

ABSTRACT

Title of Dissertation: CULTURAL HERITAGE AND CLIMATE
CHANGE ADAPTATION PATHWAYS

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Anthropology

This dissertation seeks to ethnographically understand the role of cultural heritage in climate change adaptation decision-making, and the mechanisms by which heritage is used to shape adaptation pathways for responding to climate-induced socio-ecological changes. Cultural heritage can broadly be understood as the practice of engaging with change through an ongoing social processing of the past. Research on cultural heritage to date has demonstrated the ways that heritage is closely linked to issues of identity, power, and sociocultural processes of change (Lafrenz Samuels 2018). In the context of climate change adaptation, heritage research has much to offer to a growing body of literature that points to the need to better understand the underlying sociocultural factors that affect social resilience and human adaptation (Cote and Nightingale 2012). This dissertation speaks to these calls in approaching heritage as a mechanism for carving climate change adaptation pathways. I explore the role of heritage as an adaptation pathway in the context of a collaborative adaptation

planning project called the Integrated Coastal Resiliency Assessment (ICRA), which was carried out on the Deal Island Peninsula, a rural, low-lying area on the Maryland eastern shore of the Chesapeake Bay. I utilize qualitative methods in semi-structured interviewing, participant observation, and text analysis to ethnographically elucidate a range of heritage threads and to analyze how these threads shape collaborative adaptation decision-making through the ICRA process. Findings from this research identify three overarching heritage themes that are embedded in local Methodist traditions, traditional watermen livelihood practices, and histories of isolation and independence. I demonstrate how these threads are used to frame local understandings of socio-ecological change and climate change vulnerabilities on the Deal Island Peninsula. I also demonstrate how broader heritage deployments in the Chesapeake Bay shape local experiences of vulnerability through processes of disempowerment. I conclude with a discussion of how heritage is integrated into the ICRA process to facilitate a bottom-up decision-making process that re-empowers local actors in governing their own vulnerabilities. The main conclusion from this research points to the importance of considering heritage mobilization in climate change adaptation planning.

CULTURAL HERITAGE AND CLIMATE CHANGE ADAPTATION
PATHWAYS

by

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Dedication

This dissertation is dedicated to the people of the Deal Island Peninsula

And to my grandmother, Suzanne Flick McGilvray, who inspired an appreciation for
my own heritage story.

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List of Abbreviations

CBP	Chesapeake Bay Program
DIPP	Deal Island Peninsula Project
EPA	Environmental Protection Agency
GIS	Geographic Informant System
ICRA	Integrated Coastal Resiliency Assessment
IPCC	Intergovernmental Panel on Climate Change
MCCC	Maryland Climate Change Commission
MDDNR	Maryland Department of Natural Resources
NERRS	National Estuarine Research Reserve
NOAA	National Oceanic and Atmospheric Administration
SHI	Skipjack Heritage, Inc.
TMDL	Total Maximum Daily Load

Chapter 1: An Introduction to Heritage Pathways and Climate Futures

Introduction

We arrived at an old farmhouse turned bed and breakfast in Dames Quarter, Maryland on a quiet evening in 2016 to meet with members of Skipjack Heritage,¹ Inc. (SHI), a local non-profit organization set up to preserve the heritage of the Deal Island Peninsula, a rural coastal area on the eastern shore of Maryland deeply rooted in watermen² traditions. I was there with two colleagues from the Deal Island Peninsula Project (DIPP) to introduce SHI to heritage research that two of us would be carrying out through DIPP as part of our respective graduate programs. For me, this was the beginning of my dissertation fieldwork to understand the role of heritage in shaping a DIPP climate change adaptation planning project.

DIPP is an initiative that was founded in 2012 as a collaborative experiment to test how well collaborative learning and decision-making processes could foster supportive networks of knowledge, resources, and capacities to help the rural, low-lying areas of the Deal Island Peninsula enhance their resilience to ongoing and future socio-ecological changes (Johnson et al. 2018). The end result was a rich network of stakeholders ranging from local residents and watermen to university scientists, environmental planners, government officials, and environmental professionals from across the region. The DIPP stakeholder network was now embarking on a new collaboration project, an Integrated Coastal Resiliency Assessment (ICRA) to develop

¹ Traditional sail-powered oyster dredge boats mostly widely used during the peak of the Chesapeake Bay oyster industry during the 19th century. See Chapter 2 for more details

² Commercial fishermen of the Chesapeake Bay

adaptation strategies to ongoing and future climate changes impacting the Peninsula. SHI, as one of DIPP's partnering organizations, was a logical place to start the quest to unravel my questions of heritage and climate change.

As I stood before the ten or so SHI members, struggling to find the right words to explain to them my (very academic) definitions of heritage and thoughts on the value of heritage for decisions about the socio-ecological changes they face, I knew I had lost them when one individual stood to implore, "But *why*? What *does* this get us?" This experience was the introduction to my ethnographic quest to find heritage in climate change planning processes, and this SHI member's question -- though at the time it left me quite defeated, is at the core of this research. What does an ethnographic examination of heritage in climate change decision-making get us? How does it help us pinpoint and understand the ways that the past is operationalized in shaping the way people engage in decisions about change, particularly changes as challenging and controversial as climate change? And what do the answers to these questions have to offer to DIPP's endeavors to support the socio-ecological resilience of the Deal Island Peninsula?

My journey through this field of questions has demonstrated that heritage considerations do in fact have much to offer, particularly in terms of how heritage frames understandings of climate change and experiences of vulnerability, and how it can be mobilized to empower locally-supportive adaptation planning processes. Through the chapters that follow in this dissertation, I hope to demonstrate the value of heritage as a pathway towards supporting resilient climate futures. In the rest of this introductory chapter, I provide an overview of the literature on heritage,

including how it has been applied to climate change concerns. I then introduce the Deal Island Peninsula, followed by a brief overview of the dissertation's chapters, detailing what will be discussed in each and how it helps us understand the role of heritage in climate change decisions-making in the context of the ICRA.

