain largely unaltered since previous studies. A summary of habitat types found in the Project site are listed in Table 4-1.

***Table 4.1 Habitat Types in the LNG Facility Footprint***

| Type | Definition and Summaries |
|---|---|
| **Natural Stand: Coniferous Forest** | Forest stands composed of more than 75% coniferous (softwood) trees (NSDNR).<br>In the Project footprint, the trees in these polygons are more mature than the trees in "young coniferous forest". Dominated by Balsam Fir, mature or nearing maturity, with tree diameters for Balsam Fir from about 15 cm diameter at breast height (dbh) to 20 cm and occasionally 30 cm dbh; Red Maple and Heartleaf Birch (*Betula cordifolia*) are few and up to 20-30 cm dbh. |
| **Young Coniferous Forest*** | Areas of re-growth, most often following forestry activity, and other disturbance. Dominated by young trees (saplings) with occasional patches of shrubs (often Mountain Holly (*Nemopanthus mucronatus*), Witherod (*Viburnum nudum*) or alders (*Alnus incana*)). Older regenerating forest is dominated by young Balsam Fir with an estimated height of 6-10 m. |
| **Tall Shrubs*** | At the Goldboro Project site, tall shrubs with an estimated height of around 2m, dominated by Mountain Holly and Witherod. NSDNR categorized this polygon as "brush", which is defined as any area containing less than 25% merchantable tree cover and contains non-merchantable woody plants consisting of at least 25% cover (NSDNR). |
| **Alder** | Alders 75% or greater cover- any forested area containing alders that compose 75% or more crown closure (NSDNR, code 39 in forest inventory map).<br>Near the Goldboro Project site: a dense thicket of tall Alders. |
| **Disturbed - Re-generating*** | At the Project site, this category is represented by areas either dominated by raspberry with dead wood, or with patches of shrubs of about 1 m height, or by clear cuts** with indications of early stages of regeneration**, such as seedlings and small saplings of trees and shrubs. Dominated by small woody plants and herbaceous vegetation. |
| **Riparian*** | Habitat along watercourses. In the Project footprint, there is little such habitat. Long stretches of streams have no real floodplain, possibly due to the steep gradient of the terrain. |
| **Barren and Ericaceous Shrub Dominated Barren** | Any area of less than 25% live tree cover containing "ericaceous" vegetation with less than 50 % rock out crops and/ or boulder cover and less than 50% other woody plant cover. Area dry and firm in summer. Indicator plants: Bearberry (*Arctostaphylos uva-ursi*), Rhodora (*Rhododendron canadense*), Blueberry (*Vaccinium* sp.), Huckleberry (*Gaylussacia* sp.) and Lambkill (*Kalmia angustifolia*) (NSDNR).<br><br>Ericaceous shrub dominated barren**: Ericaceous shrubs of up roughly 1m height, dominated by Bayberry (*Myrica pensylvanica*). At the Project site, this habitat replaces former "old field". Rock outcrops or boulders not apparent, and ericaceous shrubs provide more than 50 % of the plant cover. |
| **White Spruce Forest*** | Coniferous forest dominated by White Spruce. In the Project footprint: occupying former "old field". |
| **Freshwater Wetlands **** | "Any wet area not identified as a lake, river or stream" (NSDNR).<br>Encompasses the wetland classes: fen, marsh, swamp, and open water; definition extended to include wetland class bog. |
| **Marine wetlands*** | Including estuarine flat, coastal saline pond, salt marsh, dune, etc. |

***Culturally Significant Plant species***

The species list reported in Keltic Petrochemical EA Report (AMEC 2006) was compared against published information on traditional and current uses of vascular plant species by Mi'kmaw people in Nova Scotia. Of the 305 plant species reported from the Project site, 60 are plant species known to be utilized by Mi'kmaw people of Nova Scotia. Of these species, twenty-one plant species are traditional edible species. These are outlined in Table 4.2.

Of all plant species identified within the Goldboro LNG footprint, forty-six plant species have a history of medicinal use by Mi'kmaw people in Nova Scotia (Table 4.3).

Ten plant species are used by Nova Scotia Mi'kmaw for Craft and/or Construction purposes (Table 4.4). (Note that these numbers add up to greater than 60 because many species have more than one traditional use).

***Table 4.2 Edible Plant Species Traditionally Consumed by Mi'Kmaq which Occur on the Goldboro LNG Project Site.***

| Scientific Name | Mi'kmaq Name | Common Name | Mi'kmaq Traditional Use | Source |
|---|---|---|---|---|
| *Abies balsamea* | Stoqn | Balsam Fir | Bark used for beverage and medicine | Speck and Dexter 1951, Lacey 1977 |
| *Acorus americana* | kiw'eswa'skul | Sweetflag | Rootstocks used to make a beverage and medicinal tea. Tubers eaten raw, or more commonly boiled or roasted | Yanovsky 1936, Speck and Dexter 1951, Wallis and Wallis 1955, Lacey 1977 |
| *Aralia nudicaulis* | Wopapa'kjukal | Wild Sarsaparilla | Used to make a beverage. | Speck and Dexter 1951 |
| *Betula alleghaniensis* | Nimnoqn | Yellow Birch | Drank sap, rendered it into syrup and sugar, made tea from the twigs | Waugh 1916, Stoddard 1962, Lacey 1977. |
| *Chenopodium album and closely related species* | | Lambsquarters, Pigweed or Goosefoot | Leaves and plants eaten as green, edible greens and seeds. The young plants were cooked as a potherb | Speck and Dexter 1951, 1952 |
| *Cornus sericea ssp. sericea* | Wjkulje'manaqsi | Red Osier Dogwood/ Red Willow | Micmac people made a tea from the bark of dogwood probably this species. | Wallis and Wallis 1955, |
| *Fragaria virginiana , F. vesca* | Atuomkminaqsi | Virginia and Woodland Strawberries | Berries used fresh or preserved, or made into beverage | Speck and Dexter 1951, 1952, Adney 1944, Rousseau 1945 |
| *Gaultheria procumbens* | Ka'qaju'mannaqsi | Wintergreen, Teaberry, or Checkerberry | Berries eaten , Micmac were said to make juice from the berries | Stoddard 1962, Rousseau 1947, Speck and Dexter 1952, Lacey 1977 |
| *Gaylussacia sp.* | | Huckleberry | Berries eaten | Waugh 1916, Speck and Dexter 1951, 1952 |
| *Juniperus communis* | Kini'skweji'jik | Low Bush (Common Juniper) | Boughs, with or without the fruits, were used to make a beverage tea | Wallis and Wallis 1955, Lacey 1977 |
| *Lathyrus maritimus* | Alawey** | Beach pea | Pea used | Speck and Dexter 1951, 1952 |
| *Mitchella repens* | | Partridge Berry | Berries were eaten fresh or preserved. | Speck 1917, Speck and Dexter 1951.1952, |

