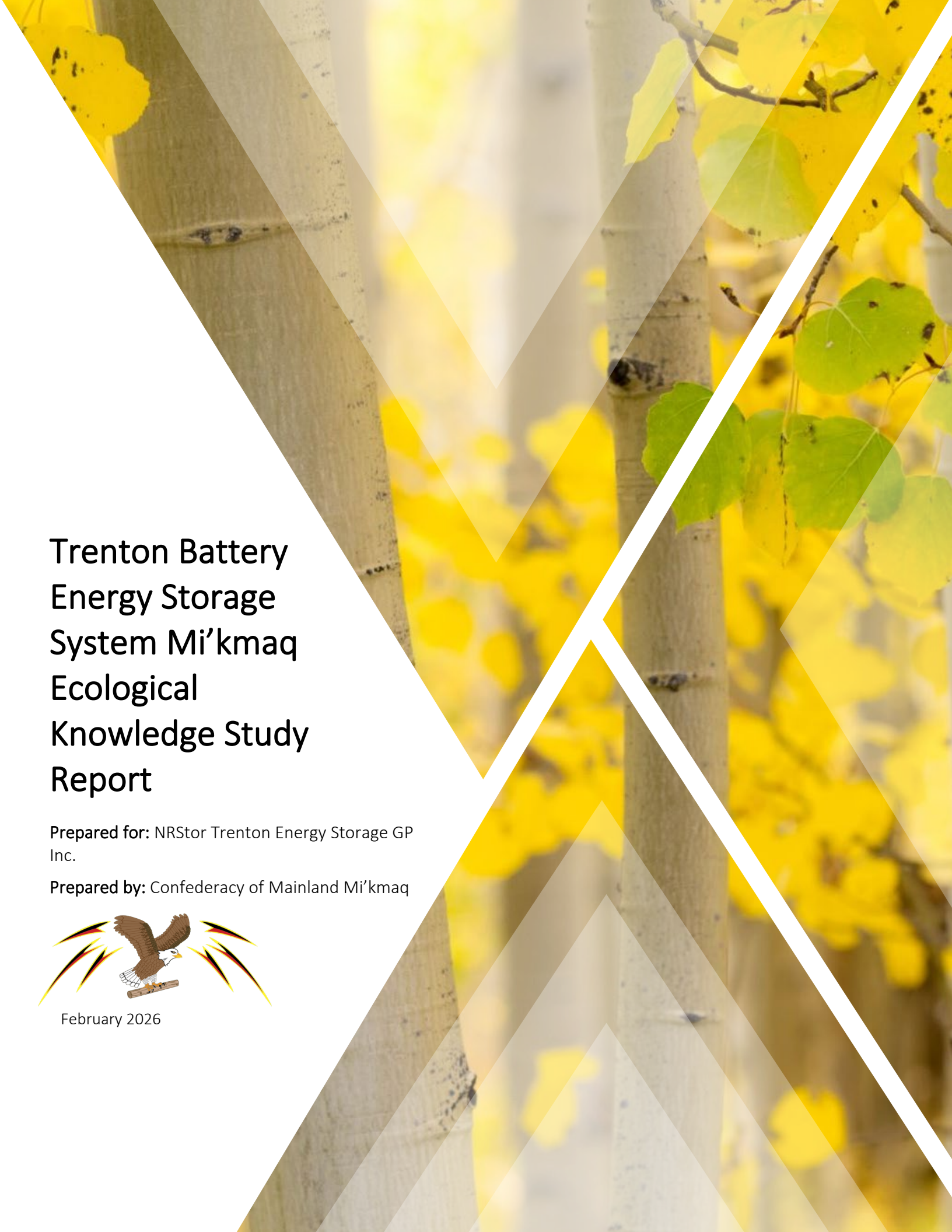

Trenton Battery Energy Storage System Mi'kmaq Ecological Knowledge Study Report

Prepared for: NRStor Trenton Energy Storage GP Inc.

Prepared by: Confederacy of Mainland Mi'kmaq

February 2026

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ACRONYMS

BESS	Battery Energy Storage System
CMM	Confederacy of Mainland Mi'kmaq
GHG	Greenhouse Gas
IK	Indigenous Knowledge
IKS	Indigenous Knowledge System
MEK	Mi'kmaq Ecological Knowledge
MEKS	Mi'kmaq Ecological Knowledge Study
MW	Megawatts
MWh	Megawatt-hours
NB	New Brunswick
NS	Nova Scotia
SARA	Species at Risk
WMA	Wskijnu'k Mtmo'taqnuow Agency Ltd.

EXECUTIVE SUMMARY

Mi'kmaq Ecological Knowledge (MEK) represents a comprehensive, place-based system of understanding that has been developed through millennia of Indigenous relationships with lands, waters, and resources in Mi'kma'ki. Indigenous Knowledge is not simply a set of observations; it is a living, dynamic body of knowledge, practice, and belief embedded in culture, language, governance, spirituality, and community institutions. It is sustained through intergenerational transmission and adapts over time in response to environmental and social change, while remaining grounded in core values and teachings.

A defining feature of the Mi'kmaq Knowledge System is the inseparability of people and place. Knowledge is rooted in specific ecosystems and cultural landscapes, and it reflects reciprocal relationships among living beings, environments, and responsibilities for stewardship. Ways of knowing within these systems are multifaceted: cultural knowledge maintained through ceremony and community practice; experiential knowledge gained through direct engagement with the land and waters; and acquired knowledge shared through storytelling, instruction, and community learning. Together, these modes of learning generate a holistic environmental understanding that complements Western scientific approaches by capturing interconnected relationships, long-term patterns, and culturally grounded meanings that may not be evident through reductionist methods alone.

Within Mi'kma'ki, MEK offers an integrated lens for understanding ecological processes, seasonal cycles, species behaviour, habitat change, and culturally significant landscapes, while also clarifying how proposed developments may affect Mi'kmaq relationships to place, an issue with direct relevance to Indigenous Rights and Title. Incorporating Mi'kmaq Ecological Knowledge Studies (MEKS) into assessment and planning processes strengthens decision-making by improving baseline understanding, importance of the relationship between people and place, and reinforcing Mi'kmaq self-determination through Indigenous-led research and governance.

The MEKS methodology described is structured, evidence-based, and culturally grounded. It combines (1) desktop research to synthesize existing academic, Indigenous, government, archival, and mapped sources; (2) Indigenous Knowledge Holder engagement through ethically approved interviews and workshops supported by clear consent and information management; (3) site visits to ground-truth and document current ecological and cultural conditions; and (4) collaborative roundtable analysis to cross-reference findings and interpret information through Mi'kmaq perspectives. Information is organized using three core lenses, time period, type of use (sustenance versus cultural/spiritual), and significance, to identify valued components, potential interactions, and areas where impacts could result in unrecoverable loss or long-term constraints on access and use.

Overall, the material establishes that Mi'kmaq relationships to lands and waters are continuous, intergenerational, and organized around seasonal movement and ecological rhythms; that sustenance, cultural, and spiritual uses are inseparable in practice; and that effects must be understood not only as biophysical change but also as changes to access, cultural integrity, confidence in traditional foods, and the ability to sustain responsibilities and relationships within Epekwitk aq Piktuk and the broader Mi'kma'ki landscape.

1. INTRODUCTION

1.1 Project Overview

This Mi'kmaq Ecological Knowledge Study (MEKS) is being completed in support of the proposed Trenton Battery Energy Storage System (BESS) Project, located in Trenton, Nova Scotia. The Trenton BESS Project is being developed by a jointly owned project organization comprised of NRStor Inc., Wskijnu'k Mtmo'taqnuow Agency Ltd. (WMA), and Aecon Concessions. The MEKS is intended to document Mi'kmaq Ecological Knowledge, the relationship between people and place, and cultural values within the Study Area. The information gathered will support project planning and decision-making, inform potential environmental assessment and mitigation measures, and contribute to meaningful and ongoing engagement with Mi'kmaq communities.

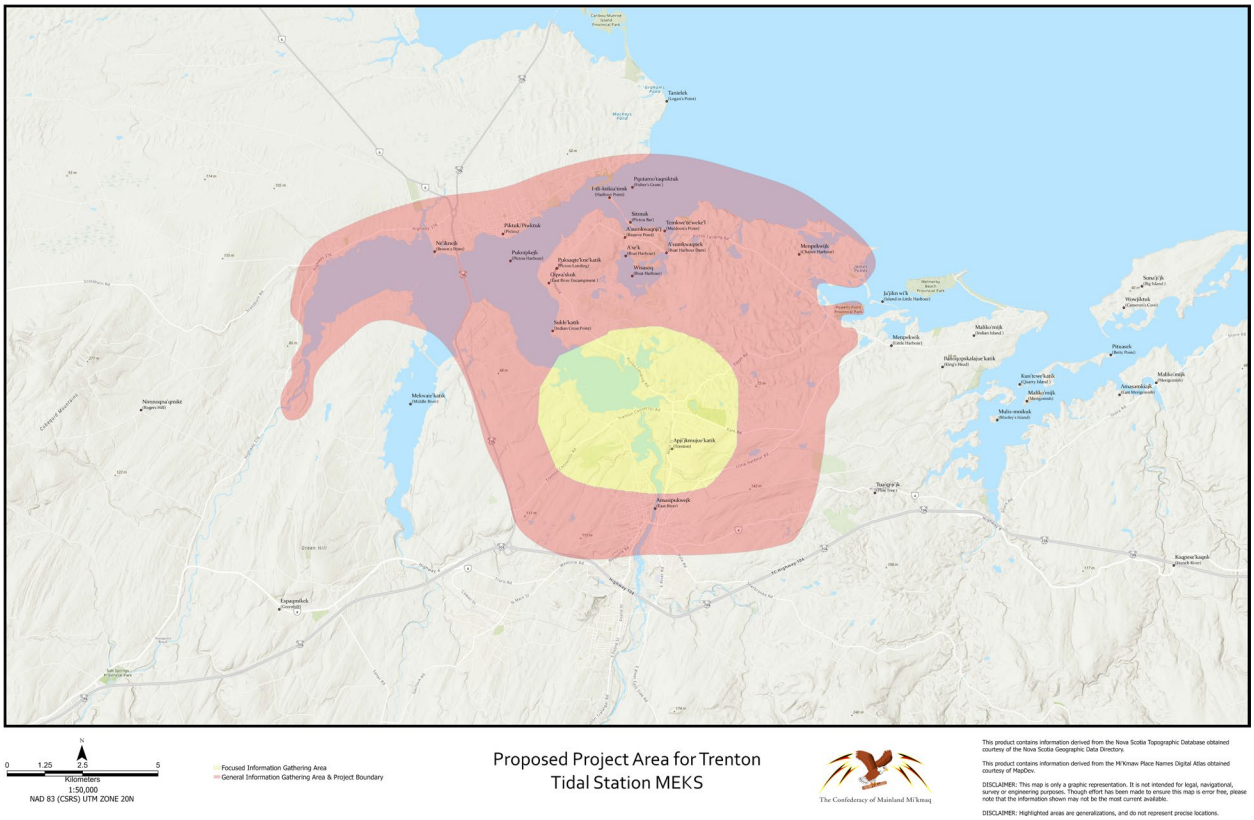


Figure 1-1: MEKS Study Area

The project involves the development of a utility-scale Battery Energy Storage System with a capacity of up to 150 megawatts (MW) and an energy storage range of approximately 600 to 1,200 megawatt-hours (MWh), to be located within the Trenton Industrial Park. The purpose of the proposed project is to provide clean, reliable electricity capacity to the Nova Scotia power grid by storing surplus renewable energy during periods of low demand and releasing that energy during peak demand periods. By providing capacity, operating reserve, and essential grid-balancing services, the project will enhance grid reliability, efficiency, and flexibility, while enabling increased integration of renewable energy sources across the province.

The project area is strategically sited adjacent to one of the coal-fired generating facilities identified for early decommissioning as part of Nova Scotia's commitment to phase out coal generation by 2030. At present, coal accounts for a significant portion of the province's electricity generation. The Trenton BESS Project will support the transition away from coal by reducing the need for carbon-intensive generation during peak periods, thereby contributing to greenhouse gas (GHG) emission reductions and advancing provincial clean energy objectives.

Over its anticipated 20-year operating life, the project is expected to reduce GHG emissions by up to 1.9 million tonnes, equivalent to removing more than 22,000 vehicles from the road annually. In addition to its environmental benefits, the project has the potential to generate economic value through improved grid performance, cost savings for ratepayers, and enhanced system resilience.

This MEKS will identify and document Mi'kmaq Ecological Knowledge, the relationship to place, and the historical and contemporary use of the lands and waters surrounding the project area. The results will help ensure the inclusion of the Mi'kmaq perspective to support informed decision-making during project development in a way that respects Mi'kmaq Rights and values.

1.2 Indigenous Knowledge and Indigenous Knowledge Systems

Indigenous Knowledge (IK), including Mi'kmaq Ecological Knowledge (MEKS), encompasses a profound understanding, skills, and practices developed and maintained by Indigenous societies through their interactions with the lands, waters, and resources in their traditional territories. This knowledge embodies the relationships among living beings and their environments, tightly interwoven with both the knowledge holders and the ecological contexts they originate from.

IK is a dynamic body of knowledge, practices, and beliefs that evolves within Indigenous cultural frameworks. These frameworks allow for the transmission of knowledge across generations, highlighting structures that are adaptive and rooted in Indigenous traditions (Reid et al., 2021).

Traditional Knowledge Systems are intimately connected to specific places, reflecting the deep relationships Indigenous peoples have with their environments. Moreover, Indigenous Knowledge Systems (IKS) extend across various domains of society, including culture, language, worldviews, social organization, beliefs, spirituality, values, skills, and techniques. Studies of knowledge frameworks offer insights into how Indigenous Knowledge is generated, preserved, and passed down through time. These systems are adaptable, evolving in response to environmental and social shifts while remaining anchored in traditional values and teachings.

Connection to Place

The relationship between people and their environment is foundational to IKSs, significantly shaping cultural identity and informing interactions with resources. This connection transcends mere geography; it incorporates a community's socio-cultural elements and a profound understanding of land and resources. The bond individuals have with specific places informs their traditions, customs, and lifestyles, ensuring that knowledge encompasses not just the land but is embedded within it. Even when people leave a location, their historical and cultural ties persist, influencing their perspectives on land use, stewardship, and governance.

The ways of understanding within IKSs include:

- Cultural Knowledge: This encompasses societal traditions, including feasts and ceremonies that foster community cohesion and encourage environmental respect.

- Experimental Knowledge: Gained through direct interaction with the land, this type of knowledge involves observations and practices, such as determining the optimal time to harvest certain plants through experimentation.
- Acquired Knowledge: Passed down through generations via teaching, storytelling, and institutional learning, this knowledge ensures continuity and adaptation over time.

Together, these various forms of learning provide a holistic comprehension of the environment that extends beyond mere data, emphasizing the methods through which knowledge is both acquired and distributed within a community, nation, or family.

Mi'kmaq Ecological Knowledge

Mi'kmaq Ecological Knowledge reflects the cumulative wisdom of the Mi'kmaq people within Mi'kma'ki, shaped over millennia by their connections to their traditional territory. This body of knowledge offers a comprehensive understanding of the natural world, distinct from Western reductionist methodologies. A Mi'kmaq Ecological Knowledge Study (MEKS) evaluates seasonal resource patterns, environmental changes, and the enduring relationship between the Mi'kmaq and their land. This knowledge does not exist apart from the environment; instead, it is an essential aspect of it, highlighting how Mi'kmaq culture is intertwined with ecological processes. Consequently, MEK provides critical insights into the potential impacts of development projects on local ecology and Indigenous community relations, with significant implications for Indigenous Rights and Title.

By integrating MEK into environmental assessments, decision-making processes become more inclusive, acknowledging the lived experiences, cultural values, and ecological insights of Indigenous communities.

Importance of Mi'kmaq Ecological Knowledge Systems

In the context of MEKS, the significance of Indigenous Knowledge and its evolving systems can be summarized in several key areas:

- Holistic Understanding of Ecosystems: Mi'kmaq Knowledge offers a comprehensive view of ecological interconnections, which complements scientific analytical methodologies that may overlook subtle ecological relationships.
- Cultural Relevance and Context: MEKS are conducted within the cultural and spiritual framework of the Mi'kmaq people, ensuring that these studies uphold community values and practices, thereby fostering trust and meaningful engagement.
- Long-Term Environmental Monitoring: With centuries of observation and interaction with local ecosystems, MEK provides invaluable baseline data that helps identify historical ecological conditions and track changes over time.
- Sustainability and Stewardship: MEK Systems are based on principles aimed at the sustainable use of natural resources. Incorporating these principles informs management practices that prioritize ecological health and resilience.
- Self-Determination and Sovereignty: MEKS empower the Mi'kmaq to utilize their knowledge and rights to steer research processes concerning their territories, reaffirming their role as fundamental knowledge holders and decision-makers in environmental management.

2. METHODOLOGY

2.1 Desktop Research

A desktop review was completed to build an overall understanding of the project area's ecological and socio-cultural setting and to compile existing information on Mi'kmaq land and resource use, practices, and knowledge. The CMM MEKS Team reviewed academic sources, studies and reports produced by Indigenous organizations, government publications, and relevant grey literature relating to MEK. Archival and historical materials were also examined, including maps, documented oral histories, traditional land-use records, and written accounts of ecological stewardship. Findings from this phase were used to shape the interview approach and to support interpretation during the roundtable analysis.

2.2 Indigenous Knowledge Holder Interviews

Knowledge Holder interviews are a core component of an MEKS, providing access to living, culturally grounded knowledge about species, habitats, and ecosystem relationships within the project area. Through these discussions, Knowledge Holders share observations of seasonal cycles, harvesting and stewardship practices, and environmental change over time, grounding the study in intergenerational experience and place-based understanding.

To begin, the CMM MEKS Team worked with communities to identify respected Knowledge Holders with familiarity and experience in or near the project area. Participants included Elders, harvesters, gatherers, and other community members recognized for their expertise. An interview guide was developed to support consistent coverage of key topics while allowing conversations to remain flexible and participant-led. Questions were designed to be open-ended and exploratory, addressing themes such as species behaviour, habitat conditions and change, knowledge transmission, relationship with that space, and patterns of land and resource use. The interview guide and supporting project materials were submitted to Mi'kmaq Ethics Watch for review and approval.

Knowledge Holders were invited to participate through individual interviews and/or community workshops. Before each session, participants were provided with clear project information and consent materials outlining how information would be collected and used, how Indigenous Knowledge would be stored and shared, and how personal information would be protected.

2.3 Site Visit

Site visits were undertaken to document ecological conditions and to observe features relevant to Mi'kmaq land use, including culturally important sites, plants, and traditional use areas. During these visits, the CMM Team recorded observations through field notes and photography, following applicable access protocols and respecting cultural sensitivities.

2.4 Roundtable Analysis

A team-based roundtable approach was used to synthesize and interpret information gathered through desktop research and Knowledge Holder engagement. CMM MEKS Team members collectively reviewed findings to confirm consistency, add context, identify themes and patterns, and evaluate their relevance to the MEKS. Sessions were structured to encourage open discussion and to allow non-linear contributions where this supported deeper interpretation.

Analysis was organized around three overarching themes:

- **Time period:** consideration of current, recent, and historic use of lands and resources in the project area.
- **Type of use:** characterization of use as sustenance (e.g., fishing, hunting, gathering) and/or spiritual and cultural practice.
- **Significance:** assessment of whether specific areas or species may hold particular importance to the Mi'kmaq, including whether potential project-related loss or disruption could be unrecoverable and restrict future use.

3. Mi'kmaq People and Place

The Mi'kmaq are the Indigenous people whose ancestral homeland, Mi'kma'ki, spans much of what is now Atlantic Canada, which comprises Nova Scotia, New Brunswick, Prince Edward Island, and Newfoundland and Labrador, and extends to the Gaspé Peninsula of Quebec. Within this territory, coastal shorelines, estuaries, river networks, and forested inland areas form interconnected landscapes that have supported Mi'kmaq settlement, travel routes, harvesting practices, and stewardship since time immemorial. Mi'kmaq relationships with land and water are foundational to cultural identity and community well-being, shaping livelihoods, governance, and spiritual responsibilities grounded in respect, balance, and reciprocity with the natural world.

The Mi'kmaq language, a member of the broader Algonquian language family of northeastern North America, remains central to the continuity of Mi'kmaq knowledge systems. Through language and oral tradition, ecological observations, place-based teachings, and cultural values, ecological knowledge is carried between generations, sustaining connections to Mi'kma'ki and informing how the Mi'kmaq understand and engage with their environment today.

3.1 Mi'kmaq Society

Mi'kmaq society is based on a lasting connection with Mi'kma'ki that shapes identity and responsibility. A foundational teaching captured in the concept of **weji-sqalia'timk** expresses Mi'kmaw origin and belonging as inseparable from the land itself, conveying that the Mi'kmaq emerged from the landscapes of Mi'kma'ki rather than arriving from elsewhere (Sable & Francis, 2012). This understanding is further reinforced through the "we exclusive" expression **weji-sqalia'tiek**, "we sprouted from", which emphasizes a collective, living connection between people and the natural world (Sable & Francis, 2012).

Together, these teachings frame Mi'kmaq society as one grounded in reciprocity: the land and waters are not simply resources, but relatives and responsibilities. Over generations, Mi'kmaw knowledge systems, cultural narratives, and governance practices have developed in relation to seasonal cycles, ecological conditions, and place-based teachings, reinforcing the Mi'kmaq role as stewards of Mi'kma'ki and shaping social organization, spirituality, and community well-being (Sable & Francis, 2012).

