

## BACKGROUND

As a coastal province, Nova Scotia is increasingly vulnerable to the impacts of coastal climate change. Sea level rise and increased risk of storm surge are among such impacts arising along Nova Scotia's Bay of Fundy coasts. Dykes, a form of coastal embankment, were constructed throughout the region starting the 1600s by Acadian (French) settlers to prevent tidal intrusion and create farmland. In many areas, dykes in their current state are inadequate to protect diversified coastal land uses against climate change. The dykes must be adapted by reinforcing them in their current footprint, realigning them (pulling them back), and/or restoring some currently drained areas back to tidal wetlands. Each adaptation option bears complex environmental, economic, and political consequences along the full extent of the dykelands. The province's approach to climate change adaptation also presents an opportunity to enact and honor its commitments to honoring Mi'kmaq (Indigenous) rights and reconciliation.



Emily, the primary researcher, handcrafting gifts for the interview participants.

## RESEARCH

Dalhousie University and the Confederacy of Mainland Mi'kmaq (CMM) collaboratively conducted an in-depth qualitative research study to understand how Mi'kmaq navigate coastal adaptation decision-making in the Bay of Fundy. The study included Mi'kmaq Traditional Knowledge (MTK) interviews with five MTK Holders from four different communities: L'sitkuk (Bear River), Glooscap, Millbrook, and Sipekne'katik First Nations. There were two additional interviews with key informants on archeology and fish passage. The findings were prepared by a researcher of settler heritage and validated by the interview participants as well as other MTK Holders and witnesses.

## RESULTS

The participants generally favoured restoring dykelands to tidal wetlands and disfavoured maintaining dykes. Tidal wetlands better align with the Mi'kmaq stewardship principle Netukulimk, which describes honoring the integrity, diversity, or productivity of the environment. Wetlands provide habitat for species to which Mi'kmaq are connected, including fish and birds, as well as sweetgrass, which is a sacred medicine used in ceremony. Tidal wetlands also sequester carbon, which is important for mitigating climate change. Conversely, the participants explained that dykes largely do not align with Netukulimk: they are human-made, and, because they were generally constructed from tidal wetlands, they disrupt crucial habitat. Though some communities use dykes for recreation (e.g., walking), this was rarely described among the participants, who had minimal use of or attachment to dykes.

Though wetland restoration was generally favored more than dyke maintenance, the participants were balanced in their approach. They understood that wetland restoration may be disruptive for farmers and private landowners and that some dykes may be worth maintaining due to flood protection, recreation, and Acadian history.

There may be culturally significant archeological resources in dykelands that would be impacted by the rewetting process of wetland restoration. The participants advised that archeological resources should be approached on a case-by-case basis as there is a large variety of possible resources as well as a variety of options for managing them.

Overall, the participants emphasized that decision-making in this context is highly complex and that all impacted communities must be involved. They underscored the importance of thinking on longer timescales by considering the impacts of current-day decisions on future generations. A few participants stated that our approach to coastal adaptation in the Bay of Fundy may be an opportunity to enact reconciliation in the spirit of Mi'kmaq ancestors and future generations.



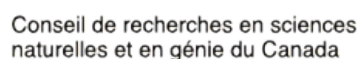
The research team presented and validated their preliminary findings at a water monitoring workshop co-hosted by CMM.

## APPLICATION & CONCLUSION

These findings do not simply represent “opinions” in the Bay of Fundy adaptation context – they are guidance on how to respectfully live with the land from those who have stewarded it since time immemorial, the Mi'kmaq. United Nations Declaration on the Rights of Indigenous People (UNDRIP) recognizes that “Indigenous knowledge, cultures, and traditional practice contribute to sustainable and equitable development and proper management of the environment”. This is embodied in Nova Scotia’s Environmental Goals and Climate Change Reduction Act 2021 (C12) (Can.), which cites Netukulimk, a Mi'kmaq stewardship principle, as essential to the achievement of “sustainable prosperity”. Mi'kmaq (Indigenous) knowledge is integral to successful climate change adaptation. It is also the responsibility of provincial and federal governments to honor recommendations put forth by the Truth and Reconciliation Commission (TRC), which emphasize that “virtually all aspects of Canadian society may need to be reconsidered” to enact reconciliation. To quote one of the interview participants, “Any kind of real reconciliation has to come through the land.” Our province’s approach to adaptation in the Bay of Fundy is critical opportunity to honor the Mi'kmaq, the traditional stewards of the coasts, who suggest a prioritization of wetland restoration where possible.

In alignment with this guidance, ecological research indicates that tidal wetlands provide natural and effective coastal buffering. Restored tidal wetlands may likewise provide more effective protection against climate change impacts than hard infrastructure (e.g., dykes). However, studies in the dykeland context demonstrate that certain stakeholders perceive dykes as more effective. This indicates a need for meaningful consultation and outreach with all relevant stake- and rights-holders to ensure successful implementation of adaptation measures.

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