Memory, Place & Change: A Landscape Narrative of the Tantramar Marshes

by

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Abstract
Memory, Place & Change: A Landscape Narrative of the Tantramar Marshes

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The Tantramar Marshes are one of the largest contiguous salt marsh ecosystems on North America’s Atlantic Coast. The Marshes represent a hybrid landscape of agriculture, cultural artifacts, and transportation and energy infrastructure, marking a cultural and ecological crossroads- an essential bridge of fragile land connecting Nova-Scotia to New Brunswick. Rising sea levels are threatening the Marshes’ functions; they are in a vulnerable position with no overarching regulatory protection or adaptive strategy. The goal of this research is the creation of a landscape narrative of the Tantramar Marshes for use as catalyst for future landscape interventions. The landscape narrative method uses archival and secondary source data to interpret existing conditions and predictions of future outcomes, defining distinct epochs of landscape change. This research intends to inform future landscape interventions that seek to respond to the challenges of climate change and shifting land use on the Tantramar Marshes.
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And to my parents, Susan and Stephen, who instilled in me my passion for landscape and its many meanings. I love you.
Dedication

For mom and dad.

And did you get what you wanted from this life, even so?
I did.
And what did you want?
To call myself beloved, to feel myself beloved on the earth.

Raymond Carver, *Late Fragment*, 1989
Table of Contents

Abstract ii
Acknowledgements iii
Dedication iv
List of Figures vi

Chapter 1: Introduction 1
   Goal & Objectives 13

Chapter 2: Literature Review 15
   Cultural Landscapes & Climate Change 15
   Landscape Narratives 17

Chapter 3: Research Design 23
   Overview 23
   Archival Research 24
   Secondary Source Research 24
   Site Observations 24
   Synthesis 25

Chapter 4: Landscape Narrative 28
   First Peoples & The Marshes 29
   The Acadians 39
   New Foundations 48
   Rise & Fall of the Tantramar 60
   Renaissance Tantramar 69
   Prospect Tantramar 78

Chapter 5: Discussion 88
   Themes 88
   Limitations 93
   Implications & Future Study 93

References 95
## List of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regional context map</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Isthmus of Chignecto Map</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>Trans Canada Highway</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>CN Railroad</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>NB Power transmission corridor</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>Section of dyke protecting road and fields</td>
<td>8</td>
</tr>
<tr>
<td>7</td>
<td>Tantramar Marshes low tide</td>
<td>9</td>
</tr>
<tr>
<td>8</td>
<td>Tantramar Marshes high tide</td>
<td>10</td>
</tr>
<tr>
<td>9</td>
<td>Oblique angle view of Tantramar Marshes, normal conditions</td>
<td>11</td>
</tr>
<tr>
<td>10</td>
<td>Oblique angle view of Tantramar Marshes, flood event conditions</td>
<td>12</td>
</tr>
<tr>
<td>11</td>
<td>Research design flowchart</td>
<td>25</td>
</tr>
<tr>
<td>12</td>
<td>Narrative framework</td>
<td>26</td>
</tr>
<tr>
<td>13</td>
<td>Missiguash River</td>
<td>30</td>
</tr>
<tr>
<td>14</td>
<td>Tidal marsh river Diagram</td>
<td>33</td>
</tr>
<tr>
<td>15</td>
<td>Lakes and bogs of the Tantramar Marshes</td>
<td>34</td>
</tr>
<tr>
<td>16</td>
<td>Birds of the Tantramar</td>
<td>36</td>
</tr>
<tr>
<td>17</td>
<td>Mi’kmaq stone projectile tip (middle Archaic-period)</td>
<td>37</td>
</tr>
<tr>
<td>18</td>
<td>Samuel Champlain’s 1607 map of the Gulf of Maine</td>
<td>40</td>
</tr>
<tr>
<td>19</td>
<td>Dyke Diagram</td>
<td>42</td>
</tr>
<tr>
<td>20</td>
<td>Acadian dyke building</td>
<td>43</td>
</tr>
<tr>
<td>21</td>
<td>Ruins of Acadian aboiteaux 1</td>
<td>43</td>
</tr>
<tr>
<td>22</td>
<td>Ruins of Acadian aboiteaux 2</td>
<td>43</td>
</tr>
<tr>
<td>23</td>
<td>Muelles &amp; Franquelin’s map of Beaubassin</td>
<td>45</td>
</tr>
<tr>
<td>24</td>
<td>Fort Beausejour plans</td>
<td>46</td>
</tr>
<tr>
<td>25</td>
<td>Isthmus of Chignecto under British control (1755)</td>
<td>49</td>
</tr>
<tr>
<td>26</td>
<td>British controlled Fort Lawrence (1755)</td>
<td>51</td>
</tr>
<tr>
<td>27</td>
<td>Commission of Sewers map</td>
<td>52</td>
</tr>
</tbody>
</table>
List of Figures cont.

Figure 28. The cadastral survey pattern of the New England Planters 54
Figure 29. 1803 census of Sackville 56
Figure 30. A dyking spade characteristic of those used by Yorkshire Planters 57
Figure 31. Toler Thompson’s gravestone in Sackville, N.B. 58
Figure 32. Decaying hay barn 61
Figure 33. Decaying hay press 61
Figure 34. Painting depicting the Saxby Gale 63
Figure 35. Painting depicting the Saxby Gale 63
Figure 36. Royal Engineer Captain Crawley’s 1845 map of the Tantramar Marshes. 64
Figure 37. Northumberland Strait Ship’s Railway Terminus 66
Figure 38. Bay of Fundy Ship’s Railway Terminus 66
Figure 39. Remnant of Ship’s Railway 67
Figure 40. MMRA power of expropriation 71
Figure 41. Animal labour replaced by products of industrialisation 72
Figure 42. Animal labour replaced by products of industrialisation 72
Figure 43. CBC Radio Canada advert (1949) 73
Figure 44. RCI Station on the Tantramar Marshes 74
Figure 45. Alex Colville on the Tantramar Marshes 76
Figure 46. ‘Ocean Limited’, Alex Colville 77
Figure 47: RCI Station, Thaddeus Holownia 82
Figure 48. Hay barn 83
Figure 49. Ruined hay barn 84
Figure 50. Marsh Project, a community art project 85
Chapter 1

Introduction

The Tantramar Marshes are one of the largest contiguous salt marshes on the east coast of North America. The Marshes are located on the Isthmus of Chignecto in New Brunswick (Figure 1) at roughly the geographic center of the Maritime Provinces of Canada (New Brunswick, Nova Scotia, Prince Edward Island). The Isthmus of Chignecto is bordered to the north by Bay Verte on the Northumberland Strait and to the south by the Cumberland Basin at the furthest extent of the Bay of Fundy (Figure 2). The Bay of Fundy is home to the highest tides in the world that regularly peak at 11 meters with maximum differentials around 16 meters (difference in ocean surface height between low and high tide). Each six-hour flood tide brings approximately 160 billion tonnes of seawater into the Bay of Fundy's boundaries, revealing and concealing kilometres of the seafloor every 12 hours. The Tantramar Marshes have a long history of human settlement. Extensive systems of dykes were built on the Marshes over 300 years ago by early French settlers in order to reclaim marshland for agricultural purposes, much of which remains intact. Located to the west and east of the Tantramar Marshes are the towns of Sackville, New Brunswick (pop. 5,500) and Amherst, Nova Scotia (pop. 9,500) (Figure 3). A 5 kilometre-long section of the Trans Canada highway (Figure 4), CN railroad (Figure 4), and New Brunswick Power hydro corridor (Figure 5) bisect the Marshes; infrastructure that is protected from the extreme tidal range by a system of dykes and seawalls (Figure 6, 7, 8).

Climate change, a statistically substantial change in the mean or unpredictability of the climate over a prolonged period, is now generally believed to be happening on a global scale (IPCC, 2014). Rising sea levels and intensified storm systems pose severe threats to coastal areas. National Resources Canada (2016) predicts that Atlantic Canada will experience an increase in storm events and intensity, rising sea levels, storm surges, coastal erosion, and flooding in the coming years. The potentially devastating effects of climate change now threaten the infrastructural, agricultural and municipal assets that exist on the Tantramar Marshes. The two primary components of regional flood vulnerability are exposure and susceptibility. Exposure is the possibility and range of a flood whereas susceptibility is the damage caused
Transportation corridor connecting Nova Scotia to New Brunswick and the rest of mainland Canada. The stretch of CN railroad that crosses the Marshes is the only rail line in and out of Nova Scotia and connects the port of Halifax to mainland Canada. Approximately $50 million worth of commerce is estimated to cross the Tantramar Marshes every day (Huang, 2013). Added to this are the, approximately, 1.5 million tourists who enter Nova Scotia every year (Tourism Performance, 2018), and the thousands who cross daily for work or for visiting with friends and family.

The ominous threat of climate change-induced impacts on the Isthmus of Chignecto and the Tantramar Marshes has garnered a significant degree of regional and national media coverage in recent years. Headlines from local and national news sources read: “N.S. at risk of becoming an island due to flooding, municipal leaders warn” (The Canadian Press, 2017 November 16); “Will Sackville’s dikes finally fall? Rising seas could ruin land Acadians turned from marshes to farms” (Mcclearn, 2018 April 2); “NDP calling for funding for Chignecto isthmus dikes” (Cole, 2018 April 6). Dykeland vulnerabilities have raised concerns on the

According to David J. Lieske and James Bornemann (2011):

*Exposure is a concern in the Tantramar because of the proximity to the ocean, and a dyke system that is currently inadequate for climate-induced increases in sea level and storm surge intensity and frequency (pg. 2).*

Using GIS and LiDAR technology and sea level rise predictions for 2025, 2055, and 2085, and projected sea level during 10, 25, 50, and 100-year storm events, Lieske and Bornemann (2011) found that the average height (8.6m) of the dykes in the Tantramar region is lower than the least severe prediction based on current 10 year storm-event sea level estimate of 8.9 + 0.1 m. Based on Lieske and Bornemann’s (2011) modeling, the vast majority of the dykes are over-topped in all projected scenarios (Figure 9 & 10).

The over-topping of the vast majority of the dykes on the Tantramar Marshes could have severe and wide-reaching consequences. The section of the Trans Canada highway that bisects the Marshes is the primary vehicular
Figure 1. Regional context map
Source: Google Earth, edited by author
Figure 2. Isthmus of Chignecto map
Source: Google Earth, edited by author
Figure 3. Trans Canada Highway
Source: Author
Figure 4. CN Railroad
Source: Author
Figure 5. NB Power transmission corridor
Source: Author
Figure 6. Section of dyke protecting road and fields  
Source: Author
Figure 7. Tantramar Marshes map, low tide
Source: Google Earth, edited by author
Figure 8. Tantramar Marshes map, high tide
Source: Google Earth, edited by author
Figure 9. Oblique angle view of the Tantramar Marshes, normal conditions
Source: Google Earth, edited by author
Figure 10. Oblique angle view of the Tantramar Marshes, flood event conditions
Source: Google Earth, edited by author, adapted from Lieske & Bornemann (2011)
Isthmus of Chignecto and across Canada.

A response to the threats posed to the infrastructure of the Tantramar Marshes is gathering. In May 2018, the Provincial Governments of Nova Scotia and New Brunswick and the Federal Government of Canada announced a $700,000 study to explore how to protect the vulnerable Isthmus of Chignecto. New Brunswick and Nova Scotia are each contributing $175,000 with the Federal Government providing the remaining $375,000 for the study. Yet to be released to the public are details of the breadth of the study. It is likely to be focussed on what to do with the at-risk transportation and energy infrastructure, ageing dykes, and seawalls (Letterick, 2018 May 16). It is possible that the $700,000 inter-governmental study will incorporate design professionals; however, this is not yet public knowledge.

The Tantramar Marshes hold a great deal of natural and cultural significance to the Maritime Provinces. As one of the largest systems of salt marshes on the east coast of North American, they possess a remarkable and sensitive ecology, home to unique assemblages of plants and bird life found in a shrinking number of locales around the world. The Marshes are also indicative of a spatial and temporal crossroads of First Nations history, early European settlement in North America, and the historical locus of some of Canada’s most storied literary and artistic traditions. Despite the many layers of cultural and natural history of the Tantramar Marshes, they have no overarching regulatory protection, and possess no heritage designation.

Whether future interventions on the Tantramar Marshes are anticipatory to the threats of climate change or responsive to a catastrophic storm event, it is essential that the story of the landscape is understood and communicated to both decision makers and the general public. In order to understand a place, we must not only know how it might change but also why it is the way it is (Hester, 1988). A myriad of opportunities can be opened through place understanding, communication, and advocacy.

The goal of this research is the creation of a landscape narrative of the Tantramar Marshes for use as catalyst in future interventions. The objectives of this research are: to build understanding of the landscape narrative method as a tool for understanding landscape change and future
outcomes; to develop a framework by which to produce, package and craft a landscape narrative of the Tantramar Marshes; to describe the Tantramar Marshes as a complex inter-play of human (cultural) and natural forces; and, to synthesize information into a cohesive and accessible landscape narrative.
Chapter 2
Literature Review

Cultural Landscapes & Climate Change

Climate change poses a global and significant threat to cultural landscapes (Hourdequin, 2013; Melnick, 2015 & 2016; Hall et al., 2016; Sherren, Loik, Debner). UNESCO defines cultural landscapes as properties that “are illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal” (UNESCO, 2005). Melnick (2016) describes traditional concepts of cultural heritage as embodied in a place, artifact, and the steady and predictable object. Some of the issues facing cultural landscapes threatened by climate change result from traditional concepts of heritage value; that is, there is a tendency towards preservation as opposed to adaptation (Melnick, 2016). The Tantramar Marshes exhibit many of the hallmark characteristics of a cultural heritage landscape, a complex trajectory of human settlement, and cultural development.

As we head into the winds of climate change, it is essential to consider a sample of the literature on cultural landscapes and climate change to gain knowledge of the issues, options, and opportunities that may exist for the Tantramar Marshes. Climate change and its current and projected impacts on cultural heritage landscapes can be viewed in two ways: the first is recognizing it as a natural force impacting historic physical resources, and the second is to view it as a movement, or epoch that may define the heritage of our present time in the future (Melnick, 2016).