Place Names

Mi'kmaw place names are a form of "living geography" that does much more than label locations: they have encoded practical navigation cues and culturally embedded knowledge about land, water, species, and seasonal patterns. Because many names are descriptive, pointing to distinctive landmarks, resources, movements of water, or activities associated with a place, they helped people orient themselves and travel confidently across Mi'kma'ki long before modern maps, including in coastal settings where naming supports wayfinding and safe access to fisheries and waterways (Davey, 2016; Sable & Francis, 2012). At the same time, toponyms[1] function as repositories of oral history and collective memory, carrying teachings and relationships that affirm Mi'kmaw responsibilities to place. As part of this wider knowledge system, Mi'kma'ki's seven traditional districts (refer to Figure 3-1) and their names reflect enduring relationships between people and territory, reinforcing identity, governance, and cultural continuity (Battiste & Henderson, 2000; Battiste, 2002; Sable & Francis, 2012).

Today, the recovery and revitalization of Mi'kmaw place names is also widely recognized as an act of cultural reclamation that counters colonial erasure and helps restore Mi'kmaw language and worldview

[1] A toponym is a place name, the name given to a geographic feature or location.

"back on the map," strengthening intergenerational knowledge transfer and public recognition of Mi'kmaq presence and rights in Mi'kma'ki (Broadhead, 2020).

Figure 3-1: Map of Mi'kma'ki Districts (Source: https://parks.canada.ca/lhn-nhs/ns/fortanne/culture/autochtone-indigenous/carte-mikmaki-map)

The Mi'kmaw place names presented in the table below illustrate how language encodes geography, history and cultural knowledge, transforming the landscape into a living archive of memory and meaning.

Table 3-1: Mi'kmaq Place Names (Source: Sable and Francis, 2012)

Place Name	Meaning	Location
Amaqapskeket	Rushing over rocks	Gold River, NS
Epekwitk aq Piktuk	Cradled above water and the explosion place	Prince Edward Island and the lowland area along the Northumberland Strait district
Eskikewa'kik	Skindresser's territory	Portion of Atlantic coastal region from the eastern portion of Nova Scotia, west of Sheet Harbour, to the Canso district
E'sue'katik	The place of clams	St Esprit, Cape Breton
Kaqpese'kaqnk	The smelt fishing place	Lower Barney's River, NS

Place Name	Meaning	Location
Kespe'k	End or land	Saint John River Valley and the Appalachian Mountain Range of Northern New Brunswick and the Gaspé area of Quebec district
Kespukwitk	End of flow	Area west of the La Have River to Yarmouth/Cape Sable
Kjipuktuk	The great harbour	Halifax, NS
Kopitue'katik	A place where there are many beavers or where beavers gather	Beaver Harbour, NS
Ktaqmkuk	Across the waves/water	Newfoundland district
Kukwesue'katik	Haunt of the Giants	Middle River, Sheet Harbour, NS
L'sitkuk	Flowing along by high rocks	Bear River First Nation, NS
Matuesuatp	The head of a porcupine	Porcupine Head, NS
Mntuapskuk	Devil's Rock	Jeddore, NS
Nalikitquniekjk	A place where branches are torn off	Antigonish, NS
Napu'saqnuk	Place of stringing beads	St Mary's, NB
Pankweno'pskuk	Lice-picking falls	Gabriel Falls, NS
Penatkuk	Bird nesting place	Shelburne River, NS
Paq'tnkek	By the bay	Paq'tnkek, NS
Plekteaq	Split by a handspike	Cape Split, NS
Pne'katik	Egg-laying place	Benacadie, NS
Siknikt	Drainage area	Miramichi River and the Acadian Coast and Bay of Fundy Region
Sipekne'katik	Area of wild potato/turnip, where ground nuts are found	Subenacadie District and the Minas Basin coast

Place Name	Meaning	Location
Sipuk	At the river	Sydney, Cape Breton, NS
Tlaqatik	At the encampment	Tracadie, NS
Tmaqnapskw	Something that looks like a pipe	Miramichi, NB
Unama'kik	Mi'kmaw territory	Cape Breton Island district
Wagmitkuk	Clean flowing water	Wagmatcook, NS
Wanpa'q	Calm water	Cole Harbour, NS
Wiaqajk	The mixing place	Margaree, NS
Apji'jkmujue'katik	Place of the ducks	Trenton, NS

GOVERNANCE

Traditional Governance in Mi'kma'ki (Pre-contact Foundation)

Before sustained European settlement, Mi'kma'ki was governed through an interconnected system that linked family authority, community leadership, district governance, and national coordination. At the foundation, the extended family served as the primary unit of social organization and political decision-making. Mi'kmaw governance has been guided by consensus "since time immemorial," and many decisions were historically worked through "family-based Mi'kmawey" before being carried forward to broader leadership forums (Mi'kmawey Debert Cultural Centre, 2022b).

At the community level, leadership was vested in the Saqmaw (Chief), supported by respected advisors and elders. It was responsible for resolving disputes, maintaining social harmony, and overseeing day-to-day matters. A defining governance principle is that "no one Saqmaw speaks for or represents any other Saqmaw"; therefore, agreements that affect multiple communities require the participation, and, where written, the signature, of each Saqmaw (Mi'kmawey Debert Cultural Centre, 2022b). This decentralized authority is not a limitation of governance; rather, it is a deliberate expression of community sovereignty within a wider national structure.

District Governance and the Geographic Logic of Leadership

Mi'kma'ki is organized into seven districts that serve as traditional governance units and reflect their homeland's geography. The districts are described as "traditional governance units" that align with rivers, watersheds, and physiographic characteristics, meaning governance is embedded in place-based mobility, land-and-water stewardship, and seasonal resource use (Mi'kmawey Debert Cultural Centre, 2022b). This relationship between governance and watershed-scale geographies provides an important lens for understanding Mi'kmaw stewardship responsibilities, including how access, use, and responsibilities were coordinated across families and communities.

Each district maintained internal autonomy while participating in nationwide coordination when required. District-level leadership included Keptin (Captains) and other district representatives who brought concerns

forward and coordinated leadership across the broader territory. McMillan (1996) describes district organization as pre-contact and emphasizes the consensus orientation of the Grand Council system: "the Grand Council never did anything unless it was by consensus," and district captains (Keptin) met with the Grand Chief as part of this governance architecture (McMillan, 1996).

The Santé Mawio'mi (Grand Council)

When matters extended beyond a single community or district—such as diplomacy, environmental pressures, or nationwide concerns —the Santé Mawio'mi (Grand Council) provided a forum for national deliberation alongside the Kji-Saqmaw (Grand Chief) and Kji-Keptin (Grand Captain). The Putu's holds a defined governance function as the knowledge keeper responsible for the official record of the Santé Mawio'mi, particularly for diplomatic events (Mi'kmawey Debert Cultural Centre, 2022). This record-keeping role underscores that Mi'kmaw governance is not only deliberative and relational; it is also institutional, with established responsibilities for continuity, accountability, and the preservation of national agreements.

Consistent with the authority of community Saqmaq, the Grand Council operates as a coordinating body rather than a replacement for local governance. Even where Saqmaq "work together at this upper level," final decisions "continue to reside at the community level and with each Saqmaw" (Mi'kmawey Debert Cultural Centre, 2022b). In this sense, Mi'kmaw governance can be understood as a multi-level system designed to maintain local authority while enabling collective national action when needed. Figure 3-2 provides a visual representation of the connections between these different levels of governance.

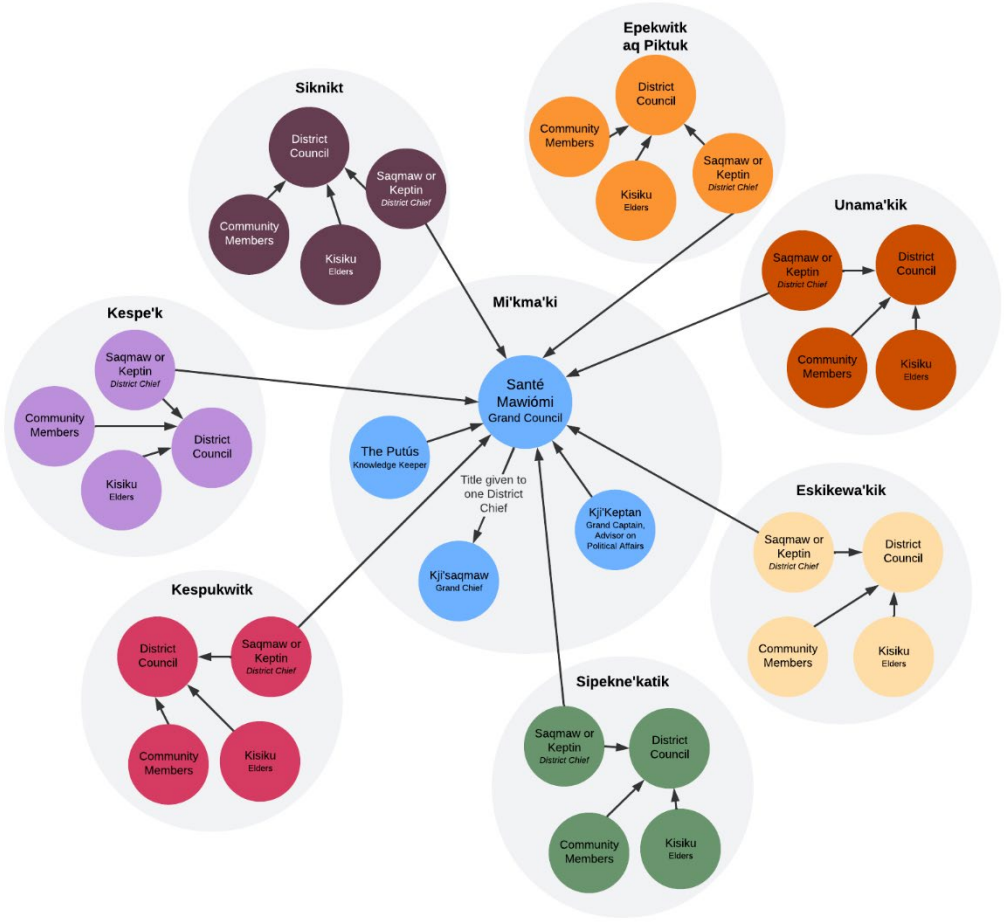


Figure 3-2: Visual Representation of the Traditional Mi'kmaq Governance System by District

Treaties, Diplomacy and Governance

Mi'kmaw governance systems express continuity through diplomacy, inter-community gatherings, and the renewal of shared understandings, practices rooted in a pre-contact context in which the Mi'kmaq lived in relative peace within Mi'kma'ki as part of the Wabanaki Confederacy, alongside the Wolastoqiyik (Maliseet), Passamaquoddy, Penobscot, and Abenaki Nations (Whitehead, 1991). During the seventeenth century, intensified European migration and colonial competition fundamentally altered political conditions in the region, beginning with sustained French presence at St. Croix (1604) and Port Royal (1605) (Reid, 2009) and expanding through successive settlement waves driven by religious persecution and European conflicts (e.g., the Thirty Years' War and Queen Anne's War). As settlement expanded, Indigenous lands and livelihoods were increasingly encroached upon, producing long-term displacement and marginalization that continues to shape contemporary reconciliation and decolonization efforts (Upton, 1979; Battiste, 2013).

In this evolving colonial landscape, Britain's growing commercial and military interests culminated in the Peace and Friendship Treaties (1725–1779), negotiated with the Mi'kmaq, Wolastoqiyik, and Passamaquoddy as mutual commitments to coexistence, trade, and alliance, not instruments of land surrender (Government of Canada, 2010; Wicken, 2002). The 1726 Treaty established a foundation for this relationship through paired commitments (Articles of Peace and Agreement and Reciprocal Promises), with later treaties (1749, 1752, 1760/61, and 1778–1779) reaffirming and adapting terms over time (Wicken, 2002; Patterson, 1993). Treaty relationships were sustained through collective governance processes, including post-treaty inter-community meetings that supported shared interpretation, the annual public reading of treaty texts at social and political gatherings, and renewal ceremonies linked to Saint Anne's Day and Chapel Island (Wicken, 1995). Treaty documents and agreements were preserved within Mi'kmaw leadership networks and revisited through council deliberations; records indicate that treaties were "read and talked of at the council," with documents sometimes held by community leaders and, at times, lodged with parish priests, alongside other diplomatic materials, including wampum used to remember treaties among Indigenous societies (Wicken, 1995). From a Mi'kmaw perspective, these treaties affirmed sovereignty and an inherent right to self-government, recognizing the Mi'kmaq as a distinct political entity rather than British subjects (Dorey, 1993a). However, the subsequent imposition of colonial laws and policies, most notably the *Indian Act* (1876), reconfigured Indigenous governance by replacing traditional institutions with elected band councils and expanding federal control over lands, membership, and community decision-making (Leslie, 2002; Palmater, 2011).

Colonial Disruption and the Reconfiguration of Governance Roles

Colonial governance interventions profoundly disrupted Mi'kmaw political authority and sought to reconfigure Indigenous governance into externally controlled administrative systems. Twentieth-century assimilation policies, including residential schools and related strategies, undermined Mi'kmaw cultural continuity and constrained the capacity of traditional governance bodies to protect the Nation during these periods (McMillan, 1996).

At the same time, Mi'kmaw leaders continued to assert jurisdiction and treaty-based rights through governance and legal strategies. In the Sylliboy matter, the Grand Council, under Grand Chief Gabriel Sylliboy, turned to the courts to establish treaty rights related to hunting and fishing, framing them as Nation-level rights and responsibilities (McMillan, 1996).

Contemporary Governance

Contemporary Mi'kmaw governance operates in a context where Indian Act-era band structures coexist with enduring traditional governance institutions and responsibilities. Under the *Indian Act* framework, communities are governed through elected Chiefs and Councils (with some communities developing their

own election approaches). However, the Santé Mawio'mi continues to operate alongside Saqmaq and councils (Mi'kmawey Debert Cultural Centre, 2022b). See Figure 3-3 for a visual representation of this new structure.

Contemporary roles are not simply a continuation of historic functions; they reflect adaptive governance under colonial constraint. In this context, the Santé Mawio'mi is framed less as a body for day-to-day administration and more as an institution responsible for guiding, strengthening, and protecting the Nation "over many generations," with the late Kji-Keptin Alex Denny emphasizing that many issues were historically resolved within the extended family and that solutions were often "spontaneous and contextual" (Mi'mawey Debert Cultural Centre, 2022b). This distinction clarifies the present-day division of governance labour: band councils administer programs and services, while traditional governance institutions continue to hold nation-scale, future-oriented responsibilities grounded in Mi'kmaw law, diplomacy, and identity.

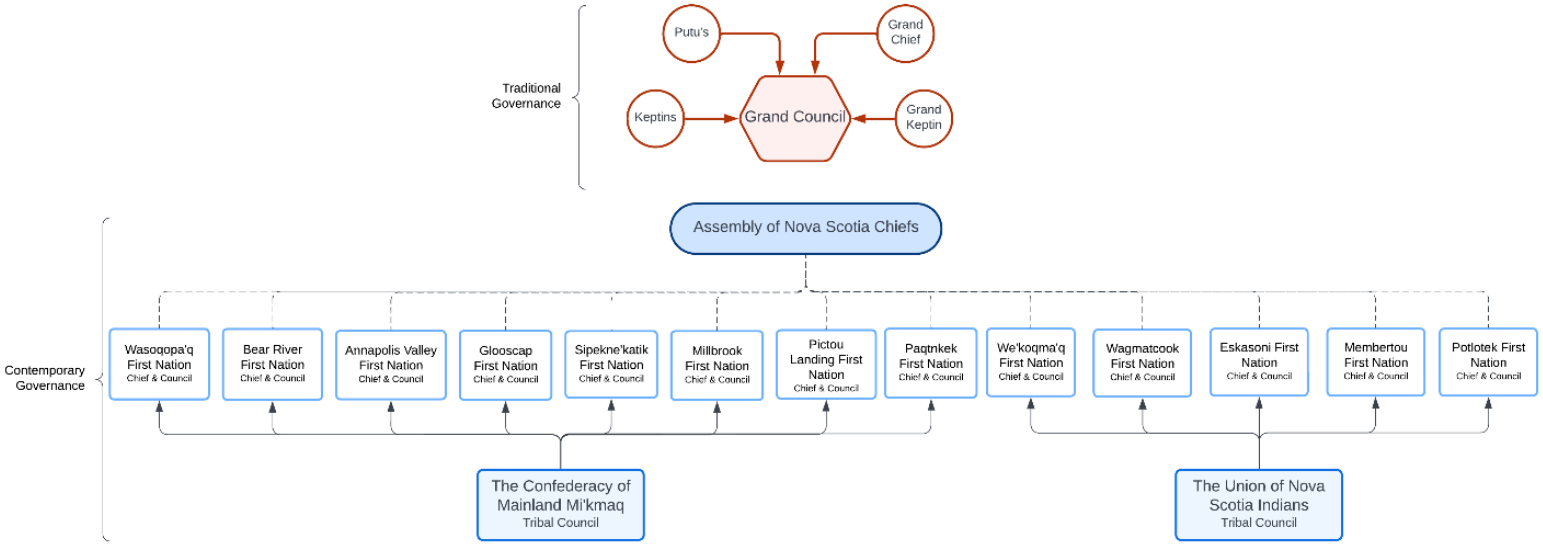


Figure 3-3: Visual Representation of Current Mi'kmaq Governance Structure under the Indian Act

IMPORTANT TERMINOLOGY

Mi'kmaw Ecological Knowledge (MEK) is grounded in a relational worldview in which humans, other beings, and the broader landscape exist in interdependence and reciprocity. These relationships are understood as dynamic and circular rather than linear, with people situated within, rather than above, ecological systems (Berneshawi, 1997). MEK is therefore inseparable from Mi'kmaw identity, heritage, and continuity, and it is carried and reinforced through the Mi'kmaw language, which encodes meaning through relationships, movement, and balance within the living world (Sable & Francis, 2012).

Within this worldview, kinship is expressed through concepts such as **Ko'kmanaq** ("our relations/relatives/people"), reflecting an ethic of responsibility that extends beyond immediate family to the wider human community and to all beings in creation (Sable & Francis, 2012). This relational ethic is reinforced through family networks that historically structured social organization across Mi'kma'ki, supported seasonal mobility and gathering, and created forums where livelihoods, governance, and collective decision-making were mutually reinforced through ongoing relationship-building and consensus-oriented practice.

A closely aligned concept is Koqqwaia'ltimk (also spelled Koqqwaja'ltimk), which conveys the principle of "being treated justly" as an everyday, lived standard within Mi'kmaw society. It is described as a justice concept that carries notions of balance, recognizing imbalance when wrongs occur, and understanding that restoring right relations requires attention to the interconnectedness of the human, natural, and spirit worlds. Within this framing, justice is not a separate institutional sphere; it is embedded in daily interactions and responsibilities, and it has traditionally been family-based, with teachings transmitted and problems worked through primarily through dialogue ("talk") as a mechanism for restoring relationships. When harms occur, responses are oriented toward restoring balance and social harmony through processes that can include acknowledgment of harm, remorse, restitution, and healing, rather than prioritizing punitive approaches.

Netukulimk further articulates this ethic of responsibility as a sustainability principle: meeting community needs while ensuring that lands and waters remain able to renew themselves for future generations, integrating environmental, social, and spiritual obligations (L'nuey, 2021). Complementing these teachings, Etuaptmumk (Two-Eyed Seeing) offers a contemporary pathway for working across knowledge systems, drawing on the strengths of Indigenous knowledge and Western science together, while maintaining respect for Mi'kmaw values, governance, and relational accountability (Bartlett, Marshall, & Marshall, 2012).

3.2 Traditional and Current Land Use

For generations, Mi'kmaw families moved across Mi'kma'ki in seasonal patterns shaped by close observation of lands and waters and the rhythms of plants and animals (Sable & Francis, 2012). The territory's interconnected lakes, rivers, estuaries, streams, and coastal routes formed a practical travel network, supporting mobility, exchange, communication, and reliable access to subsistence resources.

Traditional and Current Practices and Use

During the warmer seasons (spring, summer, and early fall), many Mi'kmaq communities established settlements along coastal, estuarine, and river-mouth areas, where seasonal abundance supported harvesting across both marine and inland ecosystems. Families often positioned themselves to leverage this ecological connectivity, using estuaries and river corridors to access spawning fish, shellfish, migratory birds, and terrestrial game, while maintaining social networks and governance relationships through seasonal gatherings and exchanges. One synthesis of early descriptions characterizes this period as a longer coastal "village season" (approximately April to October), when communities concentrated near the coast to harvest fish and invertebrates and to take advantage of predictable seasonal pulses in coastal food systems (McMillan, 1996).

As autumn advanced, many households shifted inland across watersheds, aligning settlement choices with animal movements, river fisheries, and sheltered terrain. This pattern of dispersal and regrouping reflects a strategic calibration of residence, harvesting effort, and travel routes to ecological rhythms and risk management. The seasonal round described in the historical synthesis includes January coastal harvesting (e.g., smelt and tom cod) and the use of marine mammals, followed by a February–March focus on inland hunting (e.g., beaver, moose, bear), then a return to coastal villages through spring and summer (McMillan, 1996).

Spring and autumn are highlighted as important periods for harvesting migratory wildfowl. At the same time, mid-to-late summer (July through September) is characterized by a broader diet that includes berries, nuts, and roots alongside other seasonal foods (McMillan, 1996). Food preservation practices, particularly drying and smoking meat and fish, helped extend the use of these harvests, supported seasonal mobility, and reduced vulnerability during winter scarcity (Nova Scotia Museum, 2017).

During winter, larger villages were typically dispersed; smaller groups of households relocated to areas with remaining food resources and protective terrain until spring thaw restored broader mobility (Wicken, 1994). Winter travel and transport were supported by technologies adapted to snow and ice conditions, moving by foot, using toboggans for household goods, and using snowshoes when conditions allowed (Nova Scotia Museum, 2017). Harvesting techniques also reflected place-based specialization; for example, stone fish weirs are documented as a common approach for capturing fish in river channels (Nova Scotia Museum, 2017). In contemporary contexts, these seasonal practices continue through harvesting, sharing, and revitalization activities that link foodways with intergenerational learning on the land, reinforcing Mi'kmaw food knowledge and cultural continuity despite modern constraints (Bujold et al., 2023).