| Scientific Name | Mi'kmaq Name | Common Name | Mi'kmaq Traditional Use | Source |
|---|---|---|---|---|
| | | | Used the plant for a beverage tea | |
| *Picea glauca* | Kawatkw | White Spruce (Cat Spruce) | Bark used for beverage and medicine | Speck and Dexter 1951, Wallis and Wallis 1955, Stoddard 1962, Lacey 1977, |
| *Picea mariana* | Kawatkw | Black Spruce (Bog Spruce) | The bark of black spruce was used to make a beverage or medicinal tea by the Micmac of the Maritimes | Speck and Dexter 1951, Wallis and Wallis 1955, Lacey 1977, |
| *Pinus strobus* | | Eastern White Pine | Bark used for beverage, Inner bark grated and eaten | Speck and Dexter 1951 , Wallis and Wallis 1955,Lacey 1977 |
| *Rhododendron (syn. Ledum) groenlandicum* | Apuistekie'ji'jit | Labrador Tea | The leaves, and sometimes the whole leafy twigs and flowers, of both species were used, fresh or dried, for tea | Speck 1917, Speck and Dexter 1951,1952, Wallis and Wallis 1955, Stoddard 1962, Lacey 1977 |
| *Rubus idaeus* | Klitawmanaqsi'k | Red Raspberry | Berries used fresh or dried, juice made from berries | Speck and Dexter 1951, 1952, Stoddard 1962 |
| *Sambucus racemosa* | Pukulu'skwimanaqsi'l | Red Elderberry | The juicy, tart berries were eaten fresh or dried for winter storage | Speck and Dexter 1951, 1952 |
| *Taraxacum officinale** | | Common Dandelion | Young leaves eaten raw or cooked | Rousseau 1945, Speck and Dexter 1951, 1952 |
| *Vaccinum macrocarpon* | | Large -fruited Cranberry | Berries eaten fresh | Waugh 1916, Densmore 1928, Reagan 1928, Raymond 1945, Speck and Dexter 1951,1952, Stoddard 1962, Black 1980 |
| *Vaccinum. vitis-idaea* | Poqomannaqsi | Foxberry (Mountain Cranberry) | Berries | |

***Table 4.3 Medicinal Plant Species Traditionally Utilized by Mi'Kmaq which Occur on the Goldboro LNG Project Site***

| Scientific Name | Mi'kmaq Name | Common Name | Mi'kmaq Traditional Use | Source |
|---|---|---|---|---|
| *Abies balsamea* | Stoqn | Balsam Fir | Antidiarrheal, Buds, cones and inner bark used for diarrhea. | Chandler et al. (1979) |
| *Abies balsamea* | Stoqn | Balsam Fir | Burn Dressing, Gum used for burns. | Chandler et al. (1979) |
| *Abies balsamea* | Stoqn | Balsam Fir | Cold Remedy, Gum used for colds. | Chandler et al. (1979) |
| *Abies balsamea* | Stoqn | Balsam Fir | Colic , cones used | Wallis (1922) |
| *Abies balsamea* | Stoqn | Balsam Fir | Dermatological Aid, Gum used for bruises, sores and wounds. | Chandler et al. (1979) |
| *Abies balsamea* | Stoqn | Balsam Fir | Gastrointestinal Aid, Cones used for colic. | Chandler et al. (1979) |
| *Abies balsamea* | Stoqn | Balsam Fir | Laxative, Buds used as a laxative. | Chandler et al. (1979) |
| *Abies balsamea* | Stoqn | Balsam Fir | Orthopedic Aid, Gum used for fractures. | Chandler et al. (1979) |
| *Abies balsamea* | Stoqn | Balsam Fir | Sores, swelling , boil inner bark | Speck (1917) |
| *Abies balsamea* | Stoqn | Balsam Fir | Used to prevent colds and influenza. Tea from cones and tops used to relieve colic, asthma and tuberculosis. Sap used to treat stomach ulcers as well as a healing antiseptic when applied to cuts and sores | Lacey (1993) |
| *Abies balsamea* | Stoqn | Balsam Fir | Venereal Aid, Bark used for gonorrhea and buds used as a laxative. | Chandler et al. (1979) |
| *Achillea millefolium* | | Common Yarrow | Tea from plant used to treat fevers. Plant was also pulverized and used externally on bruises, sprains and swellings | Lacey (1993) |
| *Achillea millefolium* | | Common Yarrow | Antirheumatic (External, Dried, powdered bark or green leaves rubbed over swellings. | Wallis (1922) |
| *Achillea millefolium* | | Common Yarrow | Cold Remedy, Herb used for colds. | Chandler et al. (1979) |
| *Achillea millefolium* | | Common Yarrow | Dermatological Aid, Dried, powdered bark or green leaves rubbed over bruises. | Wallis (1922) |
| *Achillea millefolium* | | Common Yarrow | Diaphoretic, Decoction of plant taken with milk to cause a sweat for colds. | Wallis (1922) |
| *Achillea millefolium* | | Common Yarrow | Orthopedic Aid, Dried, powdered bark or green leaves rubbed over sprains. | Wallis (1922) |
| *Achillea millefolium* | | Common Yarrow | Orthopedic Aid, Herb used for swelling, bruises and sprains. | Chandler et al. (1979) |
| *Achillea millefolium* | | Common Yarrow | Sprains | Wallis (1922) |
| *Acorus americana* | kiw'eswa'skul | Sweetflag | Cold Remedy, Root used for colds. | Chandler et al. (1979) |
| *Acorus americana* | kiw'eswa'skul | Sweetflag | Cough Medicine, Root used for coughs. | Chandler et al. (1979) |
| *Acorus americana* | kiw'eswa'skul | Sweetflag | Misc. Disease Remedy, Root used for cholera, smallpox and other epidemics. | Chandler et al. (1979) |
| *Acorus americana* | kiw'eswa'skul | Sweetflag | Panacea, Plant used as a panacea. | Speck (1917) |