According to Melnick (2015), it is time for a radical departure from the old ways of assessing, designating and maintaining cultural heritage landscapes. Melnick asks that we look deeper “...and comprehend the impact of environmental change on the world we know and love. In many ways, it is a bonding of a humanities perspective and a scientific lens” (Melnick, 2015, p. 175). Raymond and Brown (2011) reveal that perceptions of climate change risk are partly driven by the values that people assign to or hold for a particular landscape, and suggest that adaptation strategies should be placed-based. Cassar (2009) furthers the idea by arguing that using scientific evidence alone to
develop policies for the preservation and interpretation of cultural heritage landscapes is insufficient. The natural, social, and cultural environment must be considered as a cohesive whole in planning for the effects of climate change on cultural landscapes. Kate Sherren, Logan Loik, and James A. Debner (2015) studied the topic of climate change adaptation in the cultural landscapes of the Bay of Fundy agricultural dykelands, and so revealed the conflicts that exist between adaptation to climate change, wetland restoration, and cultural landscape preservation. Despite that Canada, in a global context, is a young country, it does have one cultural, agricultural landscape, inscribed by UNESCO in 2012, the Landscape of Grand Pré, settled and transformed by the Acadians in the 17th century (UNESCO, 2012). In their study, Sherren, Loik, and Debner (2015) found the dominant public discourse among Atlantic Canadians to be strongly pro-dykeland (cultural) versus the less dominant discourse of pro-wetland (natural). Their results bring into focus the challenges of climate change adaptation in the cultural landscapes of the Tantramar Marshes and the Bay of Fundy coasts.

Landscapes, at the very least, are the joint product of human and natural forces (Hourdequin, 2013; Plumwood, 2006). Even in landscapes that humans explicitly recognize as “cultural,” i.e., human-created, non-human forces remain potent (Plumwood, 2006). Plumwood’s (2006) argument certainly holds for the plight of the Tantramar Marshes, long regarded as a distinct cultural landscape; it is clear that the powerful forces of nature are the driving factor in discussions about its future. Plumwood’s (2006), Hourdequin (2013), and Melnick (2016) agree that now is an appropriate time to let go of the concept of pristine cultural landscapes and to accept that hybridity can open up new and creative opportunities and possibilities. In Plumwood’s (2006) words:

*The human is just one species among many here. This means that the outcome of any given landscape is at a minimum biocultural, a collaborative product that its multiple species and creative elements must be credited for (p. 126).*

The threat of climate change to biocultural landscapes provides opportunities in reconciling the well-being of humans and nature and may provide the most effective answers to a sustainable future for cultural landscapes (Hall et al., 2016).
What we ought to do, then, depends on what came before. History has value as part of the narrative we are working to construct: it is not just what informs what we ought to do by helping us see the best means to our current ends; it constrains what we do by being an integral part of the whole story which itself is assessable from an ethical point of view (Hourdequin, 2013, p. 118).

There is evidence that cultural heritage conservation practice is experiencing a paradigm shift away from conventional views of cultural landscapes as static objects of heritage value toward a more holistic view that embraces and supports the creative agency of natural systems and that places the physical landscape “within a larger cultural, social, economic, and political landscape” (Smith, 2013, p. 56). According to Smith (2013), a healthy cultural landscape is not static, but one that exists in a state of equilibrium among ever-changing cultural ideals and a robust, internally balanced ecology.

The famed American landscape observer and author and creator of the magazine Landscape, J.B. Jackson, described the magazine’s purpose and helped to define contemporary ideas about cultural landscapes in its first issue published in 1951:

> Wherever we go, whatever the nature of our work, we adorn the face of the earth with a living design which changes and is eventually replaced by that of a future generation. How can one tire of looking at this variety, or of marvelling at the forces within man and nature that brought it about? A rich and beautiful book is always open before us. We have but to learn to read it (p. 4-5).

### Landscape Narratives

Narratives can take many forms and serve a wide range of purposes. In their purest essence, narratives are a written or spoken account of connected events (Narrative Definition, 2019). Narratives can be used to convey ideas and advance specific perspectives. Narratives are all around us- they are a fundamental aspect of the human experience (Ingold, 2012). The landscape narrative is a product and a tool that can be used to trace and understand the dynamics of landscape change to create “opportunities for creative future transformation of landscapes based upon an understanding of their transformations in the past” (Roymans et al., 2009, in Deming & Swaffield, 2011, pg. 169). Landscapes are repositories of cultural and natural history and can be read
and told to reveal the past and foretell the future (Spirn, 1998; Potteiger & Purinton, 1998; DeSilvey, 2012; Ingold, 2012; Jorgensen et al., 2017). It is important to draw lines around the separate but related act of creating a landscape narrative of a cultural heritage landscape, which this thesis aims to do, and narrative as a concept for designed landscapes (see Stourhead, Vietnam War Memorial, Yorkville Park). The landscape narrative, as a story of the inscription of natural processes and cultural practices on landscape (Spirn 1998; Potteiger & Purinton, 1998; Ingold, 2012), can be understood as the acts of “naming of places, rituals, journeys, and memories that imbue landscape with stories” (Potteiger & Purinton, 1998, xi). This section of the literature review will examine the state of the art of the landscape narrative and its application in cultural landscape heritage discourse in the face of climate change. The findings will help guide research into and the creation of a landscape narrative of the Tantramar Marshes, a landscape facing dire threats from climate change and rising sea levels.

The ability to read the landscape is one of humankind’s most significant abilities; it has allowed us to understand and shape our environment (Spirn, 1998). Humans have always known of the narratives of landscapes, but are often guilty of reading it shallowly or inadequately (Spirn, 1998). The professionals who are expected to understand the language of landscape - landscape architects, architects, engineers and ecologists - all fail at times to read what the landscape offers (Spirn, 1998). Landscape narratives exist not only in definitive texts, historical accounts and stories; they are essential to the very processes that shape landscapes (Spirn 1998; Potteiger & Purinton, 1998). Landscape is “the sum of countless dialogues” (Spirn, 1998, pg. 40), dialogues that can order events, actions, and elements into a communicative narrative (DeSilvey, 2012). There is a need for a more in-depth reading of landscape, one that acknowledges that landscapes are not merely a collection of objects, but of multiple intertwining systems: visual, spatial, symbolic, functional, and environmental (Scazzosi, 2007). The failure to read the landscape has long-term consequences. Spirn (1998) offers the misread narrative of Mill Creek, in West Philadelphia as an example of a failure of landscape language reading in planning and design. The creek for which the neighbourhood is named was piped in and buried during the 19th century, later collapsing in the early 1960s, contributing to a protracted unfolding of neighbourhood despair, poverty...
and falling property values. One amongst many examples, Spirn deploys her extensive knowledge of the history of Mill Creek to further her argument that if the narrative and context of the landscape are ignored, catastrophe will surely follow.

Narratives exist in the landscape as layers of history, inherent in the materials and processes, both natural and cultural, spatial and temporal (Spirn 1998; Potteiger & Purinton, 1998; Scazzosi, 2007; Ingold 2012). Landscape is the scene of a continuous unfolding of narrative and can not exist in stasis; places are defined by dynamic pasts, an evolving present and uncertain futures (DeSilvey, 2012). Vernacular landscapes are palimpsests of natural and cultural events and processes, of which the layering of meaning is an action with no definitive ending. In Spirn’s words, places are “particular, a tapestry of woven contexts: enduring and ephemeral, local and global, related and unrelated, now and then, past and future” (1998, pg. 160). Ingold describes the landscape narrative as “…generative of a world that is continually coming into being with and around the perceiver, in and through his or her own practices of movement, gesture, and inscription” (2012, pg. 7). According to Ingold (2012), narratives that appear on the surface as historical tellings are projective and constitutive of the future; they are part of a course of becoming, shaping personal identities, environments and landscapes.

Traditional landscape heritage conservation practice has little to no adaptive capacity in the face of climate change and coastal transformation (DeSilvey, 2012). Landscape heritage is often envisioned as a reference to what is of lasting value in landscape (Whitehand & Gu, 2010). The acknowledgment of value often leads to heritage conclusions that aim to interpret and conserve landscapes (Jorgensen et al., 2017). Contemporary research is moving away from definitive historical accounts that value heritage as a static state to be preserved and towards multiple, at times conflicting, tellings of landscape heritage (Wu & Hou, 2015). Jorgensen, Dobson, and Heatherington pose the question: “what is the relationship between landscape narrative – how we tell the story of a landscape – and landscape heritage outcomes?” (2017, pg. 1867). With the acknowledgment of diverse natural, cultural, and social interpretations of landscape and the accepted and uncertain futures as a result of climate change, the landscape narrative is a means
by which to contextualize heritage places and lend itself to future action and intervention. Landscape narratives are by their very nature discursive and elusive and evade capture by any single, definitive historical account (Jorgensen et al., 2017).

Potteiger and Purinton (1998) break the landscape narrative out into five distinct acts, or processes. Naming: as “a fundamental strategy of making places, transforming undifferentiated, raw space, mass, objects, land, rocks, trees, and streets into known places” (pg. 77). Sequencing: that landscape is in a constant state of change due to natural processes and human interaction- no landscape is static and to hold one in an unchanging state is counterintuitive to its very nature. Revealing and Concealing: processes, natural and cultural can obscure layers of change and expose underlying structures. Gathering: “is a significant means of making narratives and landscapes. Any narrative, no matter how simple, is more than just a scattered series of events, but a “grasping together of events, characters, processes, and place into meaningful configurations” (pg. 164). And Opening: “the interpretation of landscapes to a wider perspective changes how a site is understood” (pg. 191).

DeSilvey (2012) proposes an alternative narrative scheme for Mullion Harbour in Cornwall, England that arranges the landscape ‘acts’ and ‘moments’ in a reverse chronology. The goal of DeSilvey’s narrative and reverse chronology of Mullion Harbour is designed to “reveal that the harbour’s apparent stability hides a precarious history, and to draw out patterns and themes that are obscured by more conventional tellings…” (DeSilvey, 2012, pg. 36). DeSilvey’s work is of particular interest in its clear linkages to the Tantramar Marshes; a coastal landscape of rich cultural heritage, but one that expresses its decay through a lack of management and conservation.

Ingold (2012, pg. 8) identifies three modes of imagining the past in landscape: materializing, gestural and quotidian. The materializing mode “turns the past into an object of memory to be displayed and consumed as heritage”, the gestural model remembers the past “in the very process of redrawing the lines and pathways of ancestral activity” and the quotidian mode uses “what remains of the past as basis for carrying on.” These three modes, which Ingold refers to as ways of ‘imagining’, can be read as narrative strategies, describing the landscape narrative as a product and tool.
Three narrative strategies are put forth as an example of potential heritage outcomes of the ‘urban fringe wasteland’ of Parkwood Springs (Jorgensen et al., 2017). Narrative 1 is the documentary history of Parkwood Springs, where the history of the landscape is told in a conventional, chronological ordering. Narrative 2 is an autoethnographic account of Parkwood Springs. Narrative 3 is according to the Heritage Landscape Characterisation, which has its origins in the postmodern archaeological theory of the 1980s (Jorgensen et al., 2017). In the HLC, the “starting point for analysis are the morphological units in the present day landscape” (Jorgensen et al., 2017, pg. 1877). From the starting point of the present, each act of landscape layering is established backward in time (Jorgensen et al., 2017).

The Tantramar Marshes are characteristic of a biocultural landscape, a palimpsest of cultural and natural events and processes. Landscape narratives can be created to expose cultural and natural layers, and to describe the stories of the individuals who use and shape the landscape. In reviewing the literature of cultural landscapes and climate change, and landscape narratives, there is a significant degree of agreement amongst the authors. The understanding of how and the willingness to read the landscape is paramount to cultural heritage conservation, climate adaptation, and the design process. Potteiger and Purinton (1998) offer the most lucid description of the steps involved in creating landscape narratives, whereas Spirn (1998) focusses mostly on the necessity of reading landscape narratives with substantial evidence of the failure of not doing so and the successes of adequately doing so. DeSilvey (2012), Ingold (2012), and Jorgensen et al. (2017) offer useful methods of creating landscape narratives, with specific application for complex cultural heritage landscapes.

Potteiger and Purinton’s (1998) five strategies were selected as key foundational concepts for the landscape narrative of the Tantramar Marshes: the naming of the Marshes and its features, the sequencing of events that led to its present state, the revealing of its concealed history, gathering the scattered events, processes and characters together, and opening the interpretation of the landscape to a wider audience. DeSilvey’s (2012) reverse chronology narrative scheme is deployed by introducing the contemporary problem which reveals the Tantramar Marshes present and precarious position, proceeded by a chronological narrative.
of why it is in such a position. Remembering the past by re-tracing the processes that shaped the Tantramar Marshes turns the history of the landscape into a product and a path forward in uncertain times. The landscape narrative method relies on a broad range of information, necessitating a complex descriptive and interpretive research strategy.
Chapter 3
Research Design

The landscape narrative method uses descriptive and exploratory research strategies to build an understanding of a particular landscape or place. Landscape narratives are a variety of case study which broadly speaking “are complex multifaceted investigations into a particular place… or landscape” (Deming & Swaffield, p. 80). The Tantramar Marshes exhibit a significant degree of cultural and natural interplay spanning millennia, which necessitated approaching a broad range of source material in order to adequately describe how and why the landscape is the way it is, how people interpret the landscape, and why the landscape is in the position it is in today. A complex descriptive strategy that combines a range of sources can help to construct a sophisticated understanding of a specific landscape (Deming & Swaffield, 2011). Landscape narratives are consistent as a metaphor for landscape biographies, the theoretical basis of which draws upon geography, social anthropology, and archeology with a focus on the role of landscape in the formation of community and cultural identity (Roymans et al., 2009, in Deming & Swaffield, 2011, p. 169). Interpretive strategies are useful for “making sense of the way people represent, write, or talk about landscape and the values they express” (Deming & Swaffield, 2011, p. 169) and for revealing landscape palimpsests, or layers. Historiographical research helps to interpret the record of cultural acts and events, and are useful in the creation of recognizable narratives (Deming & Swaffield, 2011).

The research strategies used in the creation of this thesis are not comprehensive of all strategies that could be used to create a landscape narrative of the Tantramar Marshes; instead, it is essential to consider them as formative of a research foundation into this particular place. The purpose of the landscape narrative of the Tantramar Marshes is not a telling of it just because it is an interesting place, but instead to research and craft it to provide future intervention strategies with an accessible and as accurate as possible description of the forces that have shaped the landscape.