The following table summarizes Mi'kmaq seasonal terms and the ecological indicators embedded in those words.

Table 3-2: Mi'kmaq Season Terms and Meaning (Source: Mi'kmaq Spirit, 2016)

Mi'kmaq Term	English	Meaning
Siwkw	Spring	When the leaves began to sprout, the wild geese appeared, the fawns of moose reached a specific size within the month, and seals bore their young
Nipk	Summer	When the salmon spawned, and wild geese moulted
Toqa'q	Autumn	When the birds migrated
Kesik	Winter	When the weather became very cold, the snow fell, and the bears began to hibernate

TRADITIONAL AND CURRENT FOOD RESOURCES

The Mi'kmaq have a deep understanding of the lands, waters, and living resources of Mi'kma'ki, cultivated through generations of shared knowledge, lived experience, and teachings passed down within families and communities. This knowledge supported the use of a wide range of seasonal food resources—including fish, shellfish, large game, plants, and berries—guided by close observation of ecological conditions and natural cycles (Nova Scotia Museum, 2017; Wicken, 1994). Coastal areas, rivers, estuaries, and forests provided a diverse subsistence base, and practices such as eel fishing, clam and shellfish harvesting, and hunting were not only essential for food security but also culturally significant activities embedded in Mi'kmaw identity and responsibilities to place (Nova Scotia Museum, 2017). These practices were grounded in a sustainability ethic often described through Netukulimk—meeting community needs while maintaining balance and ensuring that resources remain available for future generations (Prosper et al., 2011).

Mi'kmaw food harvesting reflects both technical sophistication and careful use of materials. Animals were harvested and used comprehensively, demonstrating resourcefulness and a strong ethic of minimizing waste; for example, bladders could be cleaned and repurposed for storing liquids such as seal oil, and the long intestines of moose or caribou could be used as sausage casings for meat mixed with dried berries and fat (Whitehead & McGee, 1983). Fishing techniques included constructing weirs from wooden stakes at the mouths of rivers and streams to guide fish into nets, as well as night fishing using torches made from white birch, which drew fish close enough to be taken efficiently (Wicken, 1994). Eel harvesting was particularly effective where streams emptied into lakes or moved through shallow channels; stone-and-bough dams or

weirs were used depending on substrate conditions, and eels—along with other fish and meat—were commonly smoked and stored for winter use (Wicken, 1994).

The seasonality of Mi'kmaw harvesting and settlement patterns involved moving to coastal areas during spring and summer to take advantage of river and marine fisheries, then shifting inland during fall and winter to focus on hunting and winter provisioning (Wicken, 1994). Seasonal decisions were closely linked to water systems and the life cycles of fish and wildlife. Moose and caribou were often hunted during the October rut, when bulls were more readily drawn in; sources describe techniques such as using birch-bark calls to mimic a cow's cry and other behavioural strategies to attract animals into range (Wicken, 1994). In winter, dogs played an important role in hunting and camp logistics, assisting in chasing game and hauling meat and provisions to and from campsites—an efficiency critical to surviving through winter and early spring (Wicken, 1994). Netukulimk was mobilized in practice by taking only what was needed, distributing harvests within social networks, and minimizing waste so that food stores could sustain households during periods of scarcity (Prosper et al., 2011).

Historically, moose and caribou were plentiful across Nova Scotia, and moose remains a culturally significant species within Mi'kmaw food systems. Beyond the meat, multiple parts of harvested animals were used for shelter, clothing, tools, and other necessities, reflecting both practicality and responsibility consistent with Netukulimk (Nova Scotia Museum, 2017). Over time, habitat loss, overharvesting pressures, and disease contributed to major wildlife declines. By the early nineteenth century, mainland moose and caribou were increasingly rare, and the last mainland caribou became locally extinct in the early twentieth century. Introduced white-tailed deer further affected moose and caribou through parasite transmission, and mainland moose are now considered at risk in Nova Scotia (Nova Scotia Museum, 2017).

Ka't (American eel) holds significant value as both a traditional food source and a relationship species within Mi'kma'ki. Its importance extends beyond its role as a dietary resource; the American eel is closely linked to Mi'kmaw teachings, medicinal practices, and ceremonial traditions. Historically and in contemporary contexts, eel has been used in various ways, including preservation, smoking, and the use of eel skins for non-dietary purposes, underscoring its multifaceted relevance (Prosper & Paulette, 2002). Eel harvesting has deep historical continuity, including evidence of long-standing eel weir use and specialized harvesting technologies adapted to local waters and seasonal migrations (Prosper, 2001). Research on Mi'kmaw relationships with Ka't also emphasizes the importance of harvesting and sharing networks, while documenting concerns about declines, commercialization pressures, and the risk of disrupted intergenerational knowledge transfer if access and abundance continue to erode (Davis et al., 2004).

Figure 3-4 provides a visual representation of the seasonal cycles associated with the 13-month Mi'kmaq calendar, which guided activities and informed known resource use. Each month is aligned with specific natural events and the resources that were harvested during that time. The calendar is intricately tied to the rhythms of the land, water, and wildlife, reflecting the Mi'kmaq's deep connection to their environment. For instance, in the first month, which marks the onset of winter, the Mi'kmaq would hunt for caribou and moose, as these animals were more easily found during the colder months. As the year progresses, various species, including seals, fish, and waterfowl, are targeted according to their migration patterns and seasonal availability. The months also reflect the timing of important activities, such as eel fishing and plant gathering, with the calendar serving not only as a tool for resource management but also as a cultural guide that shapes the Mi'kmaq's daily life and survival.

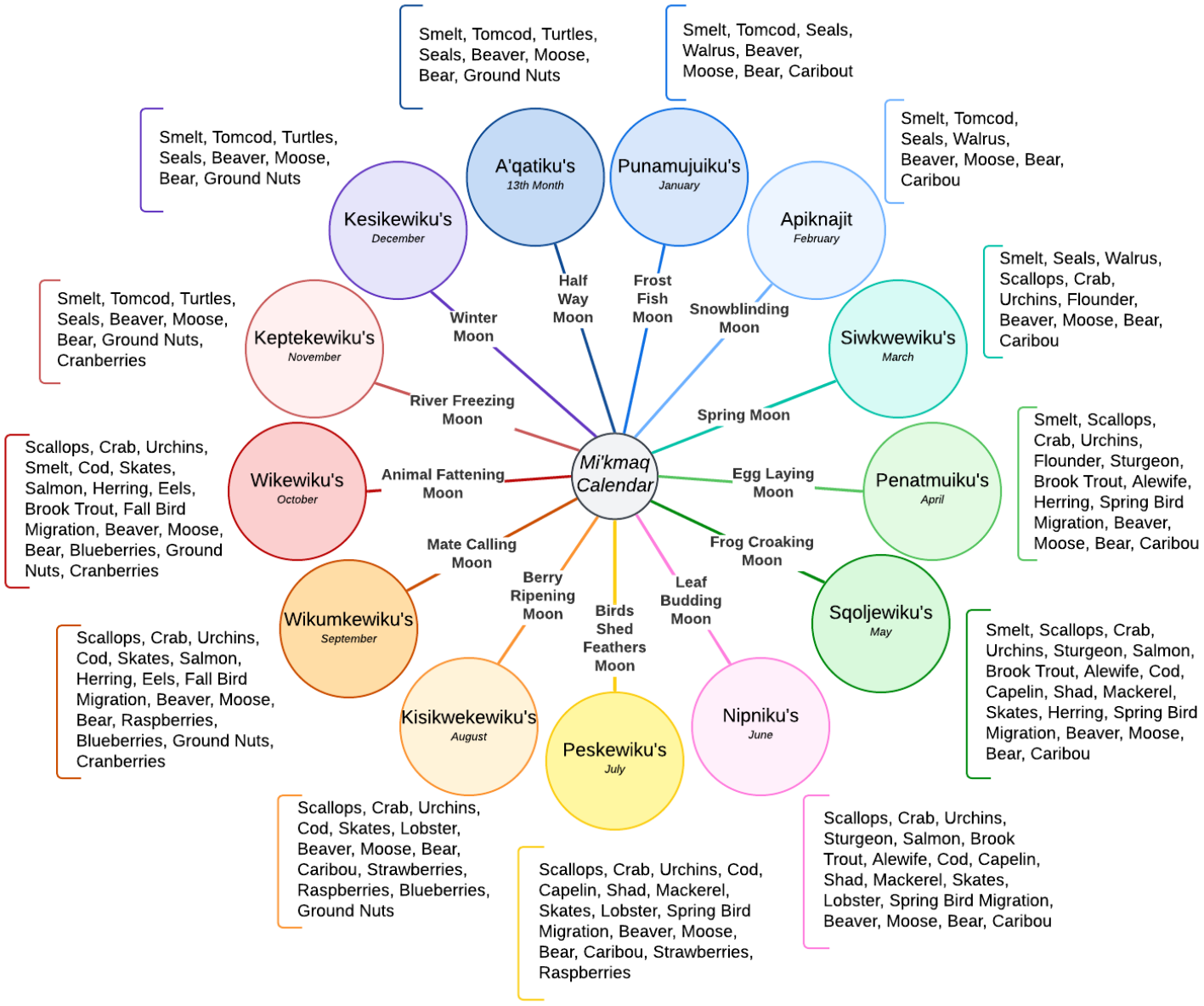


Figure 3-4: Mi'kmaq Calendar and Known Key Resources to be Harvested

Today, while modern food systems and changing access conditions have influenced dietary practices, many Mi'kmaq communities continue to honour traditional harvesting and food-sharing methods, blending ancestral knowledge with contemporary approaches to maintain a strong connection to cultural heritage and to the lands and waters that sustain Mi'kmaw lifeways (Grann et al., 2023). Seasonal cycles continue to inform harvesting decisions, and visual tools such as the Mi'kmaw 13-month calendar remain relevant as culturally grounded frameworks that align activities with ecological indicators, migration patterns, and the timing of key resources across the year (Mi'kmaq Spirit, 2016).

The following tables present a comprehensive summary of animal species (mammals, marine, and birds) that are traditionally and currently harvested and used by the Mi'kmaq of Nova Scotia.

Table 3-3: Mammal Species traditionally and recently harvested by Nova Scotia Mi'kmaq (Source: Whitehead & McGee, 1983; Hoffman, 1995)

Common Name	Mi'kmaq Name	Habitat	Use
Beaver	Kobet, gopit	Water bodies and wetlands adjacent to forested areas	Food and pelts
Black Bear	Mooin, Muin	Forested areas	Food, pelts, spiritual
Bobcat	Pqajue'wj	Forested areas	Pelts
Caribou	Qalipu	Boreal forest	Food and pelts
Deer	Lŭntook, lentug, lentuk	Edges of forested areas, thickets	Food
Groundhog/ Woodchuck	Mulumgwej, Mnumkwej	Fields, open areas adjacent to forests	Food and pelts
Hare	Able'gŭmocch, Apli'kmuj	Forested areas	Food
Lynx	Apuksikn	Forested areas	Pelts
Mink	Jiagewj, Tiake'wj	Coasts	Pelts
Moose	Team', tia'm	Forested areas, wetlands	Food and pelts
Muskrat	Ki'kwesu	Freshwater ponds, wetlands	Pelts
Otter	Giwnig, Kiwnik	Rivers and lakes, coasts	Food and pelts
Porcupine	Năbegŏk, matues	Forested areas	Food, quillwork
Racoon	Amaljikwej	Forested areas	Food and pelt
Red Fox	Wowkwis	Forested areas, meadows, and open areas adjacent to the forest	Pelt
Seals	Waspu	Marine coast	Food, oil and skins
Squirrel	Atu'tuej	Forested areas	Food
Walrus		Marine coast	Food, ivory

Table 3-4: Fish, Crustacean and Mollusk Species documented as traditionally and recently harvested by Nova Scotia Mi'kmaq (Source: Native Council of Nova Scotia, 1993, Whitehead & McGee, 1983, Hoffman, 1955)

Common Name	Mi'kmaq Name	Habitat	Uses
Brook Trout	Adagwaasoo, atoqwa'su	Freshwater streams, marine	Food
Clams	E's	Marine, coastal	Food
Cod	Peju	Marine	Food
Crabs	Nmjinikej	Marine	Food
Eel, Elvers	Kat, katel, Katew	Marine, freshwater	Food
Gaspereau	Segoonŭněkw', Kaspalew	Marine fish that migrate up streams to breed in freshwater	Food and bait
Haddock	Putomaqanej	Marine	Food
Lobster	Jakej	Marine, coastal	Food
Mackerel	Amalamek	Marine, coastal	Food
Mussels	Nkata'laq	Marine, coastal	Food
Oyster	Mntmu'k	Marine, coastal	Food
Periwinkles	Jik'jij	Marine, coastal	Food
Pollock	Pestam	Marine	Food
Salmon	Pălămoo, Pulamoo, plamu	Marine fish go up streams to breed in freshwater	Food, commerce, and ceremony
Scallop	Saqskale's	Marine, coastal	Food
Shad	Msamu	Marine fish go up streams to breed in freshwater	Food
Smelt	Kákpāsow, kakpasow, gaqpesaw	Marine fish go up streams to breed in freshwater	Food
Squid	Sata'su	Marine	Food

Common Name	Mi'kmaq Name	Habitat	Uses
Striped Bass	Chegaoo, Ji'kaw	Marine fish go up streams to breed in freshwater	Food and commerce
Sturgeon	Komkudamoo	Marine fish go up streams to breed in freshwater	Food
Whelks		Marine	Food
White Perch	Atoqu'luej	Marine fish go up streams to breed in freshwater	Food

Table 3-5: Bird Species documented as traditionally and recently harvested by Nova Scotia Mi'kmaq (Source: Benoît, 2007, Whitehead & McGee, 1983, Hoffman, 1955)

Common Name	Mi'kmaq Name	Habitat	Uses	Season
American Black Duck	Apji'jkmuj	Marine coast, freshwater lakes	Food and eggs	Year round
American Woodcock	Oonochpediesegoo	Wooded swamps, forests, fields	Food	Spring migrant, summer
Barrow's Goldeneye	Jikwej	Breed in wooded lakes and ponds in Quebec. Winter in protected coastal waters or open inland waters.	Food	Winter
Black Scoter ("American Scoter")		Marine coast	Food	Winter resident
Blue-winged Teal	Tma'qni	Inland marshes, lakes, ponds, pools and shallow streams	Food	Summer
Canada Goose	Senŭmkw', sinumkw	Freshwater ponds and lakes	Food and eggs	Year-round, spring and fall migrant
Common Eider	Wa'bietcitckanutc	Breeds in the Arctic, winters farther south in temperate coastal zones	Food	Year-round (mainland NS)

Common Name	Mi'kmaq Name	Habitat	Uses	Season
Common Goldeneye	Apchechk	Shallow coastal bays and inlets	Food	Fall migrant, winter
Common Merganser	Wobasikw	Rivers and lakes	Food	Summer
Greater Scaup		Breeds in the Arctic, winters south along marine coasts	Food	Winter
Green-winged Teal		Freshwater lakes	Food	Fall Migrant
Hooded Merganser		Breeding in swamps and wooded ponds, winter in ice-free ponds, lakes and rivers	Food	Summer
King Eider		Winter along marine coasts, breed in the Arctic tundra	Food	Winter
Lesser Scaup		Marine coast	Food	Fall migrant, winter
Long-Tailed Duck	Gahgahweegetch	Breed in tundra pools and marshes, and winter along marine coasts	Food	Winter
Mallard	Apchechk	Freshwater lakes	Food	Year-round, fall migrant
Northern Pintail	Aptcitckamutc	Breeds in open, unwooded wetlands. Winters in sheltered estuaries, brackish marshes and coastal lagoons	Food	Summer
Passenger Pigeon	Ples	Forested habitats	Food	Fall migrant
Red-Breasted Merganser		Marine coast, freshwater lakes	Food	Resident, summer
Ruffed Grouse	Nabaoo, Pla'wetc	Forests	Food	Resident

Common Name	Mi'kmaq Name	Habitat	Uses	Season
Spruce Grouse	Nabaoo, Wijik	Forests	Food	Resident
Surf Scoter	Mo'i	Marine coast	Food	Winter
White-wined Scoter		Marine coast	Food	Spring migrant, winter
Wilson's Snipe	Wunaqpite'siku	Fields, freshwater wetlands	Food	Spring migrant, summer

Table 3-6: Other Bird Species that Nova Scotia Mi'kmaq may have harvested (Source: Hoffman, 1955)

Common Name	Mi'kmaq Name	Habitat	Season
American Bittern	Wiaqojmej	Freshwater wetlands	Spring migrant
American Golden Plover		Marine coastal flats	Fall migrant
American Wigeon (Baldpate)		Marine coast, freshwater lakes	Fall migrant
Atlantic Puffin	Keskisqunajit	Marine coast	Resident
Barred Owl	Ku'ku'wes	Forests	Resident
Black Guillemot	Wa'bilksuni	Marine coast	Winter resident
Black-bellied Plover		Marine coastal flats, shores	Fall migrant
Black-Crowned Night Heron		Coastal marches	Fall migrant
Brant	Mogulaweech	Freshwater ponds and lakes	Spring migrant
Bufflehead		Marine coast, freshwater lakes	Fall migrant
Common Loon	Pkwimu	Marine coast in winter, freshwater lakes in summer	Spring migrant
Common Murre	Kloopskeak	Marine coast	Resident
Eskimo Curlew	Amkoomink-ak'	Marine coastal flats, wetlands	Fall migrant
Great Black-backed Gull	'Mkudopskoon-k	Marine coast	Resident

Common Name	Mi'kmaq Name	Habitat	Season
Great Blue Heron	Tm'kwaliknej	Edges of shallow water bodies, generally nest in trees	Spring migrant
Great Horned Owl	Ti'tikili	Forests	Resident
Herring Gull	Kloqontiej	Marine coast	Resident
Hudsonian Whimbrel/ Hudsonian Curlew		Marine coastal flats, wetlands	Fall migrant
Lesser Yellowlegs	Chijooegadech-k	Marine coastal flats, wetlands, and shores	Fall migrant
Long-billed Dowitcher		Marine coast, wetlands	Fall migrant
Mourning Doves	Pules	Fields, forests	Fall migrant
Northern Gannet	Ukwatadagoo-k	Marine coast	Spring and fall migrant
Osprey	Ni'kmawe'su	Forested areas close to water bodies	Spring migrant
Pied-billed Grebe	Magwis'	Shallow freshwater ponds	Fall migrant
Razorbill ("Razor Billed Auk")	Abaqtuqwech	Marine coast	Spring migrant
Red Knot		Marine coastal flats, shores	Fall migrant
Semipalmated Plover		Marine coastal flats, shores	Fall migrant
Willet	Jijuikatej	Marine coast, wetlands, and shores	Fall migrant
Yellow Rail	Amchaboqch	Freshwater wetlands	Fall migrant

Traditional and Current Medicines

Rooted in an enduring relationship with the natural world, Mi'kmaw systems of medicine reflect cumulative observation, practical experimentation, and spiritual responsibilities to place. Medicinal plants have historically been gathered and prepared within an ethical framework that emphasizes balance between people and the environment, an orientation closely aligned with Netukulimk as a lived practice of responsible use and long-term care for ecological integrity (Prosper et al., 2011; Mi'kmaw Conservation Group, 2020). In this worldview, wellness is relational and holistic, encompassing physical, emotional,

mental, and spiritual dimensions that are inseparable from the health of the lands and waters that sustain the community (Battiste, 2005; Sable & Francis, 2012).

Mi'kmaw medicinal knowledge is typically transmitted through oral teaching within families and community networks, with some plant knowledge maintained as protected family knowledge that carries responsibilities for appropriate harvesting, preparation, and sharing. Traditional medicines continue to be practiced alongside biomedical care; elders and knowledge holders still prepare remedies for relatives and community members, and medicinal plant harvesting remains an important contemporary land use in many areas (Weber, 2022). At the same time, access to preferred harvesting sites can be constrained by land-use change and ecosystem alteration, thereby reducing the availability of culturally significant species and limiting opportunities for intergenerational learning and practice (Weber, 2022; Grann et al., 2023).

Mi'kmaw medicinal traditions include well-documented plant-based preparations used for specific health concerns, demonstrating both depth and continuity. For example, berry-producing plants and related species have been used in teas, tonics, and poultices: low-bush blueberry leaves and roots have been used for rheumatism; cranberry preparations have been used for bladder and urinary concerns; and bunchberry tea has been used for kidney issues and childhood bed-wetting, with topical applications also described for wound care (Weber, 2022). More broadly, Mi'kmaw perspectives often treat "food" and "medicine" as closely linked, where harvesting, preparation, and sharing practices contribute to nourishment, healing, and cultural continuity (Grann et al., 2023).

The following table provides an overview of medicinal plants traditionally and currently used by the Mi'kmaq of Nova Scotia, illustrating the depth and continuity of Mi'kmaw ethnobotanical knowledge.