| Scientific Name | Mi'kmaq Name | Common Name | Mi'kmaq Traditional Use | Source |
|---|---|---|---|---|
| *Acorus americana* | kiw'eswa'skul | Sweetflag | Panacea, Root and herb used for the prevention of disease in general and root used for disease in general. | Chandler et al. (1979) |
| *Acorus americana* | kiw'eswa'skul | Sweetflag | Pulmonary Aid, Root used for lung ailments, pneumonia and pleurisy. | Chandler et al. (1979) |
| *Acorus americana* | kiw'eswa'skul | Sweetflag | Root was placed in water and steamed in the house to prevent illness. Root was chewed to relieve indigestion and stomach cramps. | Lacey (1993) |
| *Acorus americana* | kiw'eswa'skul | Sweetflag | Unspecified, Roots chewed for medicinal use. | Speck and Dexter (1951) |
| *Alnus incana* | Tupsi | Speckled Alder | Oral Aid, Bark used for ulcerated mouth. | Chandler et al. (1979) |
| *Alnus sp* | Tupsi | Alder | Bark used for bleeding, hemorrhage of lungs, fever, fractures, diphtheria,wounds , | Chandler et al. (1979) |
| *Alnus sp* | Tupsi | Alder | Bleeding, hemorrhage of lungs, fever, fractures, diphtheria,wounds , bark used | Chandler et al. (1979) |
| *Alnus sp* | Tupsi | Alder | Analgesic, Bark used for cramps. | Chandler et al. (1979) |
| *Alnus sp* | Tupsi | Alder | Antiemetic, Bark used for retching. | Chandler et al. (1979) |
| *Alnus sp* | Tupsi | Alder | Antirheumatic (Internal, Bark used for rheumatism. | Chandler et al. (1979) |
| *Alnus sp* | Tupsi | Alder | Cathartic, Bark used as a physic. | Chandler et al. (1979) |
| *Alnus sp* | Tupsi | Alder | Dermatological Aid, Bark and leaves used for festers and bark used for wounds. | Chandler et al. (1979) |
| *Alnus sp* | Tupsi | Alder | Febrifuge, Bark and leaves used for fevers and festers. | Chandler et al. (1979) |
| *Alnus sp* | Tupsi | Alder | Hemostat, Bark used for bleeding. | Chandler et al. (1979) |
| *Alnus sp* | Tupsi | Alder | Misc. Disease Remedy, Bark used for diphtheria. | Chandler et al. (1979) |
| *Alnus sp* | Tupsi | Alder | Orthopedic Aid, Bark used for dislocations and fractures. | Chandler et al. (1979) |
| *Alnus sp* | Tupsi | Alder | Pulmonary Aid, Bark used for haemorrhaging of the lungs. | Chandler et al. (1979) |
| *Alnus sp* | Tupsi | Alder | Tea from bark used to treat stomach cramps, kidney ailments, fever, diphtheria and neuralgic pain. Bark and leaves used externally to treat festering wounds | Lacey (1993) |
| *Aralia nudicaulis* | Wopapa'kjukal | Wild Sarsaparilla | Used externally to treat wounds. Root can be used to treat colds and flu. | Lacey (1993) |
| *Aralia nudicaulis* | Wopapa'kjukal | Wild Sarsaparilla | Cough Medicine, Root used as a cough medicine. | Chandler et al. (1979) |
| *Betula alleghaniensis* | Nimnoqn | Yellow Birch | Other, Wood used as a hot-water bottle. | Chandler et al. (1979) |
| *Betula alleghaniensis* | Nimnoqn | Yellow Birch | Bark used to treat rheumatism as well as relieve indigestion, diarrhoea and stomach cramps. Bark is also chewed for nourishment | Lacey (1993) |
| *Betula* | Nimnoqn | Yellow Birch | Diarrhea , tea from bark | Lacey (1977) |