The Anthropology of Cultural Heritage: A Sociocultural Process of Change

The past is richly woven into everyday life in complex ways that play an important role in how we negotiate change in the present and future. It becomes at once our barometer of change, our compass for change, as well as a tool for bringing about change. Understanding how the past is continually reworked and harnessed in social processes of change is at the core of the anthropology of cultural heritage, which seeks to dissect the complex entanglements of history, culture, and identity that facilitate the ongoing dynamism of social life (Lafrenz Samuels 2018). Cultural heritage can broadly be understood as the practice of engaging with change through an ongoing sociocultural processing of the past (Hafstein 2012). Through acts of remembering, heritage selectively transforms history into something intimately tied to our personhood that is at once powerfully grounding and persuasive (Lafrenz Samuels 2015, Lowenthal 1996). It becomes a mechanism for rooting our sense of self and belonging in a world that is always undergoing change (Basso 2006, Harvey and Perry 2015, Salmón 2012); for managing lived experiences of change (Meskell 2013, Rico 2014); as well as a cultural resource for authorizing, mobilizing, resisting, and engaging in change (Hafstein 2012, Lafrenz Samuels 2015, Smith 2006). It is, as aptly put by David Harvey (2010), the “human condition” of change (320).

Cultural heritage has been widely explored within the field of anthropology, with application relevant to a broad spectrum of research topics, including heritage management, tourism, development, identity construction and place meaning, and as well as climate change (e.g., Breen 2007, Coombes 1998, Daehnke and Lonetree 2011, Little and Shackel 2014, Hafstein 2012, Harvey and Perry 2015, Hodder 2010, MacEachern 2010, Rico 2014, Rosenblatt 2013, Smith 2006). The below discussion is not intended to provide a comprehensive overview of this literature, but rather to help theoretically frame heritage in a way that is relevant to understanding how heritage informs future-oriented decision-making processes about climate change vulnerabilities. The themes that will be discussed below combine to make heritage research a rich and powerful approach in the context of understanding the underlying sociocultural drivers influencing climate change decision-making.

Heritage, Agency, and Resilience

Heritage is intimately tied to issues of agency in that through heritage we develop the capacity to affect change by empowering pathways “to mobilize people and resources, to reform discourse, and to transform practice” (Hafstein 2012, 502). Valdimar Hafstein (2012) posits that heritage becomes a tool of agency as a “category of things, an instrument for categorizing the world and therefore also for changing it” (502). As such, heritage he suggests constructs “particular regime[s] of truth” that give potency to identity and positionalities in affecting change (502). It is a way of organizing history--of using the past to establish “a position,” and for authorizing that position in addressing contemporary concerns (Trouillot 1995, 15). Kathryn Lafrenz Samuels (2015) argues that heritage develops its potency to affect change by taking

form as rhetoric, giving “persuasive force to particular standpoints, perspectives, and claims” (4). As rhetoric, heritage functions as a “focusing device” and a “kind of strategy” that is continually remolded to fit particular moments and contexts so to give persuasive power to the past in mobilizing actions to affect future outcomes (7-8).

The persuasive powers of heritage can also be linked to processes of building social resilience, or having the agency to carve pathways towards desirable futures (Wilson 2012). Social resilience considerations are particularly important in the context of developing socio-ecological resilience³ to ongoing and future climate change because it captures the processes of human adaptation, which others in and outside of the heritage literature and anthropology have notably linked to human agency (Adger 2000, Beel et al., 2017, Cotes and Nightingale 2012, Fabinyi et al 2014, Finan 2009). The need to examine social resilience separate from socio-ecological resilience emerges from critiques that point to overlooked distinctions between human and natural systems (Adger 2000, Berkes & Ross 2013, Cotes and Nightingale 2010, Fabinyi et al 2014). As a number of these individuals have argued, a socio-ecological resilience framework tends to problematically assume that like natural systems, human adaptation decisions are largely a response to biophysical shocks. However, the nature of *how* and *why* humans adapt is more tied to a set of complex sociocultural responses to concerns about access, equity, and agency (Cotes and Nightingale, Fabinyi et al 2014, Finan 2009). Tim Finan (2009), for example, positions human adaptation not as “mechanical adjustments to natural perturbations,

³ The capacity of a system to absorb or adjust to external shock (Walker and Salt 2006).

but as a more profound sociocultural confrontation with the root causes of vulnerability” (179). Through these ‘sociocultural confrontations,’ he argues that human adaptation emerges as a mechanism to enhance resilience by carving out access points to agency. Relevant to the discussion of heritage, Cotes and Nightingale (2012) point specifically to the importance of considering epistemological and ontological frameworks that affect dimensions of power, particularly pointing to the need to account for “situated knowledge,” or knowledge that is temporally embedded in place-based experiences of change. They argue that it is imperative to frame “human adaptation to change [as emerging] from heterogeneous processes that must be understood through the recursive relationship between knowledge, agency, and context as mediated by power, culture, and history” (485). Therefore, to understand how humans engage in discussions about socio-ecological resilience to climate change, it is necessary to examine the sociocultural filters through which these experiences of change are framed and mobilized.

Beel and colleagues (2017) point to cultural heritage as a key sociocultural driver of social resilience, as it is through mobilizing the past that social groups are able to “adjust to, or attempt to rework, or resist change” in ways that support local narratives of identity and place, and in turn social wellbeing in the midst of change (461). Pruecel and Pecos (2015) nicely demonstrate the ways that heritage becomes a tool of social resilience in their case study of the Cochiti Pueblo’s response to the loss of sacred sites and important cultural landscapes following the construction of a Federally funded dam project in New Mexico. In it, they show how the Cochiti people are able to strategically harness institutionalized discourse of ‘place’ to

empower their own culturally-rooted values and knowledge of what it means to be ‘in place,’ and through it mobilize bottom-up governance processes that support temporally-rooted socio-ecological relationships key to their identity.

As this case-study alludes, heritage is also a source of social resilience as a linkage to inherited knowledge, practices, tools, and ways of dwelling within landscapes that help to ground local identity, place-meaning, and sustain socio-ecological relationships that empower a particular way of being in the world and navigating change (Ingold 1993, Marino 2015, Nuttall 2009, Salmón 2012, Brace and Geoghegan 2010). This can be linked with Tim Ingold’s (1993) discussion of temporally-rooted processes of dwelling that inform how we move within landscapes (see Chapter Four for a more detailed discussion). Mark Nuttall (2009) demonstrates the way that the cultural notion of ‘sila’ functions in this capacity for the Inuit of Greenland. ‘Sila,’ a concept meaning “breath of life” is used to situate one’s personhood within the dynamism of Arctic seasonal changes, where becoming Inuit is developed and embodied through the movements and changes of the local environment. It is through sila that he suggests Inuit are able to remain highly adaptable, and therefore resilient to ongoing and future change, including to climate change. However, Nuttall and others (e.g., Salmón 2012, Marino 2015) also demonstrate how the erosion of key socio-temporal networks (e.g., kinship ties, communal cohesion, social relationships with the landscape) can critically limit access to these culturally adaptive pathways, highlighting the importance of heritage in sustaining these key socio-ecological dynamics.