Table 3-7: Medicinal Plants traditionally and currently used by Nova Scotia Mi'kmaq (Source: Mi'kmaq Cultural Foundation, 2025, Weber, 2021)

Common Name	Mi'kmaq Name	Use
Alder	Tupsi	Treat anemia, internal bleeding, urinary problems, sprains, and itches, and induce vomiting.
Balsam Fir	Stoqn	Traditionally used to prevent colds and influenza, the sap possesses healing and antiseptic properties, which are utilized to treat cuts and sores.
Blueberries	Pkumanaqsi	Leaves and/or roots were boiled, and the resulting liquid was applied to painful areas; tea made from the leaves was consumed for its anti-inflammatory properties.
Bunchberry	Suliman	Roots can be made into a mild tea used to treat infant colic. The leaves can also be chewed and softened to apply as a treatment for external wounds.
Coltsfoot	Jikoqsuk	Leaves can be dried and used as an herbal remedy against coughs and colds
Cedar	Qaskusi	Used and burned during prayers, cedar boughs are used to purify homes

Common Name	Mi'kmaq Name	Use
Cranberries	Nutke'jmanaqsi	Steeped in water to make a general tonic drink useful for bladder or urinary tract infections
Fireweed	Nisqunamu'kmanaqsi	Made into tea to treat diarrhea, mouth sores, hemorrhoids, skin lesions and sores
Labrador Tea	Apoistekiejit	Used to make tea that was known as a tonic and used to treat various kidney ailments
Partridgeberry	Plawejumanl	Used during the last stage of pregnancy to help ease the strain of childbirth
Sage	Kjilmu'loqsi	Used for purification of mind, body and spirit. Used during ceremonies, smudging, meditation and cleansing of the spirit
Strawberries	Atuomkminaqsi	Leaves (chewed or in tea) to treat stomach cramps
Sweetgrass	Welimaqewe'l, welima'qmsiku'l	Used for prayers, smudging and purifying ceremonies. Usually braided, dried and burned.
Tobacco	Tmawey	Used as an offering, burned to carry thoughts and prayers to the spiritual world.
Yarrow	Atu'tuejualu	It is a tea that induces perspiration to treat fevers and colds. Stalks were also made into a pulp to treat bruises, sprains and swellings.

3.3 Epekwitk aq Piktuk District

The Mi'kmaq (L'nu'k, meaning "the people") are the original inhabitants of the Atlantic region of what is now eastern Canada. The traditional territory of Mi'kma'ki includes present-day Nova Scotia, Prince Edward Island, parts of New Brunswick, Newfoundland, and parts of Quebec. Oral tradition and archaeological evidence indicate Mi'kmaw presence in Mi'kma'ki for more than 10,500 years (Mi'kmawey Debert Cultural Centre, 2022a).

Mi'kma'ki was divided into seven distinct districts for governance, land use, and stewardship. Among these, the Epekwitk aq Piktuk district encompasses what is now northern mainland Nova Scotia and extends across the Northumberland Strait to Epekwitk (Prince Edward Island). The name Epekwitk aq Piktuk is commonly translated as "cradled above water" and "the explosion place," referencing natural geological features and waters associated with the harbour and surrounding landscape. The district has sheltered coastal waters and fertile inland river systems, which have supported Mi'kmaq occupation and land use since time immemorial (Whitehead, 1991; Sable & Francis, 2012).

The Study Area is in the Piktuk zone of the district. Piktuk is characterized by a diverse ecological setting that includes coastal and estuarine environments along Pictou Harbour, freshwater rivers and wetlands,

forested uplands, and nearshore marine ecosystems of the Northumberland Strait. This ecological diversity has long sustained Mi'kmaq communities through access to fish, shellfish, marine mammals, terrestrial game, medicinal plants, and travel corridors linking inland and coastal areas (L'nuey, 2023).

Trenton, situated at the Eastern bank of the East River (Amasipukwejk), lies within a landscape that has long held cultural and subsistence importance for Mi'kmaq communities. The Pictou Harbour functioned as a protected coastal hub, supporting fisheries, shellfish harvesting, and canoe travel. Its sheltered waters and proximity to inland river systems made it a key node within regional Mi'kmaq travel and trade networks.

Historically, Mi'kmaq families within Piktuk practiced seasonal mobility, moving between coastal settlements and inland areas in accordance with resource availability. Pictou Harbour and its surrounding shorelines were important seasonal gathering areas, supporting fishing, shellfish harvesting, and communal activities. Inland rivers, like the East River, and the existing watershed were also fundamental to the Mi'kmaq because they supported hunting, trapping, fishing, and key travel routes between districts.

Mi'kmaw place names within the district encode Mi'kmaq Ecological Knowledge and historical use, reflecting long-standing relationships with land and water. These names document resource abundance, travel routes, and culturally important sites, reinforcing the continuity of Mi'kmaq presence across the district (Sable & Francis, 2012). Archaeological evidence and oral histories confirm that Mi'kmaq use of the Piktuk landscape predates European settlement by thousands of years and continued uninterrupted through periods of colonial expansion.

Mi'kmaq families used the waters and adjacent lands to harvest species such as eel, gaspereau, smelt, shellfish, and waterfowl, as well as to access inland hunting territories. These practices are consistent with broader Mi'kmaq seasonal land-use systems documented throughout Mi'kma'ki and are reflected in the Knowledge Holder interviews conducted in part of the MEKS report.

European contact in the Epekwitk aq Piktuk District began in the late 15th and early 16th centuries through seasonal fishing activities and trade. Early exchanges included goods, technologies, and relationship building through commerce with French settlers. As permanent European settlement expanded in the late 18th and 19th centuries, particularly with Scottish immigration to Pictou County, Mi'kmaq access to traditional lands and waters became increasingly constrained.

INDUSTRIALIZATION OF TRENTON

In the Study area, industrial development in Trenton began in the 1870s with the establishment of the Hope Iron Works, which produced forgings for ships and railways. This operation evolved into the Nova Scotia Forge Company and, in 1882, became part of the Nova Scotia Steel Company. As the industry expanded, Trenton became increasingly associated with large-scale manufacturing. The industrial complex, later known as TrentonWorks, transitioned from steel production to railway car manufacturing, supplying freight cars to markets across Canada and internationally.

During the twentieth century, Trenton's economy diversified further with the construction of the Trenton Generating Station in 1969. This coal-fired power plant became a key component of Nova Scotia's electrical system, reinforcing the town's role in supporting provincial industrial and energy infrastructure.

By the late twentieth and early twenty-first centuries, Trenton's traditional heavy industries faced increasing challenges from global competition, rising costs, and changing markets. The closure of TrentonWorks in 2007 marked a significant economic shift for the community. In response, provincial initiatives sought to repurpose the industrial site for renewable energy manufacturing, including wind turbine components, reflecting broader transitions within Nova Scotia's industrial economy.

Environmental Context

The Epekwitk aq Piktuk District encompasses interconnected marine, estuarine, freshwater, wetland, and forest ecosystems. Pictou Harbour functions as an estuarine transition zone linking freshwater inflows with the Northumberland Strait, supporting migratory fish, shellfish beds, waterfowl, and eel populations. Wetlands and riparian corridors along tributary rivers contribute to water filtration, flood regulation, and biodiversity support. Upland areas are characterized by mixed Acadian Forest communities that provide habitat for species of cultural importance, including moose, deer, small game, and medicinal plants. These ecosystems form part of an integrated land-use system in which Mi'kmaq harvesting activities historically moved fluidly across ecological boundaries.

Trenton is situated within a low-lying coastal–inland transition zone of the Piktuk District, where marine, estuarine, wetland, and forest ecosystems are closely interconnected. Located along the east bank of the East River of Pictou and adjacent to Pictou Harbour, this landscape has long supported Mi'kmaq land and water use through its sheltered bays, tidal marshes, freshwater corridors, and forested uplands. The environments created favourable conditions for waterfowl, eel, fish, and plant species relied upon by Mi'kmaq families as part of seasonal harvesting cycles. The forests provided materials for shelter, tools, fuel, and medicines, while the harbour and river systems functioned as travel routes linking coastal and inland areas.

The ecological characteristics of Epekwitk aq Piktuk, shaped by coastal influence and interconnected waters, align with Mi'kmaq understandings of the land as a living system governed by relationships, responsibility, and stewardship rather than fixed boundaries. Despite Industrial development, disturbances, and pollution, the resiliency of Mi'kmaq Ecological Knowledge continues to be maintained through the ongoing use of coastal and inland resources, the adaptation of harvesting strategies, and the maintenance of cultural continuity (Whitehead, 1991).

Social, Cultural, and Economic Context

Pictou Landing First Nation (PLFN) represents the primary Mi'kmaq community within the study area in Pictou County. The community's reserve lands, including Fisher's Grant 24, are located along the Northumberland Strait near the entrance to Pictou Harbour. PLFN maintains strong cultural, social, and economic ties to the surrounding land and water, including areas in and around Trenton.

Across Piktuk, Mi'kmaw cultural life endures through ceremonies, seasonal gatherings, language use, and intergenerational knowledge transfer. Mi'kmaw perspectives emphasize that Piktuk remains a living place of identity, continuity, and governance rather than simply a historical locality.

Despite historical displacement and environmental degradation associated with industrial development, PLFN has demonstrated resilience through cultural revitalization, land stewardship initiatives, and the continued transmission of Mi'kmaq Ecological Knowledge. Harvesting, fishing, and land-based activities remain integral to community identity and well-being, reinforcing long-standing relationships with the Piktuk landscape (Peace, 2020).

Mi'kmaq social organization within Piktuk has historically been grounded in kinship networks, matriarchal leadership, and collective stewardship responsibilities. Knowledge transmission occurred through observation, oral history, and participation in harvesting activities. Seasonal movement reinforced social cohesion and ensured sustainable use of resources across generations (Berneshawi, 1997).

Traditional economic activities included fishing, hunting, gathering, guiding, and craft production. Trade relationships played an important role in the regional economy, particularly during the fur trade era. Mi'kmaq expertise in navigation, fishing, and environmental knowledge was critical to early settler survival in Pictou County.

Today, Mi'kmaq communities in Piktuk continue to engage in fisheries, land stewardship, cultural programming, and economic development while maintaining Mi'kmaq values rooted in respect for land and water. Cultural resurgence initiatives, including language revitalization and community gatherings, strengthen continuity and resilience despite ongoing colonial legacies.

PLACE NAMES

The following map shows important place names within the Study Area:

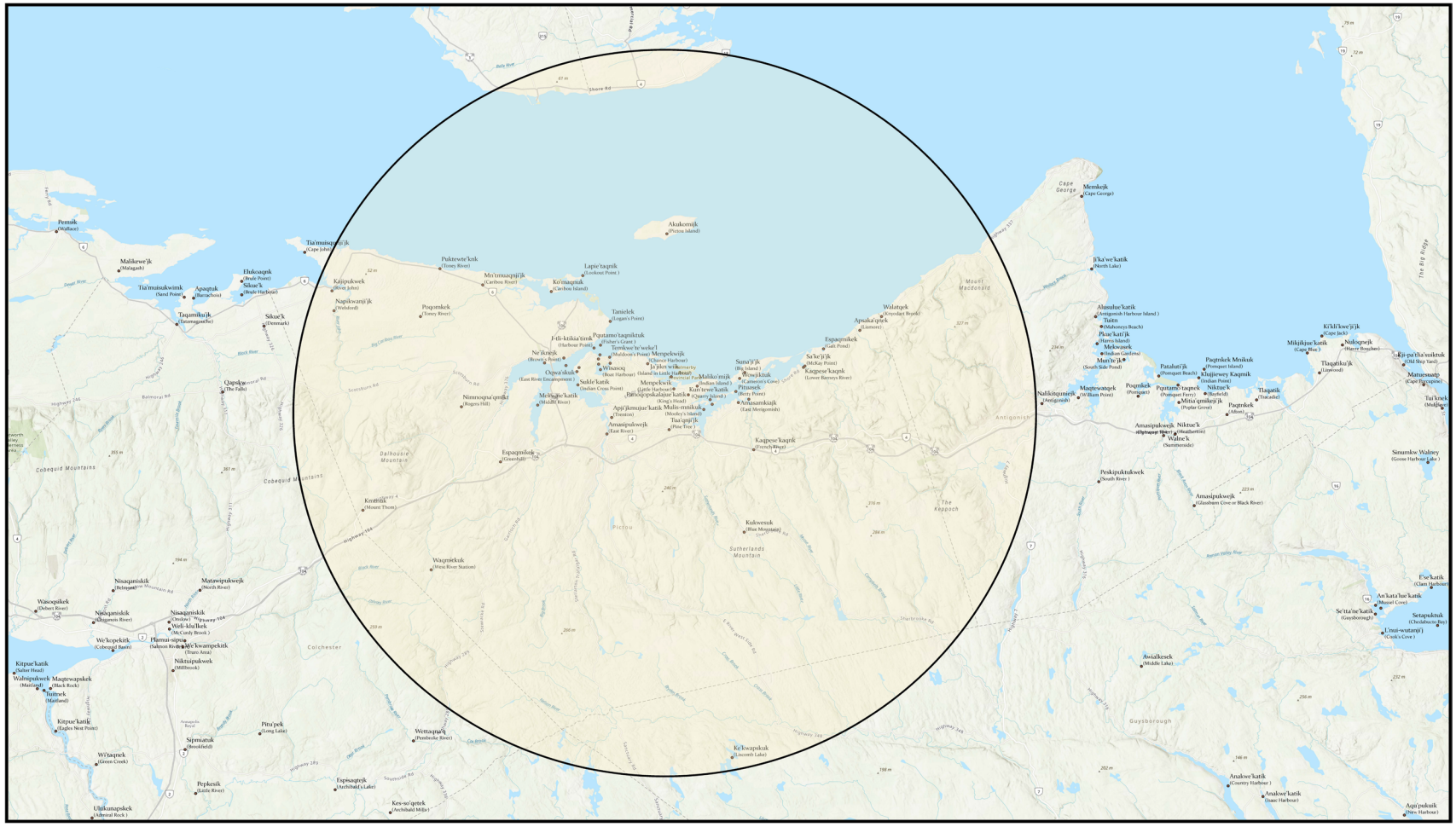
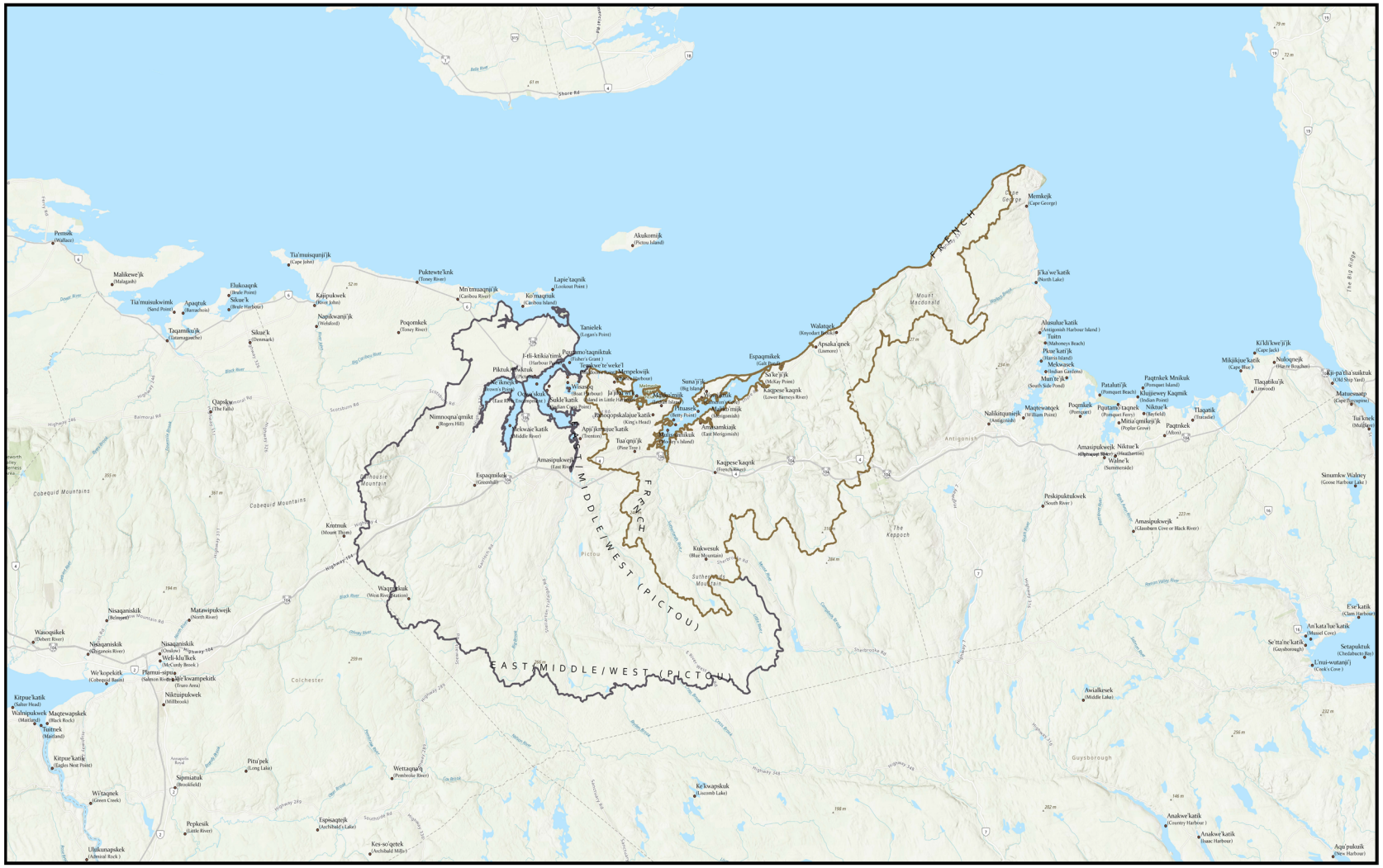


Figure 3-5: Mi'kmaw Place Names



Proposed Project Area for Trenton Tidal Station MEKS Watersheds

Figure 3-6: Mi'kmaw Place Names

4. FINDINGS

4.1 Site Visits

PURPOSE OF THE SITE VISITS

The field visits conducted for this MEKS were not stand-alone ecological surveys. They were undertaken as part of a larger process of listening, observing, and returning to places identified through interviews and community knowledge. Knowledge Holders spoke about areas where people once fished regularly, where eels were taken through the ice in winter, where berries and medicines were gathered, and where animals moved along shorelines and through wetlands following seasonal patterns. These accounts describe relationships with place developed through repeated use, observation, and intergenerational teaching, rather than isolated activities.

Many Knowledge Holders also described change over time. Some changes were gradual, linked to shifting land use and access. Others were abrupt, associated with damming, rail construction, industrial development, and altered water flow. These shifts affected not only ecology but also the ability to safely and reliably use the land.

The purpose of the field visits was therefore not only to document what is present today, but to consider present conditions in relation to remembered conditions. The work asked:

- What remains visible on the land?
- What has shifted in form or ecological function?
- What continues quietly even where active use has declined?
- What has been reduced, displaced, or made less accessible?

Two visits were conducted:

- Site Visit 1: Provided a broad baseline reading of the landscape.
- Site Visit 2: Returned with direction from interviews and focused on culturally meaningful spaces.

Together, these visits show continuity, disruption, and adaptation across time, situating Knowledge Holder accounts within present-day conditions.

Parameters of the Site Visits

Site Visit 1 was a rapid scoping step near the broader Trenton footprint and is not used to infer cultural use patterns.

Site Visit 2 occurred in winter with deep fresh snow, which limited fine-scale species and plant detection, but strengthened interpretation of structural habitat and connectivity.

Site Visit 2 focused on patterns that remain legible under winter conditions and relies on interviews for seasonal and historical context. It does not attempt to measure knowledge against field data or reduce lived experience to ecological indicators. Instead, it places present-day observation alongside Knowledge Holder accounts to understand change, persistence, and continuity.

APPROACH: ETUAPTMUMK (TWO-EYED SEEING) AND GROUND-TRUTHING

In this study, ground-truthing does not mean testing knowledge against science. Instead, it means respectfully observing how present-day land conditions reflect, carry, or sometimes struggle to reflect what Knowledge Holders have shared.

The principle of Etuaptmumk (Two-Eyed Seeing) guided the work. One perspective examines ecological structure, hydrology, habitat patterns, and species indicators. The other recognizes that Mi'kmaq Knowledge is built from lived relationships, memory, and teaching tied to specific places. Neither perspective replaces the other—they sit alongside each other.

The field team walked shorelines, wetlands, forest edges, and water corridors identified in interviews. Observations focused on:

- Habitat structure
- Water movement and restriction
- Access and travel routes
- Wildlife sign and species indicators
- Signs of persistence or recovery
- Signs of constraint or fragmentation

Winter conditions during Site Visit 2 limited plant identification, but revealed wildlife trails, warm-water areas, and movement corridors more clearly. Snow also highlighted where water remains active under ice and where habitat continues to support life. This seasonal lens strengthened structural and functional assessment, revealing aspects of the landscape less visible.

SITE VISIT 1: BASELINE LANDSCAPE SCOPING

Site Visit 1 functioned as an orientation to the broader study area. It was not guided by interviews and did not target specific culturally identified sites. Instead, its purpose was to establish general patterns across the landscape, including:

- Habitat distribution
- Shoreline condition
- Disturbance patterns
- Land use context
- Hydrological features
- Access points and travel routes

This visit provided a landscape-level understanding of how wetlands, uplands, shorelines, and corridors are arranged and how they connect. It also helped identify areas where fragmentation or alteration is visible on the land. Because this visit was not interview-guided, it represents a present-day snapshot, rather than a culturally directed assessment. Its role is foundational, supporting later interpretation and comparison with Site Visit 2.

Observations included:

- Four distinct microhabitats across upland and lowland areas.
- Active early successional recovery in disturbed areas, particularly along cleared edges and rubble zones.
- Invasive species pressure along edges, rubble, and disturbed slopes.
- A low-flow watercourse showing a surface film of uncertain origin.
- Notable pollinator activity, including the presence of monarch butterflies.

These observations sharpened attention to disturbance and recovery signatures across the landscape. While they do not infer cultural use patterns, they establish the baseline conditions against which later, interview-guided observations can be interpreted.

SITE VISIT 2: KNOWLEDGE-GUIDED OBSERVATIONS

Site Visit 2 represents the core of the ground-truthing work. Locations visited were named or described by Knowledge Holders as areas of:

- Fishing and eeling
- Plant and berry gathering
- Shoreline travel
- Wildlife presence
- Historical and ongoing use

Weather conditions included cold temperatures and deep, fresh snow. While this limited species-level plant confirmation, it allowed clearer observation of structural and functional landscape elements, including:

- Constrained versus open water movement
- Impounded and tidal contrasts
- Wildlife travel routes
- Habitat edges and transitions
- Areas influenced by warm-water discharge
- Structural fragmentation

Winter conditions suited a structural assessment and helped align field observations with interview themes. The team prioritized questions about physical features over species tallies, focusing on whether habitat structures that support traditional use remain present and functional, how flow and access have changed, and whether the landscape reads as stable, altered, or recovering.

