Wetland Landscapes: Exploring

Marsh Refrains in Norfolk County, Ontario

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Abstract

Southern Ontario is an exciting place to study our relationship with wetland landscapes, as almost 75% of these ecosystems have been transformed and seized for urban or agricultural development, although the rate of wetland loss may recently be decreasing (Ontario Ministry of Natural Resources and Forestry, 2017; Ontario Biodiversity Council, 2015). This thesis is constructed around fieldwork conducted in Norfolk County during the late summer of 2020 and extensive engagement with various marsh complexes within the region. This research aims to present a more holistic understanding of our current relationship with wetland environments in Southern Ontario. This includes situating the wetland landscapes of Norfolk County within the infrastructures of the local Great Lakes region and the global and affective entanglements of the Anthropocene. Additionally, we explore certain co-constitutive present-day relationships that approximate people to wetland refrains. Finally, this research highlights the political intricacies of wetland management. Through this work, I will describe the complexities of these environments and demonstrate how being attuned to wetland landscape temporalities may be the best way to reterritorialize the wetland landscape.

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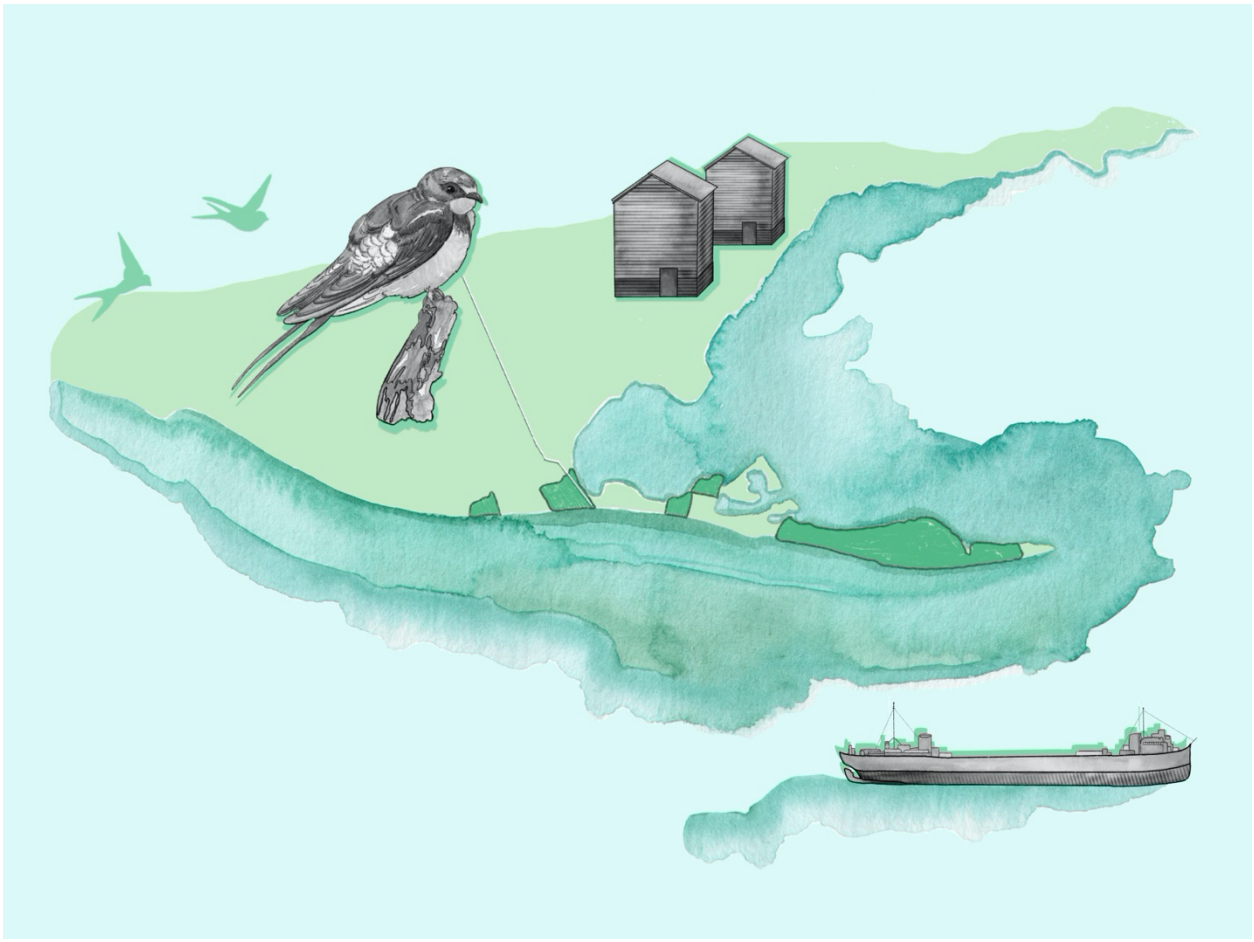

Figure 1: Map of Long Point by Maria Mediratta.

Introduction

Many people know Long Point primarily as a vacation spot, and I was no different. I was drawn to a thesis surrounding water as I developed a respect and affinity for Lake Erie as a child. I used to swim for hours and hours at the beach at my grandmother's cottage at Long Point, and I love the excitement of diving through the waves, a sensation that your body will preserve as you lay in bed that night listening to the soporous sounds of the waves. When turning my attention, academically, to a thesis project, I began to think about things I enjoyed, and the Great Lakes were a fundamental aspect of my life, wherever I had been. I had swum in each Great Lake well before the age of twenty. This is not necessarily a monumental feat for those living in Southern Ontario or those surrounding States. The Great Lakes and the hydrological systems in Southern Ontario are central to the lives of those living here. Most communities are built along the lakes, our drinking water is pulled from the lakes, and these predominantly agricultural economies rely on the lakes for irrigation. I wanted to find a unique angle from which to study our current relationship with the Great Lakes.

Many challenges face the Great Lakes region, including eutrophication, pollution and unequal access to clean water. A repetitive problem I witnessed living in Southern Ontario was the implications and concerns surrounding high water levels. In my hometown along Lake St. Clair, flooding altered many landscapes affecting homes, businesses and vacation properties in the spring and fall of 2018 and 2019. These same issues were being confronted in the community of Long Point, where I would visit each summer. Climate disasters such as flooding have become an ever-increasing and recurring problem for the population of Southern Ontario. My childhood neighbourhood near Windsor, ON would routinely flood. A marsh transformed long

ago - now a suburb; I watched with concern (from school in Ottawa), as my community was declared a state of emergency due to severe weather in 2016 (Pearson, 2016).

Additionally, severe flooding along the Ottawa River happened a few times in recent years. Flooding is seemingly occurring more frequently and with more severe consequences. For example, in many years since 2010, "weather-related insurance payouts have exceeded $1 billion in Canada" (Moudrak, Hutter & Feltmate, 2017, p. 1). Research states that over 75% of these claims are related to flooding (Moudrak, Hutter & Feltmate, 2017, p. 2).

Transformed through infrastructure with the intent of agricultural and urban development, the entangled landscapes of Southern Ontario present unique configurations in which we can explore our understandings of our relationships with wetlands. "Estimates suggest that 68 percent of the wetlands originally present in Southern Ontario were lost by the early 1980s", a figure which is comparable to many regions of North America (Ontario Ministry of Natural Resources and Forestry, 2017, p. 8). I hope to explore the relationship between the people living in Southern Ontario and the remaining wetland landscapes.

This research documents a shift in how the environment is experienced and perceived in the eyes of the privileged interlocutors who have spent most of their lives in relationships with Long Point. At the start of August in the summer of 2020, I conducted my fieldwork out of my grandma's cottage in the community of Long Point. I stayed for roughly five weeks in August and September and then returned to volunteer as a bird bander with the Long Point Bird Observatory in October. I volunteered for about another four or five weeks. Staying at the Long Point Bird Observatory as a volunteer in the fall was not part of my original plan, but it afforded me the opportunity to spend more time in the region. During this time, I would consider myself only partially involved in fieldwork, as I was also spending six or more hours each day dedicated

to data collection as part of migration monitoring efforts. This information is collected and utilized in part by the Canadian Migration Monitoring Network, Birds Canada and various scholars. I did not conduct any interviews during the month of October.

Although I have been visiting Long Point as a vacation spot my entire life, I was not highly involved in the community prior to fieldwork. I make no claims to the interpersonal expertise that permeated each interview, as many local people possess deep-rooted intergenerational connections to the landscape (Rasid et al., 1992). These are smaller communities, and many of the people I interviewed could claim relation to past economic projects and social-ecological transformations. Many interviewees would reminisce about times spent with friends and family. Through the recollection of these fond human genealogies, I have been able to learn about various regional transformations. Likewise, during my fieldwork, I had to mitigate an identity that was simultaneously insider and outsider. My grandmother used to live and farm tobacco in the region. This specific type of farming was prevalent in the area for decades. I was surprised to find distant familial connections with specific participants. This may have acted as a point of commonality for certain interlocutors I interviewed.

This research has many possible implications and overarching applications. This ethnographic study may further our understanding of current wetland management trends in Ontario. While reading we may reflect on what contemporary wetland conservation discourse in Ontario tells us about our relationship to water, landscape, and larger global systems. What does wetland management insinuate in the context of a shoreline community that repeated floods? I will achieve this objective by researching the methods in which wetlands are situated and consequently understood. social entanglements of wetland conservation initiatives to further understand the layered connections affecting Norfolk County's water landscape. Through

interviews with individuals engaged with wetland landscapes, I can construct an understanding of certain contextual relationships with these spaces and how these relationships inform certain actions in relation to wetland refrains.

COVID-19

I would be remiss without immediately contextualizing my work within the devastating global COVID-19 syndemic (Singer & Clair, 2003). I think everyone's realities were shaken and altered in strange and uncomfortable ways. I think the most shocking part was when I lost my job at the restaurant, where I had worked for most of university. One day in March just happened to be my last shift, as we could not anticipate just how profound and enduring the effects of the virus would be. It is essential to note the nuances of the global syndemic and its impact on myself and the fieldwork that constructed this research (Ibid.). I went from having two jobs and the task of completing a master – to having no job and an uncertain path towards achieving a thesis that I had invested much time in. For me, it was the whiplash of going from being hyper-productive to entirely impeded in the span of a few weeks. In the summer, although I pursued online learning, my brain quickly became stagnant, and the gray fluids of the brain pooled and fixated on general sadness and loneliness. Nonetheless, I must acknowledge that I was privileged in the sense that I was supported financially in this time by SHHRC, and therefore had a steady and supported income, whereas many of my close friends and colleagues working in the service industry had to become ever-more dynamic, and oftentimes pursued other industries, income, or places of employment. I am very thankful for this support from SHHRC, and from the Donna Winslow Estate as well as the University of Ottawa.

We were unable to find solace in the collective mourning of loved ones; we were unable to comfortably abide in communal space. We were, and very much still are living in a very

tumultuous and frightening time, with no real sense of precedence. A very communicable virus entangling with and arresting social creatures; dividing and distancing. Despite all this, throughout my fieldwork I was continuously reminded of the magnitude of community, of selflessness, and of care, which often extended beyond the individual, beyond the current temporality, and beyond the human. In a time when it would have been easy to forget the relationships that bind us, I was fortunate, so fortunate, to have met the people that I did, and the omnipresent force of the pandemic often highlighted the importance of our social connectedness.

In the book *a thousand plateaus* (1987) authors Deleuze and Guattari begin by discussing the concept of the rhizome. They describe the ways in which entanglements are made and un-made, they discuss processes of deterritorialization and reterritorialization, brought on by interaction. These teaching are very useful when examining the context of the global COVID-19 syndemic, as the authors utilize the example of the virus to mystify or current perceptions surrounding genealogies and detached and autonomous bodies. They highlight that, "we evolve and die more from our polymorphous and rhizomatic flus than from hereditary diseases, or diseases that have their own line of descent. The rhizome is an anti-genealogy." (Deleuze & Guatarri, 1987, p. 11). As the virus was building and breaking down our own bodies as singular objects, we were busy trying to objectify the complexities of a living, spreading virus.

It was a difficult yet powerful time to conduct fieldwork, as people were more attuned to more than human interactions, namely our interactions with the 'environment' and the non-human. Throughout my fieldwork, I was able to conduct most of my interviews outdoors, from within the landscapes that would be the focal points of the interviews themselves. COVID-19 derailed my original plans of residing within Long Point Bird Observatory's research headquarters, but I was able to work around this small hurdle.

My grandma has a small seasonal cottage in the area, which I resided in primarily due to COVID-19, which was ultimately beneficial when making connections with local cottage residents. Due to COVID -19, I was left without the ability to fully renew my driver's license, and therefore resided on the point with only my trusty (and treasured) road bike. Throughout my stay, I was reliant on members of my family and of the community to provide me with certain necessities. I had to bring in potable water, which was stored and drank out of large 5-liter jugs. I oftentimes relied on others for groceries, and I relied on the lake and an outdoor shower to stay clean. Due to these constraints, I oftentimes did not feel especially clean or professional, and sometimes felt burdensome to those in my community. I hope that by exposing these challenges, although mainly subliminal and internal, I am transparent and can convey certain hurdles that I experienced while conducting this ethnographic fieldwork process.

Theoretical approach

In the process of conducting fieldwork and additional research several themes have emerged and many of my initial trajectories were uprooted. Where I intended primarily to discuss the conceptualizations surrounding wetland conservation and flood remediation, the first chapter instead observes the complex systems in which our understanding of wetland management is embedded.

Simplified, the concept of the Anthropocene refers to the recent popular movement that recognizes the ways in which the various interconnected environments of the globe have been modified by large-scale human transformations (Palsson, 2013). I will elaborate this in more detail in the first chapter. There are a few other variations of this concept, which include the Plantationocene and the Capitalocene. While exploring the watery landscapes of Southern Ontario, one is confronted with the landscape alterations brought about by modern agriculture. I

found this to be a prominent aspect of Southern Ontario and the term Plantationocene is a useful concept to retain when exploring an area proudly avowed as "Ontario's Garden" (*Norfolk County Installs Ontario's Garden Gateway Signage,* 2011). Flat corn, soy and wheat fields as far as the eye can see, broken only by cedar rows or distant urban outcrops. Anthropologists use the term Plantationocene, to explore the diversity of detrimental transformations that arise due to immense extractive monoculture plantations (Haraway, 2015). This term was first coined during a recorded conference in 2014 at the University of Aarhus (Ibid). A key component of the term incorporates the "exploited, alienated, and usually spatially transported labour" required for these extensive land domestication projects (Haraway, 2015, pg. 162). The farms of Norfolk County hire many temporary workers during the growing season, and the poor working conditions that many migrant workers face were evident throughout the COVID-19 syndemic, as they were disproportionately affected. These workers often live in isolated close quarters and therefore it was not feasible for me to interview these workers within the timeframe of this thesis. Their voices were not a part of this research, but the study of wetland management from the perspective of alienated migrant labourers would be fascinating. When studying landscape temporality, this term designates the accelerated movement and ongoing dynamic displacements caused by farming under capitalism (Ibid).

I argue that a hegemonic understanding of water is constructed through these various systems (Linton, 2010). Linton discusses this conceptual predominance in his book *What is Water?* (2010) and proposes the concept of 'modern water.' I argue that this concept of modern water serves as a tool to further our understanding of the ways systems mitigate individual experience with the landscape. Modern water "implies a way of knowing water that has become dominant, along with the idea that this way of knowing water reveals its true essence." (Linton,

2021, p.9). This predominant idea that we can control and dominate 'modern water' constructs many aspects of our perception of wetland management and flood remediation. This thesis seeks to challenge our perceptions of modern water "ultimately with the aim of arguing that society and water can be understood to make each other, a process by which both water and society are changed." (Linton, 2010, p. 5). Wetlands are watery infrastructures, and through this thesis, we will explore how certain wetland landscape refrains, such as water, construct the complexity of a wetland.

Throughout this research I discuss the concept of refrains to explore avian-human relationships. The concept of refrains is used throughout this research. Like a bird song, the aesthetic of the landscape of the bird watcher, bird bander or the hunter is composed of various repeated refrains (Ogden, 2011). To facilitate understanding of this concept, we can explore the work of Barthes, although he uses the paralleled concept of 'figures' in lieu of the concept of 'refrains', which I will utilize. Barthes defines 'figures' as "those recognizable phrases, images or the "read, heard, felt" of a particular social discourse," (Ogden, 2011, p. 45). Barthes utilizes the concept of figures to explore and demarcate the experiences of lovers. To illustrate this concept, examples of these figures include sidelong glances, amorous declarations, phone calls, handholding; shared experiences we can all equate to the experience of loving another person (Ibid.). In highlighting these figures Barthes maps an experience believed to be extremely personal, yet the concept of figures transforms it into recognizable shared humanity (Ibid). This example works twofold in its application to those engaged in avian-human being. Through his theoretical approach, we can comprehend the processes in which these figures demarcate the terrain of intimacy, a claim-making process that Barthes labels the 'will-to-possess' (Ogden, 2011). Somewhat akin to Barthes' concept of 'figures' is the concept of the refrain. Authors

Deleuze and Guattari utilize the term ‘refrain’ to refer to the recognizable, repeated figures that demarcate a landscape (Parr, 2010: Ogden, 2011). The wetland landscape of Big Creek Marsh changes drastically throughout the seasons of a year, and the concept of refrains helps us discuss a landscape in constant change. More precisely they define a refrain as “any aggregate of matters of expression that draws a territory and develops territorial motifs and landscape” (Ogden, 2011, p. 44-45). This term functions well to explore the intricacies of an avian landscape, where birds temporally pursue diverse but often repeated territories and lines of flight.

“The cultural landscape of Norfolk County displays the remnants of numerous cycles of transformation.” (Niewójt, 2007, p. 355). This research explores certain major extractive economies that affected the ecologies of wetlands as well as the communities constructed around them. The concept of postindustrialism is utilized to expound upon these co-constitutive and ongoing transformations. “The state expands the idea of national patrimony to the realms of nature and culture, allowing for public agency intervention” (Vaccaro et al., 2015, p. 6). This framework will help one consider how communities respond to cycles of connection and disconnection from global markets (Vaccaro et. al., 2015). In post-industrial landscapes, authors describe how idealized versions of ‘nature’ and ‘culture’ often emerge. The characteristics generally attributed to post-industrial ‘ruination’ and depopulation are often also associated with important ecological transformations. I illustrate certain forms of ruination throughout the research which include ruins left erected in the wake of market transformation and ruination of the soil and ecosystems.

The concept of postindustrialism will help us think through the notions of ‘value’, as well as processes of ‘rerouting’ - “how people plan and act in response to change*”* (Vaccaro et. al, 2015, p. 11).

As we discuss the broader systems in which wetland landscapes are embedded, I would like to present some important critiques of the Anthropocene. One prominent critique involves the homogenization of the human experience (Todd, 2015; Malm & Hornborg, 2014). If the Anthropocene is largely cited as commencing prior to the industrial revolution, then a salient aspect of the term is tied to the development and use of fossil fuels (Malm & Hornborg, 2014). Todd argues that "not all humans are equally implicated in the forces that created the disasters driving contemporary human-environmental crises, and I argue that not all humans are equally invited into the conceptual spaces where these disasters are theorized or responses to disaster formulated." (Todd, 2015, p. 244). This is clear within the context of Southern Ontario. I utilize the term Anthropocene to explore the mega water projects that have defined the landscape since the industrial revolution. These projects were undertaken as feats of Modernity (Fredriksen, 2021). When I discuss the reterritorialization and deterritorialization that these water projects foster(ed), it should be noted that these same projects are violently exclusionary for some people, namely to indigenous communities. In a 'modern' system of continuous flows, it can clearly be stated that certain people are not extended the same rights to clean drinking water.