As much as heritage is a source of social resilience, it can also be a source of vulnerability through the ways that it can be used to disempower social actors. This is in large part attributable to the inherent dissonance of heritage, where heritage is by nature conflictual and full of contestation (Tunbridge and Ashworth 1996). Tunbridge and Ashworth attribute this to the operations of heritage, where particular threads of the past are pulled upon in mobilizing change that inevitably exclude threads, including those that may importantly support the well-being of others. As Trouillot (1995) notes, “any historical narrative is a particular bundle of silences” (26). This can result in marginalization and acts of silencing that infringe upon social access to agency needed for navigating ongoing and future change, that in turn create experiences of vulnerability. The multi-vocal and multi-local nature of landscape processes, and the political nature of heritage as a tool of agency lead to power imbalances that impact social capacities to engage with and respond to change in resilient ways (Bender and Winer 2010, Harrison 2009, Rodman 1992). Lynn Meskell (2012) interrogates the dissonance between the preservation of natural heritage and cultural heritage in South Africa’s quest for nation building in a post apartheid era. She highlights the injustices that emerge as a result of powerful threads of natural heritage that dislocate important parts of local cultural identities as part of this process. Erve Chambers (2006) frames heritage dissonance in the context of what he terms ‘public’ and ‘private’ heritage. He demonstrates the ways that public heritage, or top-down institutionalized heritage forms tied to tourism development can obfuscate and disempower more private forms of heritage tied to important temporally-rooted parts of local identity and place meaning. In particular, he

discusses this in the context of the Chesapeake Bay watermen, who have been locked into new socioeconomic structures that limit their access to traditional adaptive pathways.

Iain Robertson (2012) presents a mechanism to re-empower local place-based histories through his conceptualization of ‘heritage from below,’ where heritage projects emerge outside of institutionalized heritage discourses to help support and mobilize locally articulated identity constructs. Enrique Salmón’s (2012) ethnography on the Ramuri of New Mexico and Northern Mexico provides a nice illustration of the application of heritage from below, where traditional foodways are mobilized in ways that help re-empower indigenous identity and resilience. This speaks to an emergent body of literature on heritage development, which seeks to develop heritage as a resource for stimulating local capacities through developing social and economic partnerships to improve quality of life (Galvani 2009, Lafrenz Samuels and Lilley 2015).

Looking more directly at the intersections of heritage and climate change, heritage has an important role to play, particularly in terms of understanding the underlying social, political, and cultural filters through which climate change is understood, as well as providing a tool for re-empowering temporally-rooted and placed-based relationships with socio-ecological change in adaptation decision-making (Jigyasu et al. 2013). Climate change in the 21st century poses some of the largest and most challenging changes to have confronted humans in modern history, changes that will manifest in many different forms across local to global scales and have wide ranging political, economic, sociocultural, and environmental implications.

In mobilizing efforts to enhance socio-ecological resilience, it is important to find ways of empowering adaptive pathways that fit local cultural context, such as through engagements with heritage (Hawkes 2001, Jigyasu et al. 2013, Lazrus 2009, Sayre 2017). Matthew Sayre and colleagues (2017), for example, demonstrate how they integrate local ecological knowledge and traditional agricultural practices with science in facilitating a community-led adaptation platform to assist indigenous potato farmers in adapting to climate change impacts in the high Andes of Peru. Their adaptation model constructs a rights-based approach through the mobilization of ‘biocultural heritage,’ or indigenous landscape practices. By engaging adaptation through biocultural heritage, they show how they empower local actors in directing the development and allocation of resources, services, and political and legal support in ways that enhance local socio-ecological resilience to changing conditions. Through this particular case study it becomes clear how heritage becomes a platform of human agency, not only for empowering a local identity, but for placing the governance of climate vulnerabilities in the hands of local actors, which Heather Lazrus (2009) argues is a necessary component of adaptation governance to climate change.

Accessing Heritage through Ethnography

Ethnography has long guided anthropologists on a quest to unravel and make relevant other worldly experiences -- to colloquially understand what it is like to ‘walk in someone else’s shoes.’ These quests are increasingly taking place here in our own backyard as we seek to carve spaces for human equity, justice, and diversity. In

the context of understanding how heritage functions as a social process of change, ethnography is particularly valuable because of the ways that it allows for what

Kathryn Lafrenz Samuels (2018) calls,

an experiential witnessing of cultural heritage at work in the world: of the daily practices and built conceptual worlds of institutions, communities, individuals; of how policies and models become translated on the ground, often with unintended consequences that are damaging to those involved, or orthogonal to the original intent (3).

The research presented in this dissertation is guided by ethnographic approaches to heritage in order to access and tease apart the tacit and nuanced ways in which the past informs people's engagements with climate change. In the context of vernacular landscapes, like those of the Deal Island Peninsula, ethnography allows us to examine the dialectic between the lived experiences of change and constellations of power to better understand how heritage is engaged in understanding change, resisting change, and carving pathways of change.