Key insights from the winter visit include:

- Constrained water corridors reveal where the rail corridor and culverts fragment historic tidal flow.
- Impounded freshwater areas contrast sharply with tidal zones, creating dual hydrologic and ecological systems.
- Wildlife movement is concentrated along open-water zones near thermal discharge, particularly fish, muskrat, waterfowl, and predators such as Bald Eagles.
- Structural edges, wetlands, drumlin slopes, and forest margins remain visually legible and continue to support culturally important plant communities, even under snow.
- Access and travel corridors along shorelines, wetlands, and forest edges remain identifiable, though altered by historical infrastructure.

These observations help demonstrate how the land continues to function, even where human use patterns have shifted. Structural persistence in winter reveals patterns that may be less visible in other seasons, showing the continuity of habitat form, the fragmentation caused by infrastructure, and areas where cultural use remains possible.

FINDINGS AND GROUND TRUTHING BY PLACE OR HABITAT

Big Gut Estuary and Saltmarsh

Big Gut remains a central estuarine connector immediately below the community lands. On the estuary side of the former rail corridor, the system still expresses tidal character. Observed features include:

- Narrow tidal channels
- Soft, muddy shorelines
- Riparian hardwood stands
- Cattails and wet meadow margins
- Early successional edges

These features align with Knowledge Holder descriptions of eeling, smelt fishing, shoreline access, berry and medicinal plant gathering, and travel along the estuary margin.

During the visit, geese were observed moving toward A'se'k, and muskrat and otter tracks were active at a small flow break through the rail embankment.

Across the railbed, the inland side functions as an impounded freshwater system with culvert-controlled exchange and redirected upland seepage via berms and ditch lines. Large white pines mark portions of the upper canopy. This corridor thus creates two distinct hydrologic and ecological conditions: tidal on one side, freshwater on the other. Knowledge Holder accounts of stronger past flows help explain the shift from a once continuous tidal-to-wetland transition to a dual system where function is partitioned by infrastructure.

Freshwater Inlets and Wetlands Connected to Big Gut

Two inlets extend inland, one toward Clish Brook and the other flowing towards the old rail bed or shoreline trail. Both show narrowing and redirection at crossings, including a bridge opening that appears notably reduced relative to the bank width.

Surrounding wetlands maintain cattail marsh, shrub swamp, and wet meadow features, supporting muskrat, seasonal waterfowl potential, and plant communities tied to cultural use. These areas retain strong structural value, while their functional connectivity to the tide is more constrained than before railway construction.

Upland Forests and Drumlins

Upland forests and drumlin slopes display a gradient from early successional hardwood edges near the corridor and estuary side of the rail to mixed-wood forests farther inland on the freshwater impound side. Observed vegetation includes:

- Aging poplar with deadfall
- Hardwood mixes: ash, birch, maple, beech, and oak
- Understory hazel, rose hips, and berries along openings
- Mixed wood patches: spruce, fir, pine, beech, birch, oak, and hemlock

These stands provide cover and habitat for hare and small furbearers and align with Knowledge Holder accounts of gathering areas, hunting, trapping, and seasonal movement.

Hydrologically, the raised rail corridor redirects seepage, influencing soil moisture patterns and vegetation organization. The lower backside of a prominent drumlin near the Boat Harbour dam supports black ash and cranberry habitat, associated with Knowledge Holder narratives. The damming of Boat Harbour

represents a significant historical change, cutting Boat Harbour off from natural tidal flow and altering estuary function.

Shoreline Zone Influenced by the Trenton Connector and Generating Station

In winter, shoreline infrastructure near the Trenton Connector and Generating Station creates a persistent open-water effect, where adjacent bays and channels are otherwise frozen. This effect concentrates fish, waterfowl, muskrat, and predators such as Bald Eagles and Hawks in a narrow corridor, producing atypically high wildlife density.

Knowledge Holders recall a time when predators were dispersed across a functioning estuary. The present concentration indicates altered winter energy patterns rather than broad estuarine productivity. The shoreline remains biologically active, but its winter behavior is driven by thermal and structural conditions, rather than natural tidal distribution.

CROSSCUTTING PATTERNS

Connectivity and flow

The rail embankment and associated crossings reduce tidal "breathing," fragment the estuarine-to-freshwater transitions, and constrain fish passage. The result is a dual Big Gut system and echoing constraints upstream at freshwater inlets. These observations align with Knowledge Holder accounts of stronger historical flows and more reliable harvesting conditions.

Habitat Form and Function

Across the landscape, the forms associated with traditional use, tidal channels, mudflats, wet meadows, forest edges with berries and medicines, and mixed wood cover remain present. Function, however, has shifted where connectivity is reduced or winter thermal conditions concentrate wildlife. This explains why places remain recognizable yet are used differently than in previous decades.

Shifting Baselines

Interviews provide critical time depth. Younger observers inherit a landscape already shaped by the rail corridor, bridges, shoreline works, and Boat Harbour damming. Knowledge Holders remember a connected estuary system that supported dependable movement and harvest. Reading the winter field patterns alongside these accounts clarifies why today's landscape feels both familiar and altered.

SPECIES, PLANTS, AND CULTURAL USE

Interview themes and field observations consistently referenced species and plants tied to traditional harvesting and cultural practices:

Fish and Shellfish: Eel, smelt, gaspereau, and shoreline shellfish are strongly associated with tidal mixing zones, soft bottoms, and channel edges.

Plants: Sweetgrass, cranberries, hazel nut, willow, black ash, and other culturally important plants track wet meadow margins, drumlin lowlands, early succession forest and mixed wood stands.

Wildlife: Deer, hare, muskrat, and small furbearers utilize mixed forests and wetland edges.

Predators: The winter concentration of Bald Eagles and prey along the open-water zones near the Trenton Connector and Generating Station is a prominent pattern that contrasts with historical dispersal.

Considerations for Interpreting Change

The following points are not recommendations but reflect indicators that Knowledge Holders and field patterns suggest are meaningful for understanding how the system functions over time.

- Eel presence and seasonal behavior provide a read on channel connectivity, temperature conditions, and sediment quality across tidal channels and marsh edges.
- Sweetgrass and salt marsh vegetation at estuary margins indicate brackish balance, gentle tidal exchange, and stable substrate conditions, highlighting areas where connections remain intact.
- Predator distribution in winter is a quick signal of where the system's energy is concentrated. A single persistent open-water zone suggests structural or thermal drivers, rather than broad estuarine support.
- Forest connectivity and fragmentation results in varied forest types and conditions.
- Benthic and shellfish conditions on mudflats reflect shoreline quality and bottom recovery, aligning with Knowledge Holder emphasis on shellfish as part of food systems.
- Clarity, temperature, and flow behavior at culverts and bridges, especially during high and low water, indicate whether pinch points continue to constrain fish passage and tidal mixing.
- Edge habitat and wet meadow plant communities at forest margins speak to disturbance history, successional stage, and cultural access for berries and medicines.

These indicators help interpret how changes in hydrology, infrastructure, and land use have affected both ecological function and cultural relationships across the study area.

Cumulative Effects and Time Depth

A consistent theme across interviews is the experience of change over time. Rail construction, damming, industrial development, shoreline modification, and altered hydrology have all shaped how places function. These influences appear today as:

- Constrained water flow
- Fragmented habitats
- Altered travel routes
- Changes in harvesting areas
- Areas avoided due to safety or quality concerns

Knowledge Holders describe not only ecological change but shifts in environmental reliability, predictability, and trust in certain areas. At the same time, many accounts emphasize persistence:

- Some places remain active and accessible.
- Some plants still grow and reproduce.
- Some animals continue to return to traditional habitats.

The landscape therefore reflects both disruption and endurance, showing where change has occurred, where ecological functions persist, and where cultural use continues.

Relationship, Adaptation, and Continuity

One important finding is that reduced use does not equal lost knowledge. In many cases, changes in access, safety, or habitat function influence whether an area is used, not whether it is remembered. Knowledge remains tied to place even where active use declines.

Where ecological function persists, cultural relationships also persist. Even when use is constrained, memory, story, and teaching continue to map onto the land. Observations demonstrate that structural habitat and cultural potential coexist, showing that landscape and knowledge are deeply intertwined.

Closing Reflections

The field visits confirm that many places named in interviews still hold the ecological forms that supported past use. Wetlands, shorelines, forest edges, and transition zones remain present across the study area.

However, function is often constrained by cumulative effects. Infrastructure and altered hydrology have reshaped how these systems operate. Even so, the land continues to carry memory and ecological potential. Habitat structure still reflects long-standing relationships, and in many areas, continuity remains visible.

These findings help situate Knowledge Holder accounts within present-day conditions. They do not replace knowledge; they sit alongside it, helping show how relationship to place continues under changing circumstances.

This portion of the MEKS brings together what was shared by Knowledge Holders and what was observed on the land. It does not attempt to measure knowledge against field data, nor to reduce lived experience to ecological indicators. Instead, it places present-day observations alongside community knowledge to better understand how the landscape has changed and how it continues to hold meaning.

The field visits show that many of the ecological forms connected to harvesting, travel, and gathering are still present:

- Wetlands remain on the land
- Shoreline edges still support habitat
- Forests continue to provide food, cover, and plant resources

These are not abstract habitat units; they are places tied to memory, teaching, and use.

At the same time, the work clearly reflects that function has shifted in many areas:

- Water movement is more constrained
- Some corridors are fragmented
- Some areas are approached with caution or used differently than before

These realities echo what Knowledge Holders described about changes over the past several decades.

An important takeaway is that knowledge does not disappear when use changes. Knowledge remains rooted in place, even where access is reduced or certainty in harvesting areas has declined. Memory, story, and teaching continue to map onto the land. The relationship persists, even under constraint.

This section of the study is therefore not only about documenting condition. It is about recognizing continuity. It shows that the land still carries the structure of relationship, even where disturbance has altered function. Understanding time depth is essential; without listening to what the land was, it is difficult to understand what it is now.

The findings from Site Visits 1 and 2 support the broader MEKS by grounding interview knowledge in present-day observation, clarifying where continuity exists, where shifts have occurred, and where ecological and cultural connections remain active.

Ultimately, this work affirms that the landscape is not just a setting for Mi'kmaq Ecological Knowledge, it is part of the knowledge itself. Observing it carefully, in the context of what has been shared by community members, allows a deeper understanding of both change and persistence.

This closing does not mark an endpoint. It represents a moment within an ongoing relationship between people and place.

4.2 Knowledge Holder Interviews

The MEKS Team's collaborative roundtable review affirmed that Mi'kmaw Knowledge Holder teachings are consistent with and deepen the historical and documentary research, particularly in relation to Mi'kmaq relationships to place. Knowledge Holders emphasized that land and water are not only passive settings for use, but living relations that carry responsibility, memory, and teaching. Across interviews, care for the environment, respect for sustainability, and accountability to future generations emerged as common themes.

Mi'kma'ki is understood as the ancestral homeland shaped through long-standing relationships with coastal shorelines, river systems, estuaries, and forested uplands. Within this worldview, places do not exist in isolation or within fixed boundaries. This is consistent with teachings such as weji-sqalia'timk ("we sprouted from"). Knowledge Holders described the Study Area as part of a living land-and-water system in which identity, responsibility, and use are inseparable. Meaningful places extend beyond project limits and are understood through how people move, harvest, teach, and return over time. This perspective reinforces Mi'kmaw relational worldviews documented in the background research. It supports understanding the Study Area as part of a broader cultural landscape within Epekwitk aq Piktuk and neighbouring Mi'kmaw territories.

Across time periods, Knowledge Holder interviews confirmed long-standing patterns of mobility and seasonal land use structured by ecological rhythms and water-based travel routes. Rivers, estuaries, shorelines, and uplands were repeatedly identified as interconnected pathways for travel, harvesting, and teaching. Spring and summer activities focused on coastal and riverine environments, while fall and winter movements extended inland for hunting and trapping. These accounts align with historical documentation while emphasizing continuity through lived experience. Knowledge Holders spoke of returning to the same river stretches, shorelines, and access points over generations, illustrating Mi'kmaw presence as adaptive, ongoing, and place-rooted rather than episodic.

Sustenance practices described by Knowledge Holders reflect a wide range of freshwater, estuarine, marine, and land-based harvesting activities that remain active today. Fishing and harvesting occurred across interconnected environments and included species from rivers and coastal waters, as well as fish, shellfish, and other seafood. Land-based activities followed seasonal cycles and included moose (historically) and deer hunting as primary practices, supplemented by bird and small-game hunting, berry harvesting, and the gathering of culturally important materials. These practices were consistently described as family-based and intergenerational, grounded in observation, experience, and oral teaching. Collectively, the interviews provide lived confirmation that Mi'kmaw foodways are guided by detailed knowledge of habitats, access routes, seasonal timing, and respectful use.

Cultural and spiritual relationships to place, as shared by Knowledge Holders, further reflect Mi'kmaw knowledge systems in which land, language, and story function as a form of "living cartography." Knowledge Holders emphasized that spiritually important places are known not only by their location but also by how they feel and the teachings they hold. Meaning is conveyed through stories, experiences, and Mi'kmaw place names, which encode history, responsibility, and ecological knowledge. References to culturally significant locations, including areas associated with ancestors and burial, reinforce Mi'kmaw

governance responsibilities and obligations for culturally appropriate stewardship. Cultural practices such as craft production, ceremonial activities, and wellness practices were described as inseparable from land-based learning and from the transmission of knowledge through doing, observing, and listening.

The Knowledge Holder emphasized the importance of access, continuity, and responsibility within the Study Area. Certain places and practices were identified as irreplaceable, particularly sacred and spiritual locations, burial-related areas, long-used harvesting sites, and travel corridors. Disturbance to these places may result in permanent loss or long-term constraints on future use. Knowledge Holders also described changes affecting present and future harvesting, including shoreline erosion, altered ice conditions affecting winter travel and harvesting, and cumulative pressures associated with industrial activity and increased marine traffic. Concerns related to pollution and perceived contamination were identified as especially consequential, as they can disrupt confidence in traditional foods and medicines even where physical access remains. These insights reinforce Netukulimk as a guiding ethic: ensure communal sustenance, while maintaining ecological sustainability to ensure future access to resources, cultural continuity, and intergenerational relationships.

Taken together, the Knowledge Holder interviews and background research support three central conclusions: Mi'kmaw use of the Study Area is continuous, intergenerational, and organized through seasonal movement across connected land-and-water systems; Sustenance, cultural, and spiritual practices are inseparable and are carried through language, place-based teachings, and lived experience; and significance is best understood through the potential for impacts to limit access, disrupt culturally important places and practices, or contribute to cumulative change that constrains future Mi'kmaw use within Piktuk and the broader Mi'kma'ki landscape.

KNOWLEDGE HOLDER MAP

The following map shows areas and resources of significance identified by Knowledge Holders:

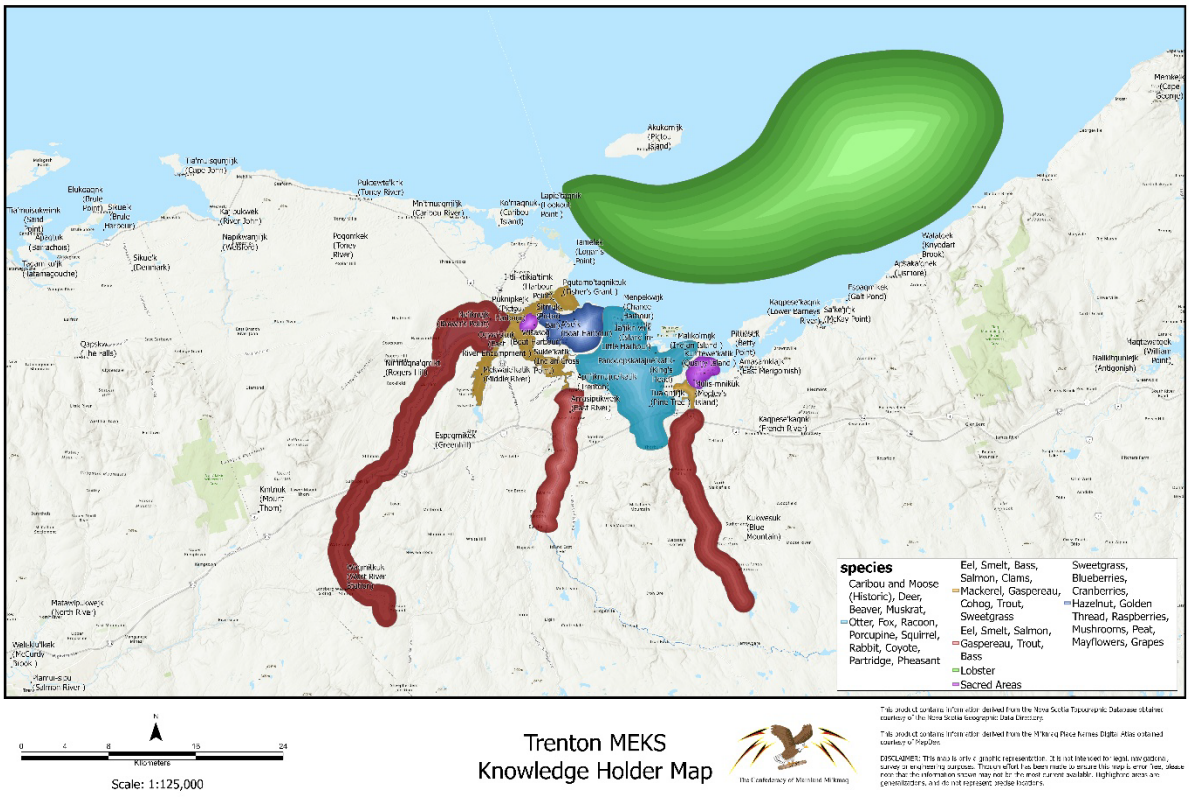


Figure 4-1: Map of Knowledge Holders identified Areas and Resources of Significance

The Trenton Knowledge Holder Map was developed using information shared during interviews with Mi'kmaq Knowledge Holders, who identified places of significance and areas fundamental to travel, harvesting, and seasonal movement. These locations are not simply access corridors or resource areas, but places embedded with identity, memory, and teaching. The mapped features reflect Mi'kmaq understandings of land and water as living systems and together illustrate a cultural landscape shaped by long-standing Mi'kmaq presence and use.

Mapped areas correspond with well-established patterns of seasonal mobility, with spring and summer use focused along rivers, estuaries, and coastal environments, and fall and winter movements extending inland. Knowledge Holders consistently emphasized the lands and waters surrounding Trenton as central harvesting and gathering areas, used historically and continuing to hold meaning today. Mi'kmaq Knowledge related to these places is transmitted intergenerationally through lived experience, observation, and oral teachings, reinforcing a deep understanding of seasonal cycles, abundance, and respectful use.

The light orange zone reflects eel, smelts, bass, salmon, clams, mackerel, gaspereau, quahog, trout, and sweetgrass. Light red indicates eel, smelt, salmon, gaspereau, trout, and bass. The green zone indicates lobster, halibut, and mackerel. The mapped sustenance areas include freshwater, estuarine, and marine harvesting locations associated with fishing, shellfish collection, hunting, and plant gathering that are central to sustainability, food security, and the Aboriginal Right to harvest for food, social, and ceremonial purposes.

The light blue zone denotes communal and Rights-based harvesting of caribou and moose (historic), deer, beaver, muskrat, otter, fox, raccoon, porcupine, squirrel, rabbit, coyote, partridge, and pheasant, which support intergenerational knowledge transmission and cultural practice. The dark blue zone identifies an important area for sweetgrass, blueberries, cranberries, hazelnut, golden thread, raspberries, mushrooms, peat, mayflowers, grapes, ash, birch, maple, spruce, fir and pine. The land-based areas were similarly described as multi-purpose and seasonal. Harvesting practices are integrated across the landscape, underscoring that Mi'kmaq foodways are informed by detailed knowledge of habitat conditions, access routes, and ecological cycles.

The purple zones denote sacred areas. Areas of cultural and spiritual significance are also delineated within the map. Knowledge Holders emphasized that significance is conveyed through legends, stories, and teachings. Areas associated with ancestral presence, burial, cultural, and ceremonial practice were identified with the understanding that such places carry responsibilities regarding respect, access, and protection.

Knowledge Holders emphasized that Mi'kmaw language is verb-based, and that place names describe relationships, actions, and seasonal use rather than static locations. These names function as guides, indicating where to go, what can be harvested, and when activities should occur. In this way, place names encode Mi'kmaw Ecological Knowledge and reinforce responsibility to land and water. For example, Kaqnesek'kaqnk translates to the place of the smelts, indicating that this is one of many areas where the Mi'kmaq would consistently return to fish for smelt for food. However, Knowledge Holders also noted that the smelt run in the Spring is an indicator of cultural significance; it is the first of the season, followed by other gaspereau, trout, salmon, and then eel. This highlights the depth of Mi'kmaq Ecological Knowledge with indicators on when to harvest particular species, ensuring access to food resources throughout the seasons.

Knowledge Holders also discussed other Mi'kmaw place names and areas of cultural significance. Knowledge Holders identified Indian Cross Point as a Mi'kmaq burial area. The Mi'kmaq word for Indian

Cross Point is Sukle'katik, which translates to the "rotten place." The area was given this name because it was used as a burial area for the Mi'kmaq who died because of Smallpox and other diseases.

Harvesting practices were described as communal and guided by shared understanding. Knowledge Holders spoke of returning to areas known to be abundant, taking only what was needed, and using all available resources. This approach reflects Netukulimk, emphasizing sustainability, respect, and responsibility to future generations. Oral storytelling remains central to the transmission of Mi'kmaw Ecological Knowledge, with learning described as occurring through listening, watching, and doing.