I attempt to mitigate these well-founded critiques by employing a more precise term, that of the Great Acceleration (Steffen et al, 2015). The Great Acceleration is a phrase that denotes current trends within the Anthropocene, referring more specifically to the last 50 years or so. Not only does this term highlight the exponential capture of flows that have continued unfettered until recently, but this concept of the Great Acceleration also situates these systematic unbalanced consumption trends in the 'global North' (Steffen et al, 2015). The concept is not separate or harshly defined from the larger epoch of the Anthropocene. No, in contrast, in my writing I hope this term simply affords a bit of precision. The 'Great Acceleration' explores a

myriad of accelerated systems, in addition to an analysis of systems linked to fossil fuels (Ibid.). Additionally, a critical aspect of the concept denotes the unequal systems of privilege and power that fuel exponential consumption (Ibid.). Generally, I conceptualize the large-scale loss of wetland landscape refrains, across Ontario, a deterritorialization. "The philosopher Bernard Kalaora has noted how the conquest of water by means of its conceptual abstraction and technical control has broken relations that otherwise bind specific groups of people to the waters of particular territories." (Linton, 2010, pg. 18). Throughout this research, I utilize the theoretical lens of territoriality, which concerns the "unfolding of society over a territory, from a legal, political and economic but also symbolic and affective form" (Dawson et al., 2014: 3). Territoriality is a concept that examines how space is socially differentiated through the formation of boundaries, designations, borders and histories of settlement (Dawson et al., 2014). Authors Deleuze and Guattari present the term deterritorialization, and use it throughout their works (Parr, 2010). It is not to be understood in a binary relationship with reterritorialization but can be understood as a process that "inheres in a territory as its transformative vector" (Parr, 2020, p. 69; Deleuze and Guattari, 1987). In both *Anti-Oedipus* and *a thousand plateaus* deterritorialization and reterritorialization appear in different lights. Deterritorialization is simply "the movement by which something escapes or departs from a given territory" (Deleuze and Guattari, 1987, p. 508). The first chapter largely covers the processes that have altered and deterritorialized human relationships with wetland landscapes, by observing both local and global infrastructures. Under modern systems wetlands have been largely transformed. This thesis seeks to explore this destruction but also highlight the way this repeated form of transformation creates new emerging relationships. Each act of deterritorialization opens new possibilities for reterritorialization. Valuable examples of the application of this conceptual lens

include the work of Julia Brugger, in her article titled *Reterritorialization and Rule in the United States Insights from Conflict over the Management of Public Land* (2014). Brugger's article demonstrates the way in which ethnography can focus on local industries affected by the reterritorialization of an adjacent property as public land.

Methodology

I chose the field site of Norfolk County, Ontario, and the community of Long Point which is deeply embroiled in its relationship to the surrounding wetland landscapes. The main wetland landscape accessible during my fieldwork was Big Creek Marsh, a herbaceous zone that exists within the inner bay of Long Point. A marsh is a widely recognized form of wetland, filled with cattails and floating plants (A Wetland Conservation Strategy for Ontario 2017, 2017). For those with boats, the bay side of Long Point is also comprised of various wetland complexes.

As previously mentioned, my main form of transportation was through my trusty road bike. Due to COVID-19, I was left without the ability to fully renew my driver's license, and therefore experienced the community mainly through cycling. Although this was not my original plan, and biking was not ideal for getting around the vast fields of Norfolk County, I turned out to be a wonderful way to get around Long Point. In addition to being a great way to meet members of the community, it also afforded me interaction with the environment and the non-human inhabits of Long Point region. Although almost entirely over-run by muskrats in the spring of 2020, in the summer there were many rabbits in the area, and of course I found quite a few tiny newly hatched turtles in the early fall, namely painted turtles and snapping turtles, and even a young endangered spiny soft-shelled turtle. I recorded certain interspecies interactions using online tools introduced to me throughout the course of the research. Community science groups such as eBird and iNaturalist are salient tools utilized by professional and amateur

naturalists hoping to garner a better understanding of various other species. These efforts can also contribute to various research datasets.

Throughout the four weeks that I spent conducting fieldwork in August, I conducted over a dozen interviews with participants throughout Norfolk County region. I engaged with many people in relationship with water on their own properties. Through this research I interviewed four farmers at three farms. All the farmers I spoke with were cash crop farmers with plots smaller than 100 acres. They grew soy, corn and hay. These farmers were engaged in wetland conservation projects on their properties. I also toured another farm involved in wetland remediation, that also grew various specialty crops. I interviewed 8 cottage residents and members of local conservation organizations. There is minimal representation from the various governmental organizations in the area. Although I reached out to individuals within these organizations, I received minimal response or engagement. COVID-19 may have hindered my ability to interact personally with certain individuals in public positions, even just in terms of added precautions and increased responsibilities.

I was able to proliferate my call for participants through the networks of varied community organizations and associations. Through Alternative Land Use Services Norfolk, I was able to meet many farmers engaged in wetland conservation in the area. ALUS, (colloquially pronounced A•liss), could be considered a form of ecosystem services program. ALUS Norfolk is a formative chapter of ALUS Canada, with 160 families in the county engaged in their program. I am thankful for the time that so many ALUS participants shared with me. Through local community groups, I was able to interact with property owners in the area, and once again I must commend the Long Point Rate Payers Association for sharing my call for participants with local populations.

To garner a better understanding of conservation research and discourse in the area, I attended a few educational conferences online, including the Long Point Biosphere Research and Conservation Conference, on November 6th, 2020, as well as programs run by the Long Point Basin Land Trust. To further situate my understanding of the region, I partook in a local guided boat tour by Island Hugger Tours, here I garnered a new appreciation for Long Point as I experienced the rippling marsh grass at sunset. Additionally, I was able to experience the wetland landscapes of Long Point through the air, when an interlocutor offered me a flight in his airplane, and I was able to experience the region from a light aircraft. We took off from an airstrip located in a local farmer's field. I am extremely thankful for this experience and was able to see how past interventions have affected the aspects of the landscape's topography. Shipwrecks, the varied effects of logging, and infrastructures constructed by Long Point Company, could been seen from the sky. Additionally, I would like to add that I found the methodological tool of kayaking important to this research as it was a vehicle for experiencing the wetland landscape intimately and provides opportunity to experience certain sensory rhythms and material practices connected to tourist economies (Pink, 2009). Paddling serves as an approach to sensory ethnography, that furthered my understanding of the ways in which culturally specific sensory phenomena are transformed into a connection or affinity for the environment (Pink, 2009).

By approaching those mitigating their own private properties, such as local farmers and proprietors of beachfront properties I was pursuing the study of water management through an alternative avenue, confronting narratives that wetland conservation is only pursued on public lands for public leisure or gain. Examples include a few local wineries and breweries, (such as Bonnieheath Lavender Farms), family farms as well as local Conservation Areas (such as

Bacchus Woods) (*Striking a Balance,* 2016). Each group has pursued unique land mitigation techniques in regard to agriculture, water management and flooding.

In the region, traditional Indigenous knowledge has been profoundly severed. The Indigenous peoples that once lived as part of this landscape were named the 'Attiwanderons' by the Hurons, who lived to the north (also spelled Attiwonderonk, Attiwandarons) (Barrett, 2000). This term reportedly means, 'those who's speech is different' (Ibid.). Samuel de Champlain named this group 'the Neutrals', because they traded amicably with both the Iroquois and the Hurons. They would have lived throughout Southern Ontario, south of present-day Walpole Island and Niagara Falls (Hazen, 2001). Living within these landscapes for many centuries, it is important to recognize that these communities would have had a much more direct relationship with the refrains of the region and aspects of the landscape's agency (Watts, 2013). In Southern Ontario, drained wetland landscapes have been deeply imbued in imperial nation-building. The ongoing colonization that affects the landscape is best understood by those who are affected most profoundly. Due to the systematic dispossession and ongoing erasure of Indigenous ways of life, it was difficult to speak to Indigenous individuals from Norfolk County within the scope of this project. This thesis is mainly comprised of these viewpoints but should not be understood as the sole history of the region. I hope that my thesis can contribute to processes of decolonization by highlighting oppressive systems such as imperialism, colonization and capitalism.

The Attiwanderons and their embodied understanding of the region were destroyed in the late 1600's, as diseases brought from Europe killed their communities (Barrett, 2000). Then, as the Iroquois fought against the Hurons, with European weapons, the Attiwanderons populations dwindled again (Ibid.). Virtually erased, any surviving members of the population joined with other diminished bands, eventually becoming the Wyandot Nation (Ibid.). This does not mean

that Indigenous peoples avoided this area; Long Point was a well-used hunting ground and a place for meeting (Ibid.). There is a Wampum belt that depicts a naval battle that took place in Long Point, with the Senecas ambushed a large group of Wyandots and Chippewas in hopes of securing beaver pelts from Big Creek Marsh. Additionally, there is archeological evidence that these marshy areas would have been valued as mortuary sites (Walker, 2019). Archeologists hypothesize that this is in some way connected to a heightened access to resources, as mortuary mounds were primarily linked to aerobic wetlands, where there is an increase in flora and fauna (Walker, 2019).

I connected and organized with many people over the internet and was able to connect to a larger group of people this way during COVID-19. Additionally, the internet is a very useful tool to seek out people with specific interest wetlands. I met and contacted many potential interlocutors through the internet through email and social media but also met people in person by connecting through other members of the community. All the interviews took place in person except for one virtual interview in a video conference. Sometimes accessing the internet served as a minor barrier, as I did have access to it where I resided. Friendly neighbours and the Long Point Bird Observatory meaningfully facilitated my research by graciously letting me access their internet connection.

This research posits that Norfolk County demonstrates unique spatial configurations that can highlight our relationships with wetland spaces. Therefore, those living in the region are privileged interlocutors. All those interviewed were provided a consent form in which the ethical guidelines of the study were communicated. Confidentiality has been afforded to the participants involved. All methods have been approved by the research ethics council of the University of

Ottawa. My hope is to create research that facilitates conversation and conveys the sentiments of certain people who value, and actively engage with wetland landscapes of Norfolk County.

Landscape Ethnography

This research is a form of landscape ethnography, which focuses on the ways in which the abstract physical form of a region can be understood through the ways in which we interact with it (Ingold, 2002). Many authors have explored the semantic ontologies of land, space and place, and these discourses are critical to understanding the ways in which the populations of Southern Ontario manage wetland landscapes (Ingold, 2002, Styres, 2019, Tilley & Cameron – Daum, 2017). In *The Perception of the Environment* (2002), author Ingold defines landscape in a way that is fundamental for my own research. The way in which we understand *landscape* is not synonymous with the ways in which we conceptualize *land* or *space,* and these distinctions may bring us closer to the semantics of the term *landscape*. Under modern western cosmologies, land (lower case "l") is the most basic way in which to denote or delineate the phenomenal world, in the sense that land refers to the physical, the quantitive (Ingold, 2002; Styres, 2019). When a farmer purchases a piece of property, he may also say he is buying land – this phrase has no semantic nuance in the qualitive characteristics of the earth (Ingold, 2002). Exploring the semantics of *space*, Ingold uses the example of the of the surveyor, who walks through the landscape, to present an objective view of the environment, a representation that often utilizes the 'birds-eye-view' to create a detached vision of landscape (Ingold, 2002). When we denote a 'space', we are attaching meaning to the earth, whereas when we consider the landscape, meaning is derived from it (Ibid.). The distinction between place and landscape is more subtle in my mind. Place is defined as "the union of a symbolic meaning with a delimited block of the earth's surface." (Ingold, 2020, p. 192). I chose to use the term *landscape* in lieu of place, as I

found it more appropriate to convey the far-reaching refrains that filter through wetland spaces, such as watery flows, invasive species, migratory birds and pollutants.

Finally, by understanding these few concepts, we can approach an understanding of the term *landscape*, a term which informs my academic approach. Landscape is not *land* nor *space* but denotes something entirely different. Ingold writes that the landscape is a plenum, as there are no voids in a landscape, as each part is a reworking in and of itself, each a part in motion within a dynamic whole. Landscape is implicate (Ingold, 2002). This movement, this becoming, is another key aspect of the landscape that must be considered, this is labeled as temporality. Temporality is not separate from landscape, but qualifies it, and should not be considered linear time. Deleuze writes, "The new status of the object no longer refers its condition to a spatial mould – in other words, to a relation of form-matter – but to a temporal modulation that implies as much the beginning of a continuous variation of matter as a continuous development of form (1993, 20)" (Prominski & Koutroufinis, 2009, p. 151).

In this text I've contrived, what does an ethnographic approach focused on landscape temporalities consist of? Perhaps Laura Ogden writes it most clearly, when she explains that an approach to landscape ethnography is "an attention to the local, or localized, embodied, experience of landscape as well as a concern for how local landscape practices intersect with various constellations of power" (Ogden, 2011, p. 27). This has largely informed my professional approach to fieldwork and has been my motivation to pursue curiosity and community engagement.

The concept of landscape ethnography provides me with an avenue to present writing that is attuned to the ways in which relationships with landscape construct what it means to 'be human' (Ogden, 2011, p. 28). This 'humanity' is constructed through processes of learning to

become bird, *become* turtle, and *become* sandspit. I wish to highlight that these entanglements, "are processes specific to particular temporalities, power relations, and geographies" (Ogden, 2011: 28). This approach is in line with certain conceptual lenses utilized throughout the course of this research, namely that of the Anthropocene. Through utilizing the lens of the Anthropocene, one is afforded a conceptual tool to circumvent old binary ideals of Human vs. Nature. The Anthropocene is a tool to help expand our understanding of human agency without negating the complexity of our co-constitutive relationships with various aspects of the landscape.

One study conducted by Niewójt concerning the region and its designation as Ontario's 'Tobacco Belt', describes the importance of understanding regional landscape transformation as a continuum rather than through episodes and events. Research in the region should be viewed through "the multitude and complexity of human responses to perceived environmental problems and earlier interventions in the land" (Niewójt, 2007, p. 355). Long Point is ripe with examples in which interventions have been made regarding the local ecology and the landscape, and my thesis is unable to be an exhaustive catalogue of these many events.

The following research should be read as an artistic representation of a temporal landscape, within which ideas have flowed and convalesced around me, decomposed, fermented and been transformed into writing.

Chapter Summaries

This research seeks to explore current relationships with wetland landscapes in Southern Ontario, a region where roughly a third of wetland landscapes have been systematically altered. To explore our relationship with these environments in the current era of the "Great

Acceleration', it is critical to first explore the systems and infrastructures that have altered flows in certain specific ways.

Through the first chapter we explore local and global infrastructures that affect the flows that convene to construct the wetland landscapes of Norfolk County. To begin, I highlight the fallacies of understanding wetland landscapes as 'natural', a theme that permeates throughout the thesis, as we examine how economies and infrastructures often form refrains of the wetland landscape. We observe the ways local communities organize around the landscapes of Norfolk County and Big Creek Marsh, extracting resources from the fragile sand plain to then transport these resources away from the region. The second half of the chapter defines our 'current contexts', largely exploring the accelerated movement of flows in the 'Great Acceleration'. Through infrastructures of damning, plantation economies, urbanization and trade, this chapter highlights the ways in which modern wetland spaces capture conceptual flows and become temporal chokepoints of the Anthropocene (Cons, 2020). Although processes of deterritorialization also constitute reterritorialization, the first chapter outlines our relationship with wetland landscapes and the infrastructures that have largely abstracted us from certain refrains. Throughout this chapter, to describe certain human relationships with water, I include insights from the interdisciplinary collection of articles titled *Thinking with Water* (2013) assembled by authors Chen, Macleod and Neimanis, as well as the work *What is Water* (2010) by Jamie Linton.

Building from the first chapter, I will explore the knowledge and experiences that exist within the wetland landscapes of Norfolk County. For these arguments, I will be reflecting on the experiences of those engaged with different wetland refrains within Norfolk County. I chose to include the landscape refrains that my interviewees discussed or shared with me as well as those

I experienced myself through participant observation. These include certain refrains that formed relationships with birds, flows, and infrastructures. Utilizing examples form my own fieldwork, I incorporate the premises put forth by Tim Ingold in his work *The Perception of the Environment* (2002), in which he explores the human experience of landscape and temporality.

To begin, we discuss human and avian relationships, which are constitutive of current wetland landscape refrains. While becoming attuned to avian refrains, one will become approximated to certain wetland temporalities. I briefly explore those engaged in bird banding, bird watching and duck hunting. The book *Swamplife* (2011), by Laura Ogden, helped inform my approach to analyzing the refrains experienced by men hunting in the swamp. Ogden introduces Barthes concept of 'figures', then Deleuze and Guattari's concept of 'refrains' when describing the lives of alligator hunters in the everglades of Florida. I found this ethnography very interesting, and concepts were uniquely transferable to the sand spit of Long Point. This chapter is descriptive and portrays the deep connections that exist between migratory birds and those that engage with them. In additional, this chapter also explores the wetland reconstruction projects that have emerged recently in Norfolk County's Plantationocene. Primarily, I discuss reconstruction projects pursued by farmers in the region. I visited many farms during my fieldwork in August and observed the landscape relationships being constructed through the dissipation of various monoculture markets and the introduction of certain neoliberal ones. This is where the concept of the Plantationocene is incorporated. Finally, this chapter explores the experiences of those remediating the Causeway, a roadway and infrastructures that flows in and around Big Creek Marsh. This section demonstrates the co-constitutive process of spending time amongst and caring for, wetland landscapes, as interlocutors experience landscape refrains and place claim through the production of their own refrains in these complex environments.

Through the third chapter, we explore how our relationships with wetland landscapes in Southern Ontario, are mitigated through bureaucratic rules. I never anticipated exploring this topic in my thesis, but through fieldwork my plans were derailed, and seemingly each individual expressed concern about government decisions, bureaucracy and the influences of new industries in the region. For this chapter, I will utilize the work of Franz Kafka and the late David Graeber to highlights the functions and absurdities of bureaucracy as well as the ways in which this bureaucracy has its own functions. As an example, this thesis will explore the recently integrated Bill 229 Schedule 6 that was passed by the provincial government, despite the almost unanimous uproar from regional conservation authorities and members of the Greenbelt Council.

Chapter 1: Wetlands in the Anthropocene: Infrastructures of Long Point Wetlands

Figure 1: Two Freighters Intersecting in Lake Erie Under the Moon. August

"I'll share with you a special kind of music, […] the sound of running waves, shifting sands and the wind in the weathered trees"
(Stone, 1993: 7)

..

Watery Wonderings

Most days I try to take a dip in the lake during my fieldwork. When I was younger, not all that long ago, we could just go to the end of the street, but the water has since risen, and thus I prefer to take a brisk walk down the shore and go in where the beach is not littered with too many rocks or hard concrete. What is good for protecting a cottage is not always kind to the feet. I walk through a 'public accessway' and abruptly I am able to throw my towel down onto the burgundy iron-laden sand. The cottage community of Long Point is virtually empty during the

middle of the week, and on this day, I had the beach entirely to myself. Lake Erie's reputation oftentimes precedes itself, and therefore not everyone likes to swim here. It's not always safe and it's not exactly very clean.

As I swim, I am suspended effortlessly. I love swimming. You get the semblance of being one singular autonomous being, all of skin's sensory cells engaged in a frictionless dance with water. A quiet oasis in a world of sensory overload.

But then again, you really can't be less alone.

Waves and currents reveal the wind that originates well beyond the boundaries of the lake itself. These flows and these tides connect us to the other celestial bodies, the sun, the moon. On a clear night you can easily see the milky way in Long Point, as a spit that dips into the lake, it has very little light pollution and therefore some of the best star gazing conditions I have yet to experience.