Meet the Deal Island Peninsula

Nestled on the Lower Eastern Shore of the Chesapeake Bay in Somerset County, Maryland, is the Deal Island Peninsula, a low-lying area of forest, wetlands, marshy hammocks, and coastal islands that unfurls into the Tangier Sound. It is home to roughly 1,000 residents who live in six small rural communities deeply rooted in watermen and farming traditions. They include, from east to west, the communities of Oriole and St. Stephens, Dames Quarter, Chance, Deal Island, and Wenona. There are two commercial harbors in the area, located in Deal Island and Wenona. Deal Island Road provides the only roadway access to the area, which stretches 18 miles from the County Seat in Princess Anne to the tip of the Peninsula in Wenona. It meanders

through farmland and thickly forested areas, passing through the community of St. Stephens before opening to wide expanses of wetland, where the roadway transitions to causeway before reaching the communities of Dames Quarter, Chance, Deal Island and Wenona, each marked by the steeple of its Methodist church. The highest point is atop Deal Island Bridge, which passes over Laws Thorofare, a narrow straight that separates Deal Island from Chance (visible in fig.1.1). It is from this point that you can look across Tangier Sound towards the workboats making their runs between rows of crab pots in summer or dredging oysters in winter. On a clear day, you can also catch a glimpse of Smith Island in the distance, the widely celebrated Chesapeake watermen community that shares many roots with those on the Deal Island Peninsula. Also located nearby are two areas of State managed marsh. These include the Deal Island Wildlife Management Area and the Chesapeake Bay National Estuarine Research Reserve at Monie Bay, both which support a range of recreational activities, including hunting, fishing, and kayaking, as well as estuarine research, environmental education, and wildlife protection (see Figure 1.2).

As one drives westward on Deal Island Road, it is hard not to notice the omnipresence of water. Roadside tidal ditches that line the length of Deal Island Road frequently brim with water during standard high tides. Marsh grass edges front yards and graveyards and surround coastal pine forests silvered by the watery dynamics that continually shift the boundaries between land and marsh. Panoramic views of wetlands and the Tangier Sound at various points serve to reinforce the fact that water is a defining feature of the Peninsula, 54 percent of which is marsh (Cronin 2005). A closer look reveals a complex network of tidal and non-tidal ditches that weave their

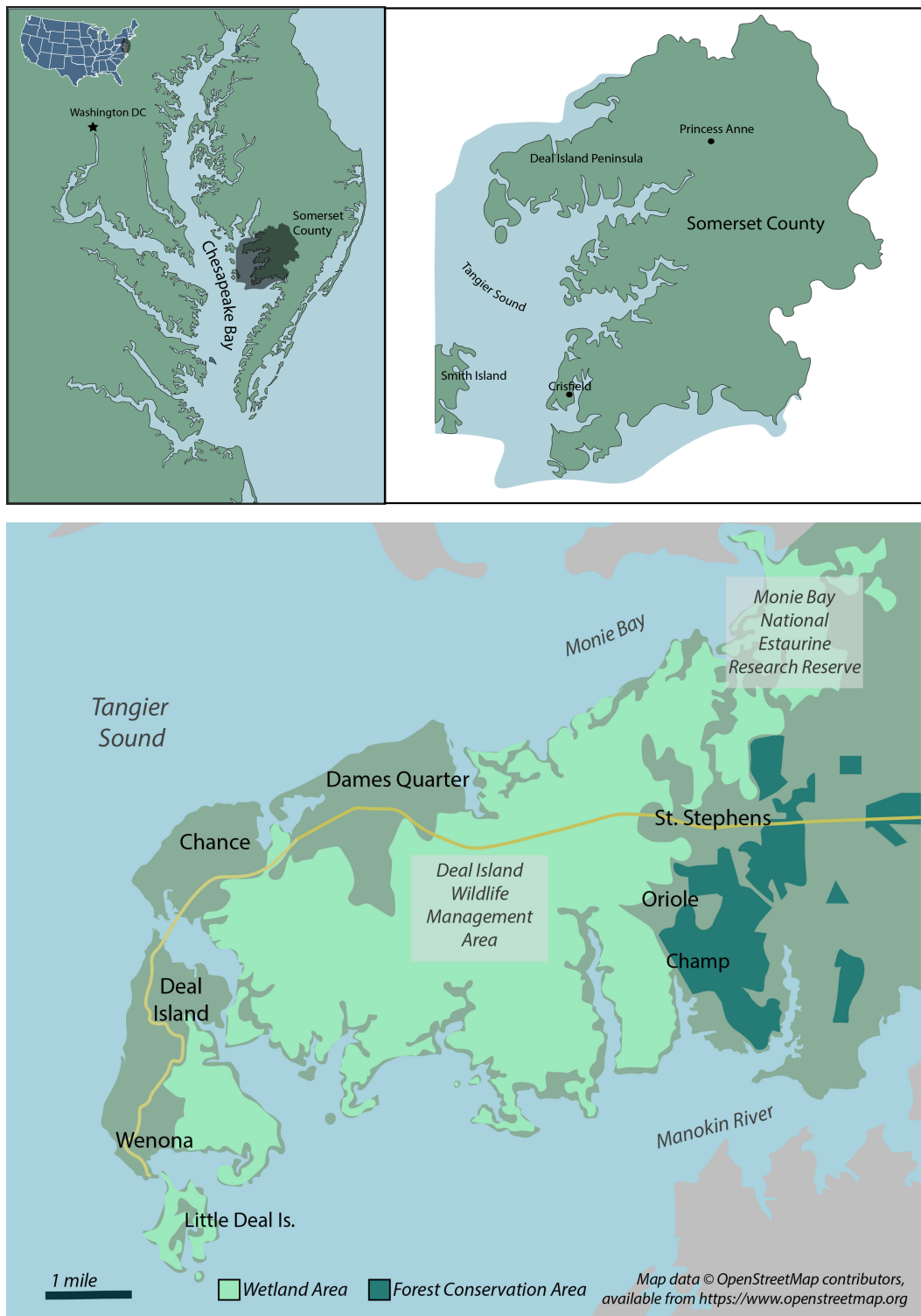
way through the marshes and the uplands, helping to regulate water flows across the landscape. Many of the ditches located throughout the marshes were dug in the 1930s by the Civilian Conservation Corps to manage mosquitos and precipitate salt marsh hay harvests for cattle feed and packaging (Needelman et al. 2015). Ditches in upland areas, in contrast, were dug at various points in time to drain tidal water off the landscape during storms and high tide events. Occasionally, these ditches overflow, temporarily inundating roadways and front lawns. Today, tidal ditches along County and State managed roads are maintained by the Somerset County Office of Solid Waste and Management and the Maryland State Highway Administration, while marsh ditches are managed by the Maryland Department of Natural Resources.