Three primary data gathering strategies contributed to the creation of this landscape narrative of the Tantramar Marshes: primary/archival research, secondary source research, and site observations of existing conditions.
Archival Research

Archival research at the Mount Allison University Archives in Sackville, New Brunswick took place over two separate visits on October 22, 2018, and December 18, 2018. Fortunately, the Mount Allison University Archives has an extensive collection of digitized materials which facilitated the possibility of at-distance archival research. Materials consulted and used in the thesis are primarily graphic in nature (aerial photography, maps, drawings), and to a lesser degree, written documents (census records, government documents). Archival materials are useful as a reliable source of historical information (Deming & Swaffield, 2011). Because the focus of this thesis is the specific landscape of the Tantramar Marshes, it was imperative to not only describe the landscape through historiographical accounts, geographic information, and ecological surveys but also through the graphic materials that document landscape change over time. Many archival items from the Mount Allison University Archives provided an opportunity for comparison with contemporary mapping and photography, which can be used to communicate to what degree the landscape has changed over time. Archival materials were selected and included based on the following criteria: that they were supported and complemented by information gleaned from secondary source materials, and that they were of high quality (resolution and overall condition).

Secondary source

An aspect of researching Tantramar Marshes which is cause for optimism as well as concern was that it is a very well documented landscape. There exists a broad range of source material describing the many layers of the Tantramar Marshes from a variety of perspectives and emphases. An early observation that led to the goal of this research - to create a landscape narrative of the Tantramar Marshes for use as a catalyst for future landscape interventions - was that most of the documentation of the landscape either was specific to an era, settlement group, the ecology, and geologic formation of the Marshes and otherwise.

Site observations

Three visits to the Tantramar Marshes were conducted over the past eight months. The first visit to document existing
conditions and to build a collection of character photos of the Marshes occurred on October 21, 2018; the second on December 19, 2018, and the final visit on February 19, 2019. The October 21 visit was particularly memorable as it was a stunning fall day, clear skies and unusually (for the Tantramar Marshes) calm. The December 19 visit was again an unusually calm day with a high cloud cover which enveloped the Marshes in a pale, flat light. The final visit on February 19 was a different story, snow drifts made many of the backroads impassible, the wind was howling, and the temperature was hanging around -20 Celsius- not the most pleasant day to walk the dykes of the Tantramar.

**Synthesis**

By gathering archival, secondary source, and site observations of existing conditions the landscape narrative method reveals the sequence of events that lead to the Tantramar Marshes present-day state. A product and a tool, the landscape narrative method is useful in remembering the past, but also as a basis for moving forward in uncertain times. The landscape narrative method reveals historical themes of the Tantramar Marshes that are useful in planning landscape interventions, and cause for optimism for the future of the Marshes. The research design strategy is presented as a flow chart (Figure 11) on the following page, followed by the chronological landscape narrative framework (Figure 12).
Figure 11. Research design flowchart
Source: Author
Figure 12. Narrative Framework
Source: Author
Chapter 4
Landscape Narrative of the Tantramar Marshes

the marshes move into long narration of distance, it is not all easy...
going as they shift chapter by chapter through lines laid down, taken up...
the message lies pattern and heavy waiting for one who can read it
Douglas Lochhead (1989) in Dykelands

Each of the following six sections tells the story of a specific era, defined and sequenced to correspond to periods of human and environmental change on the Tantramar Marshes. These sections are:

Section 1: >1672. The natural environment of the Marshes and their First Peoples, the Mi’kmaq.

Section 2: 1672-1755. The early French settlers to the North America, the Acadians and the creation of the dykelands. 1672-1755


Section 4: 1830-1930. The hay boom of 19th century & industrialization.


Section 6: 1970-present-day. The Tantramar Marshes as a biocultural landscape, heading into the winds of climate change.
Section 4.1
The First Peoples & The Marshes

Our Forefather were stars.
When they came upon earth,
the woman star, she had bird pets
which she dearly loved and she did
not want to leave them up with the
other stars, and she couldn’t get back
up there again. And she made a vow
to remain on earth forever. She called
her pets the birds. First the white Eagle,
Fish Hawk, Ganet...
Jerry Lonecloud, in Clarissa Archibald Dennis (1923),
Journals of Clarissa Archibald Dennis, Public Archives of Nova
Scotia. MG. 1, Vol. 2867. Notebooks 1 & 2

It is unlikely that we will ever know when the first peoples
of the Tantramar Marshes arrived to this landscape, nor
can we know how exactly the landscape would have
manifested itself to the Mi’kmaq. The Mi’kmaq ancestral
presence in Eastern North America dates to as far back
as 11,000 years before present (Whitehead, 1988). The
Mi’kmaq verb infinitive weji-squalia’timk is a deeply rooted
concept in the Mi’kmaq language that grew from the ancient
landscape of Mi’kma’ki, which means “we sprouted from”.

The Mi’kmaq grew from the ancient landscapes of Eastern
North America, and nowhere else (Sable & Francis, 2018).
Weji-squalia’timk is the dynamic interrelationship between
the Mi’kmaq and their ancient ancestral landscape- a
landscape that is “integral to the cultural and spiritual psyche
of the people and their language” (Sable & Francis, 2018, p.
18). The Mi’kmaq were geographers of a different variety
than those who would later dispossess them; they did not
draw places on maps, but instead described, recorded, and
remembered through oral traditions that described places
through legends of the origins of geologic formations, rivers,
valleys, coasts, and mountains. (Sable and Francis, 2018).

Many of the contemporary place names of the present-day
Atlantic Provinces of Canada originate from the Mi’kmaq
language: Chignecto, the contemporary name of the isthmus
on which the Tantramar Marshes exist, is derived from the
Mi’kmaq word Siknikt, which translates as ‘place of drainage’
and, importantly refers to the Mi’kmaq of the Chignecto
region, one of eight Mi’kmaq districts in the present-
day Atlantic provinces of Canada- the Siknikt Mi’kmaq.
Missaguash, for the river that borders the eastern edge of
the Marshes, is the Mi’kmaq word for Muskrat (Figure 13),
Figure 13. The Missiguash River
Source: Mount Allison University Archives (Edward Pulford Fonds)
an important species for fur and food to the Mi’kmaq. Westcock, a community adjacent to the present-day town of Sackville on the south-western portion of the Tantramar Marshes would appear on first glance as a distinctly European, or English place name; however, its actual derivation is from the Mi’kmaq word Vestkack, possibly meaning ‘Great Marsh’.

The marshes on the isthmus connecting the easternmost peninsula of land on the American continents were once a freshwater lake. The Tantramar Marshes were carved and shaped by thousands of years of tidal deposition of silt and sediment. Gradual subsidence of the land brought it below sea level, exposing it to the unrelenting force of wave and tidal energy. The Marshes were thus grown from Permocarboniferous red clays, dredged from the Bay of Fundy sea-floor and deposited by tidal energy, ocean currents, and wave action over millennia, slowly accreting to form the broad expanse of marshes on the Isthmus of Chignecto. The soils of the Tantramar Marshes are among the oldest in Canada and vary from 30 centimetres to more than 25 meters in depth (Langmaid, 1968).

Colonizing the Marshes were one of the world’s great natural monocultures of spartina grasses (Boyer, 1966); however, they are described as such only by their appearance, while in reality these saltwater marshes are host to several plant communities consistent of multiple genera and species. The spartina, or cordgrass, that thrive in the exposed and harsh conditions of the low-lying landscape are constitutive of the dominant plant species throughout the Marshes. Aptly named, the spartina grasses endure twice-daily submersion in the frigid Bay of Fundy waters. These grasses serve the essential function of stabilizing the silt, sand, clay and muck, helping to form over thousands of years the salt marshes of eastern North America. The dynamic nature of the tidal marshes is cause for a significant degree of long and short term changes in the arrangement of the marshland vegetation. The marshes of the Siknikt rest between the eastern and western ridges, ranging from 100 to 500 feet above sea level, of the upland mixed Acadian Forest of sugar maple (Acer saccharum), red spruce (Picea rubens), black spruce (Picea mariana), balsam fir (Abies balsamea), yellow birch (Betula lutea), white birch (Betula papyrifera), American beech (Fagus grandifolia), eastern hemlock (Tsuga canadensis) and red pine (Pinus resinosa).
Windswept and spread amongst the rivers, lakes, and bogs, a variety of unique and sensitive plant communities are inhabited both annually and seasonally by an impressive array of birds.

Saltmarsh cordgrass (Spartina alternifolia) forms the narrow belt that persists along the tide line and follows the boundaries of the tidal rivers, so long as the soils remain salinized. The saltmarsh cordgrass band is used by waterfowl for feeding at high tide and by shore-birds at low tide. The samphire (Salicornia europaea) and seablite (Sueda maritima) low-growing succulent plant community exists in the middle area of bare mud that sits at and just above the high-tide range of the marshlands. Shorebirds such as Sharp-Tailed Sparrows and Savannah Sparrows feed in this area. Marsh samphire is an unusual, and extremely salty edible plant, harvested for generations by the Siknikt Mi’kmaq. The third plant community is that of the high marshlands, only occasionally flooded by the highest of high tides. In these areas, the saltmeadow grass (Spartina patens) dominates with lesser representation by love-grass (Eragrostis sp.), seaside plantain (Plantago juncoideae), sea lavender (Limonium carolinianum), arrow-grass (Triglochin maritima), and sea-milkwort (Glaux maritima). The ecotonal areas beside higher, drier, and less saline areas abound with fescue grass (Festuca ovina), and squirrel-tail grass (Hordeum jubatum). Canada Geese, shore-birds of a great variety, Lapland Longspurs, Snow Bunting, and Black Ducks frequent these sections of the marshlands (Figure 14).

There are naturally-occurring lakes throughout the marshes (Figure 15), and in places of better soil and drainage, unique and decidedly different plant communities from the rest of the salt marshes appear. Submerged and floating vegetation form a community which merits a place unto itself: pondweed (Potamogeton natans, P. spirrilus), bladderwort (Utricularia), and mare’s tail (Hippuris vulgaris), buckbean (Menyanthes trifoliata) and water lilies of the genus Nuphar. Emergent plant species of the lake ecosystems include bulrushes (Scirpus Validus, S. acutus), cat-tail (Typha latifolia), bur-reeds (Sparganium eurycarpum, S. chlorocarpum, S. americanum), arrowhead (Sagittaria latifolia, S. cuneate), sweetflag (Acorus calamus), and soft-rush (Juncus effuses). The lakes, scattered across the upper marshlands of the Tantramar, are seasonal home to the Common Loon and Ring-Necked Ducks. Interspersed throughout the Marshes are a network of
Figure 14. Tidal marsh river diagram
Source: Author

- High marsh plant community: Spartina patens et al.
- Low marsh: Spartina alternifolia et al.
- Middle marsh: Salicornia europaea, Sueda maritima et al.
- Floating bog: Sphagnum moss et al.
- Upland mixed forest

High tide range
Low tide range
Figure 15. Lakes and Bogs of the Tantramar Marshes
Source: Mike Dembeck www.thechronicleherald.ca/opinion/commentary/our-wetlands-protect-us-we-must-protect-them-281147
bogs, most of which are clustered on the eastern edge and around the Missaguash River. Mixed among the Sphagnum moss, dominant zones are areas of submerged and floating vegetation consisting primarily of water-shield (Brasenia schreberi), pond lily (Nuphar variegatum), Pondweeds (Potamogeton natans, P. amplifolius, P. ephiphyrus, P. zosteriformis), submersed duckweed (Lemna trisulca), and greater duckweed (Spirodela polyrhiza). Emergent plant species in the bog ecosystems include cat-tail in abundance with a lesser representation of reedgrass (Phragmites communis) and bulrush. The floating bog contains species of horsetail (Equisetum), spike-rush (Eleocharis), sedges (Carex), cotton-grass (Eriophorum), buckbean (Menyanthes trifoliata), and the carnivorous sundews (Drosera), and pitcher-plants (Sarracenia purpurea).

In and amongst the Marshes live and frequent a wide variety of wildlife in addition to the bird species that are closely associated with specific feeding grounds. The Marshes provide excellent nursery grounds for a range of aquatic life: mud shrimp, oysters, various species of mollusc, and fish. The rich aquatic life and abundance of small mammals attract numerous resident and visitant bird species: Great Blue Herons, Semipalmated Sandpipers, Common Nighthawks, Pied-billed Grebes, Belted Kingfisher, Great-Horned Owls and others (Figure 16).

The abundant quantities of visitant birds that arrive in the spring and throughout the warmer months helped to expand the diets of the Mi’kmaq, who also made a seasonal home in coastal areas such as the Tantramar Marshes (Sable & Francis, 2012). It is understandable that these marshes would have been highly attractive as seasonal hunting and fishing grounds to the Mi’kmaq. Unfortunately, it is mostly unknown as to precisely when and where the Mi’kmaq established their seasonal camps in the Tantramar region. There are few examples of archeological evidence indicating how the Mi’kmaq made use of the rich landscape of the Tantramar. One of the more notable archeological finds was a ground slate bayonet, carbon dated to 4,000 years before present, uncovered on the Isthmus of Chignecto in the 1980s. Archeologist Christopher Turnbull (1988) describes the bayonet find as hexagonal in cross-section, 42 mm wide and 8 mm thick, fashioned from mottled and striated grey slate (Figure 17). The middens that the Mi’kmaq likely left behind in their seasonal encampments had long...
Figures 16. Birds of the Tantramar from left to right, Great Blue Heron, Semi-Palmated-Sandpipers, Black Duck, Great Horned Owl, Common Eiders, Northern Harrier. Source: www.audubon.org
since been lost to erosion and the relentless tide by the beginning of the 20th century (Hamilton, 2004). We do know that for at least 4,000 years before European contact, the Marshes were an essential and strategic area to the Mi’kmaq (Turnbull, 1988). William Francis Ganong (1904), the famed New Brunswick historian, zoologist, biologist, and geographer identified the Missiguash River as an ancient portage route used by the Mi’kmaq, linking the Bay of Fundy with the Northumberland Strait across the 25km wide Siknikt Isthmus (Hamilton, 2004).

Now, we can only imagine what the vast salt marshes of the Siknikt might have looked like to the Mi’kmaq, for the people of the subsequent migration were to drastically alter the landscape. Burnett (1997) attempts to describe how it may have appeared from a bird’s eye perspective:

*For the moment, the marsh hawk dips as if to touch the ground, then sets its wings, sideslips across the gusty air and soars above a waving sea of grass, its sharp eye seeking signs of an unwary meadow vole. The windswept landscape spread below seems fluid, a thickly grassed and watery transition zone between land and sea. To the south, beyond the limit of the grass, lie*

![Figure 17. Mi’kmaq stone projectile tip (middle-late archaic period)](image)
waters of a mighty bay. To east and west and north, gently undulating ridges rise to a height of 100 metres and more, clad in dense forests of red spruce and balsam fir, hemlock, aspen, birch and maple. And cradled between the forest and the sea lies the salt marsh... (p. 7).