| Scientific Name | Mi'kmaq Name | Common Name | Mi'kmaq Traditional Use | Source |
|---|---|---|---|---|
| *alleghaniensis* | | | | |
| *Chelone glabra* | | White Turtlehead | Contraceptive, Herb used to prevent pregnancy. | Chandler et al. (1979) |
| *Coptis trifolia* | Wisawtaqji'jkl | Goldthread | Oral Aid, Herb used for sore and diseased mouth. | Chandler et al. (1979) |
| *Coptis trifolia* | Wisawtaqji'jkl | Goldthread | Sore eyes, stomach medicine , roots | Lacey (1977) |
| *Coptis trifolia* | Wisawtaqji'jkl | Goldthread | Unspecified, Roots chewed for medicinal use. | Speck and Dexter (1951) |
| *Coptis trifolia* | Wisawtaqji'jkl | Goldthread | Used to promote an appetite as well as to treat sore or chapped lips and mouth ulcers. | Lacey (1993) |
| *Cornus canadensis* | Wso'qmanaqsi'l | Bunchberry/ Dwarf Dogwood | Bed wetting leaf tea; kidney ailments leaf tea, Leaves | Lacey (1977) |
| *Cornus canadensis* | Wso'qmanaqsi'l | Bunchberry/ Dwarf Dogwood | Anticonvulsive, Berries, roots and leaves used for fits. | Chandler et al. (1979) |
| *Cornus canadensis* | Wso'qmanaqsi'l | Bunchberry/ Dwarf Dogwood | Used to treat kidney ailments. Given to children to prevent bed wetting. Used to treat stomach problems and leaves were applied to wounds to stop bleeding and promote healing | Lacey (1993) |
| *Cornus sericea ssp. sericea* | Wjkulje'manaqsi | Red Osier Dogwood/ Red Willow | Analgesic, Herb used for headache. | Chandler et al. (1979) |
| *Cornus sericea ssp. sericea* | Wjkulje'manaqsi | Red Osier Dogwood/ Red Willow | Eye Medicine, Herb used for sore eyes. | Chandler et al. (1979) |
| *Cornus sericea ssp. sericea* | Wjkulje'manaqsi | Red Osier Dogwood/ Red Willow | Respiratory Aid, Herb used for catarrh. | Chandler et al. (1979) |
| *Cornus sericea ssp. sericea* | Wjkulje'manaqsi | Red Osier Dogwood/ Red Willow | Throat Aid, Herb used for sore throat. | Chandler et al. (1979) |
| *Fragaria virginiana , F. vesca* | Atuomkminaqsi | Virginia and Woodland Strawberries | Abortifacient, Parts of plant used for irregular menstruation. | Chandler et al. (1979) |
| *Fragaria virginiana , F. vesca* | Atuomkminaqsi | Virginia and Woodland Strawberries | Tea from plant is a good general tonic and used to treat dysentery, weakness of the intestines as well as infections of the urinary organs. Leaves used to treat stomach cramps. | Lacey (1993) |
| *Gaultheria hispidula* | Kna'ji'jk | Creeping Snowberry | Unspecified, Decoction of leaves or whole plant taken for unspecified purpose. | Speck (1917) |
| *Gaultheria procumbens* | Ka'qaju'mannaqsi | Wintergreen, Teaberry, or Checkerberry | Preventative medicine for heart attacks and used by someone recuperating from a heart attack. Tea from plant thins and regulates the blood to prevent blood clots. | Lacey (1993) |
| *Impatiens capensis* | | Jewelweed | Liver Aid, Herbs used for jaundice. | Chandler et al. (1979) |
| *Iris versicolor* | | Blue Flag Iris | Used as an emetic to rid the stomach of poison | Lacey (1993) |
| *Iris versicolor* | | Blue Flag Iris | Dermatological Aid, Root used for wounds and herb used for sore | Chandler et al. (1979) |

| Scientific Name | Mi'kmaq Name | Common Name | Mi'kmaq Traditional Use | Source |
|---|---|---|---|---|
| | | | throat. | |
| *Iris versicolor* | | Blue Flag Iris | Misc. Disease Remedy, Root used for cholera and the prevention of disease. | Chandler et al. (1979) |
| *Iris versicolor* | | Blue Flag Iris | Panacea, Root used as a "basic medical cure" and for cholera. | Chandler et al. (1979) |
| *Iris versicolor* | | Blue Flag Iris | Throat Aid, Herbs used for sore throat and root used for wounds. | Chandler et al. (1979) |
| *Juniperus communis* | Kini'skweji'jik | Low Bush /Common Juniper | Antirheumatic (Internal, Part of plant used for rheumatism and bark used for tuberculosis. | Chandler et al. (1979) |
| *Juniperus communis* | Kini'skweji'jik | Low Bush /Common Juniper | Dermatological Aid, Stems used in hair wash, gum used for wounds and cones used for ulcers. | Chandler et al. (1979) |
| *Juniperus communis* | Kini'skweji'jik | Low Bush /Common Juniper | Gum used to heal cuts, sores, burns and sprains. Inner bark used to treat stomach ulcers. Roots used to treat rheumatism. Also used to treat kidney ailments and as a urinary tract medicine. | Lacey (1993) |
| *Juniperus communis* | Kini'skweji'jik | Low Bush /Common Juniper | Orthopedic Aid, Gum used for sprains and bark used for tuberculosis. | Chandler et al. (1979) |
| *Juniperus communis* | Kini'skweji'jik | Low Bush /Common Juniper | Sprains, wounds, tuberculosis, gum, bark | Wallis (1922) |
| *Juniperus communis* | Kini'skweji'jik | Low Bush /Common Juniper | Tonic, Stems used in a tonic and bark used for tuberculosis. | Chandler et al. (1979) |
| *Juniperus communis* | Kini'skweji'jik | Low Bush /Common Juniper | Tuberculosis Remedy, Root or bark used for consumption and stems used as a tonic. | Chandler et al. (1979) |
| *Kalmia angustifolia* | | Sheep Laurel/ lambkill | Colds , roasted leaves, snuff | Black 1980 |
| *Kalmia angustifolia* | | Sheep Laurel/ lambkill | Pain , plant | Wallis (1922) |
| *Kalmia angustifolia* | | Sheep Laurel/ lambkill | Analgesic, Herb used for pain, swellings and sprains. | Chandler et al. (1979) |
| *Kalmia angustifolia* | | Sheep Laurel/ lambkill | Analgesic, Poultice of crushed leaves bound to head for headache. | Speck (1917) |
| *Kalmia angustifolia* | | Sheep Laurel/ lambkill | Dermatological Aid, Herb used for swellings, pain and sprains. | Chandler et al. (1979) |
| *Kalmia angustifolia* | | Sheep Laurel/ lambkill | Orthopedic Aid, Herb used for sprains, pain and swellings. | Chandler et al. (1979) |
| *Kalmia angustifolia* | | Sheep Laurel/ lambkill | Panacea, Infusion of leaves considered valuable as a "non-specific remedy." | Speck (1917) |
| *Kalmia angustifolia* | | Sheep Laurel/ lambkill | Plant is boiled and used as for external purposes. Used as bathing solution to reduce swelling, ease pain of rheumatism and treat sore legs and feet | Lacey (1993) |
| *Kalmia angustifolia* | | Sheep Laurel/ lambkill | Poison, Plant considered very poisonous. | Speck (1917) |
| *Larix laricina* | Apu'tam'kie'jit | Eastern Larch (Tamarack) | Cold Remedy, Bark used for colds. | Chandler et al. (1979) |
| *Larix laricina* | Apu'tam'kie'jit | Eastern Larch (Tamarack) | Dermatological Aid, Bark used for "suppurating wounds" and colds. | Chandler et al. (1979) |