Figure 1.1: Aerial of the communities of Deal Island and Chance on the Deal Island Peninsula



Image Credit: Ben Fertig, Integration and Application Network, UMCES
(ian.umces.edu/imagelibrary/)

Figure 1.2: Maps of Somerset County and the Deal Island Peninsula



Chesapeake Bay map adapted from T. Saxby (2003, 2011), IAN Image Library, University of Maryland Center for Environmental Science. (ian.umces.edu/imagelibrary/). Somerset County map (top) adapted from Somerset “County Map” (1968). Deal Island Peninsula, Maryland map adapted from OpenStreetMap contributors (www.openstreetmap.org).

As you get to know the place and its communities, it is clear that water also seeps into the very souls of the people who call it home, many who carry on traditional watermen practices (i.e., commercial fishers), following the watery rhythms of this place, day to day and season to season as they make a living by ‘working the water.’ These traditions include harvesting blue crabs (*Callinectes sapidus*), shedding softshell crabs (also *Callinectes sapidus*), and tonging and dredging for oysters (*Crassostrea virginica*). Watermen’s families also engage in water-based livelihoods in managing seafood processing and business operations. Others support watermen businesses as mechanics, boat builders and marina operators, general store and supply shop owners, seafood distributors, among others. In more recent decades, working the water has been extended to also include activities such as charter boat fishing and skipjack (i.e., traditional oyster dredge boats) tourism. While there are increasing numbers of residents who work off the water, the identity of the Deal Island Peninsula remains very much grounded in its watermen traditions.

Figure 1.4: Watermen ‘working the water’ on Tangier Sound



Photo credit: Katherine Johnson

Planning for Climate Change on the Deal Island Peninsula:

In 2012, researchers from the University of Maryland in conjunction with the Maryland Department of Natural Resources developed a collaborative initiative called the Deal Island Peninsula Project (DIPP). The goal of the project was to facilitate a multi-scalar stakeholder network to engage in collaborative learning and decision-making processes in order to help enhance the resilience of the Deal Island Peninsula to ongoing and future socio-ecological changes, including climate change. The network includes local residents, watermen, as well as natural and social scientists, County and State government decision-makers and planners, and non-profit organization representatives. The network's efforts between 2012-2015 largely focused on building stakeholder connections and collaborative learning processes to better understand socio-ecological dynamics of the Peninsula. These efforts largely focused on developing scientific and cultural knowledge about the marshes, local heritage, and shoreline erosion and storms.

The early work of the DIPP led to the implementation of the Integrated Coastal Resiliency Assessment (ICRA) in 2016, which is the focus of this dissertation research. The ICRA was a collaborative learning and decision-making process used to document socio-ecological vulnerabilities on the Peninsula, assess these vulnerabilities using a range of scientific and ethnographic tools, and to prioritize key areas of concern to then select and develop targeted adaptation strategies. The project, which was completed in 2018 led to the identification of four focus areas on the Peninsula and two key issues of concern: shoreline erosion and ditch maintenance. The adaptation strategies that emerged from this work will be discussed in detail in

later sections of this dissertation. The Deal Island Peninsula and the ICRA provide an ideal context in which to investigate uses of heritage in the context of climate change adaptation decision-making.

Outline of Chapters

The following provides an overview of the rest of this dissertation, which follows in the six proceeding chapters. Chapter Two provides a historical overview of the Deal Island Peninsula, tracking the history of the Deal Island Peninsula and surrounding Chesapeake Bay region from the 17th century to the present. It also provides socioeconomic and demographic information on the area and the people who live there today. The historical context provided in this chapter is essential for then being able to understand how this history informs the various heritage threads that ethnographically emerge within the context of climate change discussions, which will be explored in depth through Chapter Four.

Chapter Three provides an overview of climate change projections for the Deal Island Peninsula, as well as for the broader Chesapeake Bay region, as it discusses the range of climate-induced socio-ecological impacts anticipated for the Deal Island Peninsula and Chesapeake Bay region between 2015 and 2100. This information will set the stage for a detailed discussion about the DIPP's ICRA, the focus of this dissertation research. The chapter also provides an overview of the methods used to collect and analyze data on heritage engagements in ICRA activities.

Chapter Four is the first of three substantive chapters on the findings from this dissertation. To help set the stage for examining uses of heritage in the ICRA, this chapter will explore in-depth ethnographic findings of how heritage informs the way

that local ICRA stakeholders, particularly those from watermen families (locally known as ‘born-heres’) understand past, present, and future climate change impacts on the Peninsula. This chapter frames these understandings within Tim Ingold’s (1993) conceptualization of landscape temporality, and Catherine Brace and Hilary Geoghegan’s (2010) framework of heritage as a “future-oriented temporality” to access locally-embedded knowledge about climate change. Drawing upon ethnographic data analysis, this chapter identifies three prominent heritage threads that local stakeholders used to frame climate change understandings on the Deal Island Peninsula. These include traditions rooted to Methodist histories, watermen traditions of ‘working the water,’ and temporally-embedded values for independence, each which have been particularly influential in shaping attitudes, understandings, and beliefs that inform how local stakeholders engage with the ICRA.

In Chapter Five, I explore the dissonance that emerges between Chesapeake Bay heritage narratives. In particular, I focus this discussion on the mobilization of heritage narratives tied to the Chesapeake Bay oyster in relation to efforts to restore the Bay, and explore the ways this use of heritage has left many watermen involved in the ICRA sensing their erasure from the Chesapeake Bay cultural landscape. It is this experience of marginalization that many of them point to in framing their own understandings of vulnerability to climate change, which I explore in detail through ethnographic data. This chapter provides important insights into how heritage shapes access points to agency, and how this affects adaptation pathways on the Deal Island Peninsula, particularly for watermen and their families.

In Chapter Six, I focus specifically on the implementation of the ICRA, as I examine how heritage was integrated into the process in ways that helped to re-empower local stakeholders through the activation of a bottom-up decision-making framework. Though the ICRA drew upon heritage in more tacit ways, the chapter demonstrates the value of heritage integration by illustrating how it allowed for local place-based knowledge and needs to guide the decision-making processes in ways that also helped address local experiences of vulnerability discussed in Chapter Five. This chapter provides additional insights into the importance of heritage considerations for carving culturally-fitted adaptation pathways for climate-induced socio-ecological vulnerabilities.

Finally, in Chapter Seven, I provide a summary of the dissertation and synthesize the findings from this ethnographic exploratory of heritage and climate change adaptation. I re-examine the theoretical and practical application of a heritage approach, providing some discussion of its value to adaptation planning processes. I also explore some of the challenges and remaining gaps, and identify opportunities for future work.