The next peoples to step into the ‘waving sea of grass’ and to sink in the muck of the marshes were the Acadians, the first wave of French colonists and some of the first Europeans to establish a permanent home on the North American continent. The Mi’kmaq would persist on their traditional territory, and from most accounts had peaceful interactions with the first wave of European settlers. It is now thought that, for several centuries before the arrival of the Acadians, that the Mi’kmaq had become familiar with European fishers who had harvested the abundant Cod from around the coasts of present-day Nova Scotia (Faragher, 2004). However, those fisheries were transient and did not warrant permanent settlement; their products were transported back to Europe to satiate a burgeoning appetite, primarily for salt cod. The arrival of the Acadians would mark a seemingly hospitable beginning to what would later become a dark chapter in the history of the Siknikt Mi’kmaq, and for virtually all of the indigenous peoples of the North American continent.
Section 4.2
The Acadians, 1672 - 1755

here, right where my foot takes weight, 
what Acadian sweated and froze in the 
ever wind to make these dykes? there is 
a sense of history here and all across this marsh

The first Acadians to arrive and establish themselves on the 
Isthmus of Chignecto can be traced to the household of 
Jacques Bourgeois (~1621-1701) and his wife Jeanne Trahan, 
with their sons, Charles and Germain, and daughters, Marie 
and Jeanne and their respective families, who arrived by 
sea to the Marshes in 1672 (DCB, 1966-2004). Those first 
Acadians to arrive and establish themselves on the Isthmus 
of Chignecto would name it Tintamarre, a word of the 
Acadian dialect meaning din, or great racket referencing the 
numerous and noisy flocks of migratory birds that made 
a seasonal home on the marshlands. In under 100 years, 
the Acadians succeeded in transforming the natural salt 
marsh landscape of the Chignecto Isthmus into a thriving 
agricultural region. The tragic fate of the Acadian peoples 
preceded an unprecedented era of agricultural and cultural 
development. Instead of clearing the rich upland forests for 
settlement and agriculture, the Acadians settled on the low 
lying marshlands of the Bay of Fundy coasts of present-day 
Nova Scotia and New Brunswick; they were to leave an 
indelible legacy on those lands.

Samuel de Champlain (~1567-1635) and Pierre Du Gua de 
Monts (~1558-1628) established one of the first European 
settlements north of the Florida Panhandle in 1605 at Port 
Royal, on the south-western edge of Nova-Scotia (Figure 
18). From this settlement grew the French colony of 
Acadia. Earlier, in 1524, the Italian navigator and explorer 
Giovanni Verrazzano had attributed the name ‘Arcadia’ to 
the Mid-Atlantic coastline of the present-day United States. 
Arcadia was later shortened to Acadia as its initially vague 
borders moved northwards to present Nova Scotia. Many 
of these early French settlers originated from the west 
coast of France around La Rochelle, where tidal estuaries 
and marshes bore similarities to the Bay of Fundy coastlines 
of tidal rivers and expansive marshlands. Some Acadians 
claimed Poitou, an inland area of freshwater marshes in 
France as home; they brought with them the knowledge and 
understanding of how to make use of the salt marshes
Figure 18. Samuel Champlain's 1607 Map of the Gulf of Maine (Tantramar Marshes on top right)
Source: https://www.loc.gov/resource/g3321p.ct001431/?r=-0.228,-0.039,1.452,0.781,0
of present-day Nova Scotia and New Brunswick. In the first few decades of settlement at Port Royal, the small but determined Acadian population had already dyked, drained, and turned over to agricultural production several hectares of marshland (Clark, 1968). These freshly reclaimed marshlands soon proved themselves as highly productive agricultural lands without the use of fertilizer. Sieur de Dièreville, a French surgeon, botanist, and explorer, explained how the Acadians had discovered that the forested uplands of New France were unsuitable for grain cultivation, requiring manure and yielding little even when fertilized (Rousseau, 1966). This fact, in conjunction with the Acadian’s prior knowledge of marshland agriculture, led them to the dyking and draining of the fertile marshlands (Figure 19). The following translated passage explains the technique for how the Acadians accomplished such an arduous task:

To grow Wheat, the Marshes which are inundated by the Sea at high Tide must be drained; these are called lowlands, & they are quite good, but what labour is needed to make them fit for cultivation! The ebb and flow of the Sea cannot be easily stopped, but the Acadians do so by means of powerful dikes called aboteaux… five or six rows of large logs are driven whole into places where the sea enters the marsh, and between each row they place other logs lengthwise, one atop the other, then carefully filling the voids with packed clay, so that water can no longer pass through. They fit a sluice in the middle of these works in a way that marsh water can push its way out at low tide, while stopping the high tide from entering. Works of this type can not be undertaken except during times when the tide does not rise so high. They cost a great deal and require many days to make, but the abundant harvest reaped as early as the second year, after the rain has flushed out the soils, compensates for all the effort (Dièreville, in Webster 1933, p. 94-95).

Soon, much of the open marshland in the Port Royal area had been dyked and drained (Figures 20, 21, 22), and as this exercise in settlement growth and agricultural production hastened, the Acadian population began a period of territorial expansion. In short order, the Acadians spread around la Baye Francoise (Bay of Fundy) to establish villages and reclaim marshland. Bassin des Mines (Minas Basin), la Baie de Cobequot (Cobequid Bay), Beaubassin (Isthmus of Chignecto) and further to Memramcor (Memramcook),
Figure 19. Dyke diagram
Source: Author
Petcouodiak (Petitcodiac) and Chipoudie (Shepody). The settlement would continue towards and around the shoreline of the Northumberland Strait, in Remsheg (Wallace) and Tatamagouche, which helped in future years with the transportation of goods to the French fortress of Louisbourg in present-day Cape Breton (Clark, 1968).

The proliferation of the Acadian population had two primary drivers: the first was, as noted, to seek out more marshland to turn over to cultivation, and second, to distance themselves from the watchful eye of the commandant or governor at Port Royal, which allowed them to freely carry on illegal mercantile trade connections with New England (Hamilton, 2004). Michel Le Neuf de Vallière was instrumental to the trading partnership with the New Englanders. Vallière had been named Seigneur of Beaubassin (the new name for the Acadian settlement in the Chignecto region) in 1678 by the Governor-General Frontenac of New France and established La Vallière as commandant of Acadia, making Beaubassin, for a period, the capital of Acadia. Under La Vallière’s supervision, dykeland construction accelerated, the chapel of Notre-Dame-Du-Bon-Secours erected, and thus Beaubassin grew...
In late 1685, the Intendant of New France, Jacques de Meulles and his hydrographer Jean-Baptiste Louis Franquelin travelled from Quebec to Beaubassin on the Chignecto Isthmus. They arrived nearly a year later, after suffering a shipwreck on the eastern seaboard of present-day New Brunswick, making the last leagues of the journey with the assistance of Mi'kmaq guides. Meulles and Franquelin were responsible for drawing the first known map of the Acadian settlement at Beaubassin (Figure 23) (Summerby-Murray, 2011). With a limited archeological repository, we must rely on people like Dierèville, Franquelin, and Meulles for their writing and map making of the settlements around the Tantramar Marshes. In 1686, Meulles reported a colony of 127 people, with a newly constructed church beside the Tantramar River, cattle, sheep, and pigs grazing and a significant portion of the Marshes already dyked and turned over to cultivation (Summerby-Murray, 2011).

Over several decades, Acadian marshland reclamation continued, and so the natural environment of the Tantramar Marshes was drastically transformed. The dykes ceased the flooding of the tidal marshlands, and over time freshwater plant species replaced the salt-resistant tidal plants and

Any picture of an isolated, bucolic existence… has to be further redrawn in terms of Acadian activity with the outside world. Their trading connection with New England (was) vital to their needs. It was maintained intermittently during the French regime (and was) their main source of supply in the eighteenth century (1968, p. 378).

The New Englanders with whom the Acadians established these important trade networks would later leave their legacy on the history of the Tantramar Marshes.
Figure 23. Muelles & Franquelin’s map of Beaubassin, 1686
Source: Mount Allison University Archives, Parks Canada Webster Manuscript Collection
during the first half of the 18th century. Ironically, the few decades following the Treaty of Utrecht were some of the most prosperous for the Acadian colonists on the Isthmus (Hamilton, 2004). Acadian settlements grew in population. In 1714 the Acadian population of mainland Nova Scotia was estimated at just under 3,000. Over the following 40 years, it was to increase fourfold. An influx of Acadian refugees swelled the population to the west of the Missaguash River, in present-day New Brunswick, and on the edge of the newly English-controlled Nova Scotia.

The Treaty of Utrecht of 1713 would mark a prelude of doom for the Acadian colonies. In its words:

_All Nova Scotia or Acadia with its ancient boundaries as also the city of Port Royal, and all other parts which depend on the said lands and islands… are yielded and made over to the Queen of Great Britain and to her crown forever_ (In Hamilton, 2004, p. 53-54).

The French and English forces began rallying against each other in the following years: in 1719 the French began the construction of Fortress Louisbourg in present-day Cape Breton and later Fort Beauséjour in Beaubassin in 1752 (Figure 24), and the English expanding their toehold...
In 1705, population estimates put the number of Acadians in the Chignecto region at 268; by 1750 it numbered at approximately 1,500 (Clark, 1968). Over this roughly 80-year period of settlement in the Chignecto region, the Acadians had established a thriving market economy on the reclaimed marshlands. Standing on the eastern Beauséjour ridge in 1755, William Shirley (1694-1771) described what he saw as he looked out across the Tantramar:

One of the most beautiful views the Basin of Chignecto affords in summer… a number of villages (Pré des Bourgs, Pré des Richards, and Tintamarre) built on gentle rising hills interspers’d with Gardens and woods the villages divided from each other with long intervals of marshes, and they are at great distance bounded by Hills covered with Trees the natural growth of the country. Here may be seen rivers turning and winding among the Marshes then doth’d with all varieties of Grain (in Hamilton, 2004, p. 56).

That view of the Tantramar Marshes was forever changed after the 4th of June, 1755 after Lieutenant Colonel Robert Monckton attacked Fort Beauséjour and within ten days had secured it for the English forces. The British forces offered the Acadians of Beaubassin on the Chignecto Isthmus a chance to swear an oath of allegiance to the British Crown, but they refused, and thus sealed their fate. The British razed the Acadian’s homes and churches, and expelled them from their lands by what is now known as The Expulsion of the Acadians, or le Grand Dérangement. The total number of Acadians expelled from the maritime provinces varies wildly, a rough estimate puts the number at around 10,000 Acadians who fled into the wilderness, or sailed north to Saint-Pierre and Miquelon, south to the American colonies or across the Atlantic to France where many perished in the sea. While Le Grand Dérangement would not be the end of the Acadians on the lands that they had toiled on for nearly a century, 1755 marks a decisive turning point for the history of the Tantramar Marshes; the cultivated lands of the Acadians now fell into new hands, and ones less adept at managing for their productive capacity. A new future had been decided for the Tantramar Marshes, spurred on by powerful forces an ocean away.
Section 4.3  
New Foundations, 1755-1830

The sinuous lines of the dyke  
snake along beside a tidal river.  
Like a calligraphic message to the  
gods writ large. [By this means]  
the world’s largest hayfield was created  
Harry Thurston, Tidal Life, A Natural History of the Bay of  
Fundy (1990), p. 85.

The English colonial forces wasted little time in re-inhabiting  
the vacated lands and charred remains of the Acadian villages  
of Beaubassin after the Expulsion of the Acadians (Figure  
25). Not lost to Governor Charles Lawrence and the English  
colonialists was the success of the Acadian settlement and  
their transformation of the salt marsh environment on the  
Tantramar Marshes. Perhaps overlooked was the uniqueness  
of the coastal saltmarsh environment, and the labour required  
to push the landscape into agricultural productivity. The  
challenges of agricultural success on the Tantramar Marshes  
would rear up soon after the first wave of settlers began  
arriving from New England in the late 1750s and would elicit  
an organized response that lasted centuries. The struggle  
for freedom, escape from persecution and harsh economic  
realities and loyalty to the British Crown, brought three  
distinct groups of settlers to the Isthmus of Chignecto in  
the years between 1755 and 1830. Each successive wave  
of immigration adjusted the fate of the Tantramar Marshes,  
which by 1830 was regarded by some to be the world’s  
largest hayfield.

The year 1758 marks a decisive departure point and turning  
of the tide in the history of the Maritime colonies. The  
French controlled Fortress Louisbourg in present-day Cape  
Breton fell to the English forces on the 27th of July, effectively  
dispelling French opposition to British power in the North  
Atlantic. That same year, the first convening of Nova Scotia’s  
elected assembly took place on the 2nd of October, followed  
by Governor Charles Lawrence’s’ proclamation to New  
Englander pioneers which declared:

Receive any proposals that may hereafter  
be made, for effectually settling the vacated  
or any other lands within the Province…  
100,000 acres of productive plough land and  
a similar quantity of cleared upland planted  
with English grasses, orchards, and gardens  
… the wild and unimproved lands are well  
timbered and wooded, with Beech, Birch, Ash,  
Figure 25. Isthmus of Chignecto under British control, 1755
Source: Mount Allison University Archives
New England settlers responded to Governor Lawrence’s call and began to arrive in significant numbers the following spring of 1759. Some of these migrants were attracted to the rich fishing grounds off the Atlantic Coast of Nova Scotia, the others self-identifying as ‘planters’, and interested in living near and profiting from the fertile agricultural lands reclaimed from the sea by the Acadians. Many of these agricultural families came from Rhode Island, Connecticut, and the interior of Massachusetts. Shortly after their arrival, the new inhabitants of the Isthmus of Chignecto would have to endure ‘the storm of the century’ in 1759:

…the most violent gale of wind occurred… wharves and stores in or near the beach were almost totally ruined, and schooners driven ashore, thousands of trees were blown down, and in some places the roads were rendered impassible. The storm broke down the Dykes of Fundy and the marshlands, now deserted, were overflown and deteriorated. At Fort Cumberland, 700 cords of firewood were swept off by the tide, although the yard was situated at least ten feet higher than the dykes (Murdoch, 1866, p. 376).