There is are dangerous currents along these beaches, and one must be weary of the undertows caused by the waves that have broken against the shore. Tonnes of large boulders and rubble protect the varied 'seawalls' that speckle the sandy arm of the beach, reflecting the kinetic power of the wave's force as it rebounds off the hard break walls. In certain spots along the shoreline, you can find tractors and pallets thrown along the beach, reinforcing the sandy foundations below the horizon of multicoloured cottages. Lake Erie is a very shallow Lake, the shallowest of the Great Lakes, averaging only 60 ft deep, and climatic events can cause a lot of damage to the properties on the Point (Barrett, 2000). I have heard of the three-ton concrete barrier blocks being moved by the waves. Small nurdles can be found amongst sand, larger plastic lentils then the microplastics that we cannot see. It is reportedly estimated that "9887 metric tonnes of plastic pollution per year is derived for entry into the Great Lakes." (Hoffman & Hittinger, 2017). It is

difficult to imagine the many hidden necropolises of human litter speckling the bottom of Lake Erie. The lake is also full of garbage, eutrophication, chemicals and bacteria. These items dance amongst the fish, frogs and turtles. Algae converts water and sunlight into simple carbohydrates and oxygen, that form the very building blocks of local marine ecologies. Bacteria, diatoms and zooplankton encircle you while you swim (Folger, 2020). One is very much not isolated.

Lake Erie is filled with the remnants of bygone markets, trade routes and industries. Uniquely, some of it has been reappropriated to arrest flows and mitigate the repercussions of the Anthropocene; like the shorelines constructed from rubble displaced from farmer's fields. Utilizing materials with value rooted in the past, to mitigate property investments of the present and the future.

I argue that the complex network of infrastructures that direct watery flows, both past and present, culminate to create wetland landscapes. In this chapter, I will the present concept of the Anthropocene and contextualize the region by exploring the watery systems that surround the area of Long Point. I will begin by highlighting the past industrial projects that initially 'laid claim' to the local wetland landscape but will also incorporate the contemporary infrastructures of globalized trade systems. The globalization of trade had a recognizable impact on the economies and ecologies of many Great Lakes communities. The mega-damming of the Great Lakes system modified the ways in which small port communities in Southern Ontario interacted with the landscapes around them and has affected new relationships with the landscape.
An in-depth understanding of the infrastructures involved in water management in and around Lake Erie, paints a picture of the ways in which wetlands situated in the Great Lakes region are understood, experienced and valued. Through infrastructures of agriculture, urbanization and

trade, this chapter highlights the ways in which modern wetland landscapes capture conceptual flows and become temporal chokepoints of the Anthropocene (Cons, 2020).

Anthropocene and Wetland Infrastructure

"But the ecological crisis has divested us all of that illusion; indeed, it may be that advanced technology ties us in even more closely with the habitat we both make and inhabit, that having more impact upon it we in turn cause it to have more impact on us." (Geertz, 1972, p. 38).

Water transforms "with acute environmental responsiveness" and therefore "even otherwise 'invisible' phenomena like climate change become immediately tangible through the volatility of weather patterns and the intensity of floods, hurricanes, tsunamis, and droughts" (Chen, MacLeod & Neimanis, 2013, p. 5). Complexity extends beyond water's ability to transcend physical space, being solid, liquid, gas; but also, challenging time itself. Water exists in many states, but remains through time, in and throughout our watery bodies (Ibid.). This research seeks to add to the large body of work surrounding water and systems of water, situated within the current complex reflections on industrial projects and by-products that have cumulated into the current era of "global water crisis" (Chen, MacLeod & Neimanis, 2013, p. 4).

This thesis is inspired by ecopolitical concerns, primarily focusing on the social interactions that arise in the liminal spaces where water and infrastructure unentangle. I saw and experienced the unprecedented high-water levels in the Great Lakes, and subsequent flooding in the years of 2017, 2019 and 2020. As I began to conduct research, I recognized the intense complexities involved in the practice of studying and caring for *water* in the era of the Anthropocene (Chen, MacLeod & Neimanis, 2013).

Indeed, researchers have posited that since the Industrial Revolution, the acceleration of the destruction of ecosystems has brought us into a new era, the era of the Anthropocene

(Crutzen & Stroemer, 2000). As previously stated, the concept of the Anthropocene refers to the recent popular movement that recognizes the ways in which the various interconnected environments of the globe have been modified by large-scale human transformations (Palsson, 2013). The term is commonly attributed to limnologist Eugene Stoermer and atmospheric chemist Paul Crutzen in 2000 (Moore, 2015). "Scientific proponents of the Anthropocene idea claim that as a result of population growth and resource use, humans are now a geological force in and of themselves, driving planetary change at an unprecedented rate" (Moore, 2015, p. 7). Since it's recent conception in academic discourse, the concept of the Anthropocene has been additionally adapted as a theoretical lens in the social sciences.

In anthropology this concept serves as a theoretical tool to bypasses 'modern' theories, primarily regarding the nature/culture dichotomy which has informed both classical anthropology and western conservation practices (Latour, 2013; Moore, 2015). The concept of the Anthropocene commits us to considering the fallacies of examining the 'human' or the 'natural', separate or opposed, in lieu of considering the everchanging relationships that constitute the two as one (Ibid, Ibid.). Bruno Latour has been a prominent figure concerning these discussions, and contributes the concept of *Gaia,* originally explored by author James Lovelock. *Gaia* serves as a method to observe the earth and its systems in a way that considers more comprehensively the "diversity of ways of occupying the earth" (Latour, 2017, p.182). Throughout his writings, the concept of Gaia is purposefully elusive, and Latour radically champions for the application of various disciplines simultaneously. In *Facing Gaia: Eight Essays on the New Climatic Regime* Latour also engages with the work of Donna Haraway, who's work centers on the intersection of feminism and technology (*Manifeste cyborg: Et autres essais: Sciences, fictions, féminismes*, 2007). Haraway has extensively contributed to important

discussions in regard to the Chtucene, Plantationocene and Capitalocene. Anna Tsing is another prominent anthropologist that engages prolifically with the concept of the Anthropocene in their work. Tsing's book *The Mushroom at the end of the World* (2015), explores the supply chains of matsutake mushrooms. Tsing discusses the possibilities and processes that may arise in the wake of 'Capitalist Ruins'(Ibid). There are apparent material ruins and ghostly *ruinations* in Norfolk County, the striping of the Carolinian forest, the chemical exhaustion of the soil, the major ongoing disturbance of marsh sediment, and the need for regenerative farming programs (Fredriksen, 2021). The environment has been subjugated to repeated successions of market ruination.

To understand human relationships wetland landscapes in the Anthropocene, we must explore modern relationships to water. When discussing the issue of flood remediation, we are confronted the anthropocentric aspects of this issue. As author Jamie Linton (2010), writes, "water is what we make it".

> By means of its conceptual abstraction, modern water materializes modern *man's* legendary distaste for mud, muck, and swamps of all kinds. Modern water has been a tremendous ally of drainage projects and the creation of hardened shorelines. And just as we like to keep it neat and separate in the physical environment, we like to keep it separate from people too. Even though it flows constantly through our bodies and our psyches, in the modern cosmos, water has been banished to the Cartesian realm of extended substance. (Linton, 2010, p. 18).

The increased 'development' of impervious shorelines constructs landscapes that are prone to be flooded. Problems linked to flooding are exasperated by a notable increase in urban development and human-induced pressures in coastal areas (Douglas et al., 2011, Moudrak, Hutter & Feltmate, 2017). The term 'flooding' serves to semantically designate the quality of watery flows, in relationship to 'the human'. This research explores the social intricacies of wetland

management, as I believe the term *wetland* can be used to dissolve this conceptual divide between the 'flooding of urban environments' and the 'conservation of pristine nature'. As anthropologist Jason Cons argues, "While much anthropological work has taken land and water as its object, increasingly we will need to turn our attention to the damp: swampy spaces where distinctions between land and water break down." (Cons, 2017, p. 52). Oftentimes, the discourse surrounding wetland conservation is presented in a binary opposition where wetlands are championed as 'natural' infrastructures that works to mitigate the effect of flooding in 'urban areas' (Moudrak, Hutter & Feltmate, 2017). For the purpose of this research, areas that are prone to flooding are incorporated under the umbrella of the wetland designation.

The *wetland* is a perfect vehicle in which to study the Anthropocene, as the landscape challenges old binaries of nature/culture. Although often commonly categorized as a 'natural' space, the wetland landscape is uniquely tied to human infrastructure and water management projects (Scaramelli, 2021). Dams, canals, irrigation techniques and other various water management practices have been vital for a plenitude of human societies (Haiven, 2013, p. 214). These processes, harnessed by early capitalism, reached the 'height' of their productivity in the early 19th century as hundreds of thousands of mill facilities were operating across Europe (Brykała & Podgórski, 2020). These facilities constituted of dykes, weirs, ponds and overflow relief channels (Ibid.). "The mill-based landscape has a spatial logic – anthropogenic features of the spatial structure are arranged functionally, and their roles and interrelationships are strictly subordinated to the economic role of the mill. The structure of this landscape is spatially legible because it optimizes conditions for production and the flow of goods and movement of people" (Ibid, p. 2). As settlers colonized North America, the prospects of actualizing imperial populations, was made possible due solely to "the materialization of flows harnessed by dams on stolen rivers"

(Haiven, 2013, p. 13). These State-driven 'nation'-creating projects, irreversibly altered the watersheds of Southern Ontario, as wetlands were drained, filled, damned and dredged. Roughly 70% of wetlands in southern Ontario were altered in this way by the 1980's and this percentage has only continued to rise since (Ontario Ministry of Natural Resources and Forestry, 2017, p. 8). This number is staggering as almost a third of wetland area has been destroyed, representing a specific alteration in roughly 20% of Ontario's total land footage (*2018 Environmental Protection Report,* 2018, p. 10). "With the rise of "development" as a political model and an international form of intervention, the construction of infrastructure, large and small, became central to processes of modernization. Infrastructure was simultaneously recast as the material precondition for, and a symbol of, industrialization, economic growth, and political power." (Scaramelli, 2021, p. 7). In Southern Ontario, there is a complex history of trading over water, removing water from stagnation inland, and processing it to feed and clean large populations. In Southern Ontario, where so much of the land has been systematically altered in similar ways, wetlands exist as complex landscapes, and to attend to these complexities one must be attuned to historically layered transformations of infrastructure.

The term *wetland* is a broad signifier that denotes various landscapes and ecosystems in which earth may be saturated with water, and the term encompasses more precise designations such as marsh, fen, bog and swamp. The broad concept of the *wetland* is fundamentally a "semiotic sponge", in that it does not necessarily denote any particular 'natural environmental phenomena' but instead serves to comprehend and convey the social relationships that construct these landscapes (Scaramelli, 2021, p. 6). Authors Deleuze and Guattari remind us that linguistic terms or signifiers "tend to be used in such generalizing and structural ways that they cease to function linguistically in relation to a specific idea or field of content." (Parr, 2010, p. 273). The

term *wetland* in its most basic sense, conveys a distinct objecthood, when a wetland landscape is not and independent object but an assemblage of refrains, a complex system (Ibid). Larking discusses the duality of infrastructures, stating that "when they operate systemically they cannot be theorized in terms of the object alone" (2013, pg. 329). As previously described, the landscape is constructed by a collection of interpretations, certain recognizable refrains. Wetland discourse is largely comprised of various environmental preoccupations, and these discourses are arguably the primary function of the term (Ibid.). The term was only first officially used in 1953, in a report by the U.S. Fish and Wildlife Service (Crandell, 2020). Modern discourse surrounding 'wetland' restoration is often supported by a post-industrial, patrimonial sentiment, in which humans have exponentially affected the pristine natural environment. To further this point, it is critical to recognize that the term was only utilized following the large-scale modification and destruction of liminal watery spaces. Re-thinking the *wetland* through a post-modern lens requires the expansion of our 'natural' vision of the wetland landscape. The term is not meant to denote any particular natural phenomena – the term *wetland* like the term *Anthropocene*, is a "confession of sorts of the fallacy that various forms of humanity and earth's biogeochemical processes can each be examined in vacuums that do not contain the other." (Moore, 2015, p. 7). To study the wetland landscape, I have decided to observe to infrastructures that modify flows in the Great Lakes systems, altering our temporal experience in a way that is mutually constitutive.

In the current era of the Anthropocene, this method highlights the ways in which wetlands in the region have been converted or drained and utilized for agriculture or urban development (Laurence and Nelson, 1994). Many of the remaining or constructed wetlands in Southern Ontario must exist on plural plains of purpose. My ethnography demonstrates the ways wetland areas are reterritorialized into spaces that are intended to serve many purposes, whether

it be flood remediation, purification, 'ecosystem services', habitat, etc. This is the modern "paradoxical fate of the marsh—at once an ecological refuge and a site of violence and conflict" (Scaramelli, 2021, p. 2). The wetland landscape of Big Creek Marsh is also experienced, understood and this valued by different groups; and certain socio-ecological transformations, hold certain significance for people engaging with Long Point and Big Creek Marsh. The landscape is conceived differently by environmental scientists (from birders to herpetologists), hunters, fishermen, archeologists, nongovernmental organization (NGO) workers, farmers, bureaucrats, planners, cottagers etc. With these turbulent complexities suspended upon stagnant peaty waters, I argue that wetlands exist as *temporal chokepoints* of the Anthropocene (Cons, 2020). I am referring to the way in which the landscape and temporality collide, as our visions for the future and real material interventions of the past attempt to coexist in the landscape of the *wetland.* The wetland landscape is simultaneously "urban, industrial, rural, wild, and engineered" (Scaramelli, 2021, p. 7).

This chapter seeks to highlight these Long Point and the adjacent Port Rowan existed at one time as a frontier space for resource exploitation, and local ecologies were picked apart and exchanged for profit throughout the markets of Central and North-Eastern North America. As private regulation stepped in to mitigate ecologies, the frontier moved elsewhere, leaving behind infrastructures of an embryonic metropolis in a hazardous landscape. Decimated landscapes and ecologies made way for specific new economies (like that of tobacco), introduced immigrants to the area, and old shoreline infrastructures were largely reappropriated throughout the 1900's for activities of leisure. Wetlands, and wetland restoration projects here in Southern Ontario are projects that are deeply embedded within infinitely complex histories of colonization and industrialization. Now, wetlands are modern challenges of globalization and climate change.

This chapter speaks to those complexities, attempting to contextualize my field site of Big Creek Marsh within the larger systems of which this particular landscape is embedded, beginning with the trends of water management in the Great Lakes, in this era of the 'Anthropocene'.

There are complex economic entanglements that are affecting this area remotely. Critically, the management of water for new globalized trade routes, challenges the new industries that have replaced raw resource exploitation in Norfolk and other coastal peripheries. If you are visiting the Great Lakes, namely Lake Erie, most days you will be able to see a freighter on the horizon. Long Point, an ancient ship graveyard, watches and reorients itself along these modern routes of trade. This shallow lake may be the most vulnerable in regard to the detrimental effects of impending climate change, but it is increasingly required to serve as a route for trade and fulfill the needs of the growing populations that depend on the water (Folger, 2020). Our "utopian modernist visions of industrial futures" are threatened by "climate affected visions of dystopian futures", which specifically affect the new economies that have replaced old (Cons, 2020, p. 5). Through my research I argue that the Big Creek Marsh wetland landscape along the north shore of Lake Erie, serves as a *temporal chokepoint* in which to explore these complexities (Ibid.).

Industries of Long Point Area

Long Point region has an interesting and unique historical relationship with industry and free market commerce. Currently, the peripheral area of the *Long Point* could be considered remote in terms of its accessibility by land and central in terms of its relationship to growing American cities like New York and Boston. In the early and mid-nineteenth century, Long Point was accessible by boat (steamboats & schooners) by the populations of growing settlements on

either side of Lake Erie (Barrett, 2000). The 'unruly' 35km long sandspit situated on the north shore of Lake Erie quickly established itself as a contested frontier space in which it was possible to avoid governance notably by eschewing surveillance (Barrett, 2000).

Existing along the aqueous boundaries of two emerging nation states; Canada and the US, during the mid 1800's Long Point was conceptualised as a lawless area. In the book *Lore & Legends of Long Point*, historian Harry B. Barrett highlights the landscape's "unenviable reputation for drunkenness, murder and debauchery of every kind" (Barrett, 2000, p.143). Reportedly, this space became a niche for gambling, sex work and drinking (Ibid, p.144). Additionally, as other more accessible regions were hunted and emptied of their waterfowl populations, the unruly landscape of the sand spit became an enticing spot for hunters (Ibid: 145). With no state surveillance, lumber was removed as well, sometimes inducing the fragile dunes to wash into the pounding surf (Ibid). According to the archival document titled *"The Championship of America"*(1858), there were even a few notable boxing matches that took place on Long Point. Lamentably, the Point, which was conducive to avoiding regulation, was not inherently conducive to boxing. Once fighters and large crowds of spectators arrived, they were surprised to find not a single clearing of suitable grass, and therefore the boxing match proceeded on the sand, between the dunes and marshes (*The Championship of America,* 1858). The industrial revolution and the increasing regulation by nation states on either side of the border cumulated in creating the circumstances in which Long Point became a 'lawless' frontier region in the 1850's. In the article *Natural Resources and Capitalist Frontiers* (2003), Tsing describes the frontier space in a poignant way, writing that,

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> A frontier is an edge of space and time: a zone of not yet – not yet mapped, "not yet" regulated. It is a zone of unmapping: even in its planning, a frontier is imagined as

> unplanned. Frontiers are not just discovered at the edge; they are projects in marking geographical and temporal experiences. Their 'wildness is' made of visions of vines and violence; it is both material and imaginative. Frontiers reach backward as well as forward in time energising old. Fantasies, even as they embody their impossibilities. On the resource frontier, the small and the great collaborate and collide in a climate of chaos and violence. They wrest landscape elements from previous livelihoods and ecologies to turn them into wild resources, available for the industries of the world (p. 5100)

Long Points designation as a 'wild' remained long after the 'frontier' space had been abandoned by logging, poaching and illegal 'debauchery'. Take for example this passage published in the popular Canadian magazine MacLean's, as late as 1958. Writing over a hundred years after this period of exploitation, and seemingly overlooking the harsh human entanglements of the late 1800's, the author paints the landscape as "the land that time forgot". The author describes an outlandish and ultimately intimidating reflection on the ecological richness of the bioregion. The author writes,

> Its brooding silence is broken only by the restless wash of the surf and the mournful cry of gulls. Pilot blacksnakes six feet long droop like pendants from cottonwood trees; bald eagles perch on butternut trees; below them dwarf deer three feet tall browse on orchids in tiny verdant valleys. Muskrats by the thousand paddle through marshes that reach to the horizon, and where the water deepens into pools, thirty-five-pound catfish and hundred pound carp bask lazily. Big black-and-gold wamper snakes slither through stands of waving grass; the soft sand of sweeping beaches is pocked with the tracks of leather-shelled turtles. (Mcleod, Oct 11th 1958, p. 31)

As described above, there was the emergence of 'illegal' economies and exhaustive illegal hunting on the Long Point sand spit itself in the middle of the nineteenth century. However, there were other equally devastating but altogether sanctioned markets being explored in the adjacent county of Norfolk. Resource capital in the form of lumber, literally flowed from the region, as demand from urban settlements in the neighbouring United States increased local forest decrement (Barrett, 2000).

Early settlers were incentivized by the government to remove the vegetation upon the land for agriculture (*Striking a Balance*, 2016). This sharply contrasted prior indigenous land management practices in the region that utilized techniques that mirrored swidden agriculture (Niewójt, 2007). Commencing commercially in the 1840's, Norfolk County's Carolinian forests were cleared, and raw lumber was exported through Big Creek and its tributaries (Barrett, 2000, p. 84). Industrial development played a large part in shaping the flow of currents and sediments, and therefore the ghosts of this industry are arguably still very notably embedded in the ecology of Big Creek Marsh (Niewójt., 2007, p. 360). Millions of dollars' worth of oak and pine would flow through Big Creek, into ever increasingly accessible global markets (Barrett, 2000, p. 84). For roughly thirty years these economies served to build the local communities in Port Rowan and Port Dover, and "by 1851 Norfolk County had over 600 people employed in sawmilling operations and three times as many sawmills per capita as the province-wide average (Head, 1975, p. 92; Wood, 2000, p. 6)" (Niewójt., 2007, p. 359-60). "The farmer, guided by the 'doctrine of improvement' that prevailed throughout the 19th century, viewed the transformation of the primeval forest into productive farmland as the best possible use of the land and a strong foundation for a stable and prosperous society (Vosburgh, 2002)." (Niewójt, 2007, p. 360-61). The removal of trees and logs in the region was so thorough that the regions Carolinian forest ecosystems were very depleted and thus threatened by the 1880's (Barrett, 2000, p. 84).