Chapter 2: A History of the Deal Island Peninsula

Introduction:

This chapter provides a history of the Deal Island Peninsula and an overview of the socio-demographic characteristic of the area today. The intent is to help the reader understand the ways in which the past is drawn upon within the DIPP to respond to or engage in discussions about socio-ecological changes related to climate change. One needs to be able to distinguish history from heritage in order to be able to see how the past is drawn upon in negotiating change.

The Early History of the Deal Island Peninsula

The Deal Island Peninsula's communities originate with English and Scottish settlers who immigrated to these remote islands in the mid-1600s as farmers and fishers. A number of individuals migrating to the Eastern Shore of Maryland at this time were part of a mass migration of Quaker families escaping religious expulsion from Virginia in the 1660s. The influx of migrants from Virginia increased populations to a point that prompted Lord Baltimore to establish Maryland's newest county, Somerset County, in 1666 (Stiverson 1977). Shortly thereafter, five settlers patented large tracts of land in pursuit of high fertile grounds and marsh, which were ideal for cattle grazing. By 1677, cattle grazing largely defined the early economy of Deal Island (Stiverson 1977). Populations remained small throughout the 18th century, with only two percent of the land under cultivation, and with still only five landowners living on the island and a limited number of dwellings listed in assessments by the 1780s (Stiverson 1977). The wealthiest of these landowners in

1783 was John Laws, a Scottish entrepreneur for whom Laws Thorofare was named. Laws envisioned Deal Island as a profitable area for building successful livelihoods by working the water (Stiverson 1977, Cronin 2005). It was around this time that populations on Deal Island were steadily growing, placing pressures on arable land, that indeed prompted many Deal Islanders to turn to working on the water as fishers and sailors. Many found work transporting goods and produce to ports and landings along the Chesapeake Bay, and increasingly vegetables and fruit grown in the area were produced for market (Stiverson 1977). These new pursuits transitioned the local economy towards water-oriented livelihoods, which steadily grew in the 19th century with the emergent Chesapeake oyster economy (Kennedy and Breisch 1983).

Throughout the 18th century, Deal Island proper and Dames Quarter were known as Devil's Island and the Damned Quarters respectively, both of which were well-known hideaways for pirates and Tory loyalists who pillaged trade ships traveling to and from Baltimore (Cronin 2005). In 1783, Devil's Island had become the target of the Maryland Navy, which raided the area as part of its last official mission before it was disbanded (Cronin 2005). With the spread of Methodism in the area in the 18th and early 19th century, the "v" in Devil's Island was dropped transforming the name to Deil, and eventually to its present-day name of Deal Island (Cronin 2005).

The Garden Spot of Methodism on the Eastern Shore

Methodism found its way to Deal Island in part due to a lack of strong religious tendencies among Deal Islanders, who were, according to archivist Gregory Stiverson (1977) likely "nominally Anglican" and therefore "more receptive to

missionaries from other denominations” (9). This is not to say, however, that religion did not have its place on Deal Island prior to the spread of Methodism, as is evident by the religious meetings led by the Reverend David Wallace upon his arrival in 1744. His house is often cited as the first church on Deal Island (Cronin 2005, Touart 2004). Stiverson lists Reverend John Cooper as the first documented Methodist minister to preach in Somerset County in 1778 and suggests that he may have helped to establish a Methodist class that was in place by 1781, setting the stage for the formation of a Methodist church (Stiverson 1977).

The spread of Methodism on the Deal Island Peninsula, however, is most often attributed to the Reverend Joshua Thomas, a waterman turned local minister who was known as the “Parson of the Islands.” Thomas began proselytizing Methodism from Tangier Island beginning in 1808, traveling to neighboring areas on his sail-powered canoe, “the Methodist.” In 1825, he moved to Little Deal Island, a small island at the tip of the Peninsula (now uninhabitable due to erosion) (see fig. 1.2) and hosted his first camp meeting on Deal Island in 1828 from a site known as Old Hill (Wallace 1872). The camp meetings on Deal Island became an annual event attended by thousands from around the area and helped establish Deal Island as the garden spot of Methodism on the Eastern Shore (Stiverson 1977). The Deal Island camp meetings were eventually moved a short distance to Grove’s Park on Deal Island, which later became the site of a small chapel (see fig 2.1) built in his honor in 1850. The chapel stands today as the second oldest United Methodist Chapel on the Delmarva⁴ Peninsula. Thomas is buried next to the chapel. Joshua Thomas’s efforts

⁴ An area east of the Chesapeake Bay that includes portions of Delaware, Maryland, and Virginia, which together form the “Del” “Mar” “Va” Peninsula.

Figure 2.1: Joshua Thomas Chapel & Camp Revival in Wenona



Above: Joshua Thomas Chapel was built in 1850 on Deal Island in honor of Joshua Thomas, the celebrated “Parson of the Islands” who brought Methodism to the Deal Island Peninsula. *Below:* Weeklong camp revival meetings are held each summer under covered wooden pavilions, such as this one in Wenona. The event consists of special sermons and musical performances. The tradition of camp meetings began with Joshua Thomas, who hosted these annual events near the site of the Joshua Thomas Chapel, reportedly drawing thousands from around the area. (Photo credit: Joshua Thomas Chapel photo by the author; photo of camp meeting by Julia Keane)

led to the eventual establishment of ten Methodist churches across the Deal Island Peninsula, seven of which are still in operation. Camp meetings continue to be held by local churches in the area each summer (see fig. 2.1).