Stories shared during interviews included accounts of fishing, trapping, and hunting. A consistent theme on the transmission of Mi'kmaq Ecological Knowledge among interviews is that "the best way to learn is to do." Knowledge Holders consistently noted waterways, including the East River, Merigomish, and Sitmu'k, as fishing locations. Sitmu'k in Pictou Landing was most often talked about when sharing stories about ice fishing for smelts. Other fishing experiences were also shared, where Kloq (meaning sculpin, devilfish) was often caught as bycatch and would eat the bait, leading to it being referred to as the "greedy fish" because it was the first to bite, as well as the "ugly fish" due to its appearance. These narratives illustrate how knowledge is embedded in practice and memory rather than abstract instruction.

Knowledge Holders discussed the historical and current uses of medicinal plants, illustrating the deep understanding and continuity of Mi'kmaq Ecological Knowledge. Plants identified were golden thread root, hazelnut, willow, peat, and sweetgrass. Golden thread (Wisawtaqji'jkl) was good for colds and flu, as the root was chewed for sore throat, colds, and stomach ailments. Sweetgrass was identified as a plant of significant cultural, ceremonial, and medicinal importance and one of the four sacred medicines. Knowledge Holders described its traditional growth in estuarine upper salt marshes influenced by freshwater inputs, noting that it is the earliest-flowering grass in salt marsh ecosystems. While sweetgrass continues to be used for smudging, braiding, and basketry, Knowledge Holders expressed concern about reduced abundance linked to pollution, habitat loss, and climate-related changes. Knowledge Holders noted that A'se'k was once a prominent location for sweetgrass but has since been described as "bad medicine" due to environmental contaminants. Similar concerns were raised regarding other medicinal plants, with harvesting guided by knowledge of place and timing, and by respect.

Berry harvesting was described as both a subsistence and economic activity, with berries sold to surrounding communities. Timber harvesting was also identified as an important practice, particularly the use of ash species. Black ash was described as especially significant for basketry, with detailed knowledge guiding when and how to harvest and prepare the wood. Where black ash has declined, white ash is now sometimes used, reflecting adaptation while maintaining cultural practice.

Basketry emerged as a recurring theme, supporting both cultural continuity and economic livelihood. Knowledge Holders shared memories of travelling to sell baskets, berries, mayflowers, fir wreaths, and wooden lobster-trap hoops, including journeys by ferry and, historically, walking across frozen Pictou Harbour, an activity no longer possible due to changing ice conditions.

Waterways were consistently identified as primary travel routes, with the East River highlighted for its central role in transportation and connection within Epekwitk aq Piktuk and surrounding districts. These routes reinforce Mi'kmaw understandings of rivers as lifeways rather than boundaries.

Knowledge Holders also spoke directly about environmental disruption, particularly the pollution of Boat Harbour. Stories described animals harvested with visible illness, fish deaths, and medicines that were no longer safe to use. These impacts led to a loss of trust. They forced people to travel farther from traditional areas to meet their sustenance needs, creating additional barriers for some community members to exercise their rights due to limited access to transportation. Knowledge Holders emphasized the importance of acknowledging these events and their lasting effects on Mi'kmaw access and presence.

Historical encampments and seasonal movements were discussed, including winter use of inland areas such as Fraser's Mountain and Merigomish and summer travel to coastal locations such as Maliko'mijk. These patterns were disrupted through settler expansion and displacement, compounded by federal centralization policies that attempted to relocate Mi'kmaw families to central reserves. While some families resisted or later returned when promised support failed to materialize, these policies caused lasting disruption.

Consistent throughout the Knowledge Holder interviews, that Mi'kmaq Ecological Knowledge of land and water in the Study Area remains strong and continues to guide harvesting, cultural practice, and connection to place.

5. SUMMARY CONCLUSION

This study indicates that MEK remains strong and ongoing in the Study Area, as described by community Knowledge Holders. Traditions related to harvesting, fishing, and using medicinal plants are rooted in Netukulimk's shared values, which prioritize sustainability and the care of future generations. Storytelling and hands-on learning are vital ways this knowledge is passed down. However, environmental issues, particularly the well-known issue of pollution at Boat Harbour, have disrupted traditional activities and reduced important natural resources, requiring community members to adjust their practices and, at times, travel farther to gather what they need.

Historical patterns of movement and resource usage show that waterways were vital connections among Mi'kmaw communities. The practices of basket making, berry picking, and timber gathering highlight both cultural traditions and economic life for the Mi'kmaq people. Even amid difficulties such as settler immigration and settlement in the region and government centralization policies that limited seasonal migrations and traditional access, Knowledge Holders continue to have a deep relationship with their land and waters, shaping cultural practices and resilience today. This section consistently stresses the need to recognize environmental impacts and to sustain Indigenous knowledge for future generations.

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APPENDICES A: SITE VISIT 1 – FULL REPORT

INTRODUCTORY SECTION – TRENTON MEKS SITE VISIT 1

Date of Survey: September 10th, 2025, 9:30-13:30
Location: Trenton Generating Station, 1 Power Plant Rd, Trenton, NS B0K 1X0, Canada
Conducted By: Quinton Collins and matt nettle
Conditions: 14-17°C, slight breeze from the south, sunny and approx. 10% cloud cover

The MEKS Field Team documented ecologically and culturally significant species and habitats around the Study Area. Through a plotless sampling method, the team identified at least four different microhabitats at the site, supporting varying degrees of native vegetation re-establishment and the presence of ecologically and culturally significant species.

At Site Visit 1, the MEKS Field Team noted a mosaic of early-successional habitats undergoing gradual natural recovery from historic industrial disturbance. Despite localized invasive species pressure, native vegetation including *Populus tremuloides*, *Myrica pensylvanica*, and *Salix* spp. is regenerating across several areas, providing habitat for pollinators and culturally valued species such as monarch butterflies (*Danaus plexippus*). The persistence of medicinal, edible, and spiritually significant plants reflects both ecological resilience and enduring cultural value.

Key considerations include invasive species control, passive restoration to enhance soil recovery, and continued monitoring of hydrologic and vegetation conditions. Future management should incorporate Mi'kmaw Knowledge and stewardship perspectives through Two-Eyed Seeing (Etuaptmumk) to ensure long-term ecological and cultural integrity of the site.

Objectives:

- Identify and document key plant and animal species traditionally used for medicine, food, ceremonies, and material purposes.
- Assess the presence and condition of significant habitats or ecosystems.
- Gather geospatial and photographic records of species and habitats of interest.

Areas of Focus:

- Medicinal plants
- Edible/foraged plants
- Ceremonial or spiritually significant species
- Material-use plants
- Animal signs or habitats (e.g., deer trails, bird nesting areas, etc.)

SCOPE OF SITE VISIT

The project area was provided via map showing site boundaries ***(Figure 1).*** Due to provincial travel restrictions on entering wooded areas, assessing a reference ecosystem in the nearby area was not possible.

Figure 2: Site Boundary – This map includes data from Airbus

SITE OVERVIEW

Upon entry, four distinct microhabitats are evident (*Figure 2*): mowed lawn, old-field/pasture, early-stage riparian corridor, and early successional forest.

The topography is generally flat with a gentle slope toward the river (southwest facing). A ravine incises the eastern portion of the early-successional/riparian interface.

Historical industrial activity (formerly the EastCut facility) remains apparent. Rubble and other anthropogenic materials persist across portions of the property.

Figure 3: Microhabitats

PERIMETER SCAN

A perimeter review documented the following:

- Extensive patches of common/swamp milkweed (*Asclepias incarnata*) ***(Figure 3)***.
- A stand of gray birch (*Betula populifolia*) in the western sector.
- A defined watercourse along the northern boundary.
- Numerous non-native and/or invasive taxa, including Japanese knotweed (*Reynoutria japonica*), box elder (*Acer negundo*), and European starling (*Sturnus vulgaris*).
  Despite disturbance, several native species are actively colonizing and succeeding into former rubble and pasture areas.

Figure 10: Milkweed and Japanese Knotweed

HYDROLOGIC CONTEXT

At the time of the survey, Nova Scotia remained under severe drought conditions, contributing to below-average flows and exposed banks. Vegetation bands and the distribution of hydrophilic species clearly delineate recent high-water extents relative to current levels.

DISTURBANCE INDICATORS

- Legacy industrial rubble and compacted substrates across multiple areas.
- Linear depressions/possible drainage features in the western birch area, potentially related to past vehicle traffic.
- Widespread naturalized/invasive plant presence along edges and disturbed soils (e.g., *Reynoutria japonica*, *Acer negundo*, *Rosa multiflora*).

VEGETATION & WILDLIFE OBSERVATIONS BY AREA

Milkweed Patch

On the southern boundary of the survey area, dominant and frequent species included bladder campion (*Silene vulgaris*), various goldenrods (*Solidago* spp.), white sweet clover (*Melilotus albus*), and mixed graminoids.

Pollinators were abundant; bumblebees were observed foraging heavily on knotweed inflorescences. One individual was positively identified in the field as northern amber bumblebee (*Bombus borealis*) without net capture. A monarch butterfly (*Danaus plexippus*) was recorded moving among milkweed plants within the primary rubble zone ***(Figure 4***). Monarch butterflies are listed provincially and federally as a Species at Risk, with an *'endangered'* status.

Figure 11: Monarch

Scattered trees included apple (*Malus* sp.), as well as sparse individuals of Scots pine (*Pinus sylvestris*) and eastern white pine (*Pinus strobus*). Regeneration of quaking aspen (*Populus tremuloides*) and northern bayberry (*Myrica pensylvanica*) indicates active early successional advancement.

Gray Birch Stand

On the southwest of the survey area is a stand dominated by gray birch trees, which is an early successional species that often colonizes disturbed areas. Within and around the gray birch stand, the team recorded northern bayberry, chokecherry (*Prunus virginiana*), multiflora rose (*Rosa multiflora*), sweet fern (*Comptonia peregrina*), and pearly everlasting (*Anaphalis margaritacea*).

Deer trails were evident. A shallow linear depression resembling an old ditch, possibly initiated or exacerbated by vehicle traffic, was noted.

Northwestern Boundary

Moving northeast along the internal road, species composition remained consistent with earlier areas: common milkweed, Japanese knotweed, and Virginia creeper (Parthenocissus quinquefolia). The northernmost sector supports red maple (Acer rubrum), willows (Salix spp.), box elder, quaking aspen, apple, and pin cherry (Prunus pensylvanica).

Ravine and Watercourse

On the northwest of the survey area, an access road descends to a lower elevation, terminating near a small watercourse. The channel was three to four meters wide, with current water levels being extremely low. The channel margins support willows and other hydrophilic plants typical of periodically saturated soils. Opportunistic species such as jewelweed (*Impatiens* sp.) were present.

A film, possibly caused by effluent or surface contamination, was observed on portions of the water surface, origin undetermined. An unhealthy raccoon was observed within the ravine area *(Figure 5*).

Figure 5: Racoon

PRELIMINARY IMPLICATIONS

Successional trajectory: Native early-successional trees and shrubs (e.g., *Populus tremuloides*, *Myrica pensylvanica*) are establishing in disturbed areas, suggesting passive recovery potential where soil compaction and competition from invasive species are manageable.

Biodiversity value: Pollinator activity (including *Bombus borealis* and monarch presence*)* indicates immediate habitat value within milkweed-rich patches despite disturbance elsewhere.

Invasive pressure: Knotweed and other non-native plants present competitive risks to succession and riparian function, particularly along pathways, fill, and rubble zones.

Water quality considerations: The observed surface sheen warrants follow-up to confirm source and evaluate potential contaminant inputs to the watercourse.

CONCLUSION

The MEKS Field Team at Site Visit 1 documented a site characterized by mixed successional stages and gradual ecological recovery following historic industrial disturbance. Four primary microhabitats were identified, each supporting varying degrees of native vegetation re-establishment and cultural plant presence.

Despite the prevalence of invasive and non-native species, native early-successional taxa such as *Populus tremuloides*, *Myrica pensylvanica*, and *Salix* spp. indicate that natural regeneration processes are actively occurring. Pollinator observations, including monarch butterflies (*Danaus plexippus*) and northern amber bumblebees (*Bombus borealis*), demonstrate localized biodiversity value within milkweed-dominated areas.

Hydrologic conditions observed during the survey reflected region-wide drought, contributing to low flow levels and exposed channel margins. Evidence of a surface sheen within the ravine area warrants further investigation to determine potential contaminant sources.

From a Mi'kmaw Ecological Knowledge perspective, the persistence of medicinal, edible, and spiritually significant plant species underscores the site's residual ecological and cultural value. Overall, the findings identify both ongoing pressures such as invasive species encroachment and compacted soils and opportunities for passive recovery and restoration. Continued integration of Mi'kmaq Knowledge will be essential to ensure that ecological recovery aligns with cultural stewardship priorities and long-term land-use objectives.

CONSIDERATIONS

Based on the findings of this MEKS, the following considerations are provided to guide ongoing management and restoration planning at the project site:

- Invasive Species Management
  Implement targeted control of high-priority invasive species, including Japanese knotweed (*Reynoutria japonica*), multiflora rose (*Rosa multiflora*), and box elder (*Acer negundo*). Early intervention will support native plant succession and improve habitat quality, particularly in riparian and disturbed zones.
- Passive Restoration and Soil Recovery
  Encourage natural regeneration in areas where early-successional native vegetation is establishing. Where soil compaction or rubble limits regeneration, apply selective remediation techniques such as decompaction, organic matter addition, or targeted native planting.
- Riparian Function and Water Quality Monitoring
  Conduct periodic site inspections to monitor hydrologic conditions, vegetation responses, and potential contamination sources associated with the observed surface film. If the sheen persists, undertake water quality sampling to assess possible effluent or runoff inputs.
- Pollinator Habitat Enhancement
  Preserve and expand existing milkweed stands and other native flowering species to maintain pollinator diversity. These habitats contribute significantly to regional biodiversity and support species at risk, including the monarch butterfly.
- Cultural and Ecological Stewardship Integration
  Continue engagement with Mi'kmaw Knowledge Holders and community representatives to ensure that site management reflects both ecological integrity and cultural relevance. The application of Two-Eyed Seeing (Etuaptmumk) principles is recommended for future decision-making.
- Long-Term Monitoring
  Establish a monitoring framework that includes annual vegetation assessments, photo-point documentation, and GIS-based mapping updates. Long-term monitoring will provide valuable data on successional trends, invasive species control effectiveness, and hydrologic stability.

MASTER PLANT LIST – SITE VISIT 1

Observed September 10, 2025

This list includes plant species identified during the MEKS survey and some but not all their known uses. All plant medicines are to be used with caution.

Medicinal Plants

- Coltsfoot – A traditional respiratory remedy.
- Plantain/White Man's Footstep – Used to draw poison from wounds, sores, fly bites, and stings, to effectively heal them. Can be used to treat stomach ulcers.
- Yarrow – Used to treat fevers and colds. Astringent can be used to stop wounds from bleeding.

- Dandelion – Can help fight inflammation, lower blood sugar, and is loaded with nutrients, minerals and vitamins.
- Mullein – Leaves used to treat asthma.
- Fire/pin cherry - Used medicinally for its inner bark, which was prepared as infusions to treat coughs, colds, bronchitis, and sore eyes, and as a poultice for sores and burns.
- Mountain Ash – Inner bark steeped in water and taken internally to treat stomach pains.
- Chokecherry – Used to treat diarrhoea, inner bark steeped in water and taken as a tea.
- Goldenrod - Medicinal plant with multiple benefits, relieves urinary disorders, skin problems, and respiratory ailments.
- Alder – Used to treat stomach cramps, kidney ailments, fever, and neuralgic pain. Common Mi'kmaq remedy for diphtheria. Bark and leaves used together in poultice form to treat festering wounds.
- Japanese Knotweed – Known to be a reliable treatment for Lyme disease. Used in traditional Chinese Medicine to treat ailments such as inflammation, infection, jaundice, and more.
- Jewelweed – Effective remedy for poison ivy rash.
- Bayberry – Used as a digestive tonic and for ceremonial incense.
- Milkweed – Used for treating poison ivy rash.
- Pearly Everlasting - Used to treat coughs and burns; also used in smudging.
- Poplar Tree Sp. – Inner bark steeped in water, used for colds and influenza. Bark has anti-inflammatory properties.
- Raspberry – Highly astringent, which makes it useful for treating diarrhea. Root has the highest astringency. Tea from leaves is soothing to the stomach. Leaves and berries steeped in water can also be a multipurpose tonic to treat cankers or sores of the mouth or throat.
- Red clover – Used to treat high temperatures and feverish conditions.
- St. John's Wort – Used to treat depression and anxiety.
- Sweet Fern – Used to treat poison ivy rash. Used in poultice as treatment for rheumatism and external sores. Can be boiled and drank as a tea for general tonic.
- Tansy - Used for digestive tract problems including stomach and intestinal ulcers, certain gallbladder conditions, migraines, nerve pain, joint pain, and many other conditions.
- Willow sp. - Willow bark has been used for centuries as a natural pain reliever. It contains salicin, which was later synthesized and is the active ingredient in aspirin.
- White Spruce – When needles steeped into a tea, source of vitamin C.
- Wild Strawberry – Leaves used in tea for digestion; berries are edible.

Edible Plants

- Wild Strawberry – Berries, leaves used for tea.
- Dock – Young leaves can be used for salad greens.
- Dandelion – All parts of the plant can be used; roots, young leaves, flowers and flower buds.
- Japanese Knotweed – Young shoots can be eaten like asparagus.
- Raspberry – Berries, leaves can be used for tea.
- Red clover – Flowers are edible.

Ceremonial and Spiritual Plants

- **Pearly Everlasting** – Used in spiritual smudging and cleansing rituals.
- **Bayberry** – Burned for purification and spiritual offerings.

Material and Craft Plants

- **Bracken Fern** – Used in composting or lining; raw use discouraged.
- **Alders** – Bark used for dye; improves soil by fixing nitrogen. Can be used for basket making.
- **Willow –** Shoots used for basketmaking.

FULL SPECIES OBSERVATION LIST

Common name (as provided)	Scientific name
American crow	*Corvus brachyrhynchos*
American Fly Honey Suckle	*Lonicera canadensis*
American Goldfinch	*Spinus tristis*
American Mountain Ash	*Sorbus americana*
American raccoon	*Procyon lotor*
Apple Tree	*Malus domestica*
Arrow Leaf Tearthumb	*Persicaria sagittata*
Aspen Serpentine Leaf Miner Moth	*Phyllocnistis populiella*
Banded Garden Spider	*Argiope trifasciata*
Birdsfoot Trefoil	*Lotus corniculatus*
Bitter Wintercress	*Barbarea vulgaris*
Black Eyed Susan	*Rudbeckia hirta*
Bladder Campion	*Silene vulgaris*
Boxelder	*Acer negundo*
Bristly Hair Cap Moss	*Polytrichum piliferum*
Bull Thistle	*Cirsium vulgare*
Calico Aster	*Symphyotrichum lateriflorum*

Canadian Goose	*Branta canadensis*
Cedar Waxwing	*Bombycilla cedrorum*
Chicory	*Cichorium intybus*
Chokecherry	*Prunus virginiana*
Coltsfoot	*Tussilago farfara*
Common Bluewood Aster	*Symphyotrichum cordifolium*
Common Eastern bumblebee	*Bombus impatiens*
Common eyebright	*Euphrasia nemorosa*
Common green bottle fly	*Lucilia sericata*
Common Hawthorn	*Crataegus monogyna*
Common Milkweed	*Asclepias syriaca*
Common Plantain	*Plantago major*
Common Reed	*Phragmites australis*
Common Yarrow	*Achillea millefolium*
Creeping Thistle	*Cirsium arvense*
Curly dock	*Rumex crispus*
Daisy Fleabane	*Erigeron annuus*
Dandelion	*Taraxacum officinale*
Devil's Beggartick	*Bidens frondosa*
Eagle fern	*Pteridium aquilinum*
European Honeybee	*Sturnus vulgaris*
European Starling	*Apis mellifera*
Evening Primrose	*Oenothera biennis*
Fire Cherry	*Prunus pensylvanica*

Flattop white aster	*Doellingeria umbellata*
Great Mullein	*Verbascum thapsus*
Green Alder	*Alnus viridis subsp. Crispa*
Grey Birch	*Betula populifolia*
Japanese Knotweed	*Reynoutria japonica*
Jewelweed	*Impatiens capensis*
Lupin	*Lupinus polyphyllus*
Monarch	*Danaus plexippus*
Mourning Doves	*Zenaida macroura*
Multiflora Rose	*Rosa multiflora*
New York Aster	*Symphyotrichum novi-belgii*
Northern Amber Bumble Bee	*Bombus borealis*
Northern Bayberry	*Morella pensylvanica*
Orchard Grass	*Dactylis glomerata*
Oxeye Daisy	*Leucanthemum vulgare*
Pearly Everlasting	*Anaphalis margaritacea*
Quaking Aspen	*Populus tremuloides*
Rabbitfoot Clover	*Trifolium arvense*
Raccoon	*Procyon lotor*
Ragweed	*Ambrosia artemisiifolia*
Raspberry	*Rubus idaeus*
Red Clover	*Trifolium pratense*
Red Maple	*Acer rubrum*
Red Odinites	*Odontites vulgaris*

Reed canary grass	*Phalaris arundinacea*
Ribwort Plantain	*Plantago lanceolata*
Rock Pigeon	*Columba livia*
Scots Pine	*Pinus sylvestris*
Sliverrod	*Solidago bicolor*
Slivery Cinquefoil	*Potentilla argentea*
Song Sparrow	*Melospiza melodia*
Spotted Ladies thumb	*Persicaria maculosa*
St. John's Wort	*Hypericum perforatum*
Sulfur Cinquefoil	*Potentilla recta*
Sweet Fern	*Comptonia peregrina*
Tansy	*Tanacetum vulgare*
Toadflax	*Linaria vulgaris*
Trembling Aspen	*Populus tremuloides*
Tufted Vetch	*Vicia cracca*
Vari. Golden Rod	*Solidago spp.*
Vari. Hawkweed	*Hieracium spp.*
Vari. Reed	*Phragmites spp.*
Vari. Willow	*Salix spp. (various willows)*
Virginia Creeper	*Parthenocissus quinquefolia*
Wasp sp.	*Apocrita sp.*
White Birch	*Betula papyrifera*
White Meadow sweet	*Spiraea alba*
White Spruce	*Picea glauca*