There were many unintended byproducts of the regional means of capitalist industrial expansion including the cessation of the cyclical replenishment of the soil and the disappearance of nutrients afforded in roots and fungal connections (Tsing, 2003). With startling promptitude, the quality of the soil diminished, as the nutrients in the forest humus became degraded. The settlers turned to livestock, which lead to further erosion of the sand plain (Niewójt., 2007, p.

361). Without roots, fauna and decomposition to secure the sandy soil, the top layer of earth virtually blew away. Therefore, many farmers considered the area to be 'fragile' and deserted their fields to find greener pastures elsewhere (Niewójt, 2007, p. 361).

The region was able to emerge today as a widely recognized ecological hotspot thanks to the early interventions of certain wealthy actors. The area was able to positively reinvent itself through the recognition and exploitation of new valued commodities (Vaccaro, 2010, p. 28).

First, there was the sale of the Long Point sand spit to the 'Long Point Company' in 1866. The inaccessible, unpredictable and dangerous sand spit was considered 'worthless' as the government expenditures that would have been necessary to curb illegal activities were deemed gratuitous (Barrett, 2000, p. 145). This, paired with the emerging trend in which "during the nineteenth century, industrial elites reinvented the concept of leisure (Plumb 1973; Veblen 1998), turning non-productive activities into an identity marker, a distinction that is part of a *habitus* (Bourdieu, 1984)" (Vaccaro, 2010, p. 28).

The members of the Long Point Company varied throughout the decades but contained exclusively the wealthy and highly elite. Through the purchase of this property, and even tailored water rights surrounding the Point, the Long Point Company enacted strict yet dynamic hunting regulations (Hazen, 2001). Various species were introduced; including the deer that would eventually overpopulate the point and become a dwarfed population (Barrett, 2000). The Long Point Company is said to have employed the 'wiliest' local hunters and trappers as keepers. Although the two groups remained distinct, this garnered the Long Point Company some local allies, who would patrol the land year-long to allow the company owners to visit a 'productive environment' during hunting seasons (Hazen, 2001). This co-maanagement strategy was not born out of visions of equity but out of necessity. During this time, Long Point Company's self-

imposed hunting regulations were often even more restrictive than those practiced today. However, the regulations were also dynamic, and so when one species experienced an irruption, bag limits could be increased. In this same sense, if a species faced decline, Long Point Company would enforce stricter regulations (Hazen, 2001). The Long Point Company also continuously altered the wetland landscape in ways which would be beneficial for duck hunting.

The St. Williams Forestry Station was the first conservation effort to combat the issue of 'wasteland' in the region, and thousands of pines were strategically planted (*Striking a Balance*, 2016). Eventually in the 1920's the versatile crop of tobacco was introduced to the region, as it prefers well-drained, less fertile and sandy soils (Niewójt, 2007). Still today this organization; now referred to as the St. Williams Nursery and Ecology Center, aims to conserve biodiversity in the area and works with regional groups to promote local ecological restoration projects

Due to their accumulated capital, private individuals were able to invest in the exhausted landscape and make dynamic decisions in response to the detriment that had been done to the region. Here I will point out Long Point's ability to avoid surveillance through liminality and unpredictability, aspects that jeopardize state control and therefore 'liberate' certain markets that may have been alternatively mitigated by State. Today, the government has reterritorialized about half of Long Point, and two large blocks of land have been designated as National Wildlife Areas (Environment and Climate Change Canada, 2020). The National Wildlife Areas fracture the sandspit of Long Point, and are the largest in Ontario, covering 3,200 hectares (Ibid.).

These National Wildlife Areas established in 1978, represent just some of many different jurisdictions which divide the Point like a convoluted Mosaic (Environment and Climate Change Canada, 2020). In 1982 the region of Long Point "was designated as a Ramsar site following the Convention on Wetlands of International Importance. In addition, the Long Point area has been

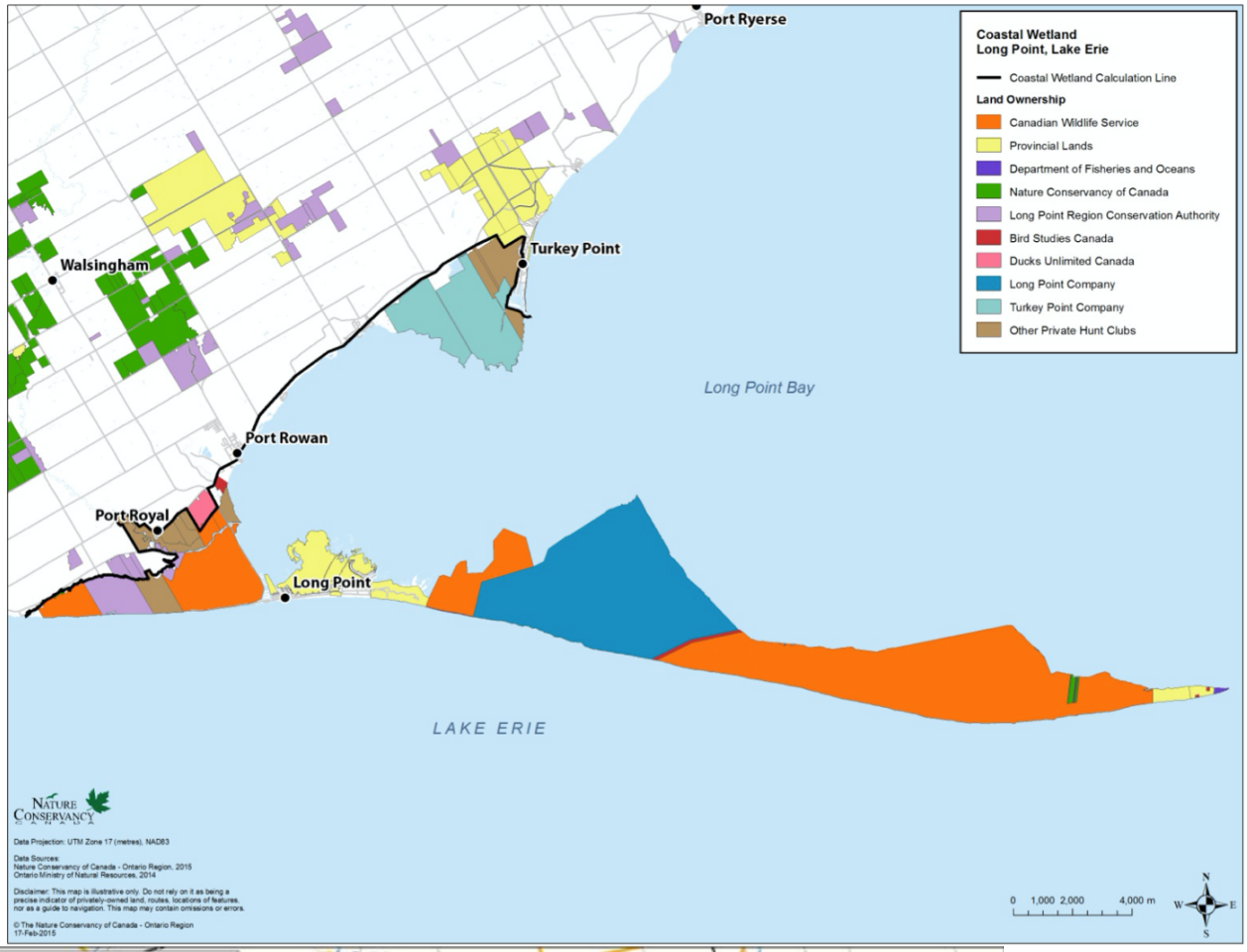
designated as a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Biosphere Reserve, as an example of a Great Lakes coastal ecosystem." (Ibid.). The Long Point Biosphere utilizes a co-management approach and welcomes varying degrees of community engagement and human use (Vaccaro, 2013).

These processes of reterritorialization once again alter our understanding of the area and incorporate these once undesirable wetlands into the fabric of a 'national landscape', understood as being preserved for the interests of the national and even global 'population' (Brugger, 2009). These National Wildlife Areas are primarily organized around a 'fortress conservation' approach, which is characterized by exclusion (Vaccaro, 2013). Additionally, these areas are informed primarily by modernity's main tenants, such as the nature/culture dichotomy, state bureaucratic governance, surveillance, as well as interpretations of the landscapes that are dominated by 'experts' (Ibid.). These watery landscapes are imbued with 'modern water' where water is conceived to be entirely independent of social relations (Linton, 2010, p. 22). This exclusion is a "tool for territorial homogenization and cultural universalization (Sullivan 2010)" that ultimately serves to "turn[ing] place into space (Feld and Basso 1996)." (Vaccaro et al., 2013, p. 256). I found it near impossible to reach anyone who was engaged in the management of these areas, although I did see patrolling officers.

It is important to demonstrate the ways in which local infrastructures and economies carved out the landscape and highlights how certain areas which are now we perceive as 'natural' and 'pristine', are deeply embedded in more complex systems. Private funding and ownership, paired with the temporal knowledge of local populations, acted to protect the dynamic area that was unable to be 'regulated' by governmental bodies. A notable shift has transpired in the last fifty years, and recent designations denote lands as 'National Wildlife

Areas', which strictly impede people from visiting these places, and recasts them as 'natural' areas to be 'conserved' through the removal of the 'human'. These general sentiments enforce post-industrial ideals and are deeply embedded in western colonial ontologies. By exploring the histories of these spaces, we can highlight modern fallacies. This fragile sand spit, waterscape, ecologies and local populations of the region are all co-constitutive and cannot be understood independent of one another. When local ecologies are threatened, such as the recent invasion of *Phragmites australis spp. australis*, action must be processed through various managerial organizations, and efforts are not always cohesive. Through these processes of reterritorialization, these spaces are abstracted from their dynamic relationships with local populations.

The history of the entanglements, effects and by-products of expansion and industrialism in this area are of crucial importance when exploring the current context of conservation in the region. Both the economies and ecologies of the region have been subjugated to numerous cycles of transformation (Niewójt, 2007). Curiosity is surely elicited when we observe the very harmful effects of free market resource in the region, in contrast with current designations which tote is "Canada's most diverse terrestrial region in species richness" (Bell & DeMarco, 1999, p. 23).


Coastal Wetland
Long Point, Lake Erie
Coastal Wetland Calculation Line
Land Ownership
Canadian Wildlife Service
Provincial Lands
Department of Fisheries and Oceans
Nature Conservancy of Canada
Long Point Region Conservation Authority
Bird Studies Canada
Ducks Unlimited Canada
Long Point Company
Turkey Point Company
Other Private Hunt Clubs
Port Ryerse
Turkey Point
Walsingham
Long Point Bay
Port Rowan
Port Royal
Long Point
LAKE ERIE
Nature Conservancy Canada
Data Projection: UTM Zone 17 (metres), NAD83
Data Sources:
Nature Conservancy of Canada - Ontario Region, 2015
Ontario Ministry of Natural Resources, 2014
Disclaimer: This map is illustrative only. Do not rely on it as being a precise indicator of privately-owned land, routes, locations of features, nor as a guide to navigation. This map may contain omissions or errors.
© The Nature Conservancy of Canada - Ontario Region
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Environment and Climate Change Canada
Environnement et Changement climatique Canada
LONG POINT
NATIONAL WILDLIFE AREA
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Universal Transverse Mercator Projection, Zone 17N
Includes material © of the Queen's Printer for Ontario.
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Disclaimer: This map is for illustrative purposes only and should not be used to define legal boundaries.
Delhi
Simcoe
Nanticoke
Port Dover
Selkirk Provincial Park
St. Williams Conservation Reserve
Big Creek
Turkey Point Provincial Park
Haldimand County
Norfolk County
Walsingham
Backus Heritage Conservation Area
St. Williams
Long Point Bay
Port Burwell
Port Burwell Provincial Park
Port Rowan
Inner Bay
Long Point National Wildlife Area
Thoroughfare Unit
Port Royal
Lee Brown Marsh
Long Point Lighthouse (Fisheries and Oceans Canada)
Long Point Unit
Hahn Marsh Unit
Big Creek Unit
Long Point
Long Point Provincial Park
Long Point Waterfowl Management Unit (Provincial)
Ontario Ministry of Natural Resources and Forestry
Big Creek National Wildlife Area
Elgin County
Norfolk County
QC
ON
Long Point NWA
U.S.A
LAKE ERIE
Canada
USA
Legend
National Wildlife Area
Conservation Land
Highway
Road
County Boundary

Figure 3: Map of National Wildlife Areas in Long Point. Environment and Climate change Canada, 2020.

Great Lakes Transportation and Infrastructure

"If we think about rural communities as dynamic and constantly constructed through interactions of varying range, rather than static in both population and on the landscape, then it is possible to imagine how the trades in specific global commodities have contributed to the very fabric of towns, rivers, mountains, roads, fields, and forests that comprise an experience of region." (Kingsolver, 2015, p. 39)

Many profound environmental transformations happened in Norfolk County during the first wave of the industrial revolution. The mid nineteenth century notably marked ecological devastation to certain wetland refrains. Kinetic power in the form of heated water (steam), (and coal power), exponentially affected our capacities to produce, travel and support larger urban populations (Haiven, 2013, p. 214). Grand water projects of "industrial economies and their colonial orders were facilitated by waterways, canals, and locks, all of which demanded new technologies for attenuating rivers and creating artificial hydro structures and hydrographies" (Haiven, 2013, p. 214). Specifically, due to the 1825 completion of the Erie Canal along the southern shore of the lake, Southern Ontario and the American Midwest experienced unprecedented population growth and urban expansion. The Erie canal served to link the Atlantic Ocean to Lake Erie through the Hudson River then New York. Industrialization, and subsequent 'nation building' in the capacious aqueous region required the development of complex economic trade across the Great Lakes (Niewo´jt., 2007, p. 359). The construction of these prolific transportation highways, such as lakes and canals, are key factors in processes of industrialization (Vacarro, 2010, p. 26).

In Long Point, resources were liquidated for use in remote markets (Vaccaro, 2010, p. 26). It was very dangerous and notably costly to engage in resource transportation in and around

the region. In this time local 'producers' were incentivized to fill the demand of growing populations, and therefore encouraged to repeatedly pursue deforestation and hunting in peripheral areas, generating usable material resources not just for themselves and local populations, but by providing for markets throughout North America (Vaccaro, 2010, p. 26). Trade routes emerged in the region despite the reoccurring violence of Lake Erie and its storms. For example, one singular storm in November of 1838 is said to have caused the destruction of twenty-five vessels (Barrett, 2000, p. 118). There were technological limitations in terms of navigation through the Lake, but many incidents can be attributed to the unpredictable winds, currents and sandbars that could seemingly capture a vessel spontaneously (Barrett, 2000, p. 90). Short powerful waves would emulsify the hull of a ship grounded upon a sandbar.

Since the construction of the Erie Canal in the early 1800's, a plenitude of dams have been constructed in the Great Lakes and Great Lake tributaries. There are reportedly over 12,000 dams of various sizes and functions in the Great Lakes Basin (Hayes et al., 2017). Arguably, these dams affect nearly every major drainage passageway, and the marine ecologies that would normally traverse these fracturing infrastructures (Ibid.). The entirety of the largest interconnected transportation network through the Great Lakes is named the St. Laurence Seaway. The construction of the St. Laurence Seaway was completed in 1959 when the St. Laurence River was opened to the Atlantic (Brideau, 2014). These infrastructures facilitated the domestic and international trade of agricultural and mineral products, but also exponentially altered the ecologies of the Great Lakes, as many invasive and non-native species were transported through these same routes (Folger, 2020). These processes are embedded in the 'Great Acceleration' of the Anthropocene. "In little over two generations – or a single lifetime – humanity (or until very recently a small fraction of it) has become a planetary-scale geological

force. Hitherto human activities were insignificant compared with the biophysical Earth System, and the two could operate independently. However, it is now impossible to view one as separate from the other." (Steffen et. al, 2015, p. 94).

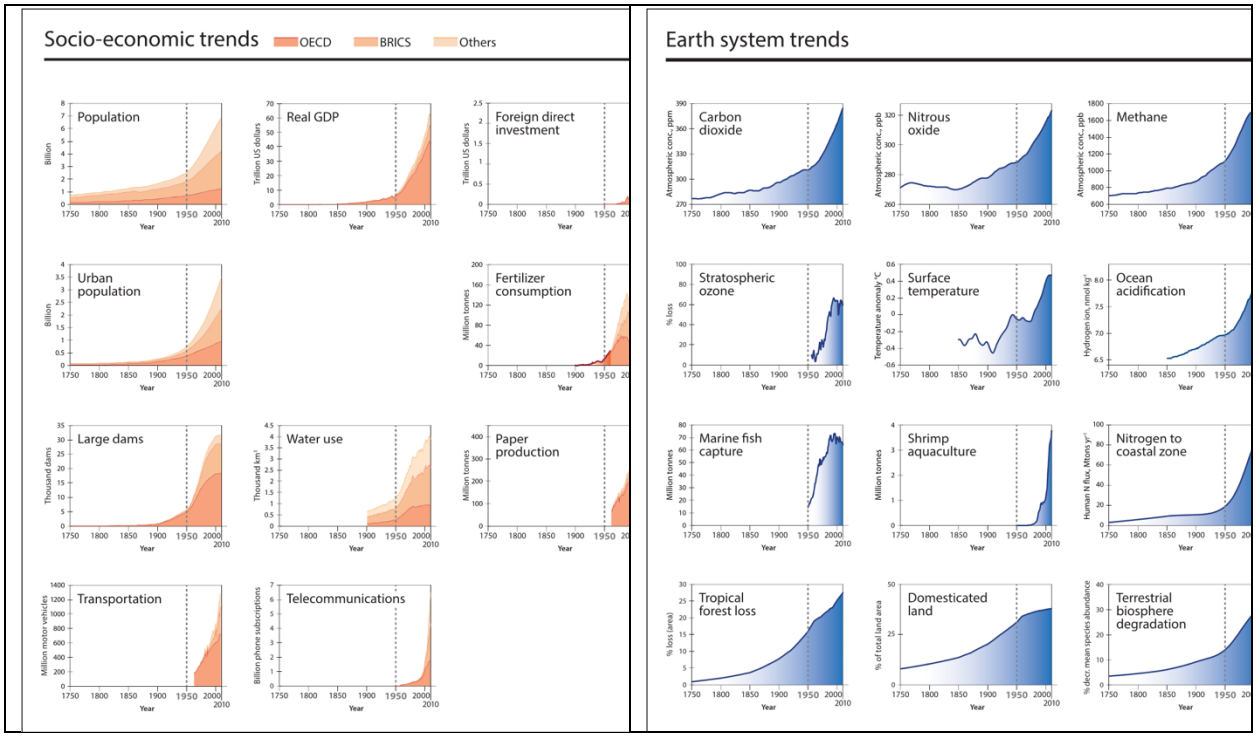

Figure 4: Graphs that Illustrate the Concept of the 'Great Acceleration'. These trends demonstrate the rapid acceleration of human enterprises, specifically of wealthy western nations. Note the increase in Large Dams (Steffen et. al, 2015).