Before the New England planters had much of a chance at restoring the productivity of the Marshes, they were set back by the force of a Bay of Fundy storm surge, the coincidental effect of heavy on-shore winds and peak high tides which correlate to an 18-year cycle (Desplanque & Mossman, 1999). The storm of 1759 also revealed a secret to the English: that a group of some 200 Acadians had escaped the expulsion and had sought refuge with the Mi’kmaq to the north in the Memramcook and Petitcodiac regions (Murdoch, 1866). The Acadian refugees, battered by the mighty gale and exceptional tide, returned to the Isthmus seeking shelter under a flag of truce. Upwards of 200 men, women and children without the necessary supplies to last them until spring made a plea for mercy at the now British garrison of Fort Lawrence (previously Fort Beausejour). After consulting with Governor Lawrence, the commandant of Fort Lawrence (Figure 26), Colonel Joseph Frye, accepted the Acadian’s plea for mercy and shelter was granted. Another result of the 1759 storm was the formation of the Commission of Sewers, which would prove to be an effective land management organization for close to two centuries. First established in 1760 in Nova Scotia (which included present-day New Brunswick at the time), and operated
Figure 26. English Controlled Fort Lawrence in 1755
Source: Mount Allison University Archives
through the Court of General Session, the Commission of Sewers was able to impose levies on land-owners at set rates for labour in marshland reclamation: dyke building, ditch digging and maintenance (Figure 27). Rates were paid in work, wheat or butter. The actions of the Commission of Sewers benefitted the entire matrix of individual farmers and the complex system of dykes and drainage ditches by holding the work in common amongst all interested parties. The stark reality was that one breach in one section of any of the dykes could spell doom for hundreds of hectares of reclaimed marshland.

That same year, in 1759, the Township of Cumberland was formed, consisting of 100,000 acres of natural and reclaimed marshland, and upland mixed Acadian Forest. It extended from the LaPlanche River adjacent to present-day Amherst, Nova Scotia, to the Aulac River and north to Baie Verte on the Northumberland Strait. Four years later, in 1763, the Townships of Sackville and Amherst were established. To settle the newly established Townships, the New England planters imposed a cadastral survey pattern that remains on the landscape today (Figure 28). The majority of the New Englanders would not stay long on the Isthmus of Chignecto owing to uncertain markets, unreliable transportation

Figure 27. Commission of Sewers map of the Ram Pasture marsh body. Source: Mount Allison University Archives
routes and a general disappointment about the realities of the region as a whole, which had been described as Eden-like by Governor Lawrence (Campey, 2010). Despite the relative lack of success of the New England Planters, they did bring with them ideas that were to leave a lasting mark on the future of the Maritime provinces. Ideas of self-determination, freedom of religion, and political organization expedited the achievement of representative government in Nova Scotia and helped bring an end to religious and educational privilege in New Brunswick (Hamilton, 2004). The departure of the New Englanders initiated a second wave of immigration to the Isthmus of Chignecto: the Yorkshire Planters, who began to arrive in 1772.

The Yorkshire Planter migration brought approximately 1000 individuals to the Chignecto region by 1774 (Campey, 2010). The Yorkshire Planters represented a people desperately seeking refuge from religious tensions and rising rents in Yorkshire, England; they brought with them the tenacity and agricultural techniques necessary to find success on the reclaimed salt marshes of the Tantramar. Many of the Yorkshire Planters who arrived in the Chignecto region had adequate funds to purchase land and begin agricultural enterprises (Campey, 2010). Generally speaking, the Yorkshire Planters did not have high opinions of the few remaining New England Planters; that sentiment is easily gleaned from the following passage:

…Nothing can be said in favour of them, as to their management in farming. They neither [display] judgement or industry. The New Englanders, into whose manners and characteristics we particularly inspected, appeared to us to be lazy, indolent people. In general, they continue in bed till seven or eight o’clock in the morning; and the first thing that they do, after quitting [bed] is to get a glass of rum, after which they prepare for breakfast, before they go out to work, and return to dinner by eleven; they go out again by two, and at four return for tea. Sometimes they work for an hour or two after, and then return home, both masters and servants, amongst whom there seems to be no distinction; and you scarce know one from the other (Rispin, 1774, quoted in Hamilton, 2004, p. 70).

From this first-hand account a few conclusions can be drawn. The New England Planters, of whom the Yorkshire Settlers spoke so lowly, were of a different ideology,
Figure 28. The cadastral survey pattern of the New England Settlers
Source: Mount Allison University Archives
politically, religiously, and agriculturally. The New England Planters’ focus on fairness and freedom had led to their establishment of an unwieldy lottery system for the allocation of land. The lottery system resulted, at times, in one farmer drawing plots in four or five separate areas of the Marshes which contributed to an inefficient system of farming and land management with little to no consolidation. The Yorkshire Planters, on the other hand, were efficiency minded, stern workaholics with an affinity for the land and progressive agricultural practices who worked tirelessly to restore the productivity of the Marshes, inherited from the displaced Acadians (Hamilton, 2004). The Yorkshire Planters are credited for establishing Methodism in the New World. As one of several reasons for emigrating to the region- to escape religious persecution in England- their message of salvation was generally met with scorn; however, they soon succeeded in making the Isthmus of Chignecto the “cradle of Atlantic Canadian Methodism” (Hamilton, 2004, p. 71). A future result of the establishment of the Yorkshire Settlers on the Isthmus of Chignecto is addressed in the following chapter, but in the 1700s, this was centred on their general literacy and desire to erect chapels as well as centres of education. Without them, it is unlikely that Mount Allison University would ever have been established (Hamilton, 2004).

A final but no less significant shift occurred not long after the establishment of the Yorkshire Planters on the Chignecto Isthmus. Tensions were at an all-time high between Britain and the 13 American colonies in the 1770s. Nova Scotia was positioned to remain loyal to the British Crown, or take a position as the 14th colony. The remaining New England planters found themselves in an awkward situation; their overwhelming desire was to stay neutral as the Acadians had some decades earlier (Campey, 2010). That desire for neutrality was challenged in 1776 when New Englander Jonathan Eddy and his supporter John Allan took up the American revolutionary cause and mounted an armed rebellion against Fort Lawrence in 1776. However, Eddy’s rebellion did not have the necessary support, and the uprising failed - Nova Scotia was not to become the 14th colony. The Royal Navy was positioned in the Bay of Fundy to block possible supplies coming from the American colonies. The Yorkshire Planters showed no interest in supporting the rebellion, or the fight for independence for the 13 colonies, despite their own flight from the yoke of the British Crown just four years prior (Campey, 2010).
As a result of the revolutionaries’ failure to capture the strategically-located Isthmus of Chignecto, the Tantramar region became an escape for the English Loyalists who arrived in the thousands in the years following the American Revolution. Saint John in present-day New Brunswick became the primary destination for the Loyalists, but some 30 families found their way to the Isthmus of Chignecto over the decade following the American Revolution (Figure 29). A decade later, with the stroke of a pen, the new Colony of New Brunswick was formed in 1784. The growing population of Saint John, New Brunswick, would help spark a reinvigoration of the Tantramar Marshes agricultural output. A new port city with a burgeoning market for the products of the Marshes spurred on the construction of a road linking Sackville to Saint John—the Westmorland Road. A critical military crossroads several decades prior had become an important trading crossroads for agricultural and settlement goods.

By the end of the 18th century, with an increase in demand for the agricultural products of the Tantramar Marshes, the Yorkshire Planters had led the resurgence of the marshland economy. The Yorkshire Planters began to adapt their previous knowledge of the draining and farming of the

Figure 29. 1803 census of Sackville indicating family sizes. Records such as these provide insight into the representation of Yorkshire Planters, New England Planters, and the Loyalists by family names.

Source: Mount Allison University Archives
moors and fens of Yorkshire to the Tantramar Marshes (Figure 30). Perhaps the characterization by the Yorkshire Planters of the New England planters as being “very bad farmers” was unfair. Historical geographer Graeme Wynn (1979) concluded that the New Englanders had succeeded in repairing some of the severely damaged dykes from the 1759 storm, a mighty task, indeed, and are credited, at least partly, with the creation of the Commission of Sewers. However, much of the credit in restoring the dykes and agricultural land of the Tantramar is owed to the Yorkshire Planters, and their dykeland champion, Toler Thomson. By 1800, the three communities of Upper, Middle, and Lower Sackville were well established. These three communities were built on the lands that were once home to the Acadians who had lived before in the villages of Pré des Bourgs, Pré Des Richards and Tintamarre.

Toler Thompson, a legendary figure of the Tantramar Marshes (Figure 31) was central to the Marshes becoming the ‘World’s Largest Hayfield’ (Milligan, 1987). The Acadian-built dykes of the Marshes had endured a half-century of neglect, and a severe battering by the storm of 1759. Born and raised in Sackville, a second generation Yorkshire
Planter, Toler was interested in improving the condition of the marshlands. Toler systematically studied the tides and their impact on the soils of the Marshes. It is presumed that the Acadians who had remained in the area after seeking shelter at Fort Cumberland aided him in his study of marshland agriculture (Hamilton, 2004). Toler had made note that while the Acadians had been hugely successful in their land reclamation, they had focussed mainly on areas that were most easily drained (Milligan, 1987). Toler was interested in converting the higher marshlands, those not subject to regular marine flooding and therefore lacking in the nutrients of silt and sediment that made the reclaimed marshlands so productive. In order to bring the silt-laden tidal waters into the higher marshlands, Tolar cut a channel from the Tantramar River, later known as Toler’s Canal. Using an Acadian-style aboiteau at the mouth of the canal, Toler drained a bog of fresh water and then allowed tidal waters to infiltrate the newly drained land. This procedure, called ‘tiding,’ continued for some years, and effectively covered the land with several centimetres of rich marsh mud. Toler’s first operation was successful at converting 365 hectares of marsh into arable land and led to further refining of this technique that fell into widespread use across
the Marshes (Milligan, 1987).

The War of 1812 between Britain and the fledgling United States did not have a significant or direct impact on the Isthmus of Chignecto; however, one positive outcome for the Tantramar Marshes was an increase in demand for marshland products in Halifax and Saint John. Amos Botsford, a powerful lawyer and businessman of Sackville, claimed that:

*several hundred head of cattle and 800 firkins of butter were shipped from the region. Following the end of hostilities, quantities of butter, cheese and livestock continued to be shipped regularly to these ports* (in Inwood, 1993, p. 70).

The very foundations of the landscape, natural and cultural, had shifted immeasurably from 1755 to 1830. The expulsion of the Acadians and the successive waves of immigration of three distinct groups, the New England Planters, Yorkshire Planters, and the Loyalists had established a new paradigm on the Isthmus of Chignecto. Land on the Tantramar Marshes grew in value and as reclamation of the marshlands expanded, surplus hay was reaching markets further afield. Agriculture had become the primary economic activity in New Brunswick and Nova Scotia (Inwood, 1993); much of this is owed to the fertile soils of the Tantramar and those who laboured tirelessly on this landscape.
The years between 1830 and 1930 proved to be some of the most successful for the Tantramar Marshes’ new role as the world’s largest hayfield, and for the people who had settled there and who profited from the abundant harvests. New techniques, pioneered by Toler Thompson and the descendants of the first wave of Yorkshire Planters, proved their worth over a century of exceptional productivity. The Commission of Sewers had established itself as a pragmatic and useful political and community organization that ensured the Marshlands remained a functioning agricultural entity. The inter-colonial railroad construction in the 1870s facilitated further development of an export-driven haymarket for the Tantramar Marshes and spurred on increased reclamation of the marshlands. The laying down of rail ties across the Tantramar Marshes coincided with the final decade of the Golden Age of Sail, a brief period of shipbuilding which ended abruptly. This era witnessed the growth of Charles G. D. Roberts, ‘The Bard of the Tantramar’, whose poetry left a lasting and profound effect on the culture of the region and nation. Two remarkable episodes occurred on the Tantramar Marshes as the 19th century drew to a close: the ambitious plan to transport ships up and over the 25 kilometer wide Isthmus of Chignecto via a ships railway, which promised to bring even more prosperity to the region, and, the most destructive storm ever recorded in the Bay of Fundy. The Saxby Gale of 1869 swept its way into the collective memory of the inhabitants of the Isthmus of Chignecto. Prosperity was not to last. By 1930, a two-pronged assault on the Tantramar Marshes would wreak havoc on the fortunes of the people of the Marshes: The Great Depression and the full roll-out of the internal combustion engine.

The 1830s, from a general historical overview, was a successful decade for the people of the Tantramar Marshes. The first steps in the founding of Mount Allison University...
in Sackville were enacted in the summer of 1836 after a series of Methodist revival meetings took place across New Brunswick. Charles Frederick Allison (1795-1858), a junior partner in the local merchandising firm Crane and Allison “led… the founding of a male academy for the teaching of not only the Elementary but higher branches of Education” (Reid, 1984, p. 18). Allison offered to buy the necessary land and donate an annual sum for the first ten years of the academy’s operations. His offer was accepted by the New Brunswick and Nova Scotian Methodists on the 12th of July, 1839 and thus Mount Allison University’s roots took hold.

By the mid 19th century, the farming of 10,000 hectares of productive, reclaimed marshland was in full swing (Summerby-Murray, 2011). Toler Thompson’s techniques were paying dividends, and the continued reclamation of marshland was rapidly taking place. The native salt marsh plant species had been replaced by imported grass species across approximately half of the total area of the Tantramar Marshes. As bogs were drained, rivers dyked and the natural marshland therein wholly transformed, the hay boom of the Tantramar Marshes reached its zenith (Figure 32 & 33).