White Sweet Clover	*Melilotus albus*
White Tail Deer	*Odocoileus virginianus*
Wild Angelica	*Angelica sylvestris*
Wild Carrot	*Daucus carota*
Wild strawberry	*Fragaria vesca*

APPENDICES B: SITE VISIT 2 – FULL REPORT

INTRODUCTION AND PURPOSE: SITE VISIT 2 GROUND TRUTHING FINDINGS FROM INTERVIEWS

This report presents findings from Site Visit 2 conducted in the Trenton–Pictou Landing area to support the MEKS. The visit focused on ground truthing locations identified through Knowledge Holder interviews and observing present-day habitat conditions at culturally significant sites. The following is a delineation map of Site Visit 2:

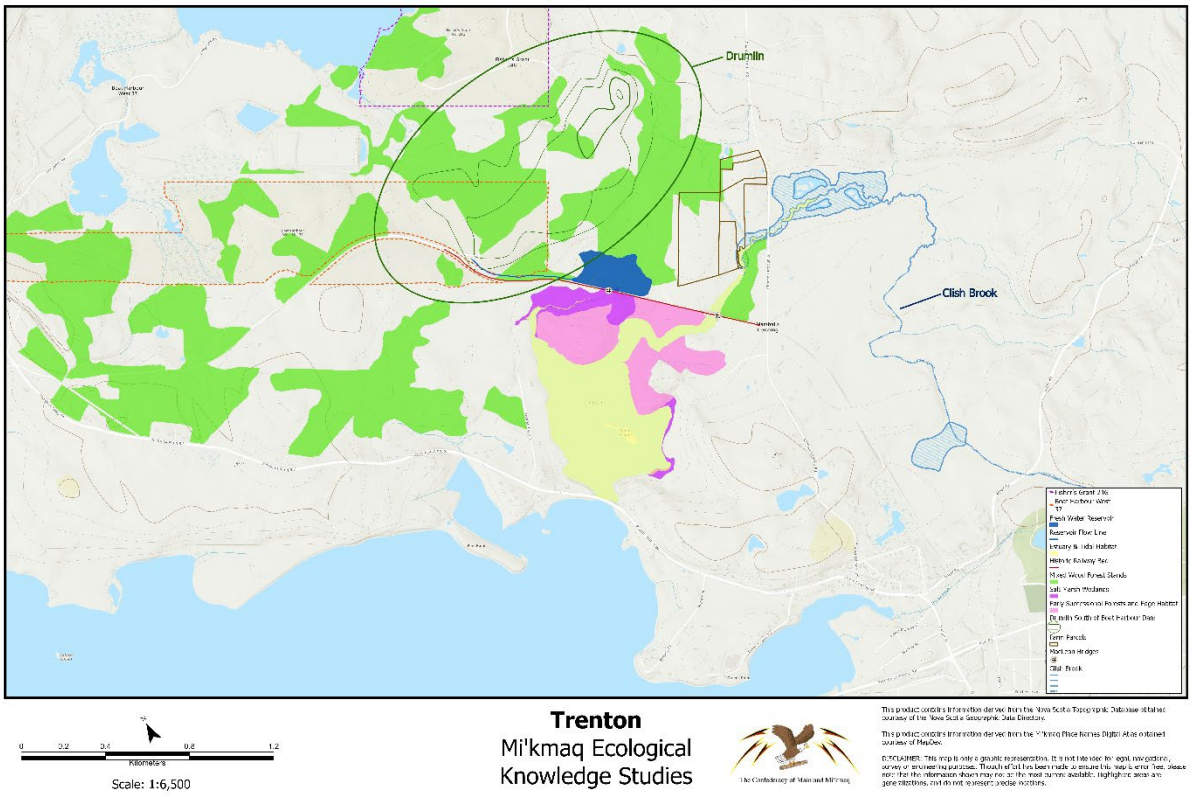

Figure 1: Site Visit 2 Delineation Map

The purpose of this work is not only to describe current ecological conditions, but to understand how the landscape has changed over time and how those changes relate to cultural use, access, and ecological function. Knowledge Holder interviews describe a landscape that has undergone substantial transformation over the past century. Rail construction, damming, industrial activity, and shoreline modification have influenced water movement, species distribution, and harvesting patterns.

This report treats the landscape as dynamic rather than static. Observations are considered within the context of historical change, seasonal conditions, and ongoing adaptation by both ecosystems and community members.

Three sources inform this report:

1. Knowledge Holder interviews describing past conditions, use areas, and observed changes
2. Field observations from Site Visit 2 conducted on February 13 under winter conditions
3. Background materials and prior draft documentation that outline disturbance history and landscape context

Together, these sources allow present-day observations to be viewed alongside long-term community knowledge, helping to clarify where ecological function remains strong, where it has shifted, and where connections have been altered.

Study Area and Landscape Context

The study area lies within the lowland landscapes of northern Nova Scotia, characterized by drumlins, low-lying basins, wetlands, and estuarine systems shaped by glacial processes. These landforms influence present-day drainage patterns, shoreline form, and habitat distribution.

Big Gut, nearby tidal inlets, and the estuarine systems connected to the East River historically functioned as transition zones where freshwater and saltwater mixed. These environments supported fish movement, shellfish habitat, plant communities, forest structures and travel routes used by community members and wildlife. Knowledge Holder accounts consistently link these transition zones to fishing, eeling, gathering, hunting, trapping, material resource use and seasonal movement.

Today, many of these landforms remain visible, but their ecological function has been influenced by infrastructure and shoreline alteration. Observing how these features operate under current conditions helps clarify the degree to which historical functions persist or have shifted.

Historical Infrastructure and Industrial Influence

Landscape change in the study area reflects several major phases of infrastructure and industrial development.

Railway construction in the nineteenth century introduced raised grades and causeways across marshes and low-lying areas. These structures narrowed natural channels, redirected flow, and reduced tidal exchange. Over time, they contributed to fragmentation between upland, wetland, and estuarine systems.

Hydrological control structures, including damming and water management in nearby estuarine systems, further altered salinity patterns, water levels, and wetland extent. These changes influenced shellfish habitat, plant communities, forest structure and access routes.

Industrial development along the shoreline introduced additional pressures, including shoreline modification, localized contamination concerns, and thermal discharge affecting winter conditions in parts of the system.

These changes did not occur in isolation. Each layer of development built upon earlier alterations, creating cumulative effects that are still visible in habitat structure, species behaviour, and community use patterns. Knowledge Holder interviews provide important time depth for understanding these shifts.

Knowledge Holder Interviews: Role and Themes

Knowledge Holder interviews play a central role in shaping this study. They provide direction for site selection, identify culturally meaningful places, and offer time depth that cannot be captured through field observation alone. Rather than serving only as background information, these interviews actively guide where and how ground truthing occurs.

Knowledge Holders describe past conditions, seasonal use patterns, and relationships among species, water, and people. These accounts help establish what the landscape supported historically and how it functioned as part of everyday life. They also describe changes that have occurred within living memory, allowing present-day observations to be understood within a longer timeline.

A consistent theme across interviews is that many harvesting and gathering areas were once more connected, predictable, and widely used. Places such as Big Gut, inland waterways, shoreline areas near

Greens Point and the Trenton Connector, and upland forest edges are repeatedly named as sites for fishing, eeling, shellfish harvesting, berry picking, hunting and medicinal plant gathering.

Interviewees often describe a landscape where access routes followed natural water paths, marsh edges, and drumlin corridors. Travel across frozen waterways and along shorelines was part of seasonal movement. These travel and use patterns depended on water quality, reliable species presence, and safe harvesting conditions.

Another recurring theme is change over time. Knowledge Holders speak about differences in water clarity, flow strength, species timing, and the availability of certain resources. Some areas once considered safe or productive are now used differently or avoided. These observations do not reflect a single moment of change, but rather gradual shifts layered across decades.

Importantly, interviews highlight that cultural knowledge is tied to lived experience on the land. When habitats change or access is reduced, the ability to practice and pass on knowledge can also be affected. This connection between ecological condition and cultural continuity is a key consideration throughout this report.

GROUND TRUTHING APPROACH

Fieldwork for Site Visit 2 followed a knowledge-guided approach. Instead of attempting a broad inventory, the visit focused on observing whether the habitat structures needed to support described traditional uses are still present and functional.

Key guiding questions included:

- Does the habitat still support the use described by Knowledge Holders?
- Has water flow or access changed?
- Does the area appear stable, altered, or in recovery?
- Are structural habitat features consistent with described past conditions?

Winter conditions during the visit included temperatures between approximately minus eight and minus five degrees Celsius, full sun, and recent snowfall of roughly twenty to thirty centimetres. These conditions limited visibility of ground layer plants and some wildlife sign. However, they allowed clear observation of structural features such as hydrological pathways, fragmentation, culvert restrictions, forest structure, and shoreline form.

Snow cover also helped highlight animal movement patterns where tracks were visible, particularly along forest edges, riparian corridors, and transition zones.

FROM INTERVIEWS TO PLACES

Interviews directly informed the selection of ground truthing locations. The connection between story and place was treated as a guiding framework for field observation.

Locations prioritized included:

- Big Gut: Identified as a historically important tidal channel associated with eeling, fishing, gathering, and travel. Observations focused on tidal function, marsh edges, and the influence of the rail corridor.
- Freshwater corridors and inlets: Including connections toward inland brooks and wetlands where fish passage, narrowing channels, and culvert impacts were noted.

- **Upland forests and drumlin slopes:** Described in interviews as areas for berries, medicines, hunting, and travel. Field observations examined successional stage, forest composition, and drainage patterns.
- **Greens Point and the Trenton Connector shoreline:** Highlighted as areas for shellfish harvesting, shoreline fishing, and plant gathering. Observations considered shoreline structure, ice conditions, and evidence of ecological concentration related to warm water discharge.

This interview-to-place approach ensures that field observations remain grounded in community knowledge rather than detached from it. It allows present-day conditions to be interpreted within a cultural and historical framework rather than as isolated ecological snapshots.

BIG GUT: HABITAT OBSERVATION AND FUNCTION TODAY

Overview

Big Gut is a narrow tidal channel located immediately south of Pictou Landing community lands and is consistently identified by Knowledge Holders as a place of fishing, eeling, hunting, trapping, plant gathering, and seasonal travel. It historically functioned as a productive estuarine mixing zone where freshwater and saltwater interactions supported fish movement, shellfish presence, wetland plants, and shoreline use.

Observations from Site Visit 2 confirm that many of the physical habitat forms associated with these uses remain present. However, the system now operates under altered hydrological conditions influenced by the historic rail corridor, associated trail development, and other landscape changes. As a result, Big Gut functions as a partially constrained tidal system rather than a fully connected estuarine transition zone.

A key present-day characteristic is the functional separation between the estuary side and the inland side of the former rail corridor. This division represents one of the significant shifts described by Knowledge Holders when comparing past and present conditions.

Railway Context and Landscape Fragmentation

The historic rail corridor runs parallel to Big Gut and now functions as a raised linear feature across the landscape. While originally designed for transportation, it has become a long-term hydrological and ecological boundary.

Field observations indicate several functional impacts:

- Tidal flow is narrowed and directed through culverts rather than moving broadly across marsh surfaces.
- Habitats on either side of the corridor now function differently, creating a tidal influenced zone on one side and a more impounded freshwater zone on the other.
- Upland drainage is redirected by berms and ditching, concentrating water movement into controlled outlets instead of diffuse marsh edges.

These observations align closely with interview accounts describing Big Gut as once more open and freely connected. Knowledge Holders recall stronger tidal exchange, broader flats, and easier movement of fish species such as eel and smelt.

The rail corridor represents an early and lasting shift in how water and species move through Big Gut. Its influence continues to shape habitat function today.

Tidal and Estuarine Habitat (Estuary Side)

The estuary side of Big Gut retains many characteristics consistent with tidal marsh and estuarine ecosystems.

Observed Conditions

- Narrow, winding tidal channels draining toward the estuary
- Soft, muddy shorelines suitable for fish movement and benthic activity
- Riparian hardwood stands including poplar, maple, birch, ash, and scattered oak and beech
- Cattails and wet meadow vegetation along flood-prone margins
- Early successional shrub and forest edges capable of supporting berry and medicinal plants

Species and Wildlife Sign

- A otter using an ice hole near a limited flow opening
- Geese flying toward the broader estuarine system
- Habitat structure suitable for eel, smelt, gaspereau, muskrat, and waterfowl, even where direct sign was limited by snow cover

Knowledge Holder Link

Knowledge Holders describe this side of Big Gut as historically active for eeling, smelt fishing, shoreline movement, and plant gathering. The habitat structures observed are consistent with those uses.

While the tidal system remains functional, flows appear weaker and more compartmentalized than described in earlier decades. This may help explain reported declines in harvesting reliability.

Freshwater Impounded Habitat (Inland Side)

On the inland side of the rail corridor, the landscape functions more like a freshwater impoundment with limited tidal exchange.

Observed Conditions

- Ponded water with minimal visible flow
- Culverts acting as primary exchange points
- Cattail dominated bog and floodplain zones
- Mixed forest with strong riparian growth and large white pines in the upper canopy
- Tracks from deer, small mammals, and likely muskrat or otter

Snow depth limited the visibility of additional wildlife sign.

Knowledge Holder Link

Interviews do not describe this area historically as a separate freshwater body. It is more often remembered as part of a connected tidal and wetland transition zone. The shift toward impounded conditions aligns with stories of lost travel routes and reduced fishing productivity.

This inland system illustrates how infrastructure can gradually reshape landscape identity, creating ecological conditions different from those remembered by Knowledge Holders.

Berry and Plant Gathering Areas

Several areas along the Big Gut corridor support berry and plant-bearing habitats consistent with interview descriptions.

Observed Plant Indicators

- Blueberries and raspberries along trail and forest edges
- Rose hips near breaks in the rail corridor

- Hazel nut in understory zones
- Apple trees associated with past settlement or clearing

Knowledge Holder Link

Knowledge Holders frequently associate field–forest edges and wetland margins with berry and medicinal plant gathering. These habitat types remain present.

Although species remain, their abundance and distribution may differ from earlier periods when open wet meadows and tidally influenced edges were more extensive.

Hydrological Alteration and Flow Patterns

Hydrological patterns across Big Gut show clear influence from past infrastructure and drainage modification.

Observed Alterations

- Upland seepage redirected along ditches and berms
- Water concentrated at culvert crossings
- Reduced tidal flushing on the inland side
- Narrowed, channelized tidal expression on the estuary side

Knowledge Holder Link

Knowledge Holders describe a time when marshes expanded and contracted with the tide and when fish moved more freely. Present-day restricted flow aligns with interview observations of change.

BIG GUT SUMMARY

Big Gut continues to support many of the structural habitat features associated with traditional uses, including tidal channels, wet meadows, mixed wood stands, and berry-producing edges. These forms remain visible on the landscape.

However, the system now functions as a divided environment with different hydrological conditions on either side of the rail corridor. This fragmentation influences species movement, habitat quality, and access.

Big Gut remains ecologically and culturally important, but its current condition reflects adaptation within constraints rather than the broader connectivity remembered by Knowledge Holders. Understanding this distinction is important when considering cumulative effects and future recovery.

FRESHWATER CORRIDORS, TRIBUTARIES, AND WETLAND SYSTEMS

Overview

Freshwater corridors and wetlands connected to Big Gut were repeatedly referenced by Knowledge Holders as important for fishing, plant gathering, and seasonal travel. Historically, these systems functioned as part of a dynamic transition between freshwater and tidal environments, where flow, salinity, and sediment patterns shifted naturally across seasons.

Site Visit 2 observations confirm that many structural components of these systems remain on the landscape. However, their functional connectivity has been reduced by rail infrastructure, bridge crossings, culverts, and redirected drainage. As a result, these corridors now operate more as segmented systems than as a continuous hydrological network.

This section focuses on present-day conditions and how they relate to Knowledge Holder descriptions of past function and use.

Tidal Inlets and Inland Connections

Two inlet features extending inland from Big Gut toward smaller freshwater channels were observed during the site visit. These inlets show signs of hydrological modification and flow restriction.

Observed Conditions

- Flow paths that appear narrowed or redirected inland
- Reduced channel width at crossings, particularly where bridges and road infrastructure intersect watercourses
- Tidal influence still present but constrained by culverts and causeway-like features
- Secondary restriction points at rail crossings limiting exchange between tidal and freshwater zones

Knowledge Holder Link

Knowledge Holders describe these types of inlets as active travel routes for smelt, trout, gaspereau, and eel. They also recall them as seasonal access routes for people moving between inland and coastal areas. The observed narrowing and redirection of channels align with accounts of reduced fish passage and less predictable runs compared to earlier decades.

These inlets still function as connectors, but their reduced size and altered flow suggest a shift from broad mixing zones toward more controlled, channelized systems.

Freshwater Reservoir-Like Areas

Behind the rail corridor, portions of the landscape now function as freshwater ponded areas occupying what would historically have been transition zones between marsh, bog, and tidal influence.

Observed Conditions

- Ponded freshwater with minimal visible flow under winter conditions
- Cattail dominated margins and bog-like edges
- Early successional and mixed woodland surrounding the waterbody
- Strong riparian vegetation along the rail-facing edge
- Nearby residential presence influencing access and drainage patterns

Species Sign

- Tracks consistent with muskrat or otter
- Deer and hare tracks along forest margins
- Small mammal activity in shrub and forest edge areas
- Upland bird sign near transitions Grouse or Partridge

Snow conditions limited the detection of additional wildlife sign.

Knowledge Holder Link

Knowledge Holders more often describe small streams, marshes, and connected wetlands rather than separate ponded systems. The present-day condition reflects a shift away from a dynamic transition zone toward a more static waterbody. Several interviews also link blocked or redirected tidal pathways to declines in fish access and changes in water quality.

These ponded areas represent structural change in how water is stored and moves across the landscape, influencing both species use and cultural access.

Wetland and Wet Meadow Habitat

Wetlands surrounding freshwater corridors and extending toward tidal areas remain a strong feature of the landscape. These include marshes, shrub swamps, and wet meadow systems.

Observed Indicators

- Cattail stands forming stable marsh pockets
- Low-lying wet meadow areas with seasonally saturated soils
- Shrub dominated margins transitioning into hardwood forest
- Upland-to-wetland transitions suitable for berry shrubs and medicinal plants
- Hydrological variability influenced by slope and modified drainage

Knowledge Holder Link

Knowledge Holders identify wetlands and their margins as places for sweetgrass, cranberries, medicinal roots, hazel nut, willow, and black ash. While winter conditions limited plant identification, the structural habitat strongly supports the likelihood of these species in appropriate seasons.

Wetland structure remains intact in many areas, but reduced tidal influence upstream may gradually affect plant diversity, fish habitat and distribution.

Wildlife Indicators

Direct wildlife observations were limited by recent snowfall, but habitat conditions support the continued presence of species described in interviews.

Observed or Supported Indicators

- Muskrat and otter presence near water access points
- Deer and hare using forest–wetland transitions
- Suitable habitat for furbearers along riparian zones
- Potential waterfowl use in open or seasonally thawed areas

Knowledge Holder Link

These observations align with interview descriptions of muskrat, otter, beaver, deer, hare, and upland birds associated with wetlands and edge habitats. Knowledge Holders link these species to harvesting practices and seasonal use patterns.

Functional Observations

Winter conditions limit full assessment of stream and wetland function, but several characteristics were identifiable.

Observed Functional Conditions

- No visible pool and riffle structure under ice and snow
- Riparian vegetation present but influenced by altered flow
- Water movement strongly shaped by culverts and constrictions
- Human disturbance present but secondary to infrastructure effects

Knowledge Holder Link

Knowledge Holders recall streams that supported fish passage and seasonal foraging. The absence of visible natural flow features during the visit aligns with their descriptions of change.

Freshwater and Wetland Summary

Freshwater corridors and wetlands connected to Big Gut retain many of the structural elements that historically supported fishing, gathering, and travel. However, their connectivity has been reduced by rail infrastructure, bridges, culverts, and redirected drainage.

These changes influence species movement, habitat predictability, and cultural use patterns across generations.

The system remains ecologically valuable but operates with less connectivity and variability than described in Knowledge Holder accounts. Recognizing this shift is important when interpreting both present-day observations and interview knowledge.

Upland Forests, Drumlins, and Edge Habitats

Overview

Upland forests and drumlin landforms surrounding Big Gut and adjacent freshwater systems are closely tied to Knowledge Holder descriptions of berry picking, hunting, trapping, medicinal plant gathering, and seasonal travel. These areas form important transition zones between wetlands and higher ground and support a wide range of habitat types shaped by both natural succession and past disturbance.

Although deep snow during Site Visit 2 limited visibility of ground layer vegetation, canopy structure, drainage patterns, disturbance history, and wildlife sign were still observable. These features provide strong insight into habitat condition and help relate present-day landscapes to Knowledge Holder accounts.

Overall, observations show that many upland and edge habitats remain structurally suitable for the uses described in interviews, even where connectivity and access have shifted.

Forest Fragmentation and Rail Influence

The former rail corridor creates a clear division between upland forests on the estuary side and those on the inland side. This linear feature influences both forest structure and hydrology.

Observed Conditions

- Distinct forest types occur on either side of the corridor, with earlier successional hardwood stands closer to the estuary and more mixed wood stands inland
- The raised corridor redirects surface runoff and influences soil moisture patterns
- Berms and ditching move water toward controlled outlets rather than natural marsh or estuary edges
- Transition zones near crossings show signs of repeated disturbance and regrowth

Knowledge Holder Link

Knowledge Holders describe forests that once connected more seamlessly to marshes and tidal flats, allowing easier wildlife movement and travel. The present-day fragmentation aligns with accounts that hunting areas and travel routes shifted as corridors became interrupted.