Let's explore the historical implications and the contextual realizations of mega-dam projects. Dams and large water management projects have been crucial for the establishment and continuation of 'modern' populations. As Deleuze and Guattari write, there are "four principal flows that torment the representatives of the world economy, or of the axiomatic, are the flow of matter-energy, the flow of population, the flow of food, and the urban flow." (1987, p. 468). These flows all convene around the infrastructures of the mega-dam. Therefore, the dam is the essence of imperial capitalist modernity and often symbolizes the human triumph over 'nature'(Ibid.). In this sense, large damming projects alter the environment, but they also alter

what it means to 'be human' (Ibid., p. 216). Through the consistent production of electricity, water for irrigation and transportation, dams construct false perceptions of 'conformity' and 'causality' (Haiven, 2013). These 'human' infrastructures of 'control' stand in opposition to 'natural' processes, which are often deemed reactionary (Ibid.). In the article, *The Dammed of the Earth: Reading the Mega-Dam for the Political Unconscious of Globalization* (2013) author Max Haiven exposes the intricacies of current mega-dam infrastructure projects. Haiven (2013) reframes the dam as a cultural edifice and a concentration of power. We can observe the effects this transfer of power has had on communities along the Great Lakes. Even if the recent damming of the Great Lakes system does not cause the disequilibrium of hydrological systems – (systems we fail to fully understand), dams still fundamentally shift certain relationships and local futures (Haiven, 2013, p. 215)[1]. Dams are designed to produce, concentrate, and circulate *power,* and in this sense, they fundamentally empower certain people and disempower others (Haiven, 2013, p. 215). This transfer of power is blatantly evident in 'Port' towns across the Great Lakes, towns like the local 'Port Rowan' and 'Port Dover'. So many communities have been transformed from bustling ports to patchworks of private marinas.

Natural meteorological variables, such as rising temperatures and shifting jet streams, are said to be the cause of flooding and high-water levels in the Great Lakes (Rasid et al. 1992). In the context of the Anthropocene, it is fallacy to delineate between the 'natural' and the 'cultural'. The proclamation that Great Lake water levels are 'primarily mediated by meteorological conditions' (Rasid et al. 1992), conceals anthropogenic affect in an era of global climate change.

[1] To read more about the "historiography of water science through the concept of the hydrologic cycle.", see Linton (2010), Chapters 5 and 6.

Additionally, this sentiment is not a likely appeasement for the concerns of shoreline property owners or environmental conservationists concerned with unprecedented high-water levels in Lake Erie. It is within these contexts that we are reinvesting in wetland spaces, to 'remediate' the extensive affects we have on our environment. Like dams, the wetland reconstruction is conceived as a means to alter the flows of our environments in ways that serve multiple purposes, resulting in these areas being chokepoints of the Anthropocene. This concept of the temporal chokepoint is defined as the "conjunctures where a range of dissonant future imaginaries, and more specifically, projects that seek to realise them, accumulate and squeeze into material spaces that might not be able to support them" (Cons, 2020, p. 19). In Southern Ontario, and abroad, wetlands are being touted as 'solutions' for the myriad of complex problems that currently plague the Great Lakes (Ontario Ministry of Natural Resources and Forestry, 2017). Wetlands are seen as a 'natural' way to alleviate the effects of flooding. Wetlands are conserved and constructed to provide various 'ecosystems services', such as purification and carbon sequestration (Ontario Ministry of Natural Resources and Forestry, 2017). It is important to realize that these projects directly reflect our perceptions of the present and articulate our current anxieties about the future (Cons, 2020). The manufacture of 'natural wetlands' as 'solutions', (especially those preserved through fortress conservation), is a product of a western imperialist viewpoint where the 'human' triumphs over 'nature'. The concept of the 'wetland' should be semantically broad, and understood for all its complexities, but the conservation, preservation and construction of these spaces does not fully challenge the underlying systems affecting the Great Lakes. The discourse surrounding wetlands can often enforce this western hubris that we can engineer entire ecosystems that can function to address our various anxieties about the future of our planet. Wetland conservation must also care for the

various flows that culminate within these landscapes. Fundamentally this means pushing back and organizing against capitalism, colonization and western imperialism. Fostering wetland landscapes additionally requires organizing to adopt practices that reduce pollution, consumption and the concentration of power.

At the end of 2019, the state of New York filled a summons against the International Joint Commission, stating "negligence and failure to adhere to its own mandated protocol for operation of the Moses-Saunders Power Dam [..] during flooding events in 2017 and 2019." (pg. 3). This document stipulates that The International Joint Commission did not perform the task of regulation of water in a nondiscretionary manner – implying that certain water was retained in Lake Ontario and Lake Erie in both 2017 and 2019 in order to increase profits (Ibid.). Retaining water in these Lakes is also cited as an attempt to minimize flooding downstream, along the St. Laurent in Ottawa and Montreal. There have not been significantly low water levels in Lake Erie since the construction of the Moses-Saunders Power Dam in the late 1950's, and a period of low water levels is detrimental to the income generated by the dam, both in terms of shipping and hydroelectricity. The interests of hydropower and shipping value consistent higher water levels, directly affect the interests of property shoreline owners (Rasid et al, 1992, p. 9). In turn, shoreline wetland complexes become natural infrastructures capable of offsetting the damaging effects of flooding.

Very recently, these changes have been adopted by the International Joint Commissions, returning to the protocol they implemented in 2014, meaning that they will likely release more water from the tributaries of Lake Erie and Lake Ontario into the St. Laurence and then the Atlantic (*Flexible approach: IJC board implements measure to reduce chance of flooding*,

2020). We do not understand the effects of maintaining high water levels in the prioritization of commercial shipping interests, but we can recognize these mega-dam infrastructures are controlled by international organizations and therefore the Great Lakes become embedded in the complexities of global trade, in an area of 'Great Acceleration' (Steffen et al, 2015). Shorelines and liminal wetlands along the Great Lakes then also become integrated into these complex systems.

Conclusion

> Given the collusion between legal and illegal, disciplined and wild, and the new frontiersmen who come to complement development, corporate giants can rest assured they will get their reserves back, once appropriately degraded from below. Then too, in an age of natural simulation, it is never quite clear what is being preserved, what is degraded, and what is restored. (Tsing, 2003, p. 5105)

This chapter seeks to highlight these Long Point and the adjacent Port Rowan existed at one time as a frontier space for resource exploitation, and local ecologies were picked apart and exchanged for profit throughout the markets of Central and North-Eastern North America. As private regulation stepped in to mitigate ecologies, the frontier moved elsewhere, leaving behind infrastructures of an embryonic metropolis in a hazardous landscape. Various flows of people and products have entered in the region. Wetlands, and wetland restoration projects here in Southern Ontario are projects that are deeply embedded within infinitely complex histories of industrialization and modern challenges of globalization and climate change. This chapter speaks to those complexities, attempting to contextualize my field site of Big Creek Marsh and Long Point within the larger systems of which these landscapes are embedded, beginning with the trends of water management in the Great Lakes, during this era of the 'Anthropocene'

In Ontario there is a poignant and purposeful turn towards the issues surrounding flood management, wetland conservation, and shoreline preservation in general. This thesis is a product of and contribution to these discussions. Although each of these cases contains their own intricacies and motivations, the turn towards caring for these spaces is poignant for anthropologists as it marks a turn toward the embrace of liminal spaces, alternate temporalities, and peripheral areas of complex entanglement. Although fundamentally, the push to reconstruct and preserve these landscapes should be recognized as reflections of anxieties created through processes such as the Great Acceleration (Steffen et al, 2015).

The history of the entanglements, effects and by-products of expansion and industrialism in this area are of crucial importance when challenging the current conceptualizations of modern conservation initiatives. Curiosity is surely elicited when we observe the very exhaustive effects of certain markets and industries in the region, in contrast with current designations which tout the region as one of the most ecologically diverse in Canada. There is value in reflecting on the harsh historical realities that have shaped our current environments. Tsing (2012) argues that "instead of merely cataloguing diversity, we need to tell the histories in which diversity emerges—that is, acknowledge its lively and, thus, contaminated forms. Diversity is created in collaborative synergies; it is always becoming" (p. 95). New tourism and leisure industries as well as certain patrimonial conservation practices still often build off genealogies of managing an 'ideal nature' (Vaccaro, 2013, p. 263).

The systems and industries that exist within and due to theses infrastructures, permeate all depths of the Great Lakes landscapes and are almost impossible to fully grasp. Just as the industrial revolution affected the landscape of Lake Erie, so too has the current trends of

globalization. Large amounts of wheat, steel and iron ore are transported through the Great Lakes annually (Folger, 2020). The interests of the International Joint commission are oftentimes in direct contrast to those living along the shorelines, and therefore their ought to be more importance placed upon the experience of individuals living along the shoreline.

In the era of the Anthropocene, when state, population and industry interests collide, how does this alter the experiences of those interreacting with these environments? In the next two chapters I will approach this question by highlighting the experiences of local populations who have temporal experiences with these landscapes in our current moment of Great Acceleration (Steffen et. al, 2015).

Chapter 2: Experiences of the Wetland Landscape

This chapter is constructed in large part by the interviews and experiences I had when discussing water management with local interlocutors in the region. In brief summary, during the eight weeks I spent in Long Point, I interviewed and worked alongside individuals, community groups that were engaged in dynamic relationships with wetland landscapes. I primarily spoke with people who engaged personally with wetlands. Through interviews I observed the effects of local infrastructure projects and met with farmers engaged in wetland remediation projects. In studying and vividly describing these specific wetland entanglements, I hope to facilitate an understanding of the dynamic nature of wetland landscape temporalities.

This chapter explores human relationships with wetland landscapes and describes the various refrains that have inspired transformative territorialization and connection. These relationships are in part enacted through conservation initiatives but also notably wetland remediation and reconstruction.

These local acts of conservation, remediation and reconstruction are all fundamentally constructed "through experience and socially contextualized attribution of meaning" (Dawson et al, 2014, p. 2). In this chapter I specifically explore the ways in which the landscape has been experienced by birders and hunters, farmers and local property owners. Each experiences the wetland landscape in a vastly different way, yet all the interlocutors I spoke with seek out, specifically promote and engage with the refrains of the wetland landscape in the region of Norfolk County. These are not stories of success or failure, but "addresses how people come to understand lived environments undergoing different kinds of destruction and precarity and how they assess ecological change in the context of their lifeways" (Scaramelli, 2021, p. 49). Human species relationships with avian refrains, have long since informed the human experience with

the wetland landscape, and is a critical to explore when delving into the ways in which wetland landscapes are understood and conserved. These avian relationships, along with various other non-human refrains that construct the wetland landscape, inspire social action and conservation. Additionally, plantation economies adjust flows in specific ways, and have contributed to the historical desertification of the region, but local responses to these capital networks have recently resulted in farmers constructing wetlands on their properties. During fieldwork in Norfolk County, one could easily observe regional farms with newly constructed wetland landscapes. Finally, we will observe certain wetland relationships that have been purposefully promoted through the continual remediation of local infrastructures.

Each of these instances highlights the importance of understanding and approximating ourselves to wetland landscapes. Although the conservation, remediation and reconstruction of these wetland landscapes purports many local and global benefits, it is insufficient if not informed by actual human connections with wetland temporalities.

Avian landscapes

Figure 5: Photo of a Grackle by Brock and Sherry Fenton (2020). Captured Oct 11th, 2020. Grackles will fill Long Point in the fall. Here you can see the 'third eyelid' a horizontal nictitating membrane that protects the cornea in flight (Sivak et al., 1978; Sivak, 1980).

During my fieldwork I was fortunate enough to have the freedom to pursue curiosity and was able to stay in the region well into the fall. While planning my fieldwork I originally hoped to stay at the Long Point Bird Observatory, mainly for a consistent place to conduct correspondence and take a warm shower. I sought to explore the paradigms that informed peoples understanding of wetland spaces. Deeply embroiled in pre-fieldwork formalities, I was

set to make ‘objective’ researcher of myself (Said, 1994, p. 74). Although I was not able to conduct my research out of the Long Point Bird Observatory due to COVID-19, they courteously let me utilize their internet from outside, where I quickly developed an interest in the work they were doing there. It was an interest driven by my experience of the landscape, as most mornings I would be awoken by loud and hungry clouds of blackbirds, grackles or starlings, famished from a night of roosting in the marsh. Each night I was greeted by a very literal procession of swarms, first harbinger of the evening being the mosquitos, followed quickly by hundreds or thousands of swallows, and then playful bats. I swear bats seemingly descended upon the cabin during the night of the 2020 perseids meteor shower, and I could see and hear them jumping at the thin screen windows just above my head, as I sat in my bed happily missing out on the extraordinary astrological event.

Anyways, I may have strayed from the point, but fundamentally there is an overwhelming number of birds that visit the small sand spit each year, and there are undoubtedly more birds utilizing the surrounding wetlands than there are humans. As my intended five weeks of fieldwork were wrapping up, I was kindly offered the opportunity to volunteer with the Long Point Bird Observatory, so I stayed into the fall to assist with the collection of migratory bird data.

The depth of attention one could attune to the landscape was daunting. To begin, I began with minimal knowledge of birds. I was faced with the “spirit of humility before the infinite wonders of the living world” (Ingold, 2021, p. 160). Beyond the species classification characteristics of each sparrow, hawk and shorebird came the (self-imposed) expectation to familiarize myself with the individual characteristics of each species, each variation in molting pattern, measurement, feather pigment and abnormality which furthers a clue towards the

experience of the individual bird in hand. This practice of "gazing and collecting, again, involve careful attention to detail, wherein one's passion is drawn into the subject of study and brings it to life." (Ingold, 2021, p. 164). In this setting, the 'bird' becomes the companion species, and one seeks out 'ordinary beings-in-encounter', in the morning, throughout the day, and even when engaging with owls, our banding efforts would run long into the night (Haraway, 2016).

During October I woke up each morning before sunrise to begin bird banding. We trace a loop in the woodlot and collect birds from the various mist nets, returning at very short, repeated intervals with birds hanging from our arms, pacified in cloth bags. Paths are dutifully traced each day, in a 'professional' attempt to reify the landscape and transform it from a variable to a control. Despite this, each day brings new birds. Senses are heightened as one walks through the forest with the mandate of recording species data. While the morning light peaks through the conifer trees, we repeatedly trace the path along the marshy borders, consistently hearing the repeated refrains of loud gun shots from duck hunters presumably situated within the marsh. A bird watcher must walk slowly, quietly, and attune their senses to intricacies of the many interspecies interactions happening in their landscape. I defeatedly observe an unidentifiable flock of birds flying overhead and contemplate the seemingly contradictory pursuits of birding and duck hunting as my warm breath materializes as an opaque cloud suspended in the crisp fall air.

One quickly becomes attuned to the aesthetics of the landscape while birding (Ogden, 2011). I argue that the act of birding even as an amateur is essentially an exercise in temporality and territoriality. Duck hunting too- constructs interspecies relationships that approximate us to an understanding and reverence for the wetland landscape. I argue that these shared refrains are the preponderance of what informs and elicits current wetland conservation logics in Southern

Ontario. Although fundamentally, the term wetland was purposefully semantically broad to encompass the various open water habitats utilized by birds, as it was largely our relationships with birds that "inspired the protection of wetlands and associated aquatic sites." (Crandell, 2020).

As I inquire and interact with new bird refrains, as I experience the landscape, I place claims upon the bird, and therefore it becomes situated within other refrains that construct an alternate experience of the landscape. Certain refrains are deeply tied to temporality, as various bird species migrate seasonally, and these migrations coincide with other refrains, including the weather (or more aptly *le temps*), other inter-species interactions, and other migration destinations. Besides the bird song, we are increasingly learning that scents also act as refrains that demarcate and territorialize the landscape in which the bird is situated. Returning with a few bagged birds to be observed and banded, my colleague implores me to smell the Eastern Phoebes 'clean' smell. Experienced birders and hunters have unique relationships with their surroundings, as the birder encounters certain refrains, they become acutely aware of spatial/relational/regional entanglements and distinct species characteristics. In this sense, the 'birder' is cultivating an intense and unique relationship to the landscape through the observation of birds.

> Our temporal experience 'colours' the manner in which we understand the present from the lived perspective of the body. This is always limited, ambiguous, shifting and changing; some aspects of landscape become foregrounded at one temporal moment and fall into the background at another. Embodied perception shifts and changes, is always in flux and is related to our interactions with sentient others, human or non-human. Our perceptual senses engage with our embodied being all at once in synaesthetic relation. We do not see the world and then hear it or smell it or touch it. All our perceptual senses intermingle in our embodied experience and all at once, a position currently being valuably explored in the emerging sub-discipline of sensory anthropology (Classen 1993, 2005; Stoller 1989; Howes 1991, 2005; Pink 2009; Ingold 2011)" (Cameron-Daum & Tilley, 2017, pg. 9).

The precise daily observations produced by different individuals, will often contain notable differences. Arguably no two birders have experienced the same refrains, and cannot produce the same observations, just as no two birds express the exact same refrains.

There is a powerful and complex community of people pursuing engagement with avian refrains in Southern Ontario. There is a substantial and vast network of people participating and observing through forms of amateur avian ethnography (Ingold, 2021). People participate in various avian monitoring programs, like Bird Canada's marsh monitoring program. Ornithology as a branch of biology and western Science, has long since been a discipline centered on 'professionalism' and clearly contains "rich and powerful fiefdoms exercising a monopoly in their respective" avian expertise, "jealously defending their borders with thick walls of impenetrable" charts and endless field guides, "couched in a code accessible only to initiates, and keeping out those lacking professional qualification for entry. Their home, to an ever-greater extent, is their castle." (Ingold, 2021, p.165). The landscape is reified through repeated routes of observation- the same paths traced and recorded day in and day out. One must be certified properly, must utilize the 'proper' jargon and possesses access to the right territories. The "professional's curriculum vitae is a catalogue of items, like the entries in a book of accounts, all adding up to a career total" (Ibid., p. 161). When institutionalized, the study of avian refrains and the landscapes they construct, is geared towards "detached objectivity, cold logic and analytic rigour" (Ingold, 2021, p.168).

In contrast, the community centered around seeking out and observing birds, in amateur fashion, is a powerful and accessible vault of knowledge, that is not bound by study that is altered to fit "the needs of commerce, industry or the public sector" nor rushed with the axe of

production of “improved insights… materials, devices, products and processes” (Ibid, p. 167). Just as the anthropologist is a scholar, pulling from disciplines in a holistic fashion, “The amateur is a scholar. And the scholar is one who relishes the right to roam.” (Ingold, 2021, p. 165). There are current discussions in the ‘birding community’ that begin to acknowledge the immense value of amateurs. Community science programs like eBird and iNaturalist are utilized to foster community and to contribute data to projects geared towards our experiences within certain landscapes. Recently, discussions have been ignited concerning eponymous bird names, who’s honorifics are derived from men whose legacies were steeped in early colonial legacies of racist domination (Yarnold, 2020; Williams, 2020). This, for many, is a recognition that for many amateurs, scholarship cannot be severed from life. “That is why amateur scholars are activists. They are not content, as are their professionalised counterparts, to observe dispassionately and deliver authoritative verdicts from the sidelines” (Ingold, 2020, p. 169). This means pursuing really interdisciplinary, intersectional connections. Personally, learning to notice birds has given me new tools to be present and attuned to the different landscapes I travel within.

As described in the previous chapter, ducks, waterfowl and the hunters that pursue them, have long since been an important element of the landscape of Long Point. Both within Big Creek Marsh and the various wetland complexes along the Point, hunting for waterfowl has been a fundamental way that a predominantly male demographic has interacted with the landscape. As noted in the first chapter, duck hunting along the Point was extensive during the first wave of the industrial revolution and has been pursued since. To successfully hunt birds, one must be attuned to the refrains of the landscape and to the species which they hope to pursue. I personally have paddled many times through the marshes of Big Creek and along the Point, and these spaces are

difficult to navigate especially with the recent introduction of invasive Phragmites. Clumps of rhizomatic reed roots can form floating islands, that will move as you navigate through them. The water levels can change from season to season and year to year. Utilizing technology, we imitate the territorial practices of waterfowl. When the Long Point Company purchased the area. certain local craftsman developed their own unique styles when carving decoys for hunting season. These became more popular as wealthy gentlemen hunters valued the ability to purchase more detailed carvings (Hazen, 2001). The most renowned carvers in the area were the three generations of the Reeves family (Ibid.). When the Long Point Company was established in the late 1860's, local decorative painter Phineas Reeves was hired as their first punter and worked for them for the rest of his life (Ibid.). 'Phin' Reeves developed different decoy patterns which were utilized by his sons and others for decades to come (Ibid.). Small details distinguished these decoys from those simpler ones which were made of a sturdy recycled fence posts and a roughly carved piece of basswood or willow (Ibid.). These decoys were often covered in canvas to reduce glare and had glossy black eyes (Idib.). This practice was handed down within the family and grandson Jack Reeves, admits to having carved "hundreds of pintail, blue-winged and green-winged teal, widgeon, scaup or blue-bills, and of course the most popular of them all- redhead and canvasback." (Hazen, 2001, p. 92).