| Scientific Name | Mi'kmaq Name | Common Name | Mi'kmaq Traditional Use | Source |
|---|---|---|---|---|
| *Larix laricina* | Apu'tam'kie'jit | Eastern Larch (Tamarack) | Sores, swelling: diuretic boughs tea | Speck (1917) |
| *Larix laricina* | Apu'tam'kie'jit | Eastern Larch (Tamarack) | Stimulant, Bark used for physical weakness. | Chandler et al. (1979) |
| *Larix laricina* | Apu'tam'kie'jit | Eastern Larch (Tamarack) | Tea from bark and twigs used to treat colds and influenza. Bark was used externally to treat festering wounds | Lacey (1993) |
| *Larix laricina* | Apu'tam'kie'jit | Eastern Larch (Tamarack) | Tuberculosis Remedy, Bark used for consumption. | Chandler et al. (1979) |
| *Larix laricina* | Apu'tam'kie'jit | Eastern Larch (Tamarack) | Venereal Aid, Bark used for gonorrhea. | Chandler et al. (1979) |
| *Limonium carolinianum* | | Carolina Sealavender | Tuberculosis Remedy, Roots pounded, ground, added to boiling water and used for consumption with hemorrhage. | Mechling (1959) |
| *Lycopodium sp.* | | Clubmoss | Febrifuge, Herb used for fever. | Chandler et al. (1979) |
| *Maianthemum (syn. Smilacina) racemosum ssp. racemosum* | | Feather or False Solomon's Seal | Dermatological Aid, Leaves and stems used for rashes and itch. | Chandler et al. (1979) |
| *Mitchella repens* | | Partridge Berry | Used in the late stages of pregnancy to ease the pain of childbirth. | Lacey (1993) |
| Morella (syn. Myrica) pensylvanica | Kljimanaqsi | Northern Bayberry | Exhilarant , tea, berries, bark,leaves | Wallis (1922) |
| Morella (syn. Myrica) pensylvanica | Kljimanaqsi | Northern Bayberry | Headaches, plant, snuff | Wallis (1922) |
| Morella (syn. Myrica) pensylvanica | Kljimanaqsi | Northern Bayberry | inflammation, root poultice | Wallis (1922) |
| Morella (syn. Myrica) pensylvanica | Kljimanaqsi | Northern Bayberry | Powdered root used to treat arthritic and rheumatic pain. Tea from the dried roots and leaves used to treat mouth infections/ | Lacey (1993) |
| Morella (syn. Myrica) pensylvanica | Kljimanaqsi | Northern Bayberry | Inflammations, roots pounded,soaked in hot water | Wallis (1922) |
| *Picea glauca* | Kawatkw | White Spruce (Cat Spruce) | Bark used for a variety of purposes. | Lacey (1993) |
| *Picea glauca* | Kawatkw | White Spruce (Cat Spruce) | Cough Medicine, Bark used as a cough remedy. | Chandler et al. (1979) |
| *Picea glauca* | Kawatkw | White Spruce (Cat Spruce) | Dermatological Aid, Bark used to prepare a salve for cuts and wounds. Gum used for scabs and sores. | Chandler et al. (1979) |
| *Picea glauca* | Kawatkw | White Spruce (Cat Spruce) | Gastrointestinal Aid, Parts of plant used for stomach trouble. | Chandler et al. (1979) |
| *Picea glauca* | Kawatkw | White Spruce (Cat Spruce) | Misc. Disease Remedy, Bark, leaves and stems used for scurvy. | Chandler et al. (1979) |
| *Picea mariana* | Kawatkw | Black Spruce (Bog Spruce) | Bark is chewed to treat laryngitis. | Lacey (1993) |
| *Picea mariana* | Kawatkw | Black Spruce (Bog Spruce) | Cough remedy, bark | Wallis (1922) |
| *Pinus strobus* | | Eastern White Pine | Tea from bark, needles and twigs used to treat colds and kidney | Lacey (1993) |

