

SALT MARSH

Vegetated coastal ecosystems can sequester carbon from the atmosphere, building carbon stocks in marine sediments. Salt marshes — which are regularly flooded with salt water brought in by the tides — have the greatest carbon sequestration potential of blue carbon ecosystems in Canada. These intertidal habitats provide numerous services, including protecting shorelines from erosion, providing nursery habitat for fish and even contaminant remediation.

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Salt marshes have the potential to deliver disproportionately large climate and biodiversity benefits.

KNOWLEDGE GAPS

Despite the importance of salt marshes, there are large gaps in our understanding of their distribution and role in blue carbon sequestration in Canada. While there are a variety of approaches for mapping salt marshes, each approach has some trade-offs. For example, field sampling is the most accurate method but is also resource intensive and challenging to scale across Canada's three coasts. Alternatively, satellite imagery, LiDAR and remote sensing products can support national mapping efforts but may lack precision and accuracy. A combination of tools and dedicated investment in field carbon measurement over time will help us gain a better understanding of the status and trends of salt marshes and their carbon dynamics.

THREATS AND MANAGEMENT

On the east coast of Canada, over two-thirds of coastal salt marshes have been lost to extensive diking for drainage and agriculture. On the west coast, B.C.'s salt marshes have been lost and degraded as a result of coastal development and land conversion to agriculture. Climate change and invasive species pose additional threats. The loss of salt marshes in Canada directly affects the carbon stored in these systems.

SALT MARSHES AS NATURAL CLIMATE SOLUTIONS

Restoration, protection and management of salt marshes — examples of natural climate solutions (NCS) — continue to be essential for maintaining blue carbon ecosystem services. These actions also help to mitigate climate change impacts and contribute to international climate targets.

SALT MARSHES, NCS AND INDIGENOUS-LED CONSERVATION

Protecting, managing and restoring salt marshes present opportunities to not only mitigate climate change, but also advocate for Indigenous self-determination and Indigenous-led conservation efforts. By supporting existing and co-developing new initiatives with Indigenous Nations and communities, salt marsh NCS are more likely to be just and effective. Indigenous-supported restoration projects have shown positive outcomes, supporting the growth of marine plants that sequester carbon. For example, the ongoing Sitmuk Restoration Project in Nova Scotia used artificial reef structures built by the Mi'kmaw Conservation Group, which were deployed successfully to create and restore marine habitat. While the national coverage of salt marsh area may be relatively small, these coastal ecosystems have the potential to deliver disproportionately large climate and biodiversity benefits on a per unit area basis compared with other terrestrial and aquatic systems in Canada.

RECOMMENDATIONS

- ✓ Undertake and validate national-scale high resolution mapping of salt marshes and increase in-field research on associated carbon dynamics to fill knowledge gaps, especially in the context of climate change and sea-level rise.
- ✓ Address threats to salt marsh habitat and barriers to the implementation of NCS.
- ✓ Support and build partnerships with Indigenous communities and local communities in ways that advance their priorities and initiatives including restoration and conservation, and respectfully seek out Indigenous knowledge, perspectives and consent when developing NCS or conducting research on salt marshes.



The Cheverie Creek salt marsh in Nova Scotia restored by the installation of a larger culvert under the road on the right side of the photo.