Figure 32 & 33. The decaying hay barns (top) and hay press (bottom) speak of a once prosperous hay market on the Tantramar Marshes Source: Mount Allison University Archives
Appearing in British newspapers the London Standard and the London Press in November 1868, the following prediction was offered by S. M. Saxby:

*I now beg to state with regard to 1869 at 7:00 A.M., October 5, the Moon will be at the part of her orbit which is nearest the Earth. Her attraction, will be therefore at its maximum force. At noon of the same day the Moon will be on the Earth’s equator, a circumstance which never occurs without marked atmospheric disturbance, and at 2 P.M. of the same day lines drawn from the Earth’s centre would cut the Sun and Moon in the same arc of right ascension (the Moon’s attraction and the Sun’s attraction will therefore be acting in the same direction); in other words, the new Moon will be on the Earth’s equator when in perigee, and nothing more threatening can, I say, occur without miracle. With your permission, I will, during September next (1869) for the safety of mariners, briefly remind your readers of this warning. In the meantime, there will be time for repair of unsafe sea walls, and for the circulation of this notice throughout the world.*

Saxby was a civilian instructor of naval engineers of the British Royal Navy who published numerous books and almanacs filled with weather predictions and claiming a relationship between foul weather and the moon passing through the plane of the earth’s equator (Desplanque & Mossman, 1999). Saxby’s dire prediction came true at 1:00 P.M. on the 5th of October, 1869, at the head of the Bay of Fundy. The dykes of the Tantramar Marshes were overtopped by at least 0.9 meters. Two sizeable fishing schooners were seized by the tide and lifted over the dykes and sent 5 kilometres inland. An entire barn was lifted off the Marshes and deposited 1 kilometre inside the marshlands. Two men were dragged out into the Chignecto Basin and drowned, livestock perished en-masse, and most of the stored hay on the marshes was swept out to sea. Farmers drew lots to divide what little merchantable hay was left. The Saxby Gale was recorded to have caused a high tide storm surge event measuring at levels of 30.48 meters or more, twice the normal high tide range (Desplanque & Mossman, 1999), the likes of which had never been recorded before (Figure 34 & 35). Despite the set-back caused by the Saxby Gale of 1869, the burgeoning abundance of agricultural products harvested from the Tantramar continued to facilitate an expanded export economy in Sackville and the surrounding region.
In the mid 19th century, small schooners and scows were able to navigate up the Tantramar River and make port at a public wharf that was constructed in the early 1840s. The extreme tidal range left the boats resting on the muddy bottom of the Tantramar River at low tide, but they were able to make way into the deeper waters of the Bay of Fundy for at least a few hours of the day while the tide was high (Figure 36). For the decades between roughly 1840 and 1880, the Tantramar Marshes experienced a boom in shipbuilding during the Golden Age of Sail. In 1840, Christopher Boultenhouse established a shipyard adjacent to the Tantramar River, close to the emerging mercantile community of Sackville. Within two decades, two more shipyards had sprung up nearby and Sackville for a brief period became a shipbuilding hub, as described by Thomas Raddall in the following passage:

… the village stood pretty much as it stands now, but alive with the smell of new sawed wood, and the sound of hammer and adze, and the clack, clack, of caulking mallets. They built good ships then. The hulls grew by the waterside with their bowsprits reaching over the road. A block maker and a coaper carried on their businesses in sheds behind their homes, and a busy sail maker
Figure 36. Royal Engineer Captain Crawley's 1845 map of the Tantramar Marshes. The location of the Sackville public wharf and boat launch can be seen on the top left.
Source: Mount Allison University Archives
squatted amongst billows of canvas in the long sail loft. The village blacksmith made iron work for vessels three parts of the year and... the tall iron stack of the sawmill poured blue smoke at the sky (1945, p. 372).

The building of ‘good ships’ on the edge of the Tantramar Marshes would not last. By the early 1880s, cheaper and more efficient metal-hulled steamships would supplant much of the wooden-hulled schooners and scows constructed throughout the Maritimes and in places such as Sackville. The new industrial era had begun to establish itself on the fate of the Tantramar Marshes, the demise of the shipbuilding industry on the Isthmus of Chignecto indicates the first of a series of blows.

The 1867 Confederation of Canada was followed by a wide variety of major infrastructural projects across the new country by the newly-appointed federal government. A section of the Inter-Colonial Railway that crossed the three rivers of the Tantramar, Missaguash, Aulac, and Tantramar, and that connected Amherst, Nova Scotia to Sackville, New Brunswick, was constructed in 1872. The completion of this section of the railway brought with it a more orderly and efficient means to carry the products of the Tantramar further afield. The construction of the Inter-Colonial Railway’s crossing of the Tantramar Marshes occurred just five years after Confederation in 1867 and established the first major transportation route from Maritime Canada to Upper Canada and beyond.

Another of the nation-building projects of the time was the ambitious plan to construct a ship railway, intended to transport vessels from the Chignecto Basin across the Tantramar Marshes to Baie Verte on the Northumberland Strait. The railway project proposed following the ancient Mi’kmaq portage route, first observed and pondered by Beaubassin intendant Jacques de Meulles in 1685 (Armstrong & Hay, 1960). The project, proposed by civil engineer Henry Ketchum in 1875 would eliminate the necessary 930-kilometre ocean passage around the peninsula of Nova Scotia. Ketchum brought his proposal before the Government of Canada in 1881, and by 1882 had financial support from the Baring Brothers and Company in London, England. Ketchum’s design allowed for the overland passage of vessels weighing up to 2000 tons and estimated the required time to make the 27-kilometre transport at 2.5
The tracks ran almost perfectly straight from Fort Cumberland on the Bay of Fundy to the Tidnish Crossroads on the Northumberland Strait (Figure 37 & 38). The transport of ships was intended to be powered by hydraulic energy and steam-powered locomotives. Construction began in 1888 and by 1890 completion of the project was in sight; however, in 1890 the main financiers of the project, the Baring Brothers and Company, pulled their funding of the project. Ketchum, low on funds, went before the federal government to request a second extension for the project, which was initially ordered to be completed by 1890. Ketchum’s appeal to extend the project deadline to 1896 was ultimately rejected by the Federal Government by a vote of 55-54 (Armstrong & Hay, 1960). Undoubtedly a tragic ending to Henry Ketchum’s aspirations, he died that same year in 1896 and was buried overlooking the Tidnish Bridge where remains of the project remain to this day (Figure 39). Almost as a precursor to coming troubles, the failure of the Chignecto Ships Railway marked the beginning of a steep decline for the fortunes of those who had profited so much from the Tantramar Marshes for close to a century. Just as the profitability of the Tantramar was beginning to slip away, the first great literary figure of the Marshes...
Figure 39. Remnant of ships railway, the bridge on the Tidnish River, near the Northumberland Strait terminus.
Source: Author
was rising. Charles G. D. Roberts, born in Douglas, New Brunswick in 1860, spent his childhood years in Westcock, on the western edge of the Marshes. Roberts, ‘The Bard of the Tantramar’ gained international recognition with his most famous work, “Tantramar Revisited” and is regarded by some as “the Father of (Anglo) Canadian Literature” (Scobie, 2008, p. vii). Roberts reveled in the horizontal sublimity of the Tantramar and wrote extensively of its natural features. Interesting to observe, as Giblett (2014) does, is that Roberts, despite being distinctly focussed on the landscape of the Tantramar Marshes, seldom referred to the Acadian built dykes that had provided so much to his generation. Be that as it may, Roberts is often regarded as the creator of the literary tradition of the Marshes, or as he referred to it: The Tantramar.

Industrialization and the invention of the internal combustion engine, which was increasingly replacing the need for horse and oxen transportation and labour, led at first to a slow decline in hay prices and then accelerated to a complete collapse by the 1920s. The Commission of Sewers continued their efforts, but returns on labour and dykeland maintenance soon led to a wholesale abandonment of the dykelands by 1930. The few local farmers who continued to farm the dykelands on the inner marshlands became reliant on the Inter-Colonial Railway seawall that protected their fields (Summerby-Murray, 2012). Coupled with the global collapse of the world economy during the Great Depression, the 1920s were some of the darkest years for the people of the Tantramar Marshes. Ushered in by the bleak decade of the 20s were new and large-scale dykeland management schemes that would again reshape a landscape that now seemed perpetually subject to the throes of far-off economies and environmental forces.
Section 4.5
Renaissance Tantramar, 1930 - 1970

Hello Canada... French soldiers used to send signals by lighting beacons at Beauséjouër to summon people to the Fort. More than two centuries later, we’re sending radio messages from almost the same place.
William Strange, From Beacon fires to Broadcasting CBA Maritimes, 29 April 1939

The hay boom of the Tantramar Marshes had all but been forgotten by the 1930s. The Great Depression and the large-scale replacement of hay fueled animal labour for fossil fuels wrought devastation to the hay market, the primary agricultural product of the Tantramar Marshes. The 40-year period between 1930 and 1970 would completely reframe the function and significance of the dyked lands of the Marshes. The Yorkshire planters, and to a lesser degree the New Englanders and Loyalists, had made small fortunes from the reclaimed marshlands of the Acadians. The dykes, constructed initially to establish arable land for farming, now served a dual purpose of protecting critical infrastructure and private property beyond just agricultural land. Despite the human misery caused by the Great Depression of the 1930s, there were some glimmers of hope on the Tantramar Marshes. The Canadian Broadcasting Corporation, created in 1936, brought to the Marshes a landmark structure. By 1970 a significant transition away from a primarily agriculturally-driven region was underway. The full realization of the ecological significance of the Tantramar Marshes brought the Canadian Wildlife Services headquarters to Sackville, New Brunswick, and with it came a new era of appreciation for the many ecosystem services of the marshlands. The Tantramar Marshes had fascinated those who lived beside it for generations; however, it was not until the second half of the 20th century that the scale of that fascination became firmly rooted in artistic expression, defined to a great degree by the Canadian painter, Alex Colville.

The price of hay dropped from $21/ton in 1921 to $6/ton in 1936, dealing a decisive blow to the Tantramar’s farmers. With the decrease in hay prices, the value of marshland property also plummeted to $65/hectare by the 1940s (Milligan, 1987). With a dramatically decreased value, reclaimed marshland slipped into a period of neglect. The drainage ditches became clogged, aboiteaux sagged, and the dykes
suffered from erosion and weathering and in some places were breached, leading to the flooding and washing away of massive quantities of fertile soil to the sea. The previously active Commission of Sewers no longer had the economic clout needed to maintain the massive system of dykeland infrastructure. The money for the continuous maintenance of the dykes had all but dried up. Concerns over the state of the dykelands escalated, and in 1943 the situation was brought before the Federal Government by the Amherst and Sackville Boards of Trade who appealed for federal assistance in restoring the dykeland infrastructure. In response, the Experimental Farms division of the Federal Ministry of Agriculture established an emergency response programme where dykeland restoration costs were shared evenly among land-owners, the Provincial Governments of Nova Scotia and New Brunswick, and the Federal Government. The dykeland restoration programme of 1943 brought heavy machinery on to the marshlands for the first time in history. Previously thought to be too slippery and soft for heavy machinery, bulldozers and draglines began rebuilding dykes, aboiteaux and drainage ditches. Despite these efforts, it soon became evident that the scope of necessary maintenance and restoration was too broad for the programme’s two-person staff (Milligan, 1987). The Federal Government established the Maritime Marshland Rehabilitation Administration (MMRA) in 1948 to respond to the overwhelming amount of work needed to restore the dykelands, not just on the Tantramar Marshes but all around the Fundy Coasts of New Brunswick and Nova Scotia where dyked land existed. Wielding the power of expropriation (Figure 40), the MMRA built and maintained dykes with the cooperation of the Federal Government and the New Brunswick and Nova Scotian Departments of Agriculture. The MMRA headquarters were located in Amherst, Nova Scotia, and housed a 70-member staff which began instituting modern engineering techniques to dykeland construction and maintenance. Draglines and steam shovels replaced the traditional dyking spade, and oxen and equine labour (Figure 41 & 42). By 1970, the MMRA had ensured the protection of over 30,000 hectares of reclaimed marshland in Nova Scotia and New Brunswick and built 373 kilometres of new dykes (Milligan, 1987). The MMRA also constructed a large tidal dam near the mouth of the Tantramar River, eliminating the need for smaller aboiteaux and many kilometres of dykes in the inner marshlands.
Mr. Donald Harper,
Secretary, Trenton Post. No. 1, Box 12,
Middle Sackville, N. B.

Dear Mr. Harper,

We have been considering further the question of securing title to the land on which the dyke is now situated. Mr. Hughes of the Attorney-General’s Department, who has been closely associated with the writing of the new Marsh Act, has been absent from the office and is not expected back until September 10, so I have not been able to get any information as to just how the land occupied by the dyke should be described in legal terms.

In regard to securing this title, you will note that in the Act the Body is given power of expropriation and that the procedure for such expropriation is relatively simple. This, I think, should simplify the task of the Body in securing title to the lands required by the Dominion Government, provided the Body take a careful selection of their arbitrator in case the Marsh Owner did not care to deal his land over. I see no reason why the Body should have to pay more than a token fee to take care of the legal end of the situation. However, it is not necessary for the Body to take immediate action in regard to securing title and I think that your idea of having the present executive committee secure agreements to transfer from the various owners of land on which the dyke is situated is a good one.

Enclosed in this letter you will find a regular Certificate of Incorporation, which replaces the temporary typescript file which was forwarded earlier.

Also enclosed you will find three copies of a Pure of Agreement between the Marsh Body and the Province. If you would have your Executive Committee sign this the Province would then be able to proceed with an agreement with the Dominion as soon as the necessary plans were completed.

In regard to the accounts for emergency work carried on to date, I would appreciate it if you would have these in the hands of Mr. J. B. Penner not later than and preferably before October 1. There is a definite reason for this which I do not wish explaining. Last year a large number of our accounts came in after the end of our fiscal year which is October 31, which meant they had to be paid out of the vote for 1949. The result has been that

Figure 40. MMRA letter explaining power of expropriation
Source: Mount Allison University Archives
The search was on for a suitable location for a radio station to serve the Maritimes after the parliamentary establishment of the Canadian Broadcasting Corporation in 1936. Careful testing revealed that the open expanse of the Tantramar Marshes at the head of the Bay of Fundy, in the geographic center of the Maritime Provinces, was ideal for broadcasting. The new facility, a large building and an array of radio towers were erected on Coles Island, central on the Marshes in 1939. Ten years later, Sackville and the Tantramar Marshes became home to Radio Canada International (Figure 43). ‘The Voice of Canada’ was sent to all corners of the world in over 20 languages from the towers that loomed over the expanse of marshland for. Windover (2017) explains what made the Tantramar Marshes an ideal location for the RCI radio towers (Figure 44):

*In the case of station CBA near Sackville, the rich sedimentary soil of the Tantramar Marsh played a significant role. The soil of this area was deposited by the tidal waves of the Bay of Fundy before dykes were constructed, transforming the region into an important producer of hay. Both the radio installation and the agricultural land reclaimed through dykes represented...*
Figure 43. CBC Radio-Canada advert (1949)
feats of engineering that altered the culture and the sense of place in the area. The soil’s high mineral content made this an ideal location for radio transmission, as did its proximity to the Canadian National Railway line, access to abundant electrical power, and relatively cheap land. Since the mineral content is so high in the soil, the marshland acts as a natural ground plane (a conductor of electromagnetic energy), reflecting the radio frequency energy sent from the antenna, in essence greatly increasing the power of the signal. Being located in the Maritimes also made Sackville the best site for Canadian shortwave transmission to Europe, Africa, and South America, since the majority of the country is adversely affected by the zone of absorption caused by the north geomagnetic pole. Sackville, sometimes known as the crossroads of the Maritimes, is situated near the border of Nova Scotia, and in a way the presence of the regional (and later international) station only amplified this position (p. 51-52).