| Scientific Name | Mi'kmaq Name | Common Name | Mi'kmaq Traditional Use | Source |
|---|---|---|---|---|
| | | | problems | |
| *Pinus strobus* | | Eastern White Pine | Cold Remedy, Bark, leaves and stems used for colds. | Chandler et al. (1979) |
| *Pinus strobus* | | Eastern White Pine | Cough Medicine, Bark, leaves and stems used for coughs. | Chandler et al. (1979) |
| *Pinus strobus* | | Eastern White Pine | Dermatological Aid, Bark used for wounds and sap used for hemorrhaging. | Chandler et al. (1979) |
| *Pinus strobus* | | Eastern White Pine | Dermatological Aid, Boiled inner bark used for sores and swellings. | Speck (1917) |
| *Pinus strobus* | | Eastern White Pine | Hemostat, Sap used for hemorrhaging. | Chandler et al. (1979) |
| *Pinus strobus* | | Eastern White Pine | Kidney Aid, Plant parts used for kidney trouble. | Chandler et al. (1979) |
| *Pinus strobus* | | Eastern White Pine | Misc. Disease Remedy, Bark, leaves and stems used for grippe. | Chandler et al. (1979) |
| *Pinus strobus* | | Eastern White Pine | Misc. Disease Remedy, Inner bark, bark and leaves used for scurvy. | Chandler et al. (1979) |
| *Plantago major* | Wijikanipkl | Common Plantain | Used to draw out poison from wounds and sores. Also used to treat stomach ulcers | Lacey (1993) |
| *Populus tremuloides* | Miti | Trembling Aspen (Poplar) | Cold Remedy, Bark used for colds. | Chandler et al. (1979) |
| *Populus tremuloides* | Miti | Trembling Aspen (Poplar) | Dietary Aid, Bark used to stimulate the appetite. | Chandler et al. (1979) |
| *Prunus pensylvanica* | Maskwe'smanaqsi | Pin Cherry | Dermatological Aid, Wood used for chafed skin and prickly heat. | Chandler et al. (1979) |
| *Prunus pensylvanica* | Maskwe'smanaqsi | Pin Cherry | Misc. Disease Remedy, Bark used for erysipelas. | Chandler et al. (1979) |
| *Pteridium aquilinum* | | Bracken | Pediatric Aid, Fronds of plant used for weak babies and old people. | Chandler et al. (1979) |
| *Pteridium aquilinum* | | Bracken | Stimulant, Fronds of plant used for weak babies and old people. | Chandler et al. (1979) |
| *Ranunculus acris* | | Tall Buttercup | Analgesic, Herbs used for headache. | Chandler et al. (1979) |
| *Ranunculus acris* | | Tall Buttercup | Analgesic, Leaves used for headaches. | Chandler et al. (1979) |
| *Rhododendron (syn. Ledum) groenlandicum* | Apuistekie'ji'jit | Labrador Tea | Cold Remedy, Leaves used for the common cold. | Chandler et al. (1979) |
| *Rhododendron (syn. Ledum) groenlandicum* | Apuistekie'ji'jit | Labrador Tea | Diuretic, Decoction of leaves taken as a diuretic. | Speck (1917) |
| *Rhododendron (syn. Ledum) groenlandicum* | Apuistekie'ji'jit | Labrador Tea | Diuretic, tea brewed from leaves | Speck (1917) |
| *Rhododendron (syn. Ledum) groenlandicum* | Apuistekie'ji'jit | Labrador Tea | Kidney Aid, Leaves used for kidney trouble and to make a beverage. | Chandler et al. (1979) |
| *Rhododendron (syn. Ledum) groenlandicum* | Apuistekie'ji'jit | Labrador Tea | Misc. Disease Remedy, Leaves used for scurvy and as a beverage. | Chandler et al. (1979) |
| *Rhododendron (syn. Ledum) groenlandicum* | Apuistekie'ji'jit | Labrador Tea | Respiratory Aid, Leaves used for asthma. | Chandler et al. (1979) |
| *Rhododendron (syn. Ledum) groenlandicum* | Apuistekie'ji'jit | Labrador Tea | Tea from leaves used as a tonic to treat variety of kidney ailments | Lacey (1993) |
| *Rhododendron* | Apuistekie'ji'jit | Labrador Tea | Tonic, Infusion of leaves taken for | Speck (1917) |

| Scientific Name | Mi'kmaq Name | Common Name | Mi'kmaq Traditional Use | Source |
|---|---|---|---|---|
| *(syn. Ledum) groenlandicum* | | | a "beneficial effect on the system." | |
| *Rubus alleghaniensis* | Ajioqjominaqsi | Common Blackberry | Berry used to treat diarrhoea. Tea from runners used to as stomach medicine. Tea from leaves and berries used to treat sores in mouth and throat. | Lacey (1993) |
| *Rubus chamaemorus* | Mkuo'qminaqsi'k | Cloudberry (Bakeapple) | Cough Medicine, Roots used for cough. | Chandler et al. (1979) |
| *Rubus chamaemorus* | Mkuo'qminaqsi'k | Cloudberry (Bakeapple) | Febrifuge, Roots used for fever. | Chandler et al. (1979) |
| *Rubus chamaemorus* | Mkuo'qminaqsi'k | Cloudberry (Bakeapple) | Tuberculosis Remedy, Roots used for consumption. | Chandler et al. (1979) |
| *Rubus hispidus* | | Bristly Dewberry/ Swamp Dewberry | Cough Medicine, Roots used for cough. | Chandler et al. (1979) |
| *Rubus hispidus* | | Bristly Dewberry/ Swamp Dewberry | Febrifuge, Roots used for fever. | Chandler et al. (1979) |
| *Rubus hispidus* | | Bristly Dewberry/ Swamp Dewberry | Tuberculosis Remedy, Roots used for consumption. | Chandler et al. (1979) |
| *Rubus idaeus* | Klitawmanaqsi'k | Red Raspberry | Leaves and roots used to treat rheumatism. Berries area a good general tonic | Lacey (1993) |
| *Rubus pubescens var. pubescens* | | Dwarf Red Blackberry/ Dwarf Raspberry | Abortifacient, Parts of plant used for irregular menstruation. | Chandler et al. (1979) |
| *Rumex crispus* | | Curly Dock | Cathartic, Infusion of roots used as a purgative. | Mechling (1959) |
| *Rumex crispus* | | Curly Dock | Cathartic, Roots used as a purgative. | Chandler et al. (1979) |
| *Rumex crispus* | | Curly Dock | Urinary Aid, Infusion of roots, hemlock, parsley and Prince's pine used for colds in the bladder. | Mechling (1959) |
| *Rumex crispus* | | Curly Dock | Urinary Aid, Roots used "cold in bladder." | Chandler et al. (1979) |
| *Salix discolor* | Lmu'ji'jmnaqsi | Pussy Willow | Bark used externally to treat bruises, and skin cancer. Tea form bark also used to treat colds and kidney ailments | Lacey (1993) |
| *Sambucus racemosa* | Pukulu'skwimanaqsi'l | Red Elderberry | Barked used for emetic and cathartic purposes | Lacey (1993) |
| *Sambucus racemosa* | Pukulu'skwimanaqsi'l | Red Elderberry | Emetic, Herbs used as an "emetic (with round wood)." | Chandler et al. (1979) |
| *Sarracenia purpurea* | Mkoqewik | Northern Pitcher Plant | Antihemorrhagic, Herbs used for spitting blood. | Chandler et al. (1979) |
| *Sarracenia purpurea* | Mkoqewik | Northern Pitcher Plant | Antihemorrhagic, Strong decoction of root taken for "spitting blood" and pulmonary complaints. | Speck (1917) |
| *Sarracenia purpurea* | Mkoqewik | Northern Pitcher Plant | Kidney Aid, Herbs used for kidney trouble and consumption. | Chandler et al. (1979) |
| *Sarracenia purpurea* | Mkoqewik | Northern Pitcher Plant | Misc. Disease Remedy, Roots used for smallpox and herbs used for consumption. | Chandler et al. (1979) |