Long-term physical separation has shaped forest development and continues to influence how wildlife and people move through the area.

Early Successional and Edge Forests

Early successional hardwood forests dominate many areas near Big Gut and along the rail corridor. These habitats are strongly associated with berry, material resources and medicinal plant gathering.

Observed Conditions

- Large poplar stands with notable deadfall, indicating transition stages
- Hardwood mix including maple, birch, ash, beech, and oak
- Beaked hazel present in understory areas
- Scattered young fir regeneration
- Evidence of clearing or disturbance near entry points and residential edges
- Berry-producing shrubs such as blueberry, raspberry, and rose along openings
- Apple trees suggesting former settlement or clearing sites

Knowledge Holder Link

Interviews frequently reference berry picking and medicinal gathering in edge habitats and transitional forests. The observed structure closely matches these described environments.

Inland Mid-Successional Forests

Further inland, forests show signs of longer regrowth and reduced recent disturbance.

Observed Conditions

- Mixed hardwood stands with ash, aspen, birch, maple, and beech
- Hazel nut and shrub layers increasing in density
- Willow and alder present in moist pockets influenced by redirected drainage
- Greater canopy continuity compared to estuary-side forests

Knowledge Holder Link

Knowledge Holders associate these forest types with deer, hare, and upland bird habitat, as well as access to certain medicinal plants. Observed conditions support these uses.

Mixed Wood Forest

Beyond the reservoir and inland from the corridor, mixed wood forests provide some of the most structurally diverse habitat observed during the visit.

Observed Conditions

- Spruce, fir, pine, and hemlock forming strong canopy cover
- Hardwood regrowth interspersed throughout
- Blowdown and storm damage consistent with recent weather events
- Hare tracks observed along narrowed trail sections
- Dense cover suitable for small furbearers

Knowledge Holder Link

Interviews describe mixed forests as important for small game, trapping, and winter foraging. Current structure aligns well with these descriptions.

These forests show resilience and reflect ongoing natural processes alongside past disturbance.

Drumlins and Hydrological Influence

Drumlins play an important role in shaping drainage, habitat structure, and travel routes.

Observed Conditions

- Elevated drumlin slopes connecting inland forests toward coastal systems
- Evidence that low areas between drumlins once allowed broader water movement
- Present-day seepage and small channels redirected toward impounded areas
- Suitable habitat for black ash and cranberries on drumlin margins

Knowledge Holder Link

Knowledge Holders describe drumlin pathways as important for travel and locating plant resources. Observations confirm that these landforms still structure habitat and drainage patterns, though connections between systems have changed.

Wildlife and Use Indicators

Even under winter conditions, upland habitats show signs of continued wildlife use.

Observed or Supported

- Deer and hare presence
- Upland bird sign near openings
- Suitable habitat for porcupine along hardwood ridges
- Cover for fox, raccoon, and other furbearers
- Berry and medicinal plant habitat consistent with interviews

Knowledge Holder Link

These observations align with described hunting and gathering practices and reflect the continued importance of upland systems.

UPLAND AND FOREST SUMMARY

Upland forests, drumlin slopes, and edge habitats surrounding Big Gut remain ecologically diverse and culturally meaningful. They continue to support berries, medicinal plants, and wildlife associated with traditional use.

At the same time, fragmentation and altered hydrology have influenced how these habitats connect to wetlands and estuaries. Despite these changes, many upland areas show resilience through regrowth and continued wildlife presence.

These forests reflect both long-term change and ongoing ecological continuity, consistent with Knowledge Holder observations of adaptation over time.

GREENS POINT AND THE TRENTON CONNECTOR SHORELINE

Overview

The Greens Point and Trenton Connector shoreline forms an important coastal zone linking river, estuary, and nearshore environments. Knowledge Holders consistently identify this area as a place historically used for shellfish gathering, shoreline fishing, plant harvesting, and seasonal travel along the coast and East River. It represents a transition between freshwater influence from the river and saltwater influence from the estuary, creating productive edge habitat.

Field observations from Site Visit 2 indicate that this shoreline remains biologically active. However, long-term shoreline modification, infrastructure development, and warm water discharge have altered how the

system functions compared to conditions described in interviews. Present-day ecological patterns reflect both natural coastal processes and sustained human influence.

Coastal Shoreline Significance

This shoreline was prioritized during ground truthing because it is repeatedly named in interviews as a traditional use area.

Linked Species and Uses

- Clams and quahogs
- Shoreline fishing for estuarine species
- Sweetgrass and salt marsh plants in suitable zones
- Cranberries and shoreline berries
- Travel corridors along the coast

Field Focus

Observations focused on:

- Intertidal substrate and sediment type
- Condition of natural versus modified shoreline
- Wrack lines and nutrient deposition zones
- Adjacent wet meadows and marsh edges
- Signs of disturbance or shoreline instability

Suitable habitat remains present in several locations, though its continuity is influenced by past alteration.

Warm Water Influence

A defining modern feature of this shoreline is the influence of warm water discharge entering the river system. During winter conditions, this creates localized areas of open water when surrounding shorelines are largely ice-covered.

Observed Conditions

- Persistent openings in ice cover during freezing periods
- Concentrations of birds and fish using open water
- Repeated wildlife use of these warmer zones
- Reduced formation of stable shoreline ice in affected areas

Knowledge Holder Link

Knowledge Holders describe winter shoreline travel and fishing in earlier decades but do not describe persistent winter open water of this scale. The current pattern reflects industrial thermal influence rather than natural seasonal variation. Thermal inputs modify winter habitat availability and influence how species distribute themselves across the shoreline.

Concentration of Fish and Waterfowl

Open water areas attract fish and waterfowl during cold periods, leading to localized concentrations.

Observed Dynamics

- Fish presence in warmer water zones
- Waterfowl gathering where ice is absent

- Predator activity focused on concentration areas
- Evidence of repeated wildlife use of these sites

Knowledge Holder Link

Interviews describe a past where species were more widely dispersed across the estuary. The present concentration effect contrasts with those descriptions and reflects altered winter conditions.

Eagle and Predator Activity

High predator presence was noted near open water areas.

Observed Conditions

- Large gathering of eagles observed in proximity
- Repeated feeding and scavenging behavior
- Tolerance of closer spacing between individuals than typically expected
- Use of shoreline trees as lookout and feeding sites

Knowledge Holder Link

Knowledge Holders note that raptors have always been part of the system, but the scale of concentrated feeding activity described today differs from earlier patterns. Predictable food sources can shift predator behavior and distribution.

Muskrat and Small Mammal Exposure

Muskrats and other semi-aquatic mammals depend on access to water beneath ice in winter.

Observed Conditions

- Muskrat sign near open water edges
- Reduced alternative access points where ice cover is extensive
- Greater exposure to aerial predation

Knowledge Holder Link

Muskrat harvesting is described as a seasonal practice in interviews. Concentrated exposure near limited open water differs from more evenly distributed access described historically.

Fish Species Use

Based on habitat and interview knowledge, several fish species are associated with this zone.

Field-Supported Presence

- Rainbow smelt
- American eels
- Gaspereau
- Tomcod
- Striped bass in deeper channels
- Other opportunistic estuarine species

These align with both Knowledge Holder accounts and observed habitat conditions.

American Eel Considerations

American eel remains one of the most culturally significant species discussed in interviews.

Observed or Supported Patterns

- Attraction to warmer water areas
- Potential disruption of typical winter dormancy
- Increased exposure to predators
- Sensitivity to passage barriers and temperature shifts

Knowledge Holder Link

Knowledge Holders recall more predictable eel presence and harvest in earlier decades. Present conditions suggest altered seasonal behavior. Temperature and connectivity influence eel movement and availability.

Shoreline Condition and Sediment

Shoreline structure influences shellfish habitat and plant communities.

Observed Conditions

- Mixed natural and modified shoreline segments
- Areas of erosion and sediment deposition
- Wrack accumulation supporting nutrient cycling
- Marsh edges present in suitable pockets

Knowledge Holder Link

Shellfish gathering areas described in interviews align with low-energy sediment zones and stable intertidal flats. Some of these features remain, though their extent appears reduced.

GREENS POINT AND TRENTON CONNECTOR SUMMARY

The Greens Point and Trenton Connector shoreline remains a biologically active and culturally meaningful coastal zone. Structural habitat for shellfish, eels, fish, waterfowl, and sweetgrass persists in several locations.

At the same time, shoreline modification, thermal influence, and altered hydrology shape how the system functions today. Wildlife concentrations and winter open water reflect present conditions rather than historical norms described by Knowledge Holders. This shoreline illustrates how coastal systems can remain active while functioning differently than in the past, highlighting the importance of understanding both continuity and change.

DISTURBANCE, RECOVERY, AND CUMULATIVE EFFECTS

Overview

Knowledge Holder interviews and field observations together describe this landscape as one shaped by layered disturbances over a long period of time rather than by a single event. Changes to hydrology, shoreline structure, forest cover, and species movement reflect the combined influence of railway construction, damming, industrial activity, road and bridge development, forestry, and agricultural clearing.

Site Visit 2 provided an opportunity to view these interview accounts within present-day conditions. Many of the features described by Knowledge Holders remain visible on the land, though often in altered form. This section brings together those observations to describe how disturbance, recovery, and cumulative effects interact across the system.

Big Gut as a Connected System

Historically, Big Gut functioned as a connector between inland freshwater systems, tidal estuary environments, and coastal zones. Knowledge Holders describe it as an area used for fishing, eeling, travel, and plant gathering.

Today, Big Gut still retains estuarine characteristics, but its functioning is shaped by upstream and downstream modifications.

Observed Conditions

- Tidal channels, riparian hardwoods, and wetland edges remain structurally present
- Flow is restricted by railbed elevations and culverts
- Upland drainage is redirected, influencing sediment and moisture regimes
- A'se'k (Boat Harbour) estuary was Dammed for holding ponds
- Access and productivity differ from conditions described in earlier decades

Knowledge Holder Link

Interviews recall sudden changes, healthier marsh connections, intact tidal flow and more predictable harvesting. Present conditions show continuity in form but change in function.

Big Gut remains an active system, but its role as a connector has been narrowed by accumulated alterations.

Railway Development

Railway construction marked one of the earliest large-scale landscape shifts described in interviews. Raised grades and causeways changed how water moved across marshes and lowlands.

Key Effects

- Narrowing of tidal channels
- Reduced tidal flushing
- Fragmentation of estuarine and marsh systems
- Sediment buildup where currents were once stronger
- Barriers affecting fish and eel movement

Knowledge Holder Link

Knowledge Holders describe earlier periods when fish passage and travel routes were less obstructed. Current landscape patterns align with these accounts of change.

Damming and Hydrological Control

The conversion of a former tidal estuary into a controlled water body created a major hydrological shift in the region. This change altered salinity patterns, water movement, and shoreline conditions.

Observed and Documented Effects

- Loss of natural salinity gradients
- Flooding of former marsh and bog edges
- Changes in shellfish and plant habitat suitability
- Increased stagnation and sediment accumulation
- Reduction of transitional tidal–freshwater zones

Knowledge Holder Link

Interviews describe declines in eel quality, shellfish safety, and water clarity following these changes. Field conditions are consistent with those accounts.

Hydrological control reshaped both ecological processes and cultural use patterns.

Industrial Shoreline Modification

Industrial activity along the river and shoreline introduced long-term physical and thermal influences.

Observed and Reported Influences

- Warm water inputs altering winter ice patterns
- Shoreline hardening and infill affecting sediment movement
- Areas avoided due to contamination concerns
- Fragmented habitat and altered access routes

Knowledge Holder Link

Some areas once used for gathering or fishing are now approached cautiously or avoided. This reflects both ecological and cultural shifts.

Roads, Bridges, and Secondary Infrastructure

Smaller infrastructure elements collectively contribute to cumulative effects.

Observed Conditions

- Channel narrowing at bridge crossings
- Modified runoff and drainage patterns
- Constraints on fish passage
- Increased human access alongside habitat fragmentation

Knowledge Holder Link

Knowledge Holders describe changes in travel routes and water movement consistent with these observations.

Farming and Land Clearing

Agricultural activity has influenced upland and riparian zones.

Potential Effects

- Increased erosion and sediment movement
- Nutrient inputs to streams and wetlands
- Reduced natural buffer vegetation
- Simplified habitat structure in some areas

Knowledge Holder Link

Some interviews reference clearer water and different shoreline vegetation in earlier times.

Forestry Activities

Forestry contributes to shifts in forest composition and structure.

Observed or Likely Effects

- Changes in canopy cover and moisture conditions
- Soil disturbance and sediment runoff
- Creation of edge habitat and mixed successional stands
- Regrowth supporting certain wildlife species

Knowledge Holder Link

Interviews connect forest change to hunting patterns, travel routes, and plant availability.

Signs of Recovery and Resilience

Despite disturbance, many areas show ongoing ecological function.

Observed Examples

- Regrowth in mixed wood and hardwood forests
- Persistent wetland pockets with healthy vegetation
- Continued presence of deer, muskrat, hare, and upland birds
- Intact riparian corridors in several locations

Knowledge Holder Link

Knowledge Holders note that species remain present even when behavior or timing has shifted. The landscape reflects both disturbance and natural capacity for renewal.

Cumulative Effects Perspective

No single change explains current conditions. Each layer of disturbance builds on previous ones, shaping how water moves, where species gather, and how people use the land.

Combined Insights

- Gradual shifts in harvesting reliability
- Changes in species timing and distribution
- Altered water clarity and flow paths
- Reduced connectivity between habitats
- Adaptation by both ecosystems and community members

SECTION SUMMARY

The broader region reflects a history of interacting disturbances layered over time. Cultural and ecological values persist, but they are expressed differently than in the past.

Understanding cumulative effects through both Knowledge Holder perspectives and field observation provides necessary context for interpreting present conditions and for considering future restoration or monitoring efforts.

KNOWLEDGE-GUIDED CONSIDERATIONS AND POTENTIAL INDICATORS

Knowledge Holders emphasize that understanding environmental change requires attention to relationships among water, plants, animals, and people. Rather than prescribing actions, this section outlines considerations that may help guide observation, reflection, and discussion as the landscape continues to change.

These considerations are grounded in interview knowledge, field observations, and recurring themes of connectivity, habitat function, and long-term disturbance. They are not recommendations, but reflections of what Knowledge Holders identify as meaningful signs of ecological well-being.

The indicators described below represent ways of noticing change over time through a MEKS lens.

American Eel Presence and Seasonal Patterns

American eel remains one of the most culturally significant species discussed in interviews. Knowledge Holders describe a time when eels were abundant in tidal channels and marsh edges and were reliably harvested in season.

Observing where and when eels appear today can provide insight into connectivity, water temperature patterns, and sediment conditions. Changes in timing, size, or location may reflect broader shifts in system function.

Sweetgrass and Marsh Vegetation

Sweetgrass and associated marsh plants were historically found in specific brackish and wet meadow conditions. Their presence, absence, or gradual return can reflect salinity balance, tidal mixing, and sediment stability.

Knowledge Holders connect these plant communities directly to cultural practice and ecological health. Observing how these habitats persist or change over time provides a culturally grounded indicator of shoreline condition.

Predator Distribution Across the Estuary

Interviews describe predators such as eagles, foxes, and other species as historically dispersed across a broad and functioning estuary. When predators concentrate heavily in one location, this may reflect uneven resource distribution or altered ecological patterns.

Observing whether predators are widely distributed or highly concentrated can provide insight into prey availability, shifting habits and habitat balance.

Benthic and Shellfish Conditions

Shellfish were historically part of the local food system and shoreline use. Observations related to sediment condition, benthic clarity, and the presence of filter-feeding species can reflect estuarine health.

Knowledge Holders emphasize the importance of shellfish not only as food but as indicators of water quality and shoreline function.

Water Clarity, Temperature, and Flow

Interviews frequently reference differences between past and present water clarity, flow strength, and perceived cleanliness. Field observations also note restricted flow and redirected drainage.

Seasonal observations of water clarity, temperature patterns, and flow behavior may help illustrate how the system continues to adjust over time.

Fish Passage at Crossings

Structures such as bridges and culverts influence fish movement between freshwater and tidal areas. Knowledge Holders describe historic travel routes for smelt, trout, gaspereau, and eel.

Observing how water moves through crossings, especially during high-flow periods, can help indicate whether these routes remain functional.

Berry, Medicine, and Edge Habitat Conditions

Knowledge Holders link certain forest edges, wet meadow margins, and upland slopes to berries, cranberries, hazel nut, willow, black ash, and other culturally important plants.

The presence, spread, and health of these plants can reflect moisture patterns, disturbance history, and ecological succession. Continued observation of these species helps track landscape change in ways meaningful to community knowledge and habitat health.

Observing Through Paired Knowledge Systems

Knowledge Holders emphasize that understanding change involves both lived experience and direct observation on the land.

This may include:

- Seasonal observations guided by Knowledge Holders
- Noticing recurring wildlife sign and vegetation changes
- Paying attention to areas people feel confident using
- Observing visible changes in marshes, shorelines, and water paths

These approaches support understanding without requiring formal monitoring structures.

Supporting Community-Led Reflection

Interviews describe change not only in the environment but also in how people move across the land and water.

Points for reflection may include:

- How seasonal travel routes compare to earlier stories
- Whether gathering areas remain accessible
- Whether species appear at expected times and places
- Which areas feel healthy and safe for cultural use

These reflections provide insight into how the landscape functions relative to MEKS knowledge.

SECTION SUMMARY

This section does not provide directives. Instead, it outlines considerations rooted in Knowledge Holder guidance and grounded in field observations.

Potential indicators include:

- Eel presence and behavior
- Sweetgrass and marsh vegetation patterns
- Predator distribution
- Shellfish and benthic conditions
- Water clarity and flow
- Fish passage at crossings
- Berry and medicinal plant habitat health

Together, these considerations offer a way to understand landscape change through a Knowledge Holder lens and to support future community conversations, planning, and reflection.

CLOSING REFLECTIONS

Bringing Interviews and Field Observations Together

This field report brings together Knowledge Holder interviews and two site visits to better understand the Trenton area landscape as a living system shaped by long-term relationships between people, water, plants, and animals. The purpose has not been to separate cultural knowledge from ecological observation, but to view them as interconnected ways of understanding the same place.

Community interviews describe a landscape that once supported reliable harvesting, travel, and gathering across seasons. Field observations confirm that many of the physical features supporting those activities still exist, but often in altered form. Channels remain but are redirected, wetlands persist but are constrained, and species remain present but show different patterns of abundance and behavior.

Together, these findings illustrate not loss alone, but transition.

Change as a Layered Process

The landscape described by Knowledge Holders has experienced cumulative change over generations. Rail lines, causeways, bridges, industrial development, forestry, and smaller access roads have all contributed to gradual shifts in water flow, shoreline form, and habitat continuity.

No single change explains current conditions. Instead, the interviews and fieldwork point to layered disturbance occurring over time. This layered perspective is important, because it frames current conditions as part of an ongoing process rather than a fixed state.

Knowledge Holders consistently emphasize that memory of previous conditions is essential for recognizing these changes.

Knowledge as a Record of Environmental History

The interviews function as a record of environmental history. Observations about eel timing, berry locations, trapping areas, shellfish presence, and water conditions describe how the system once behaved and how it behaves now.

This knowledge does not rely on measurement tools but on lived experience across seasons and years. When paired with field observation, it provides context that cannot be captured through short-term surveys alone.

In this way, community knowledge acts as a long-term dataset grounded in relationship to place.

Ongoing Relationships to Land and Water

Despite changes, interviews show that relationships to land and water continue. People still notice species presence, still recall gathering areas, and still connect specific places with teachings and memories.

Some areas remain active use areas, while others are remembered more than used. Both forms of knowledge are meaningful, as they show how connections shift rather than disappear.

The continued sharing of this knowledge demonstrates that cultural relationships to the landscape remain present even where ecological conditions have changed.

Value of Continued Ground-Truthing

The second site visit demonstrated how interview knowledge can guide field focus. Rather than surveying broadly, attention was directed toward habitats, crossings, marsh edges, and shoreline features identified in interviews.

This approach strengthens understanding by linking observation to lived knowledge. Continued ground-truthing guided by interviews allows the landscape to be read through both ecological and cultural lenses.

Future visits, if undertaken, would benefit from seasonal timing aligned with species cycles mentioned by Knowledge Holders.

This report does not present the landscape as damaged or restored, but as dynamic and continuing to change. The interviews remind us that ecological systems and cultural knowledge evolve together.

Understanding the Trenton area requires listening to those who have observed it over time and pairing that knowledge with careful observation on the land. Doing so provides a fuller picture of how habitats function, how species move, and how people relate to place.

The findings here contribute to a growing record of place-based knowledge that can support future conversations, planning, and stewardship. They also reaffirm that meaningful understanding begins with observation, experience, and respect for local knowledge.

Site Visit 2 Images

The following photographs were taken on February 13, 2026, and provide visual observations at the time of Site Visit 2:

Figure B-1: Deer track found in early successsionaly forest

Figure B-2: Rail line fragments estuary and freshwater habitat. Freshwater side (right) contains mixed forest. Break in rail shows small stream of water moving between estuary and freshwater.

Figure B-3: Otter tracks noted at rail line in break where estuary and freshwater mix

Figure B-4: Porcupine claw on birch tree

Figure B-5: Edge effect on trail, leading into upland forest

Figure B-6: Hare tracks emerging from mixed woods

Figure B-7: White ash in mid-succession riparian zone

Figure B-8: Upland seepage diverted by railbed/trail, diverted to freshwater instead of estuary

Figure B-9: MacLean Lane bridge showing one of two tidal inlets from Big Gut

Figure B-10: one eagle of hundreds between Trenton Connector and Green Point