The Tantramar Marshes would again be profoundly impacted by external forces in 1947 when the Federal Government of Canada established the Wildlife Service (changed to Canadian Wildlife Service in 1950). The search for a proper location for the CWS landed in Sackville, New Brunswick, due again to its geographically central location and the uniqueness of the Tantramar Marshes as a highly frequented stopover for migratory sea and shorebirds. According to long-time CWS employee Anthony J. Erskine:

Sackville met all of the criteria because of its unique location. In addition it was decided to have the headquarters located in a university town, so the staff might interact with other biologists (Interview in Hamilton, 2004, p. 201).
George Boyer, a New Brunswick native and a graduate of the University of New Brunswick Forestry and the University of Illinois Zoology programs, worked out of the Sackville CWS office between 1947 and 1956. His surveys and study of the plants and birds of the marshlands of the upper Bay of Fundy are an essential extension of the work done by W. F. Ganong (1903). His paper, "Birds of the Nova Scotia- New Brunswick border region" (1966) was published posthumously after his death in 1960 and provides an exceptionally detailed explanation of the plant communities and bird populations of the Tantramar Marshes. Boyer relocated to Maple, Ontario in 1957 where he continued his study of wetlands and waterfowl in the Luther Marsh and around James Bay. By 1967, 11 staff members were working at the Sackville CWS office. The research, initially focused on the abundant waterfowl attracted by the region’s saltmarshes shifted over time to ecology and conservation and the study of rare and endangered shorebirds, such as the Semi-Palmated Sandpiper.

A last noteworthy aspect of the years between 1930 and 1970 was the growth of the Tantramar Marshes as a landscape of the imagination, the locus of a groundswell of artistic expression. A naturally unique and significant landscape, the Marshes had long been used, adapted and transformed by humans. The Tantramar, with its ancient Mi’kmaq portage routes, supplanted by Acadian dykes and aboiteaux and further re-formed and expanded by successive waves of immigration, adaptation, and construction, had developed into a landscape with a distinct sense of place. Long regarded as a natural and cultural crossroads, the Tantramar was more than just an important place for migratory birds or a unique agricultural landscape. The Tantramar Marshes, as a rich biocultural palimpsest, was open to an array of representational possibilities. One of the most notable artists to capture the sense of place of the Tantramar in this era was Alex Colville. Born in Toronto, Ontario, Colville moved to Amherst, Nova Scotia with his family in 1929. Colville attended and graduated from Mount Allison University in 1942 with a Bachelor of Fine Arts (Figure 45). A year later he was commissioned to serve overseas as a war artist. Serving during the Second World War in the Mediterranean, Belgium, Holland, and Germany, Colville, with his charcoal and paints, captured some of humankind’s darkest episodes at the Belsen Concentration Camp. Following the end of hostilities, Colville returned to the Isthmus of Chignecto to teach and paint at Mount
Allison University. Before moving to Wolfville, Nova Scotia in 1973, Colville captured the essence of the Tantramar Marshes in many works and inspired countless local artists who continue to represent the Marshes in their art practices (Figure 46).

The final decades of the 20th century would again bring significant change to the Tantramar Marshes. The endeavours of the MMRA were successful in re-fortifying the ancient system of Acadian built dykes, and the construction of hundreds of kilometres of new dykes was made possible by Federal Government funding, and modern machinery and technology. However, the work needed to maintain the dykelands was and never has been completed, per se; indeed, it is a never-ending struggle that has put the people of the Tantramar Marshes in a perpetual cycle of natural and cultural interaction. The RCI shortwave radio station that anachronistically loomed over the expanse of the Marshes would go beyond sending ‘The Voice of Canada’ to the far corners of the world: it became a cultural icon of the Tantramar. The following era solidified the Tantramar Marshes place as a distinctly biocultural landscape. The establishment of the Canadian Wildlife Service office in Sackville, New Brunswick, helped build environmental awareness of the ecological functions of the Tantramar Marshes. The mystique of the Marshes continued to grow and flourish in the latter decades of the 20th century. Firmly established by the likes of Alex Colville and Charles G.D. Roberts before him, the Marshes became integral to the practices of many local and regional artists.
Figure 46. ‘Ocean Limited’ 1962, Alex Colville
Source: Estate of Alex Colville
Section 4.6
Tantramar Prospect, 1970 - Present

There is a song in these seasons. The Tintamarre. Ghost birds over the Centuries. Voices in the tape of Wind. caught to come back in their Times. Tintamarre
Andrew G. Gann, Pelagie-La-Charette: Paysage Interieur, Paysage Exterieur, 1987, p. 33

As the 20th century closed, the image and interpretation of the Tantramar Marshes had assumed the full position as a distinctly biocultural landscape. Celebrated in the works of poets, painters, and photographers, the Marshes were themselves a work of art, open to many who sought to interpret their layers of history and natural heritage. A deeper understanding of the ecological significance of the Tantramar Marshes brought with it movements to restore, preserve and protect tracts of previously dyked marshland and the establishment of a National Wildlife Area. Parallel to the preservation of natural areas was a growing movement to preserve the cultural history of the Marshes. Through organizations such as the Tantramar Heritage Trust and the Mount Allison University Archives, a great deal of work has been done to safeguard the stories of the people of the Marshes. From the Mi’kmaq to the Loyalists, a place is reserved in the records for the many people who have shaped the landscape and imbued it with their narratives of this place. Sackville blossomed into a cultural crossroads of the arts, history, and nature from 1970 to the present. The struggle to manage and maintain the over 300-year-old dykelands continued with some recurring themes and new perspectives. Now, the people of the Isthmus of Chignecto stand poised to face a new era of transformation. The threat of climate change is a topic of great concern for those who live on the edges of the Tantramar. Economic, ecological, and cultural troubles have long intertwined on the Tantramar Marshes. The next chapter in the landscape narrative of the Tantramar Marshes is being written now. Could it be that the response to the challenges of climate change will be the defining heritage of the future?

After more than 20 years of operation, the Maritime Marshland Rehabilitation Administration (MMRA) shuttered its doors in Amherst and passed the responsibilities of dykeland construction and maintenance to the provincial governments of Nova Scotia and New Brunswick in
1970. Since falling into the hands of the New Brunswick Department of Agriculture, high priority was placed on making the marshlands more easily managed with heavy machinery leading to a paradigm shift for landowners and dykeland agriculture. Tile drainage was never possible on the reclaimed marshlands of the Bay of Fundy; the land has little to no natural slope, and the silty clay soils drain far too slowly (Milligan, 1987). Through the power of expropriation, the Provincial Governments of New Brunswick and Nova Scotia assembled small land-holdings into larger, more easily managed assemblages where they employed large scale land forming to drain the fields. By shaping the surface of large tracts of land where a slope of 1–2% is achieved over a distance of 40 to 60 meters, modern agricultural machinery can move about the landscape with ease. The market for hay, the primary product of the marshes, remained saturated throughout the second half of the 20th century which led to a small degree of diversification in the growing of corn, beans, and peas and other experimental crops (Milligan, 1987). The agricultural possibilities of the Tantramar Marshes remain open for the taking.

The last great storm to strike the Tantramar Marshes occurred on Groundhog Day in 1976. Unlike the Saxby Gale that was predicted a year in advance, the Groundhog Day storm was not forecast until the very last moment (Desplanque & Mossman, 1999). On February 2nd, 1976, a weak low-pressure area moved north-east from Alabama and Texas and met with a small high-pressure system from Western Ontario. The storm first wreaked havoc up the coast of Maine, with tides rising more than 2.5 meters above the estimated level (Desplanque & Mossman, 1999). By the afternoon of Groundhog Day, the storm enveloped much of the eastern seaboard north of Maine and into the Bay of Fundy, causing severe damage and widespread power outages along the Fundy Coast of Atlantic Canada. Saint John, New Brunswick, was hit particularly hard. Several large vessels broke their moorings under the onslaught of 180km/h winds and swells of up to 10 meters in height. While the Groundhog Day storm paled in comparison to the damage caused by the Saxby Gale to the Tantramar Marshes dykeland infrastructure it serves as a reminder to the power and destructive potential of the ever-present threat of storm surge events in the Bay of Fundy. Had the Groundhog Day storm occurred several months later on the 16th of April, coinciding with the perigee spring tides,
the destruction could have easily equaled or surpassed that
cau sed by the Saxby Gale (Desplanque & Mossman, 1999).

Following in the footsteps of Charles G.D. Roberts, ‘The
Bard of the Tantramar,’ came Douglas Lochhead. Born in
Guelph, Ontario, in 1922, Lochhead eventually relocated to
Sackville, New Brunswick in 1975 to take the position as the
Edgard and Dorothy Davidson Chair of Canadian Studies at
Mount Allison University. Lochhead was deeply preoccupied
with the Tantramar Marshes, and they soon became his
primary inspiration and subject in many collections of
poetry. Lochhead walked the Marshes, closely observing
the lines and traces of history and nature etched in the soil,
the sinuous rivers penned in by ancient Acadian built dykes,
decaying hay barns and the non-human creatures of the
marshlands. According to Rod Giblett:

Lochhead walked on the Tantramar Marshes every day for many years…
Walking is a way of engaging in a visceral, proximate and multi-sensory closeness with
place, with here and now in space and time in support of the alternative cultural paradigm… Walking enabled Lochhead to
read the signs of history in the land, and the history of water management, of the
human body and the messy bodily processes that built the dykes. Lochhead’s poetry now
contributes to the sense of the history of the marsh and is a part of that history
(2014, p. 84).

Lochhead continued to live in Sackville, New Brunswick until
his passing on March 2011, just ten days before his 89th
birthday. He was the first Poet Laureate of Sackville and
left behind a collection of dozens of works of poetry and
writing, many of which hold the landscape of the Tantramar
central. Lochhead’s fascination with the biocultural nature
of the Tantramar Marshes is evident in his writing; he is
widely credited with giving a voice to the Marshes (Giblett,
2014). For Lochhead and his friend and collaborator, the
photographer Thaddeus Holownia (1989), the dykelands
are:

ruins and new places for living… the
dykelands form a living, breathing place…
Dykelands are elemental. Entwined in
their outwardly deceptive simplicity, there
is in their very existence a constant, living
change… All of the dykelands are nature’s
places. They are no backgrounds for anyone
or anything (in Giblett, 2014, p. 87).
Like Lochhead, Thaddeus Holownia has spent decades documenting the passing of time on the Tantramar Marshes. A British-born photographer and artist, Holownia joined the Mount Allison University Fine Arts Department in 1977 where he is now Professor Emeritus. Holownia’s photographic analysis of the slow decay of the post and beam hay barns, of the ghostly apparition of the Radio Canada International signal towers standing over the Marshes (Figure 47) and the broad, sometimes lonely-seeming marshland are composite of an exploration of time and space. The hay barns of the Tantramar Marshes, of which there were once over 400 during the height of the hay boom of the late 19th and early 20th centuries, have been severely reduced in numbers. Exposed to the elements, and with no organized effort to conserve them, they have been largely left to slowly vanish in the snow drifts and marsh grasses (Figure 48 & 49). In a 2016 interview with CBC, Holownia acknowledges the continued loss of one of his main subjects:

*Things change, economies change, the barns saw their importance. Just the numbers that were there tell us how important they were to this region, and when they were no longer important to the economy of this region they began to disappear, and they become historical artifacts. History is time and time changes things* (Interview, CBC News, 2016 February 28).

The final decades of the 20th century brought with them a swathe of cultural and environmental organization and awareness to the Tantramar Marshes. The work of Thaddeus Holownia and Douglas Lochhead, following after the towering figures of Charles G.D. Roberts and Alex Colville are central to the establishment of Sackville as a small but thriving center for arts and culture (Figure 50). No less significant has been the growth of the Tantramar region as an important location for increasing environmental awareness, and as a destination for bird watchers and those interested in salt marsh ecosystems. Over three centuries of European settlement, 90% of the Tantramar Marshes were reclaimed from the sea. There has been a concerted effort to restore portions of previously dyked land to a natural state. By the early 21st century, it is estimated that 65% of the total area of the Tantramar Marshes continues to be farmed (Giblett, 2014). The remaining 35% of the Marshes is constitutive of the 10% that was never dyked and drained and another 25% that has been left to return to semi-natural marshland in the 1990 hectare Tintamarre National
Figure 47. RCI Station, Thaddeus Holownia
Source: Mount Allison University Archives (Thaddeus Holownia Fonds)
Figure 48. Hay Barn
Source: Author
Figure 49. Ruined hay barn
Source: Author
Figure 50. The Marsh Project, a community art project
Source: Mount Allison University Archives

Old Buildings

The old buildings on the marsh such as barns, covered bridges and old houses have a mystery to them. Many people enjoy photographing and drawing them because they have a unique quality. It is best in the spring because it is nice to get outside and enjoy nature. It is fun photographing and drawing the water on the marsh because it is full of life. The aboiteau doesn’t let the salt water in but drains off the excess water off the marsh. The things on the marsh are now very old. They all tie together to tell the tales and history of the Tantramar marsh.
Wildlife Area established in 1978, and smaller parcels owned and managed by Ducks Unlimited and private landowners.

The birds of the Tantramar that inspired the naming of the landscape by the Acadians are a fundamental component of the landscape. The Tantramar Marshes are an important stop-over point for numerous species of migratory birds (Boyer, 1966) and a reliable source of tourism to the region. As environmental and human-related pressures grow for a myriad of migratory shore and sea birds, the Tantramar Marshes are an important landscape for the monitoring of population numbers and species health.

The vertical elements of the Marshes (RCI radio towers, power-transmission lines) that have been constructed over the last century on the Marshes may pose threats and ward off flocks of birds that traditionally found refuge on the Marshes. Mackinnon and Kennedy (2011) recorded 82 detailed location records of Common Eiders found dead on the Tantramar Marshes between 2008-2009. The majority of the dead birds (65%) were found along the 6km-long section of the High Marsh Road adjacent to the power transmission corridor; another 26% were found either directly under, or near to the Radio Canada International towers at Coles Island; the remaining 10% were found scattered throughout the Marshes (Mackinnon & Kennedy, 2011). Since Mackinnon and Kennedy’s study, many more Common Eiders have been found dead on the Marshes.