With the introduction of the Long Point Waterfowl Management Unit in 1961, the marshes of Long Point were altered by the excavation of "eleven shooting ponds and one feeding pond" (Hazen, 2001, p. 97). These areas were divided into Zones A and B, as well as a refuge area. The soil dredged from the ponds was built up around the blinds and hides, levelled and seeded with wheat (Ibid.). Collectively these areas comprised of 1750 acres of marsh, and there were roughly 64 duck blinds to hunt from. This system helped alleviate some of the dangers of duck hunting in

an open marsh, and was crucial to regulate territorial disputes. Various other parts of the marshes in Norfolk County are named after the men who used to own or frequently hunt the ponds in the past. “At it’s most basic, hunting is a territorial practice. Hunters claim particular geographies within a landscape as their own, calling on community recognized conventions to establish *who* was allowed to hunt *where*” (Ogden, 2011, p. 47). ‘Old boys’ and birds become entangled through these shared territorial practices and the wetland landscape becomes reterritorialized through these relationships (Ibid.). In this sense, “animals are reconfigured into an assemblage of human-animal territoriality.” (Ogden, 2011, p. 47). Additionally, in the more recent present particularly, hunters organize to preserve and promote the wetland landscapes. Ducks Unlimited Canada has emerged as a key player in the conservation of wetland landscapes across Canada and claims to have restored and conserved over five million acres of habitat to date (Ducks.ca).

The knowledge of an experienced birder, and the duck hunter, is an aggregate accumulation of repeated avian refrains. A polyphony of birdcalls is indistinguishable for many, but the birder and oftentimes the hunter are attuned to bird refrains and therefore engage in an alternate reality, a landscape experience attuned and approximated to that of the bird. The human and the bird share this plenitude of refrains, in a dawn dance of mutual claim making. This human species-being (Chakrabarty, 2009), held together by sport, excitement and care, informs and affects the experience and conservation of wetland landscapes across Ontario.

Figure 6: Semipalmated Plover. September 1st, 2020. Tip of Long Point. Taken by researcher.

The Farmer

Though the sedge is withered from the lake,
And no birds sing.

La Belle Dame sans Mercy (1819)

John Keats

Figure 7: An old Tobacco Kiln, now Utilized for Storage, which rests upon the property of an ALUS participant who has created grassland, forest and wetland environments where tobacco was once farmed. ALUS has even repurposed an ancient Tobacco kiln into a snake hibernaculum. Just one of their many innovative projects.

Most of the farmers I spoke with had small acreages. In most cases, I conducted the interview in the field, and the farmer would show me their newly constructed wetland area, or reforested area. It's August. There are still things to do generally, but August is a beautiful time to be visiting farms in the County. There are few bugs, and the weather is beautiful. One interlocutor takes me on a tour of their property and shows me the various projects that they had initiated on their property: one grassland project, one reforested area, and a wetland. This interviewee explains that a particular lowland area of the farm was always a problem for the

owners of the property, past and present, as the value input required to plant, grow and sow, was less than the value output of the yield. We discuss their relationship to this wetland landscape, as prior to this rewilding, the space would flood early in the spring, and stay wet during the summer. This farmer described their choice to engage in this process stating that "It really works with the farmer, and it's voluntary, and it makes sense. Yah, it's got a lot of benefits, both to the farmer and to wildlife, to the environment, to biodiversity and ecosystems." (Personal Interview 1, 2020). This question of 'value' interesting to consider when exploring the relationship between individuals and reconstructed wetland landscapes in the Plantationocene.

How does this local history contribute to our understanding of modern-day wetland management in the context of Southern Ontario? One might aptly argue that these spaces are devoid of wetlands. But crucially, through speaking to farmers in the region, we grasp a better understanding of the ways farmers work in flora, fauna and flows.

One of the iconic infrastructures of Norfolk County is that of the Tobacco Kiln. Currently, these buildings, when left erect, stand as relics of an industry that was once extremely prominent in the area. These kilns were once used to cure tobacco at high heat, where it would then be removed to be stripped and stored before being sold. When settlers first colonized the landscape of Norfolk County, they cleared the land of the diverse biodiversity of the Carolinian forest that existed upon the sand plain. As described previously, the land was poorly understood, and poorly interacted with. By 1914 the area was a desolate sandy wasteland where popular crops like wheat could not grow (Niewójt, 2007).

After the Second World War, the demand for cigarettes skyrocketed. "Canada's annual cigarette consumption stood at 285 per capita in 1920, and this figure jumped to 493 in 1930 and 1230 by 1948 (Dominion Bureau of Statistics, 1950, p. 45)." (Niewójt, 2007, p. 363). The sandy

soil was discovered to be very favourable for Tobacco farming, as Tobacco needs well drained soil (Ibid.). Also, the sand contained limited free nitrogen, so farmers could control the 'productivity' of the soil through the addition of commercial fertilizers (Ibid.). Soon, the inexpensive lands were bought up and converted into large industrial monocultures that fed this increased demand for cigarettes. Notably this frontier market coincided with the World Wars, and many diasporas of European immigrants fleeing conflict settled in the area. My grandmother is a member of the Hungarian diaspora that settled in the area. She herself maintained a tobacco farm in Langton, in the center of Norfolk County in the 50's and 60's. This unique sand plain was favourable, but these recently resettled communities faced challenges when planting repeatedly on the sandy soil. Primarily, it is important to note that "A tightened labour supply in the 1960s encouraged the adoption of specialized equipment and greater use of chemical inputs (Ramsey et al., 2003)." (Niewójt, 2007). "Farmers in the region used DDT to control the cutworm and hornworm that attack the tobacco plant, and it is estimated that 40% of all DDT used in Ontario was sprayed on the Norfolk Sand Plain (Murdoch, 1980; Barrett, 1981, p. 86)." (Niewójt, 2007, p. 366). The effects of DDT were the impetus of the infamous work *Silent Spring* (1962) by Rachel Carson. "Before 1973 when it was banned, DDT entered the air, water, and soil during its production and use as an insecticide" (Toxicological Profile for DDT, DDE, and DDD, 2002). Subsequent eutrophication from fertilizer runoff has greatly affected the building blocks of many of Lake Erie's ecosystems. It is believed that these efforts alternatively affected regional ecologies, such as bird populations. "Bald eagles known to have nests on Long Point were gone by the mid-1960s (Barrett, 1981)" (Niewójt, 2007)

Figure 8: Bald Eagle coasts over the tip of Long Point at Sunrise. August 31st, 2020.

It is important to note that similarly highly exploitative plantation economies were operating across America at this time, and it is important to recognize the immense turn to synthetic carbon fertilizer to remediate the desertification of the 'dust bowl' twenties (Ohlson, 2014). This is the chemical legacy of a market that is most likely embedded inside my very own body.

The sandplain is fragile, therefore there was a large push, namely from the local Provincial Forest Station in St. Williams to plant trees to block the wind and stabilize the soil. "Indeed, the plan worked splendidly and over seven million seedlings were planted in Norfolk County during the 1920s alone (Kuhlberg, 1996, p. 138). By 1931, 20% of the land was under

forest, and this was the highest proportion of woodland amongst the counties of southern Ontario (Parson, 1994, p. 245).” (Niewójt, 2007, p. 369). It’s important to note that these trees were not species diverse and were often exotic species imported from Europe (Ibid.).

Profound changes began to affect the cigarette market at the end of the twentieth century as research began to emerge concerning the harmful effects of cigarettes, causing the market to diminish (Niewójt, 2007). This- paired with higher taxes and higher tariffs, resulted in many farmers no longer pursuing tobacco and switching to various other crops (Ibid). Throughout the course of my fieldwork, I visited farms that grew soy, lavender and hay. Fields of ginseng and asparagus are other prominent sights in the region. In addition to these changes, farmers are increasingly faced with more drastic temperatures and the depletion of nutrients within the soil. Tobacco farmers were incentivized with 300 million by the federal government in 2008, to switch to other crops. This money was directly from the 1 billion dollars in smuggling fines imposed upon Imperial Tobacco and Rothman's Benson & Hedges (Perkel, 2008). These two companies plead guilty to smuggling cigarettes across the border in the 1990’s, and this was one of the largest fines of this nature in Canadian History (Perkel, 2008). Farmers in the region had to accept a buyout of 300 million, despite the fall-through of an additional 200 million the provincial government proposed to add, and many switched to more diversified cash crops (Perkel, 2008; Niewójt, 2007).

Wetlands, streams and partially arid dunes would have once speckled these landscapes. Today, farmers must retain irrigation ponds, and install drainage tiling under the earth to manage flows in ways that foster plant growth and subsequent capital accumulation. Notably, Norfolk County has recently pushed back against ‘wetland’ designations produced by remote aerial

surveys conducted by the MNRF (Sonnenberg, 2020). This new mapping technology designated many people's productive and manufactured environments (irrigation canals and drainage areas) as 'wetlands', which were thus subject to specific building codes and conservation measures (Sonnenberg, 2020). This is a widespread practice in Southern Ontario, I visited many properties where streams and ponds were abstracted from their surrounding properties, unable to be altered freely by those mediating the surrounding landscape. These are the current bureaucratic confines attached to 'modern water', where "all waters can be and should be considered apart from their social and ecological relations and reduced to an abstract quantity." (Linton, 2010, p. 16). This is value being imposed. This example and consequent social upheaval is a key example of cultural understandings and their physical, material ramifications.

Ultimately this is a government imposition of the nature/culture dichotomy, which served to disposes people of certain means of production which they had created and maintained. The mayor described the move as "expropriation without compensation" (Sonnenberg, 2020). As previously stated, I hope to expand the semantic understanding of the wetland, to broaden it. This includes understanding 'wetlands' as integral parts of productive, capitalist systems. During my fieldwork, I spoke with many farmers. Many of these farmers were engaged in wetland restoration and conservation projects, namely through the work of Alternative Land Use Services Canada. Alternative Land Use Service, (colloquially referred to as A• liss), is an organization that works with over 160 families in the county of Norfolk to reconstruct ecosystems in 'non-productive' parcels of farmland areas. I toured restored grasslands, forests and wetlands. Norfolk has the longest running ALUS program in Canada. It is estimated that there are fewer than a hundred families still producing tobacco in the region, which is less than currently involved in the ALUS program. These projects mark a notable shift in the agricultural landscape of the

region, namely regarding domestication. "Domesticated land refers to human-dominated landscapes – cities, croplands, heavily managed grazing lands – that have been converted from more natural biomes, such as forests, savannas and grasslands" (Steffen et al, 2015, p. 90). Through the ALUS program, 'marginal' and 'non-productive' parcels of land are rewilded, following a consensus process between the farmer and the community members that form ALUS. Most farmers I spoke with described the desire to draw new species to the properties and were pleased to see new birds and mammals occupying their converted areas. The farmers are incentivized with 'maintenance' payments, which are provided by international companies, wealthy individuals and investors. These payments are dictated by the market, and for farmers with land in Norfolk County; a region in which a diversity of high(er) price crops can grow, payments are higher. There are a few other organizations that work in the area to provide similar services to farmers.

The rise of neoliberal investments and the abundant creation of community conservation programs, demonstrates clear ways in which democratic systems have failed to protect populations from the extractive forces of globalized capitalism. Additionally, "Domestication, [..] is a fundamentally incomplete and unstable process." (Everrett Fry, 2020, p. 15), but neoliberal investments are able to transform 'incomplete' aspects of domestication [ei. 'unproductive' parcels of land], into commodities (Igoe Brockington, 2007; Faure, 2015). "This process transforms valuable biodiverse areas into 'transnationalised spaces of high biodiversity value', which have been reregulated in order to give them a new economic value and make that value available to transnational elites' interests (Igoe and Brockington 2007: 441; Ferguson 2006)" (Faure, 2015, p. 33). Traditions of dominion, neoliberalism and 'modern water' convene

to create the restored wetland landscapes found in Norfolk County and other regions of Southern Ontario.

The 'bottom-up' - consensus based decision making approach of programs like Alternative Land Use Services is in direct contrast to the governments approach, and purposefully so. Certain farmers in the region expresses a distrust for governmental top-down initiatives. When intense economic markets foster vast monocultures and forest depletion, (such as in the historical case of Norfolk County) local communities are often left to make the long-term investments when these localities become dislocated from these global markets (Kingsolver, 2015). In Norfolk County, farmers are building their own networks to cost effectively remediate the ongoing soil nutrient depletion that has taken place over the last century. Farmers are an important component of land management, as this is their primary role within our current capitalist systems.

The amount of domesticated land is one of a just a few trends that shows a significant slowing in the era of the "Great Acceleration" (Steffen et al, 2015, p.90). Less land domestication is a direct result of repeated desertification, and due to this mass desertification, we have collectively attained limits regarding 'productive' and 'arable' land commencing in the 1950's and continuing through the most recent decade (Kingsolver, 2015). The profound sense of dominion that has been physically cultivated alongside industries such as that of tobacco have begun to attain limits, with plantation economies causing widespread nutrient depletion and carbon release from the soil. "When a mass-oriented way of production moves away from a given location, local communities tend to have reached dimensions beyond the carrying capacity of their local environments and are no longer self- sufficient productive regimes." (Vaccaro,

2010, p. 28). As is the case for the construction of large dams, authors Steffen et al. argue that our ability to domesticate kinetic water has plateaued (2015). We are living in an era of post-domestication, both in terms of land/soil viability and lake productivity. This is the context in which the farmers of Norfolk are situated. A lot of the people engaged in farming with whom I met, additionally held full time employment some as teachers, nurses or government workers. An interviewee argues "that a hundred-acre farm cannot support a family the same way it once could" (Personal Interview 6, 2020). 'Volatile' markets with recent instances of profound corruption, excessive use of harmful pesticides and increasingly frequent detrimental climatic events, all culminate to alter forms of tradition rooted in dominion, therefore altering overall practices of domestication. It is within these entanglements that the farmer in Norfolk County seeks out alternative approaches to farming. It is within this setting that the farmer seeks to renew relationships with certain species and landscapes.

Residential knowledge, local knowledge – wetland infrastructure

"This illustrates a key point: through the communities that coalesce around infrastructures, people can become committed to or advocates for particular enactments of the environment—commitments with moral connotations and material consequences (Carse and Lewis 2017; Jørgensen 2013). " (Carse, 2019, p. 105)

Those I interviewed vacationing in Long Point often discussed the Causeway as a prominent feature of the surrounding landscape. The Causeway is a critical infrastructure, which traverses and divides Inner Long Point Bay from Big Creek Marsh, providing access to vehicles traveling to the Point. For many, this road signifies the start their vacation. During my fieldwork, the Causeway was personally both a vital aqueduct and an obstacle. Long Point is virtually suspended from the rest of Norfolk County, surrounded by watery landscapes. The only way I could independently travel to the grocery store, the library and archives, the farms, was to ride

my bike along the fairly narrow roadway. I dared not travel towards Port Rowan during the weekend, when a ton of vehicles would have whizzed by me. I did fair the route a few times during the weekdays, and foolishly stuffed my backpack with books that had enticed me, leaving room for only a few groceries. I would not recommend transporting a pack of books across the 3 km roadway. Nonetheless, the Causeway is very striking, with the expansive blue bay to your left and Big Creek Marsh to your right. The marsh is stunning at sunset, and warm and vivid hues would illuminate the enormous stalks of invasive Phragmites.

The Long Point Causeway has been subject to many transformations throughout the decades since it's construction in 1927 and completion in 1929 (Hazen, 2001). Originally constructed to facilitate access to the newly designated Long Point Park, the Causeway was a difficult feat that greatly expedited access to areas of Long Point not owned by the Long Point Company. Teams of local men were employed to scrape the bottom of the marsh and create a solid base for the route (Ibid.). Hay, sand and gravel were brought in from farms in the region, to stabilize a road across the marshy area (Ibid.). Three bridges were constructed to connect existing sandbars, the longest bridge being over two hundred feet in length (Ibid.). Additionally, willows were planted along the roadway to stabilize the path (Ibid.). I imagine that a few of these willows are still in place today. Around this same time, Big Creek Muskrat farm was erected along the route and large portions of Big Creek marsh were dredged or dammed to facilitate this venture (Hazen, 2001). Twelve miles of fencing were built around their over 2000 acres of marsh, as well as two large buildings, one of which housed the muskrats in cages (Ibid.). The muskrat farm was not operational for very long. Interestingly, the Canadian Wildlife building was built in the same spot much later.

This roadway infrastructure altered the accessibility of Long Point, and various cottages and roads were built in the subsequent years, within the old park boundary. Many properties were originally leased, but many cottages were sold to private owners by the 1950's and 60's (Environment and Climate Change Canada, 2020). Still today, the community 'cottagers' organization, is named the 'Long Point Rate Payers Association', instead of the more commonly used 'Cottager's Associations' that speckle the province. Today, there are roughly 600 cottages along the base of Long Point, off the Causeway, and there are an estimated 5000 people that use these cottages each year (Ibid.). When looking at a map, roads, canals and the cottages along them, resemble long fingers extending into the marshy borders of the bay. In addition to the cottages, there are areas designated for trailers as well. In addition to those with vacation properties in Long Point, many more people will use the Causeway to access the beaches and the Provincial Park. It is estimated that over 10,000 vehicles travel across the Causeway during weekends in the summer months (Markel et al., 2017). Through these infrastructures, Long Point was opened to exploration and scholarly research, which hit its peak in the 1980's (Harrison & Archer, 2008, p. 5). While traveling down the Causeway when I was younger, one would often see biologists and volunteers scouring the road and its boundaries for turtles. During my fieldwork, a large team of archeologists sifted through the dryer soil situated at the mouth of the road, looking through the layers of earth for artifacts left by ancient mound building societies (Ingold, 2002). Now, in 2021, one will most certainly confront a sizable team of construction workers, widening the roadway.

Many changes have been made to the causeway since its original conception. One could argue that the route was in a perpetual state of remediation due to fluctuating water levels. The Causeway was placed under the responsibility of the province in 1950, connecting with Highway

59. Through this, this route became more standardized and entrenched in a broader structure of governance. With access to greater resources, and in an effort to reduce flooding, the road was reconstructed and raised by a meter in half around this time (Markel et al., 2017). This project also filled in three of the viaducts which allowed for movement between the bay and the marsh. It is interesting to note that with water levels in Lake Eerie reaching unprecedented highs in 2019 and 2020, even with this amendment in 1950, the roadway was partially underwater following certain severe meteorological events.

More recently, around the turn of the century, the Causeway was reimagined again, as local populations began to recognize the damage that this mid-century modification caused in respect to local landscapes and ecologies. I must stress that this push was driven by certain members of the local community, that noticed the fragmentation and loss of herptile life cause by the road's location and its continual use. Long-time cottagers, anglers and a few young researchers, recognized the high rates of mortality caused by this divisive infrastructure and the equally detrimental near absolute fragmentation of habitat. Subsequently, "high levels of road mortality were documented in road-kill surveys conducted in 1979, 1980, 1992, and 1993 (Ashley and Robinson 1996)." (Markel et al., 2017, p. 343). This infrastructure was particularly detrimental for a variety of reasons. The Causeway fragments the bay from the marsh thus separating many species from their preferred landscapes of foraging, spring mating and winter dormancy (Ibid.). Big Creek Marsh is a critical landscape for many threatened and endangered species (Markel et al., 2017, p. 343). Members of the local Anglers Association recognized the Causeway as an impasse for flows that would carry breeding fish and their eventual fry in and out of the marsh. Turtle populations are arguably the most affected, as turtles have a delayed sexual maturity. Even without 'human interference', small turtles are susceptible to predation,

and therefore large declines in adult populations can greatly affect a species (Ibid.). Local populations experienced then interpreted these fractured refrains and organized as a group to attempt to rectify the situation in the region.

