



THE FUTURE OF NOVA SCOTIA'S DYKELANDS: UNDERSTANDING THE LANDOWNER PERSPECTIVE

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BACKGROUND

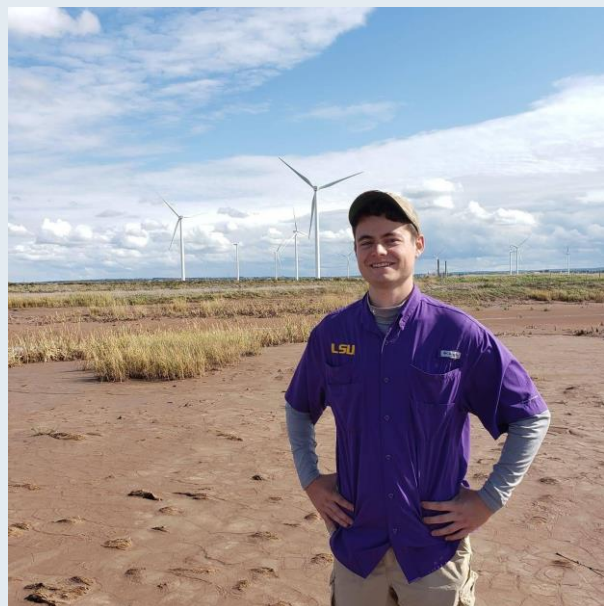
Many of Nova Scotia's current dykelands were established by French Acadian settlers in the 1600s, rebuilt and relocated over time, and today they are at risk from climate change effects, including sea level rise, flooding, and erosion. The Nova Scotia Department of Agriculture (NSDA) has the mandate to manage many of the dykes. NSDA have suggested that current engineered approach to dyke reinforcement, including dyke topping (making them taller) and holding-the-line options, are becoming financially unsustainable. The NSDA's new *Working with the Tides* program, funded by the federal Disaster Mitigation and Adaptation Fund, includes options for nature-based climate adaptation that would reconnect some dykelands to tidal influences to support marsh restoration (an approach known as managed dyke realignment).

RESEARCH

While the promise of nature-based approaches is significant, little is known about how Nova Scotia landowners and marsh body organizations view managed realignment as an adaptation strategy. Private landowners are important stakeholders who own most of the coastline in Nova Scotia. Another key stakeholder group are the Marsh Bodies, collectives of adjacent dykeland landowners incorporated by the Agricultural Marshland Conservation Act, who have the power to acquire land, settle land use disputes (e.g., suburban development, wetland restoration), and maintain dykeland ditches and internal roads. In this research, interviews were held with 12 dykeland landowners in Winter/Spring of 2021 to explore the key facilitators of and barriers to managed dyke realignment in Nova Scotia. Adaptation planning can be met with resistance by stakeholders who favour *status quo* approaches, mistrust new techniques and/or reject climate change projections. Understanding the perspectives of individual landowners and marsh body members reveals potential issues to address and opportunities for collaboration on managed realignment projects.

RESULTS AND IMPLICATIONS

The interviews revealed personal experiences, values, and knowledge about existing dykeland management, other nature-based climate adaptation options, flood risk perceptions and marsh body and community dynamics. Dykeland owners expressed a common concern for future climate change impacts but had different views on the best adaptation approach. Positive views of managed dyke realignment were generally supported by personal experience with its implementation and knowledge of the inevitable need for change (including climate impacts) and the environmental value of tidal wetlands.



Brandon Champagne at the Converse restoration site near the border of Nova Scotia and New Brunswick.

Support for dykelands and maintenance of the *status quo* was strongly grounded in values, culture, and heritage, with a sense of responsibility to continue the legacy left behind by others. Dykelands are used recreationally by some landowners, while introducing risk or nuisance for other farmers. Aesthetically, marsh restoration for some landowners was viewed as pleasing while others favored the perceived natural environment of agricultural dykelands. In addition, landowners—regardless of farming experience—showed appreciation for food production on dykelands to maintain food security and independence (particularly in the context of a global pandemic). The historical success of dykes has led to complacency about future flood impacts among some landowners. Barriers to managed dyke realignment support included holding nostalgic and economic values for the long-term uses of dykeland that preferences maintaining dykes versus returning them to tidal wetlands. Understanding these values is important for those planning any adaptation that could potentially disrupt them.

This research indicates that understanding the process and need for managed dyke realignment influenced whether it was viewed positively or negatively by landowners. The unique nature of Marsh Bodies already legislates a more engaged collaboration process in designing climate adaptation projects in dykelands. Community and Marsh Body involvement are crucial to foster communal responsibility for dykeland and ensure local decision-making and community buy-in. Engagement in recent realignment cases shows that early and extended communication with dykeland landowners about managed dyke realignment helps with the acceptance of implementing it on local dykelands. This research suggests the importance of communicating climate risks and educating on the use of managed dyke realignment as an adaptation strategy, including communicating the vulnerability of dykes along with the buffer capacity of restored wetlands. Importantly, however, beyond these elements of factual knowledge, anyone looking to make changes on dykeland needs to understand the specific cultural, aesthetic, recreational, and agricultural values among dykeland landowners as a critical starting point for collaboration.

APPLICATION AND CONCLUSION

Understanding how landowners view managed dyke realignment can improve outreach by helping identify gaps in communication as well as opportunities for mutual understanding. As Nova Scotia considers and develops more climate adaption strategies this research on managed dyke realignment for dykelands reveals the importance of understanding dykeland landowner views. The sample size of this work represents exploratory work which could be tested further using methods such as surveys to provide a more complete understanding of perceptions of dykelands, tidal wetlands, flood risk and managed dyke realignment among dykeland landowners.

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