In a CBC (2018) news piece, NB Power spokesperson Sheila Lagacé admitted that her company does not have an avian protection plan. Not having an avian protection plan, according to Tony Diamond, a University of New Brunswick seabird biologist, “is scandalous,” citing the Tantramar area as a well-known crossing for the Common Eider, and many other bird species.

It is unlikely that the NB Power transmission corridor will be moved any time soon; however, the Radio Canada International transmission station built in 1939 was dismantled in 2014 after RCI ceased its shortwave broadcasts in 2012. The RCI station that stood in the centre of the Tantramar Marshes, adjacent to the CN railroad and Trans Canada Highway, had become a cultural icon for the region, immortalized in the photography of Thaddeus Holownia and Amanda Dawn Christie's documentary film Spectres of Shortwave (2016). The Canadian Broadcast Corporation attempted for several years to sell the
system of dykes that are in some areas 350 years old. The local and national discourse has thus far primarily consisted of concern. Perhaps what should be discussed are the opportunities that exist in the necessary adaptive measures to come, whether they are anticipatory of a catastrophic event or not, the future of the Tantramar Marshes hangs in the balance. The landscape of the Tantramar Marshes awaits the next move. Will it be nature’s turn, or ours?

90-hectare property to other international broadcasters and wind farm companies without success (CTV Atlantic, 2014). In 2017 the property was sold to the Mi’gmawe’l Tplu’taqnn, a non-profit consortium of New Brunswick Mi’kmaq bands. It was announced in January 2019 in a CBC news piece that the Mi’gmawe’l Tplu’taqnn intend to turn the 90 hectares property into an extension of the Fort Folly First Nation reserve. Tracy Anne Cloud, director of trilateral negotiations with Mi’gmawe’l Tplu’taqnn, noted that the area of Coles Island, central on the Tantramar Marshes, is the only land bridge where endangered mainland moose populations can pass between Nova Scotia and New Brunswick, and is a place where plants important to Mi’kmaq people grow. Cloud, (referring to the former RCI station land) in an interview with CBC, stated that without it “we can’t exercise our treaty rights and without our rights and without our culture to practise, we aren’t who we are” (CBC, 2019).

The pressure is mounting to adapt to uncertain futures on the Tantramar Marshes. Questions are swirling as to how to respond to the threats posed to the infrastructure and property that exists on the Marshes, protected by a
Chapter 5

Discussion

The landscape narrative method applied to the Tantramar Marshes was effective in revealing themes in the history of the Marshes which are useful for understanding the current predicament facing the landscape. The five primary themes derived from the landscape narrative of the Tantramar Marshes are: landscape change; the birds & us; communal effort & dykeland infrastructure; the Marshes as a landscape of the imagination; and returning. There were limitations to this research and study, relating primarily to the size and scope of the landscape and its cultural and environmental history. The landscape narrative of the Tantramar Marshes is successful in providing a platform to explore the landscape in future studies.

Landscape Change

The Tantramar Marshes, with or without human interference, is a landscape of drastic transformation. Every day, as the Bay of Fundy tide ebbs and flows, the tidal rivers swell and empty, the cordgrass meadows are concealed by ocean waters and revealed as the waters recede. The tide brings with it the upwelling and deposition of mineral-rich clays onto the surface of the marsh, where the salt-tolerant plants find purchase and thrive in the harsh conditions. As the sheets of frozen marsh mud and seawater melt in the spring, the Marshes become alive with the sound of insects and the deafening racket of migratory birds returning to feast on the innumerable fish and crustaceans of the tidal flats. Human life on the Marshes has always been a tenuous existence. Spring perigee tides result in waters that range towards 16m in the differential between high and low tides that are capable of carving out large sections of marshland within twelve hours, altering the habitat and appearance of the Marshes. The Acadian dyke builders contended with the transformative power of the Marshes by constructing dykes in narrow openings when the tidal range was at its weakest in the autumn months, thus creating expanses of fertile agricultural land. Nothing on the Marshes is permanent, the tide and wind degrade the dykes and, weather and slowly destroy the hay barns. Landscape change is the only certainty on a landscape defined by dynamism, and the Tantramar Marshes, their natural and human history and their future are all decided, and to be decided, by their very
nature of change.

**The Birds and Us**

The Acadians named the Marshes for the birds, Tintamarre, referring to the vast quantities and noise of the migratory birds that historically pass over the Isthmus of Chignecto and associated saltwater marshes every year. The shore and seabirds that frequent the Tantramar Marshes (and other saltmarshes in the region) rely on natural saltmarsh habitat, where they feed on the small estuarine fish and crustaceans. Regarded as one of the defining characteristics of the Tantramar Marshes, the birds have become a reliable and steady source of tourism to the region. However, there is evidence that not only are fewer birds returning each year, but that infrastructural elements on the Tantramar Marshes may pose threats to certain species of bird, or at the very least act as a deterrent. These are painful realities to confront, some of the populations of bird most iconic to the Tantramar, such as the Semi-Palmated-Sandpiper, are facing severe threats to their species’ survival, of which many are directly and indirectly human-caused. Future development and infrastructural intervention must take into account the importance of the Tantramar Marshes shore and seabird populations. As crucial as the Marshes are to humans as a transportation and energy corridor and as an agricultural and cultural landscape, they are also an essential place for birds. It behooves us to reflect and think deeply about the role of the birds of the Tantramar on the culture and identity of the Marshes and to consider the impact of all future interventions on their populations.

**Infrastructure & Communal Effort**

The second theme identified through the landscape narrative was related to communal effort and infrastructure. The current challenges facing the Tantramar Marshes are being described primarily as threats to the key-infrastructural elements of the Marshes: the Trans Canada Highway, CN Railroad, and the NB power transmission corridor, all protected by an ageing system of dykes. The threat is real, and there is cause for concern; however, the threat is not new to the region and landscape. The narrative is revealing of historical instances of the devastation caused to the cultural and infrastructural elements of the Marshes by significant storm events: The Storm of the Century of
1759 and the Saxby Gale of 1869. The storms of 1759 and 1869 were catastrophic to the reclaimed agricultural land on the Tantramar Marshes, dykes were breached on both occasions, hay barns swept away, cattle drowned and human lives lost. We can take lessons away from the significant storm events of the past, some hopeful, others as reminders of a lack of foresight and preparation and all that are reminders of the tenuous nature of life on the Tantramar. After the storm of 1759 the New England Planters, who had recently arrived in the region, quickly went about repairing widespread damage to the dykes and aboiteaux inherited from the Acadians. The people of the Tantramar responded to the 1759 catastrophe and planned for the long-term viability of the dykelands by creating the Commission of Sewers, which for close to two centuries was useful in the construction and management of the dykelands. The Acadians who had come before, and those responsible for creating the dykelands, knew that communal effort was required to maintain such a complex and interdependent system of infrastructure. Dykeland maintenance responsibilities were held in common amongst landowners in the seigneurial system of the Acadian settlements along the Bay of Fundy coast. It may have taken the 1759 storm to teach that lesson to those who had dispossessed the Acadians, but they did learn it in the end. After the winds of the Saxby Gale of 1869 subsided, much of the dykelands of the Tantramar Marshes were in ruin. Entire barns filled with hay were deposited kilometres away from their original position. Despite what now seems almost an unfathomably powerful storm surge, the people of the Tantramar bounced back. The Commission of Sewers was well established in 1869 after a century of operation, and it proved its value in getting the region back on its feet after the Saxby Gale – this could only be accomplished with people working together to restore their livelihoods. Preventative measures have been enacted in times of worry over the resilience of the dykelands in the past. After the collapse of the hay market in the early 20th century the dykelands fell into a general state of disrepair, with concerns mounting over the potential of a complete loss of the reclaimed land if the Bay of Fundy were to endure another storm comparable to the Saxby Gale. By the mid 20th century, the Commission of Sewers did not have the financial capacity to take on any major dykeland repairs, so the provinces of New Brunswick and Nova Scotia lobbied the Federal Government for assistance in the necessary
rebuilding of the dykes. The Federal Government, New Brunswick and Nova Scotia joined together to create the Maritime Marshland Rehabilitation Administration successfully refortifying and maintaining the dykelands between 1948 and 1970, before handing responsibilities back to the provinces.

History is repeating on the Tantramar Marshes. The $700,000 inter-governmental study announced in May 2018 is symbolic of the continued struggle between humans and the environment on the Marshes. Reflecting on past successes and failures is useful in these times. It is not yet clear whether the dykes will be raised and refortified or if they will be removed in areas to restore natural saltmarsh. There is potential in considering the biocultural nature of the Marshes as fundamental to any future interventions. With contemporaneous understandings of the ecosystem services provided by saltmarshes, there is hope that future interventions will strike a balance between environmental and human needs.

**Landscape of Imagination**

The third theme is the Tantramar Marshes as a landscape of the imagination. The landscape narrative method reveals how the Tantramar Marshes has served as inspiration for the literary, fine, and media arts of the region and nation. From Charles G.D. Roberts ‘The Bard of the Tantramar’ to the Poet Laureate of Sackville, Douglas Lochhead, the Marshes have woven their way into the hearts and minds of many. The Tantramar Marshes are a definitive example of how landscape shapes culture and vice versa. There is an intangible, almost mystical essence to the Marshes, as conveyed through the photography of Thaddeus Holownia; a lonely, brooding solemnity, captured by Alex Colville’s brush. Is it in the landscape etchings of ancient Acadia? Archeology of the Mi’kmaq buried deep in the red clay? There are no definitive answers here, and that is acceptable. No matter what the future brings, the legacy of the Tantramar as a landscape of imagination is firmly rooted. The landscape narrative of the Tantramar Marshes reveals a landscape of significant heritage value, but without any such designation or protection.
Returning

The final theme identified from the landscape narrative method is that of returning, which identifies the Tantramar Marshes as the site of the dispossession of the Siknikt Mi’kmaq and the Acadians of Beaubassin and their returning to the landscape.

The locus of the expulsion of the Acadians in 1755 was decreed at Fort Beausejour on the Tantramar Marshes, removing thousands of individuals from the landscapes that they had created, tended and prospered on for over a century. However, the expulsion of the Acadians would not be the termination of the Acadian peoples’ influence on the landscape and culture of the region. They would return, first in 1759 after the Storm of the Century, and over the following decades and centuries would incrementally re-establish their presence on the lands from which they had been displaced. As explained in section 4.4 of the narrative, the Yorkshire dykeland builder, Toler Thompson, is believed to have been educated and informed in dykeland construction by the descendants of some 200 Acadian refugees who returned to the Isthmus of Chignecto under a flag of truce following the 1759 storm. For the past two decades, Acadian Claude Robichaud has acted as manager of eight provincial employees charged with maintaining New Brunswick’s dykelands (McClearn, 2018). Every year, Robichaud and his team survey the dykes, looking for eroded sections of dyke to patch and vegetation to remove to ensure that more substantial vegetation does not establish itself, therefore degrading dyke integrity.

The Siknikt Mi’kmaq, the first peoples of the Tantramar Marshes, were wholly extirpated from the landscape following the full assumption of control of the present-day Maritime provinces by the British colonial forces in 1755. Archeological and anecdotal evidence indicates that the Tantramar Marshes and the Isthmus of Chignecto were of vital importance to the Mi’kmaq, who profited from the landscape in seasonal hunting and foraging camps and whose ancient portage routes provided effective means of travelling from the Bay of Fundy coast to the Northumberland Strait. Close to three centuries after the dispossession of the Mi’kmaq from the Tantramar Marshes, they have recently established a means by which to return to the landscape. The purchase of the 90-hectare site of the defunct Radio
Canada International transmission station in 2017 and the recent (2019) announcement that the Mi’gmawe’l Tplu’taqnn band have plans to convert the area to reserve land is heartening- the Mi’kmaq will contribute to the future and fate of the Tantramar Marshes.

**Limitations**

There were limitations in the creation of a landscape narrative of the Tantramar Marshes. Eight months, 20,230 hectares, and the documentation of the landscape by countless others was cause for some anxiety. It was accepted early that any landscape narrative of the Tantramar Marshes should not be intended as comprehensive or all-encompassing of the landscape’s history. Archival sources are valuable but as most are graphic (photographs, maps, drawings, etc.) they required substantiation from secondary sources. Secondary source information comes with its suite of problems: historical bias, narrow perspectives, a lack of information and difficult language regarding the Siknikt Mi’kmaq were all observed and appropriate effort was made in corroborating information and interpreting history sensitively and pragmatically.

**Implications & Future study**

What is most successful about this thesis is how it opens the door to the continued study of the landscape. This landscape narrative of the Tantramar Marshes is an accessible and coherent description and interpretation of why the Marshes are the way they are and how they might change. There are exciting next steps for anyone looking to continue this work. Community engagement, key informant interviews, and case studies of other landscapes that are comparable in function and structure but of different scale would be interesting (Dutch River Landscape/Room for the River, Florida Everglades, Landscapes of Grand Pré). The future of the landscape is currently in a holding pattern while the $700,000 inter-governmental study continues. The inter-governmental study is shrouded in a modicum of mystery; it is not clear how long it will continue for, or what exactly is being studied. It is likely safe to assume that the focus of the study is on how to keep the transportation and energy corridor safe from a catastrophic storm event and the slow, on a human time-scale, rising of sea levels. The threat to the Tantramar Marshes will persist for now, and as concerns grow in the community so will the anticipation of
the next move.

There is a need, now more than ever, to begin considering long-term, sustainable options for how best to manage the infrastructural and agricultural land-uses on the Tantramar Marshes and how to respond to rising sea levels and the threat of a catastrophic storm-surge event. Policy makers, planners, engineers, landscape architects and regional leaders must work together to be pro-active in coastal adaptation planning on the Isthmus of Chignecto. Sea levels are rising and the infrastructure protecting the transportation and energy corridor and privately-owned land on the Marshes is in a dire state. The same old strategies of re-fortifying and building ever larger dykes may not provide the long-term solutions necessary for a sustainable future. It behooves us, as landscape architects, to consider and develop new strategies concerning pro-active reclamation and/or staged managed retreat from coastal areas under threat from rising waters. There are no easy or low-cost solutions in these strategies, but, if we are to be pro-active as opposed to reactive, it is possible that a well-thought-out planning and design process could avert the cost and impact of a response to a catastrophic storm event. The time for action was yesterday, for tomorrow’s events could forever change life on the Isthmus of Chignecto.
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