A committee was formed with both local community members and government employees (Markel et al., 2017). It is important to stress the collective approach to this recognized problem. The problem of road mortality was approached in three different ways. First, was the enactment of fencing along both sides of the route. This measure, following research, was found to be only somewhat effective in keeping wildlife off the roads, as partial fencing would sequester animals and cause them to cross in certain areas (Markel et al., 2017). In addition to the fencing, seven culverts were installed under the roadway in 2012 and 2014 (Ibid.). A few of these culverts were installed in the same locations as the original bridges that were constructed in 1927. The old flows that were integrated into the marsh from the first causeway construction, were still utilized by many non-human actants, and affected flows and sedimentation. Therefore, it was deemed optimal to remediate these flows and construct the canals in the same place as the bygone bridges. The third and arguably most affective initiative was that of community engagement and education. In the early 2000's a sign would often grace the base of the causeway, lit up with the catchy phrase 'Break for Snakes'. Media was distributed in person and online which outlined the importance of stopping and moving turtles off the road. Smaller signs made of animated turtles speckle the private properties of the various roadways of Long Point, with the plea "WATCH 4 TURTLES" printed along the green background. Children's books such as *Never Give Up* (Everett, 2013) and community science initiatives, covers for turtle nests, all with the cumulative goal of facilitating our relationship with the wetland landscape and the creatures that construct its ecologies.

The causeway is a spout that facilitated the inflow of tourism and development into the wetland region. Additionally, there was certain push back regarding these costly measures, (roughly 10 million cumulative, both raised and funded) (Personal Interview 11, 2020). But in terms of road mortality, these measures have been arguably successful, with road mortality reduced by 80% (Markel et al., 2017). Additionally, there are generally protective attitudes in the area towards turtles and removing or helping turtles off the roads. Although many turtles still die, namely along Erie Blvd., there are teams of people making efforts to minimize these deaths. Ultimately, "the local should not be seen as an antidote to the global, but "as a site of both promise and predicament." (Kingsolver, 2015, p.48). Big Creek Marsh and Long Point Bay would likely flourish without the human infrastructures that permeate through it, but by altering infrastructures to include the non-human (namely in this case herptile and aquatic lives) we are approximating ourselves to wetland temporalities. This project is built from concerns of local populations as their lives became more closely tied to marsh ecologies. Members of this community, especially those who have ties to the region, are "deeply committed to the more modest possibilities of partial recuperation and getting on together. Call that staying with the trouble" (Haraway, 2016, p.10)

This also highlights the ways in which we may recognize, and organize, collectively, the damages that are done through certain infrastructures, but not others. Nonetheless, these initiatives extend beyond the confines of the Long Point Region and can effect change in any region where the paths of cars, roads and wetlands become mortally entangled.

Figure 9: Watch for Turtles Sign.

This intervention may seem small, and primarily reactionary, but it illustrates current contexts and possibilities for the future. Especially in "southwestern Ontario, Canada, [where] roads are of particular concern because of the high incidences of species- road interactions, given

that the great majority of all land in this region is within 1.5 km of a road (Gunson 2010)" (Markel et al., 2017, p. 342). This investment centered around human- species interactions, grown through care, has garnered information on how to interact more favourably with our environments, and may one day set a precedence when the province builds through wetland landscapes.

Conclusion

These passages highlight the way certain wetland refrains are interacted with in the region. "The philosopher Bernard Kalaora has noted how the conquest of water by means of its conceptual abstraction and technical control has broken relations that otherwise bind specific groups of people to the waters of particular territories." (Linton, 2010, p. 18). Over 75% wetland area in the province of Ontario has been altered through filling and/or drainage and repurposed for integration into the Plantationocene and Capitalocene. Despite the widespread deterritorialization of watery landscapes in Ontario and much of the modern western world, there are certain people that maintain relationships with wetland landscapes, and therefore construct a certain territoriality within the confines of these contexts. As described, bird watchers and duck hunters experience the wetland landscape through avian refrains. Farmers and shoreline property owners have recently begun remediating flows in ways that prioritize wetland landscapes. Through the exploration of the Long Point Causeway, we garner an appreciation of the mutually constitutive complexion of infrastructures, which are often a key component of modern wetland landscapes.

In various ways, these relationships may carve a positionality in conflict with western framework of 'modern water' (Linton, 2010). In these emerging relationships, watery landscapes are experienced and valued. Not only are they valued but sought after, becoming mutually

constitutive. By exploring the experiences of birders, farmers and shoreline property owners, we can envision the ways that wetlands exist as ecological infrastructures, shaped mutually by the landscape refrains of the human and non-human (Scaramelli, 2021). Building upon this chapter, the next chapter explores the politics of landscape that are constructed through the experience of wetland temporalities, and how this causes disjuncture under bureaucratic systems that historically sought to deterritorialize our relationship to watery flows.

Chapter 3 – Bureaucracy, Barriers and Beach Rubble

Introduction

This chapter is dedicated to the politics of landscape, which was a repeated topic of conversation for most correspondents I interviewed. There was often a precise sentiment conveyed, one of 'economic' pursuits being privileged over the needs of the wetland landscape and the populations living with. In the region, I would argue that there is a very vocal critique of regional economic 'development'. Specifically, the seizure of land for private interest. For example, a few respondents reiterated their concern that Long Point was seemingly inevitably going to be 'developed' in response to tourism. Many interlocutors lamented that Long Point could be transformed in a similar manner as one specific adjacent town, where infrastructure had transformed the shoreline. In another interview, a cottage owner asserted,

> In this area, in particular, as far as the stewardship goes there's a ton of interest in the biosphere, in the sands, in the wetlands, and what I'll suggest in Norfolk and in Long Point is that there are now too many cooks in the kitchen. No command, no central body that has jurisdiction or a final say or can reign in political motivations that are contrary to what probably needs to happen. (Personal Interview 13, 2020).

The third chapter of this research will braid themes present in the previous chapters to demonstrate the ways that wetlands landscapes have become deeply embroiled in bureaucratic forms of governance. Historically, in relationship to state governance, wetland landscapes have been transformed from 'vacant' and 'unproductive' areas to dynamic environments that are now conserved as 'national landscapes. These new natural infrastructures "are interesting because they reveal forms of political rationality that underlie technological projects and which give rise to an "apparatus of governmentality" (Foucault 2010, p. 70)." (Larkin, 2013, p.328). I will argue and demonstrate through different ethnographic accounts that there is a disconnect between current bureaucratic forms of governance and current local relationships with wetlands. Although

I was hesitant and unprepared to delve into complex political issues most interviewees mentioned a distrust (in promises), dislike (of bureaucracy) or fear (of development) regarding the various levels of government. Therefore, I believe it is important to shift my own inquiry to align with the voices of those I spoke to in the region. People often reported feeling confused or helpless when discussing their options regarding mitigating water in, on or around their own properties. Drawing on the work of David Graeber, I highlight the recent changes made to Conservation Authorities in Ontario, as well as the social and material ramifications of these changes.

Figure 10: Martin's Restored Wetland amongst the soybean fields.

Martin and the Marsh

Bouncing along in Martin's four-wheeler, we peered over the soy fields, languidly rolling out beneath the blue sky. Martin used to grow tobacco but was bought out as part of the government buyout in 2008. Old but relatively persevered kilns line the right side of the barn, behind the cedars. Like many farmers planting in Norfolk County, Martin grows cash crops, like corn or soy. A small section of the field is rented out to other potential gardeners. The small bean leaves wave in the soft wind as we bounce along the dirt pathways between the fields. These fields are distinct from different regions, as they are divided by a few clear cedar hedgerows, lines of mature cedars that block the crops from the wind and foster taller, healthier crops. Although these projects are not unique to one program, this cedar hedge growing initiative is a part of Martin's work with Alternative Land Use Services.

With the collaborative efforts of other members of ALUS's program and private donations, Martin can pursue the restoration projects that he deems beneficial to grow crops and improve diversity in the environment. Martin points down along the cedar rows and highlights the wetland restoration project he manages with ALUS. A wetland lies at a low point in the field, surrounded entirely by rows of small soybeans, with the cedar hedge running parallel adjacent to the Olympic pool-sized pond (Figure 10). Instead of investing time and effort into growing crops in this patch of unsuitable land, Martin has opted to give the space reterritorialized purpose by pursuing the necessary steps to transform a small landscape nestled within the more enormous managed crop monocultures. First, the area is lightly excavated, compost added, and the slopes are planted with native vegetation. These projects take a few years to develop and thrive, and therefore farmers are asked to commit to projects and maintain their longevity.

Martin's farm has been in the family for generations. Like many other farmers in the area, he has family also manages other properties for agriculture nearby. Many of these family farms are small compared to the large acreages of agricultural land operated by large companies in Southern Ontario. This wetland restoration project helps Martin in various ways. The pond helps reduce runoff; it mitigates temperature and drought and collects carbon. Martin seems more excited about the amount of diversity he sees returning to his yard. He laments about the diversity of species he used to see in the region compared to now.

I ask him questions concerning the concepts of ecosystems services; where people like himself are compensated for maintaining healthy biodiverse landscapes. The farmers of Norfolk County are compensated very competitively through ALUS for their highly productive acres of land. In most of the Country farmers are compensated less than they are in Norfolk County. He laughs to himself a bit, and muses "what's the price of seeing an animal return here you haven't seen in ten years?". And it seems to be true. Even though farmers are compensated (by the precise acreage) to maintain the wetlands through ALUS, many participants discuss the experience of adding wetlands to their properties, and not the monetary benefits. Martin for example discusses the more abundant wildlife. He enjoys seeing ducks and other waterfowl using his wetland. One couple claims they would pursue the projects even without the payments, as they find the wetland enriches their experience of their landscape, which they are then able to enjoy. The couple loved to walk their dogs around the pond, where ducks would nest in the spring. They would sit and enjoy the area during the hot summers.

Driving along, we pass the rows of crops that renters have paid to plant in the field. Next to that, we pass a few acres of planted tallgrass prairie. Further on, we approach a beautiful more established pond in a deeper gully. Larger trees hang unhappily over the edges and dip their

dying branches in the murky waters. The pond is an irrigation pond that has maintained the function of the farm for decades. Serving as a basin to catch and store water, the irrigation pond is critical for the farm.

There are many prominent bottom-up initiatives concerned with water management that have arisen in Norfolk County, groups that were extremely responsive to my inquiries and the concerns of the general public at large. Notably, these community organizations include the Long Point Biosphere, Long Point Basin Land Trust, and Alternative Land Use Services Norfolk. Each champion and emphasizes community, education and dynamic action (obviously to varying degrees). Each is seemingly filling a need that is either ignored or even created by governing institutions. In this neoliberal context of conservation, the individual and their immediate community is responsible for stewardship of the landscape, as corporations navigate bureaucratic structures to continue the increasing percentage of wetland loss in Ontario. There were many examples of this throughout my fieldwork, but primarily I will be exploring the recent introduction of Bill 229 Schedule 6.

Bill 229 Schedule 6

During the timeframe of this thesis, there were various social upheavals and protests that were taking place in neighbouring counties and throughout Ontario. One of which was the widespread response to Bill 229 and more precisely the portion concerning Schedule 6. Aside from a widespread social upheaval, this bill has had consequential material ramifications. The social upheaval following the enactment of Bill 229, Schedule 6, was widespread, and I believe this small case study is very interesting when researching bureaucracy and our current relationships with wetland landscapes. Many of those I spoke with discussed their relationship to governance, which for wetlands, is largely filtered through the authority of the Ministry of

Natural Resources and Forestry (MNRF) and the local Conservation Authority. The Conservation Authority Act was enacted in the 1940s, in response to poor land, water and forestry management such as the market extraction that affected the ecologies of Norfolk County so profoundly in the early 1900s (Khan, 2021). Conservation Authorities' powers were amended after Hurricane Hazel in 1954, to include the regulation of lands in the plight of conservation and public safety. The path of Hurricane Hazel traversed over Long Point, and reportedly the causeway was littered with the debris of all sorts (Hazen, 2001). Before Bill 229, "Regulations enacted since Hurricane Hazel restrict new development in flood plains, allowing rivers to flow naturally and reducing the risk to people and their property during flooding" (Marsh, 2015). The mandate of the Conservation Authorities has been to create programs attuned to each individual watershed -remediating it in a way that protects people and property from flooding (Khan, 2021). They are equally concerned with conserving natural resources for social, economic and environmental benefits (Ibid.).

Bill 229 omnibus was introduced to the legislature in early November 2020, but not without a substantial public uproar from various organizations and communities. Bill 229 was a provincial budgetary review, labelled as a measure to *Protect, Support and Recover from COVID-19 [Act]*. The provincial government viewed this omnibus bill primarily as a budgetary act, in response to COVID-19, and therefore the public was not afforded its right to official consultation (Khan, 2021). Schedule 6 (of 44) was passed within Bill 229, to impose the restructuring of Ontario's Conservation Authorities through the modification of the Conservation Authorities Act (Khan, 2021). There were a few substantial changes made to this organization's authority through Schedule 6. First, the bill requires 70% of the members to be municipal councillors and removed their ability to instate threshold qualifications for members (Ibid.). This

limits the ability to have a diversity of constituents or regional experts involved in 'conservation' decisions (Ibid.). This in turn alters the motivations of the group, which will now be dictated by politics and renders the group primarily controlled by the bureaucratic government in the form of municipal councillors. An explicit part of Schedule 6 constituted excluding Conservation Authorities as "Public Bodies" (Khan, 2021).

The second substantial change made to the Conservation Authorities Act was the changes made regarding decisions concerning permits (Khan, 2021). Schedule 6 allows the Minister of Environment to circumvent any permit decision made by a Conservation Authority (Ibid.). When an individual applicant's permit is denied, "they can appeal an unfavourable decision directly to the Minister or to the local planning appeal tribunal (LPAT). The process is also longer, more complicated, less transparent and provides the Minister with the discretion to ignore the basis of a CA's permit decision." (Khan, 2021). The auditor general noted that the during the provincial government's current term, it has frequently avoided compliance with the Environmental Bill of Rights (EBR), which in the case of Bill 229 would usually afford the right of public consultation (Ibid.). This government has also removed the role of the environmental commissioner and has made amendments to the *Environmental Assessment Act* (Khan, 2021*).* One environmental lawyer writes that the provincial government's disregard for the EBRs "increasingly seemed designed to stifle public opposition to projects that may have a significant environmental impact." (Khan, 2021).

Despite efforts to avoid public discourse, there was substantial social upheaval in response to Schedule 6 (Rankin, 2020). Promptly many Conservation Authorities and NGOs sent letters to the provincial government opposing the proposed changes to the Conservation

Authority Act (Rankin, 2020). The Canadian Environment Law Association analyzed Bill 229 and stated that it was part of a 'disturbing trend' and that "the package of amendments as proposed are likely to set back watershed planning and implementation of an ecosystem-based approach by decades," (Ranking, 2020).

In early December, in response to the proposition of this Bill, six members of the Ontario Greenbelt council resigned, following the resignation of their colleague, and the council chair David Crombie (King & Bowden, 2020). One of the six Greenbelt councillors that resigned was Pamela Blais, author of *Perverse Cities: Hidden Subsidies, Wonky Policy and Urban Sprawl* (2010). In their resignation letter, Blais writes, that it is

> 'Troubling' that the use of ministerial zoning orders has been expanding and development projects have been increasing in 'size and scale'. […] This has often occurred without due assessment or consideration for broader planning impacts without the benefit of an explicit framework to reveal why some projects are chosen over others, and without the opportunity for meaningful public input. (King & Bowden, 2020).

Community groups and environmental advocacy organizations across the province were vocal during the time frame of this ethnography. There was a profound presence of online activism, with extensive traction being gathered on online platforms like Twitter and Facebook. Tim Gray, from the group Environmental Defense, stated in a Tweet that it would be hard to "identify anyone, except for developers who actually want to see this go ahead" (Ibid.). This instance is reflective of the concerns of many individuals that I spoke with in the region, who were critical of the government's support of the private enterprise. For example, Norfolk County promotes the beaches for tourism, hoping to draw capital to the region, without providing the resources and infrastructure to accommodate these tourists. The provincial government argued that incorporating Schedule 6 would be economically beneficial for the taxpayer, stating it 'will

save taxpayer money' (King & Bowden, 2020). In response to this point specifically, Conservation Ontario estimates that these changes could increase the permit approval process by as many as 200 days (Ibid.). This reflects Graeber's *Iron law of Liberalism*, in which any "government initiative intended to reduce red tape and promote market forces will have the ultimate effect of increasing the total number of regulations, the total amount of paperwork, and the total number of bureaucrats the government employs" (Graeber, 2015, p.14). Additionally, groups concerned with managing our relationship with the watersheds of Southern Ontario, fear that these development decisions are nearsighted and that the destruction of any additional wetlands will exasperate the effects of flooding in certain regions (Khan, 2021). Many interlocutors in Norfolk County underscored the complexity of bureaucratic control exercised on watery landscapes in the region. The provincial government argues that these measures will be more efficient, pandering to the very legitimate complexities of the structural institutions involved in wetland management here in Ontario (Ranking, 2020). If the intent was to remove barriers for communities, these conservation authorities would have been disbanded. These recent political decisions facilitate the development of land by distant venture capitalists and lengthen the process for the individual property owner. Property owners in scenic tourist destinations, such as Long Point, have a vested interest in preserving the surrounding environments and supporting biodiversity. In Long Point, there are various communities of people that have spent their lives interacting with the refrains of the landscape, who are advocating for more cautions and ethical development of tourism economies in the area. There are many people who have experienced long-term ownership in Long Point, which imbues individuals with a more "accurate understanding of property hazards as they represent continuous observations through cycles of high and low water." (Rasid et al., 1992, p. 35).

Through boating, fishing, swimming, snorkelling, birding, kayaking, duck hunting, and various other activities, people foster a temporal understanding of the environment. The destruction of these landscapes, which is furthered by Bill 226 is sensed as consequential to their being and ways of living.

In Long Point, there have been ongoing disputes concerning Hastings Dr., a section of road that traverses the south end of Big Creek Marsh, standing meekly between the rolling waters of Lake Erie and Big Creek Marsh (Sonnenberg, 2021). After a devastating winter storm in 1985, Hasting Dr. was designated as a hazard land (Yee and Cuthbert 1985, Rasid et al., 1992). The cottages that remained after the storm were granted permission to remain, but those whose cottages were destroyed were impeded from occupying this land again. Despite this, in 2009, Norfolk County "suggested to vacant property owners that limited recreational uses were allowed on Hastings Drive" (Sonnenberg, April 19, 2021). As landowners returned and began enacting alterations on their properties, around 2018, the newly elected Norfolk County Council voiced their support and therefore bylaw charges were dropped. This decision has since been pursued in court, and in April 2021 a Judge ruled that Norfolk County must in fact enforce its own bylaws (Ibid.).

These cases seem to highlight certain intricacies of systematic wetland management, and the inconsistencies involved in their governance. In these larger political contexts, bureaucracy becomes a means by which a small percentage of the population exercises control over transformations of landscape (Graeber, 2015).

Max and the Marsh

When Max was young, he remembers skating along the long beach of Long Point in his buggy, equipped with a sail to catch the wind. The waves of Lake Eerie would crash far off in the distance and break-even further offshore over the many moving sandbars. The blue-green water ripped angrily as the wind escaped the lake's grasp and spilled over land, catching and dragging the light metal frame over the sandy iron beach. Upland, in the dunes, one is surrounded by sandy clumps of supported roots or steep sandy dunes. Nestled between the dunes are shallow wetland pockets of herbaceous reeds and aquatic plants. In the spring there are numerous small flowers tucked in the sandy outcrops and slopes. Max explains that you wouldn't have to worry about the dunes when he was younger, and you could just coast down the flat expansive beach for 30km. When he was younger, the beach was much wider. The end of the Long Point feels like a hidden sliver of paradise. On the other side of the point, in the bay, Max will take out his father's boat and spend full days exploring the marshes. Huge snakes litter the landscape with alarming plenitude. But for Max, and many people who grew up visiting the region, these spaces have become inaccessible. Unfortunately, regulations imposed first by the Long Point Company and then the Canadian Wildlife Service, fully restrict people from ever accessing the area. There are only a few small spots of crown land that remain in the Long Point spit, and in the summertime, these spaces are often heavily enjoyed by local boaters.