| Scientific Name | Mi'kmaq Name | Common Name | Mi'kmaq Traditional Use | Source |
|---|---|---|---|---|
| *Sarracenia purpurea* | Mkoqewik | Northern Pitcher Plant | Pulmonary Aid, Decoction of root taken for "spitting blood and other pulmonary complaints." | Speck (1917) |
| *Sarracenia purpurea* | Mkoqewik | Northern Pitcher Plant | Roots used for Sore throat, spitting blood | Speck (1917) |
| *Sarracenia purpurea* | Mkoqewik | Northern Pitcher Plant | Tea from root used to treat tuberculosis, kidney ailments and relieve indigestion | Lacey (1993) |
| *Sarracenia purpurea* | Mkoqewik | Northern Pitcher Plant | Throat Aid, Infusion of root taken for sore throat. | Speck (1917) |
| *Sarracenia purpurea* | Mkoqewik | Northern Pitcher Plant | Tuberculosis Remedy, Herbs used for consumption. | Chandler et al. (1979) |
| *Sorbus americana* | E'psemusi | American Mountainash | Tea from the bark used to treat stomach pains | Lacey (1993) |
| *Sorbus americana* | E'psemusi | American Mountainash | Analgesic, Bark used for "mother pains." | Chandler et al. (1979) |
| *Sorbus americana* | E'psemusi | American Mountainash | Dermatological Aid, Bark used for boils. | Chandler et al. (1979) |
| *Sorbus americana* | E'psemusi | American Mountainash | Emetic, Parts of plant used as an emetic. | Chandler et al. (1979) |
| *Sorbus americana* | E'psemusi | American Mountainash | Gastrointestinal Aid, Infusion of root taken for colic. | Speck (1917) |
| *Sorbus americana* | E'psemusi | American Mountainash | Gynecological Aid, Bark used for "mother pains." | Chandler et al. (1979) |
| *Sorbus americana* | E'psemusi | American Mountainash | Unspecified, Infusion of bark taken for unspecified purpose. | Speck (1917) |
| *Typha latifolia* | | Broadleaf Cattail | Dermatological Aid, Leaves used for sores. | Chandler et al. (1979) |
| *Vaccinium angustifolium* | Pkumanaqsi | Low Bush Blueberry | Leaves and roots used to treat rheumatism. Berries area a good general tonic | Lacey (1993) |
| *Vaccinum macrocarpon* | | Large -fruited Cranberry | Stewed berries used as a general tonic | Lacey (1993) |

**Table 4.4** ***Plant Species Traditionally Utilized by Mi'Kmaq as Craft and/or Construction materials, which Occur on the Goldboro LNG Project Site***

| Scientific Name | Mi'kmaq Name | Common Name | Mi'kmaq Traditional Use | Source |
|---|---|---|---|---|
| *Abies balsamea* | Stoqn | Balsam Fir | Wood used for kindling and fuel. Boughs used to make beds. | Speck and Dexter (1951), Unama'ki Institute of Natural Resources, 2012 |
| *Acer rubrum* | | Red Maple | Used to make basketware. | Speck and Dexter (1951) |
| *Acorus americanus* | Ki'kwesu'sk | Sweet Flag (Flagroot) | | Unama'ki Institute of Natural Resources, 2012 |
| *Alnus sp.* | Tupsi | Alder | Bark used to make a dye. | Speck and Dexter (1951) |
| *Betula papyrifera* | Maskwi | White/Paper Birch | Bark used to make baskets. | Speck and Dexter (1951) |
| *Betula papyrifera* | Maskwi | White/Paper Birch | Bark used to make boxes, coffins and other containers. | Speck and Dexter (1951) |
| *Betula papyrifera* | Maskwi | White/Paper Birch | Bark used to make canoes. | Rousseau (1948) |
| *Betula papyrifera* | Maskwi | White/Paper Birch | Bark used to make dishes and cooking utensils. | Speck and Dexter (1951) |
| *Betula papyrifera* | Maskwi | White/Paper Birch | Bark used to make house coverings. | Speck and Dexter (1951) |
| *Juniperus sp.* | | Red Cedar | Wood used for kindling and fuel. | Speck and Dexter (1951) |
| *Larix laricina* | Apu'tam'kie'jit | Eastern Larch/ Tamarack | Wood used for kindling and fuel. | Speck and Dexter (1951) |
| *Picea glauca* | Kawatkw | White Spruce (Cat Spruce) | Boughs used to make beds. | Speck and Dexter (1951) |
| *Picea glauca* | Kawatkw | White Spruce (Cat Spruce) | Wood used for kindling and fuel. | Speck and Dexter (1951) |
| *Picea mariana* | Kawatkw | Black Spruce (Bog Spruce) | Boughs used to make beds. | Speck and Dexter (1951) |
| *Picea mariana* | Kawatkw | Black Spruce (Bog Spruce) | Roots used as sewing material for canoe birch bark products. | Speck and Dexter (1951) |
| *Picea mariana* | Kawatkw | Black Spruce (Bog Spruce) | Wood used for kindling and fuel. | Speck and Dexter (1951) |
| *Pinus strobus* | | Eastern White Pine | Wood used for kindling and fuel. | Speck and Dexter (1951) |

### 4.1.3 Results of Wildlife Survey and Habitat Modeling Exercise

The AMEC field survey revealed presence of several known species of importance and known historical use to Mi'kmaq harvesters. Furthermore, review of known wildlife habitat preferences and the results of the habitat surveys, a determination of wildlife species potentially using the project site was made. These are outlined in Table 4.5.