While the communities on the Peninsula are commonly lumped together as “Deal Island” by outsiders, they are also quite distinct in their own rights. Historically, each had its own Methodist church attended by those from the community⁵, as well as a village center complete with a post office, general stores, blacksmith shops, wharf, and shipyards (Hall 1964, Touart 2004, Wheatley 2004). The communities were loosely organized around groups of families who were frequently tied together by marriage, evident by the family names of those buried in the church cemeteries (Stiverson 1977). Many of the descendants of these families who still live in the area continue to attend their family churches. The distinctiveness of the communities is still sensed today in the slight variations of speech patterns between the residents of, for example, Wenona and Chance, as well as in the perceived (physical and metaphorical) distance between the communities that is alluded to in local talk. These communities were also self-sufficient in many ways due in large part to their isolation from the mainland. The first bridge connecting Deal Island to Chance was not constructed until 1870 (Wheatley 2004). Travel to and from the Peninsula was primarily done by sail or steamboat until the 20th century when roadway infrastructure was improved to allow for expanding trucking industries as means of shipping and trade (Cronin 2005). Even well into the 20th century though, Deal Island Road frequently flooded and remained a dirt road until 1935, making

⁵ Communities also had designated white and black churches, which are maintained today; though most of the black churches have closed due to outmigration of African Americans.

travel to the mainland difficult for those on the lower portions of the Peninsula (Mouery 2009, Touart 2004). As a result, many families were growing, catching, and preserving their own food, practices that are remembered in place names like “the Orchard,” an area in Chance where there was once an expansive peach orchard, or “the Old Iron Gate” in Oriole, which marks the entrance to cattle pastures in an area that is now marsh and forest. They are also remembered in the many stories of generations of families who supported and continue to support themselves by working the water.

By the mid 19th century, the broader Chesapeake Bay region was emerging as the most productive oyster economy in the world, producing at its peak in 1884 upwards of 615,000 tons of oysters per year (Rothchild 1994). Commercial oystering at this time was done primarily through tonging and dredging, both of which are still practiced today. The traditional practice of hand tonging oysters involves using two long-poled rakes to grab oysters from shallow bottom areas, usually from a skiff. Many watermen who tong today have switched from hand tonging to patent tonging, which uses hydraulics to rake the bottom, making tonging a much less physically laboring practice. Dredging, in contrast to tonging, involves dragging a toothed metal scape with attached bag across an oyster reef, which was historically pulled behind a sail-powered dredge boat. In general, dredging⁶ is used to harvest reefs in deeper waters, while tonging is used to harvest oysters in the shallows near the shoreline.

⁶ Oyster dredging, which is still practiced today in the Chesapeake Bay, is controversial. Some argue that it is an environmentally destructive practice, while others point to the benefits it provides in overturning reefs and promoting oyster regeneration; Which side of the debate one stands on is largely determined by which reference point is used to define success. For environmentalists, oyster health is measured by reef size, which promotes viable habitat and enhances filtration services. Watermen, on the other hand, measure success by sustained harvesting, which many argue is not dependent on expansive reef development (Paolisso 2018, pers. communication).

Within the broader Chesapeake Bay region, hand tonging was primarily used throughout the first half of the 19th century. This was largely due to the 1820 ban on dredging to limit the growing numbers of New England oystermen who were overharvesting and damaging Chesapeake Bay reefs (Cronin 1986, Stiverson 1977). Bans on dredging, however, were lifted in 1865 to encourage economic recovery following the American Civil War (Cronin 1986). This, in combination with the discovery of deep-water oyster reefs in the Tangier Sound led to increasing numbers of dredge boats in the area of the Bay where the Deal Island Peninsula is located (Wennersten 1992, Cronin 1986, Kennedy and Breisch 1983).

Economic booms from oyster dredging, along with advances in transportation and food preservation⁷ enabled places like the Deal Island Peninsula to develop into prospering seafood harvesting and processing centers (Kennedy and Breisch 1983). By the 1870s, the population on Deal Island proper was the second largest in Somerset County, with 150 structures in place by 1877 (Touart 2004). In 1878, a steamboat wharf was built next to Deal Island Harbor, which housed an oyster-packinghouse and a warehouse for shipping seafood, produce, and other goods to and from Baltimore and other major port cities (Wheatley 2004). At least four oyster houses were located in the area, as well as canneries for canning oysters, crabmeat, and tomatoes (Wheatley 2004, Federal Writers Project 2013, Mouery 2009). The steamboat wharf also spurred tourism and development in the area, making Deal Island a destination point on the Lower Eastern Shore of Maryland. At one point, Deal Island housed two hotels, the largest of which could accommodate 85 guests and was located next to the wharf (Wheatley 2004). The smaller hotel burned to the

⁷ E.g., steamboat and canning

ground in 1867 (Touart 1986). Both the wharf and larger hotel were in operation until the early 1930s when they were destroyed by a hurricane that hit the area in 1933.

Deal Island and surrounding areas remained quite prosperous through this period, with the area's populations peaking in the 1930 at 2,600 (US Census 1952). The 1933 hurricane, however, heavily impacted the area, totaling \$300,000 in damages and leaving local seafood industries in ruins (Touart 2004). Faced with the challenges of rebuilding in light of declining oyster harvests, many families moved off island in pursuit of other work, marking the beginnings of population declines in the area that have continued to today. By 1950, the area's population dropped to just under 2,000, marking about a one-quarter decrease in population in twenty years (US Census 1952).

Despite these changes, the commercial fisheries remained a staple of the local economy, which continued to thrive throughout much of the 20th century. By the 1940s, blue crab industries were beginning to outpace oyster industries in the Chesapeake Bay region and on the Deal Island Peninsula. In 1938, the area was producing two million soft shell crabs and thousands of barrels of hard crabs per year (Federal Writing Project 2013). Crabs were steamed and picked for the market at local crab packinghouses, often by women, many who were from the area's African American communities. Hard crabbing remained a predominant part of the local crabbing industry until the 1990s. Though some local watermen still hard crab today, most crabs exported from the area are soft crabs that are shed, cleaned and shipped from small watermen-owned shanties.

It is worth briefly noting the rich African American history of the area as well. It is uncertain if any enslaved people lived on the Deal Island Peninsula, though it is clear that after emancipation, many blacks found work in waterman industries. Local key informants interviewed for prior DIPP research estimated that there were once as many as 230 African Americans living in the area (Johnson 2016). Many of the men worked the water as watermen alongside whites, providing one of the few places where strong bonds formed across harsh racial divides (James 2017). Women often worked in seafood processing industries shucking oysters and later picking crab (James 2017). At least four of the ten Methodist churches in the area are African American, one located in Oriole, Dames Quarter, one in Chance, and one on Deal Island. Only the church in Chance, however, remains fully operational, as most of these communities have moved away in pursuit of opportunities on Maryland's western shore in cities like Baltimore and Washington DC (Johnson 2016). The church in Dames Quarter is only used for special occasions, while the other two churches have closed altogether.