Despite the restrictions placed upon the 30 km of vast beach, the beaches that line the townsite are poorly maintained. An extremely hardworking couple managing a beachfront property expressed frustration in respect to the municipality's push to encourage regional tourism to promote the economy in the area. The municipality hopes to promote tourism in this area without providing adequate regulations, infrastructures or resources for these visitors. Norfolk County installed parking along a sensitive wetland road, so more people could access the public

beach area but did not even provide washrooms in these places (washrooms have since been added). During COVID-19, many municipalities restricted the number of people able to use the public beaches, but in Long Point, they have not. There are many ways that the municipality attempts to foster the regional economy of tourism, but the couple both agreed that "taxpayers should not pay for the work of private businesses and businesses should not rely on the local municipalities." (Personal Interview 4, 2020). One interviewee living along the beach recounted that they had decided to try to voice their opinions concerning the effects of crowded beaches to the appropriate regulators. After clearly listing their various concerns about inadequate infrastructure for the droves of weekend beachgoers they ultimately were unable to locate anyone willing to listen. This interlocutor conveyed their frustration; stating: "We have no champions, not the ministry, not the municipality, not the Long Point Region Conservation Authority" (Personal Interview 7, 2020).

Captured Flows

The ethnographic experience of fieldwork can be exciting and fun, but it can be paired with real tangible moments of uncertainty, loneliness and defeat. Ingold describes it well when he writes, "the solitary fieldworker brings nothing else than her own self, doubting the existence even of that until it is gradually refashioned in the society of her new-found hosts. It can be lonely at first." (Ingold, 2021, p. 162). I do not wish to wallow in these moments, as I can confidently say that much of my experience in Long Point was positive. Nonetheless, it is equally important to be transparent, and pair the good with the bad, notably when these moments seem to afford a certain clarity.

I sat on the beach that day, rethinking a recent interview. I tried to take this challenging encounter in stride, and I still felt as if the interview had been amicable, and I had garnered an

additional perspective on the local perceptions of water management. As the grey sky caressed the endless skyline, I scrolled through my phone, digging my feet under the cold, dark, damp sand. At that moment, I did feel like I was taking on a task more suited for someone with more experience, someone with a deeper understanding of the region. Recent interviews highlighted so many important issues, and I was overwhelmed with the different logics, concerns and conspiracies brought forth by my many interlocutors. It was difficult to discern 'truth' from 'fiction' and impossible to untangle the 'heroes' from the 'villains' regarding land ownership and management. It seemed as if each person I interviewed presented me with another case in which a government regulation had been reversed, a contradiction enacted or simply overt instances of Kafkaesque bureaucratic nonsense. I thought a lot about a local occurrence in which a large, beautiful cottage had been swallowed up by the rising lake water, as the owners frantically tore through paperwork to complete the appropriate permits to reinforce their property. I thought of their belongings littering the black peat of Big Creek Marsh. Was this cottage a casualty of too many individual interests constrained and prioritized over the wellbeing of an adjacent public marsh area? Or was this the result of a violently uncompromising bureaucracy?

In *Utopia of Rules* (2015), Graeber argues and discusses the many ways that "structural violence creates lopsided structures of the imagination" (p. 81). Regarding the structural bureaucratic functions that concern property and water management in Long Point and in other municipalities across Ontario, this means that those engaging with and living within the landscape will end up doing "more of the actual, physical labor required to keep society running, they also do most of the interpretive labor as well" (p. 81). To highlight this interpretive labour, let's take the example brought forth during an interview. One interlocutor describes how the Ministry of Natural Resources and Forestry (MNRF), will conduct research by pitching index

nets into the bay a few times a year (Personal Interview 11, 2020). This data is legitimized and utilized by various organizations to push conservation policy and other top-down projects. It would be difficult to argue that this information is as comprehensive as the collective knowledge of the local Angler's association, which is composed of generations of knowledge built upon a great deal of time spent interacting with local marine ecologies. In reference to this information, an interlocutor muses; "sure it's anecdotal, but it's the wake of anecdotes that makes the difference, right?" (Personal Interview 11, 2020). I could also recall the example put forth in the last chapter, where irrigation ponds were designated as 'Provincially Significant Wetlands' by remote imaging technology. Or another example would be some of the private property owners along the shoreline, who form dynamic organizations and community alliances to manage certain threats to their local landscape, while also having little authority over the shoreline, which is owned by the MNRF.

Throughout my research, I found it blatantly clear that creative structures of organization are crucial to the future of water management. Fundamentally, 'land' is possessed by the crown and therefore operated by agents of the state who are employed to exert this ownership by threats of violence and the control of social relationships. This is directly tied to processes of colonialism. There is a complex network of regulations that govern wetland landscapes and our relationships with them. As pressures on Ontario's wetlands have increased (urbanization, pollution, alteration to natural water levels, invasive species and climate change) so too have the network of regulations and policies tasked with controlling them. "Currently, wetlands are managed through a variety of policies that include over 20 different pieces of legislation administered and/or implemented by five provincial ministries, two federal departments, a

provincial agency (Niagara Escarpment Commission), 36 conservation authorities and 444 municipalities." (*A Wetland Conservation Strategy for Ontario* 2017–2030, 2017, p. 11).

These institutional structures in the region, which include municipal bylaws, the MNRF, the Canadian Wildlife Service and partially the regional Conservation Authority, act to assume the needs of 'citizens'; and oftentimes these regulations do not reflect the actual needs of those they are engaging with the environment (Graeber, 2015, p. 82). Here I argue that the regulation of our collective relationships with the environment must be as dynamic as the landscape itself. Bureaucratic structures seek to standardize and reify our relationship with certain landscapes. Therefore, grassroots approaches are more effective as they are attuned to, and can attend to the landscape's temporal changes. Through my research I would argue that this is an important and urgent aspect of 'conservation' that must be addressed, as damaging climactic events become increasingly frequent and unprecedented.

As Tsing highlights, bureaucracy is not removed from the market, but "the bureaucracy was the market; it's goal [..] to promote entrepreneurship" (2003, p. 5103). Graeber highlights the ways that the 'private' and the 'public' become increasingly intertwined and offers up the term 'total bureaucratization' (Graeber, 2015). There are various examples that illustrate the ways that markets are unable to regulate themselves, and "that an army of administrators was indeed required to keep any market system going." (Graeber, 2015, p.14) When we understand bureaucracy in this way, the institutional structures that govern wetland management in Southern Ontario can be understood more clearly.

Earlier we asked if the destruction of a cottage after a particularly violent storm was a casualty of the 'tragedy of the commons', or a consequence of an uncompromising bureaucracy.

Tsing argues that there is institutional adoption of the assumptions present in the 'tragedy of the commons' (Tsing, 2003). The *'tragedy of* the tragedy of the commons' (Ibid., p. 5103). Let's deconstruct Hardin's arguments to illustrate these assumptions. Through the case study of a shared grazing field, Hardin's thesis stipulates that open access to 'common property, which in this research would be wetlands and shorelines, will surely lead to resource depletion and economic waste. Hardin's thesis basically argues for the environmental benefits of private property, in which individuals own and therefore mitigate their own delineated lands. The concept of the 'tragedy of the commons', has been greatly contested. Hardin's conclusions were born of the specificities of the English countryside and therefore are profoundly based upon certain assumptions (Acheson & McCay, 1987, p.67). Two of these assumptions are that the landscape in question, 'the commons', is both owned by a group of people and that it is entirely open access. For various reasons, this is not the case in regard to Southern Ontario's wetland landscapes. The third assumption required to produce the tragedy is that of greed. The users must be selfish and must be able to freely pursue self-interest, without thought or interference from the social pressure to contribute to a collective good (Ibid.). The assumption is that users will prioritize their own short-term gain without regard for individual or communal longevity. Briefly, Hardin's theory is contrived from the social and political context of the early English countryside – of early capitalism and imperialism. These are the assumptions on which much of our wetland management policy and subsequent bureaucracies are based. The 'tragedy of the tragedy of the commons, is "the tragic result of state and corporate policies that assume and enforce open-access conventions as the flip side and precondition of private property" (Tsing, 2003, p.5103). Through bureaucracy, capitalism enforces a sense of scarcity which sets the stage for expansion through the privatization of the commons. Bureaucracy is born of fear, "because

this open-ended creativity' is also what allows it to be randomly destructive" (Graeber, 2015, p.192). Graeber argues that rules are everywhere, but bureaucracy curtails any anxieties we may have about the destructive capacities of 'play', therefore bureaucracy is a game that is 'no fun' (Graeber, 2015, p.192). Bureaucratic measures are seen as " a way of creating fair, impersonal mechanisms in fields previously dominated by insider knowledge and social connections" but unfortunately, "the effect is often the opposite" (Graeber, 2015, p. 39). Graeber uses the example of financial aid within a University. Stating "it's precisely the children of the professional-managerial classes, those whose family resources make them the least in need of financial support, who best know how to navigate the world of paperwork that enables them to get said support" (Graeber, 2015, p. 39). This reflects current structures surrounding wetland management in Southern Ontario. As pressures surrounding wetland conservation mount, so too does the number of permits and policies. The bureaucratic structures engaged in wetland management in Southern Ontario, mimic that of the corporate enterprise, and therefore the bureaucratic process is easily circumvented by private corporations. Companies like Amazon often engage in compensation agreements, where they reconstruct elsewhere the wetlands they have destroyed, in a 1:1 ratio (Crawley, 2021). But anyone engaging in wetland landscapes understands that not all wetland refrains can be anthropogenically reconstructed at a 1:1 ration. In Southern Ontario, when we discuss wetland management, I argue that 'private' and 'bureaucratic' interests should be seen as having equal stance, a 1:1 ratio of influence.

The conservative provincial government highlighted the complexity of the permit process, when implementing Bill 229. Despite this, those engaged in the permit process assure us that the regulations have been increased. Amazon can receive Ministerial Zoning Orders, and

then those engaged in relationships with wetlands must organize to combat the entirety of the system controlling wetland management.

Conclusion

> Bureaucracy has been the primary means by which a tiny percentage of the population extracts wealth from the rest of us, they have created a situation where the pursuit of freedom from arbitrary power simply ends up producing more arbitrary power, and as a result, regulations choke existence, armed guards and surveillance cameras appear everywhere, science and creativity are smothered, and all of us end up finding increasing percentages of our day taken up in the filling out of forms. (Graeber, 2015, p. 205).

Throughout this chapter, I touch again on the early efforts that were made in the region to reterritorialize the landscape of Norfolk County after intense resource exploitation in the early 1900s. Groups like the Long Point Company and St. Williams Forestry Station, worked with regional ecologies to transform the landscape of the region. Now, Long Point is recognized as a region of high biodiversity. Presently, in the vast network of wetland management regulations in Ontario, we can observe certain power relationships that categorize landscapes and dictate the flow of future refrains. Bureaucratic systems that control wetland management are built upon concerns of free-market exploitation, yet the institutions that enact these measures increasingly mimic the free market and therefore are more easily swayed or navigated by larger corporations. Bureaucratic structures limit our ability to play in these dynamic environments and enact the creative solutions that we have long since been developing to live amidst the shorelines and amongst the wetland landscape. Throughout the *Utopia of Rules* (2015), Graeber laments at mundane nature of modern infrastructures, even quoting Richard Barbrook saying, "Contemporary reality is the beta-version of a science fiction dream." (p. 212). His thesis is that "there appears to have been a profound shift, beginning in the 1970s, from investment in technologies associated with the possibility of alternative futures to investment technologies that

furthered labour discipline and social control" (Graeber, 2015, p. 243). This is true in terms of wetland management. We imagine dynamic shores, rich with planted native species and more sustainable infrastructures. There are continuously new projects and alternative futures being explored for cohabitating along the shoreline and in wetland landscapes, but they cannot be utilized under standardized structures of bureaucracy. The concerns brought forth by interlocutors are a plea for a shift from punitive efforts toward dynamic collaborative engagement.

We begin to acknowledge that the health of coastal ecologies affects the health of interconnected marine environments (Hatakeyama, 2019). Historically we have created blockages in these landscapes both ontologically, through histories of imperialism and western science, and physically through barrier walls constructed of steel, which is processed then shipped on Great Lake Freighters. I argue that wetland policy often alienates individuals from the watery refrains found on their own properties but facilitates the systematic alteration of larger wetland landscapes.

We have observed the complexities of the flows that convene within the space of the wetland, and the dynamic wetland refrains that exist within these landscapes. The ways in which we organize around water should be attuned to the temporality of the wetland landscape. Groups such as ALUS Norfolk, Long Point Basin Land Trust, Long Point Biosphere, and various other NGO's in the region, are built upon bottom-up initiatives, where a certain diversity of voices can be heard. We need organizations that are attuned to the diversity of entanglements between humans and the wetland landscape. Comprehensive conservation sees landscapes not just as networks of intervention or extraction, or places of contemplation, but also as constitutive of our lives (Doyon & Vaccaro, 2019, p. 16-17).

Conclusion

Figure 11: Swallows in Flight.

An evening in or around a marsh is an exceptional experience. Swallows stream across the deep cerulean sky as I peer up between the fruit trees planted long ago at my grandmother's cottage. Various species of swallows and purple martins will migrate through Long Point by the hundreds of thousands in the spring and fall, forming frenzied patterns and dizzying flight paths above the reeds and cattails. I can only make out their shapes at this time in the evening, as their silhouettes quickly come and go in and around the canopies above. The air smells cool, and there's a light spray coming off the lake. There is a faint trace of campfire smoke in the air.

This thesis presents us with a glimpse of the complexities that convene to formulate the landscape of the wetland. Utilizing the concept of the Anthropocene, we may contend that the wetland landscape is simultaneously "urban, industrial, rural, wild, and engineered" (Scaramelli, 2021, p. 7). In Long Point, past interventions stand as reminders of bygone industries, markets, and colonial occupation of space, what Tsing has called *the ruins* (Tsing, 2015). We can paddle the length of Big Creek and travel the same route that once facilitated the flow of felled trees to market. From the beach, peering over the fiercely pounding waves, we can make out the freighters that transport raw goods to their designated chains of production. In this landscape, flows collide. I demonstrate how the wetland, in the Anthropocene, is an amalgamation of flows, a temporal landscape. The ruinations of post-industrial societies, the "extraction, or the disconnection, of a community away from the market" (Vaccaro, 2010, p. 23), and anxieties concerning the future convene in these landscapes. In contrast, the push to preserve the wetland landscapes is a push to rethink the larger systems that inform our relationships with 'modern water' (Linton, 2010). Since these wetland landscapes are so profoundly embroiled in these systems, reterritorialization will require us to challenge these more extensive systems of oppression, colonization and capitalism.

During my time in Long Point, I was fortunate enough to be able to spend time with many people who had a deep affinity for their environment. Through birding, and duck hunting, one becomes acutely attuned to the avian refrains and wetland temporalities. The marshes and forests enshrouded with water held new encounters for me each day as birds pursued their foods, flights and territories. I also met with farmers who were actively seeking out initiatives to introduce new interspecies connections to their properties. In large part, these programs are inspired by the soil depletion left behind by the transitory tobacco industry. This push to

reintroduce wetland refrains to plantation landscapes that begin to challenge certain notions of dominion that have been foundational to the Plantationocene in Southern Ontario for decades (Tsing & Haraway, 2019; Everett-Fry, 2021). Then too, we alter our relationship with the wetland landscape through the modification of infrastructures, remediating critical routes to the refrains of fish and turtles. The successful efforts regarding diminishing road mortalities in Long Point may set a precedence for future construction in wetland adjacent areas. These examples demonstrate how being in relationship with the many refrains that form the wetland landscape may be the best way to reterritorialize the wetland.

In addition, this research offers a reflection on the bureaucratic structures that mediate our relationships with current-day watery landscapes. Through structures of bureaucracy, our ability to form dynamic relationships with our environment is mediated. Larger conglomerates can circumvent these institutional structures, and therefore the institutionalized assumptions surrounding 'modern water', affect communities' and individuals' relationships with wetland landscapes (Linton, 2010).

The major limitation of this research was the context of its ongoing completion during the COVID-19 pandemic. When me and my colleagues began this process in the fall of 2019, the world was a much different place, and COVID-19 has deeply caused individual and collective pain. COVID-19 affected each aspect of interaction during the time frame of this thesis. I would like to reiterate that I have been privileged to have been able to complete the requirements of this process, and I am deeply thankful. In this time of widespread uncertainty, I was extremely rewarding to be able to speak so many exceptional people volunteering their abilities for the future of their communities.

An additional limitation of this research would be the underrepresentation of direct contact with individuals working with certain governmental organizations, namely the Canadian Wildlife Service, the Ministry of Natural Resources and Forestry, and the Long Point Conservation Authority. When I contacted these organizations, I was sometimes directed towards online websites, databases, policy, appendixes, and meeting notes. I do believe that social protocol concerning COVID-19 may have hindered my ability to interact personally with certain individuals in public positions, perhaps due to added precautions and heightened responsibilities. Additionally, there were substantial time constraints involved in the production of this thesis, and therefore I was unable to engage with certain aspect of the environment. I was unable to experience a full year of migration and could only engage with the lake in certain ways. In an ideal context I would have hoped to learn more about the aquatic relationships that exist in the region. I would have liked to fish with and interview more anglers. I would have liked to explore more of the extensive ruination that is present in Lake Erie, whether through scuba diving or beachcombing.

This research has potential to be expanded in various ways. This research argues that developing relationships with wetland landscapes is our best way to conserve these landscapes and foster these entangled refrains. Research exploring the current spectrum of remote, unique or marginalized relationships with wetlands would afford us a deeper understanding of possibilities for living amongst these refrains. There are many recent works which approach these questions. One such examples includes the work of Scarmelli (2021). Keck's book (2020) is a recent reflection on avian interspecies connections in China. This book recounts a much different approach to relating to the 'avian'. Each of these works presents alternative approaches to observing the wetland, approaches that could be explored to be introduced to the region of

Norfolk County. For future research in the region, there is a substantial movement happening regarding land rewilding and neoliberal investment. There were many programs involved with the processes, and future research on this unfolding phenomenon is crucial. Specifically, the spectrum of organizational approaches that exist underneath the umbrella of 'neoliberal conservation'. There is a myriad of neoliberal investment conservation programs in the region of Norfolk County. In addition to studying the intricacies of different approaches within this model, we may also study how these programs interact with one another, and other governing structures. These organizations form complex networks in the region of Norfolk County.

This research has potential information that may be useful for those engaging in wetland management in the area, and for those combatting bureaucratic structures that are erasing wetlands in Ontario. I hope to have voiced certain experienced reterritorializations of the wetland landscape. I spoke with those engaging in wetland refrains, crafting relationships within these increasingly rare landscapes. The wetland complexes of Long Point afford us introspection on ways to live in relationship to the wetland landscape, and point to new possible futures, both in "promise and predicament." (Kingsolver, 2015, p. 48).

The trend of wetland loss will persist without widespread systemic reform. Reconstructing relationships with wetland landscapes requires an approach attuned to the various refrains that convene in these temporal chokepoints. Through this research I hope to have argued that the wetland landscapes of Norfolk County have been actualized, or constructed, in their current form, due to their relationship with the human, and not despite its relationship to the human. Widespread wetland renewal will require dynamic, and collaborative efforts in place of punitive and acquisitive measures. In a murky reflection, we may vaguely grasp the many ways that certain wetland landscape refrains constitute us in new ways.

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