**Table 4.5** ***Wildlife Resources Potentially Utilizing the Goldboro LNG Site.***

| Species | | Presence noted in site survey | Goldboro LNG Habitat Type | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Mixed Forest | Coniferous Forest | Bog | Riparian /Stream | Clear Cut | Disturbed Area |
| **MAMMALS** | | | | | | | | |
| American Mink | *Mustela vison* | X | | | | X | | |
| Beaver | *Castor canadensis* | X | X | X | | X | | |
| Black Bear | *Ursus americanus* | | X | X | | X | | |
| Bobcat | *Felis rufus* | X | X | X | | | | |
| Canada Lynx | *Felis lynx* | | X | X | | | | |
| Eastern Coyote | *Canis latrans* | X | X | X | | | | X |
| Fisher | *Martes pennant* | | X | X | | | | |
| Moose | *Alces alces* | | X | X | X | X | | |
| Muskrat | *Ondatra zibethica* | X | | | | X | | |
| Red Squirrel | *Tamiasciurus hudsonicus* | | X | X | | | | |
| Raccoon | | X | X | X | | X | | |
| Red Fox | *Vulpes vulpes* | X | X | X | | X | X | X |
| Porcupine | *Erethizon dorsatum* | | X | X | | | | |
| Otter | | X | | | | | | |
| Short-Tailed Weasel | *Mustela erminea* | X | X | X | | | | |
| Snowshoe Hare | | X | X | X | | | | |
| Striped Skunk | *Mephitis mephitis* | X | X | X | | | | |
| White-Tailed Deer | *Odocoileus virginianus* | | X | X | | | X | X |
| **BIRDS** | | | | | | | | |
| Great Horned Owl | *Buba virginianus* | | X | X | | | | |
| Barred Owl | *Strix varia* | | X | X | | | | |
| Spruce Grouse | *Dendragapus canadensis* | | X | X | | | | |
| Ruffed Grouse | *Bonasa umbellus* | | X | X | | | | |
| American Woodcock | *Philohela minor* | | x | | | x | | |
| Wilson's Snipe | *Gallinago delicata* | | | | | | | |

In addition to the species noted above, the project team identified a number of traditionally important marine aquatic birds and marine mammals that have been important to Mi'kmaq harvesters. Many of these species are no longer hunted due to their low abundance (waterfowl), or due to general public opinion (marine mammals). Some marine species are, however the target of recreational and commercial operations. Commercial fishing has been conducted in the area by several first Nations who fish in accordance with DFO licensing conditions for lobster, urchins, snow crab and tuna in the waters along the eastern shore. The Shubenacadie Band sealers have conducted an exploratory commercial harvest of grey seals on coastal islands in the area in recent years. Targeted marine species in the area include:

Waterfowl:

- American Black Duck
- Canada Goose
- Common Eider
- Common Goldeneye
- Common Merganser
- Common Scoter
- Green-winged Teal
- Hooded Merganser
- Long-tailed Duck
- Red-breasted Merganser
- Ring-necked Duck
- Surf Scoter
- White-winged Scoter

Marine Mammals:

- Grey Seal
- Harbour Porpoise

Fish:

- American eel (catadromous)
- American Plaice
- Brown Trout (freshwater)
- Cod
- Gaspereau (anadromous)
- Haddock
- Herring
- Mackerel
- Pollock
- Redfish
- Salmon (anadromous)
- Shad
- Silver Hake
- Smelt
- Yellowtail Flounder

Bluefin Tuna and Swordfish have also historically been targeted from this area.

Marine Invertebrates:

- Lobster
- Mussels
- Squid
- Scallops
- Rock Crab
- Urchins

# 5.0 Conclusion

The purpose of this MEK study is to identify the historical, current and potential interests of Mi'kmaq communities on the lands and resources in and near the Goldboro LNG Project site that will enhance the previously completed MEKS for the Keltic Petrochemical Project on the same site. The MEKS Update does not constitute consultation and the information has been collected without prejudice to Mi'kmaq Rights and Title.

The initial MEKS and information compiled for the MEKS Update demonstrates that there has been a traditional relationship with, and attachment to the Goldboro region. The region holds historical significance to the Mi'kmaq nation and to the development of relationships between European settlers and the Mi'kmaq. It was in this region that Mi'kmaq demonstrated local hunting, trapping and gathering practices to newcomers, thus fostering a lasting relationship of peace and friendship with the French and eventually other European inhabitants of the area. The existence of plant species in the study area that are known to be culturally significant to Mi'kmaq, and the close proximity to areas of know past and present Mi'kmaq settlement is evidence that the site was likely used by the ancestors of local Mi'kmaq communities members.

While there has been limited involvement of Band members in the Project site in recent years, it is clearly understood that the land had likely been used in the past for food gathering and recreation. The decision to continue to use this area has been affected by a number of historical factors (most significantly centralization policies which moved Mi'kmaq families to reserves) and demographic factors; the rapidly growing youth population is pursuing education and alternative training has resulted in a de-emphasis on hunting. It is also clear from the research that, traditionally, decisions related to hunting and fishing has been based on opportunistic access to food resources that are most abundant. As a result, areas in closer proximity to the current reserve communities and larger urban centers (Halifax and Sydney) where wildlife, medicinal plants and fishery resources are in sufficient abundance will experience greater effort than the Project Site.

Of particular note is the historical use of the region for marine mammal harvesting (hence the territorial name of Eskíkekik) which may be an emerging commercial harvesting activity. The harvest of seals and porpoises in the region would likely have been conducted with other marine food harvesting activities. The region continues to be important for seafood harvesting in accordance with Mi'kmaq livelihood fisheries initiatives which are economically significant for the communities following the Supreme Court of Canada's *Marshall* Decision. The abundance grey seal population has also been the focus of some attention by commercial harvesters, and could be a significant resource for Mi'kmaq sealers.

As resource distribution and access changes (resulting from changes in land-use, urbanization and other developments) in the mid to long-term future, there may be an increased emphasis on the resources in the Guysborough area. As a result, there may be future interest in fishing, hunting and gathering in the Project area. In keeping with traditional decision-making practices, an important attribute of the ecological knowledge system, areas such as the Project site would logically be considered for harvesting activities due to the close proximity to the reserves, historical family ties to the region, and more recent experience some communities have with local commercial fisheries operations.

In keeping with the principles and statements of the United Nations Declaration on the Rights of Indigenous Peoples, future planning and development of the Goldboro LNG Terminal should involve the application of Mi'kmaq Ecological Knowledge. Pieridae should, as a result, maintain communication with the local Mi'kmaq communities and engage them in Project related decision making.

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