Dames Quarter is also home to the last standing Rosenwald School in Somerset County, one of over 5,000 schools built in 15 southern states (156 of which were in Maryland) between 1917-1931 to provide educational opportunities to African Americans through a grant program established by Booker T. Washington and Julius Rosenwald (Preservation Maryland 2015). The schools were built using funds from the program that were matched by the beneficiary communities. Rosenwald schools became obsolete following the desegregation of schools in the 1950s. The Dames Quarter Rosenwald School, however, was later used as the

headquarters for a local Head Start Program through the 1980s, serving the area's low-income youth, many from the area's African American communities (Nancy Goldsmith, pers. communications). A second Rosenwald school reportedly once existed in neighboring Chance (James 2017). Also in Dames Quarter was the famed Henry's Beach, a well-known and widely celebrated African American beach resort and jazz club that was in operation from 1952-1982. As the only resort of its kind in the 1950s, it drew blacks from across the region, many who came to enjoy picnics, baseball, and leisure beach activities. The jazz club is also known for hosting several well-known musicians, including the Temptations.

The Home of the Skipjacks

The Deal Island Peninsula is well known for its history of skipjacks, the sail-powered oyster dredge boats that were prominent features of the Chesapeake Bay from the late 19th to mid-20th century. Skipjacks were first designed in the 1890s (Hayward 1984). With its shallow, sturdy hull, adjustable keel, wide sails, and easy maneuverability, the skipjack was an ideal workboat for harvesting oysters along the shallow shorelines as well as for dredging deep-water reefs (Hayward 1984). In addition, they were inexpensive to build, costing approximately \$3,000 in 1905, and could be built using locally sourced and recycled materials, unlike its predecessors, such as the bugeye (Eshelman 1993). As a result, skipjacks grew in popularity throughout the region, with approximately 1,500 skipjacks working the Chesapeake Bay by the turn of the 20th century (Cronin 2005). Many of these workboats were built in the Deal Island Peninsula area, with Oriole becoming particularly well known for its skipjack shipyards and "shipsmiths," and Wenona for its sail loft (Hall 1964).

Figure 2.2: Skipjacks Under Sail at the 2016 Deal Island Skipjack Race



Photo by the author.

The number of skipjacks in the Chesapeake Bay region began to decline by the 1930s, however, due in part to a degrading oyster fishery as a result of overharvesting and disease (Hayward 1984). The decline was also spurred by changing workboat technologies with developments in diesel engines and fiberglass, which made the skipjacks a less economically viable workboat. However, in the Deal Island Peninsula area, skipjacks were still quite actively used for oystering. The area had a fleet of 150 in the 1940s – the second largest fleet in Maryland at the time – and four oyster packinghouses (Cronin 2005, Federal Writers Project 2013). By the 1960s though, the number of working skipjacks in the area had dropped to 60, coinciding with when the Chesapeake Bay region began experiencing the economic impacts of two parasitic oyster diseases, Dermo (*Haplosporidium nelson*) and MSX (*Perkinsus marinus*), which by the late 1980s were causing oyster mortality rates as high as 90 percent in some locations around the region (Guolletquer et al., 1994). By the 1960s,

many local watermen were supplementing oyster harvest losses by shifting to primarily harvesting blue crab, which continues to largely support the local seafood economy today. While some skipjacks were used to dredge winter crabs burrowed in the muddy Bay bottoms, the dwindling numbers of oysters in the Chesapeake Bay perpetuated further declines in the number of skipjacks throughout the Chesapeake Bay region, which totaled just 35 boats in 1985. It was at this time that the skipjack was nominated the State Boat of Maryland in efforts “to save the last active commercial sailing boats in the United States” (Hayward 1984). By the end of the century, the number of working skipjacks in the Deal Island Peninsula area was merely two to three (Cronin 2005). Despite these changes, skipjacks have continued to define the Peninsula, which is celebrated as “the Home of the Skipjacks,” and recognized regionally for its annual skipjack races, an event that has been reuniting skipjacks from across the region each Labor Day in Deal Island Harbor since 1957. The founding of the local non-profit Skipjack Heritage Inc. (SHI) in 2007 has also spurred efforts to resurrect the Deal Island Peninsula fleet, which now has eight working skipjacks, one of the largest fleets of skipjacks in the Chesapeake region.

Deal Islanders Today

Socioeconomics

Today, the Deal Island Peninsula’s identity remains largely rooted in working the water traditions, though the number of active watermen is much smaller than it once was due in part to an aging demographic, as increasing numbers of watermen near retirement age, and youth who move out of the area in pursuit of employment opportunities off the water (Table 2.1). Environmental regulations on fisheries, high

operating expenses, the amount of work, and the unpredictability of crabbing and oystering make working the water an increasingly risky and less rewarding occupation for the sons of watermen, who have historically carried on the tradition. In an interview with the *Washington Post*, Tom Horton estimates that the number of watermen working throughout the Chesapeake Bay has fallen from 10,000 in the 1990s to 3,000 today (Hendrix 2016). As of 2016, the US Census Bureau estimates that there are just 54 individuals⁸ working in the agricultural, forestry, and fishing industry in the Deal Island Peninsula area, which closely aligns with Katherine Johnson's (2016) estimate of 60 watermen as of 2014 (117).

Despite these shifts, watermen industries continue to support the local economy, which is largely driven by commercial crabbing and oystering, and increasingly so by fishing charters geared towards outside recreational fishers from Philadelphia, Baltimore, and Washington D.C. As recent as 2016, at least one skipjack captain was offering skipjack sunset cruises to visiting tourists. The local crabbing industry is predominantly focused on soft crabs and peeler (hard crabs that are about to shed their shell), evident by the large number of crab shanties in the area, where peelers are kept in tanks until they fully shed and are ready to be cleaned, packaged, and shipped to market. Though detailed data on the Deal Island Peninsula fishery is sparse, it has been reported that the Tangier Sound accounts for three-quarters of the soft crab and peeler industry in Maryland (Greer 2003). Hard crabs are also caught in the area, though the market for these is much smaller in part due to the distance between the Deal Island Peninsula and hard crab markets in more populated

⁸ This number is reflective of the Census districts for Deal Island, Chance, and Dames Quarter (no estimates available for Oriole, Champ, and St. Stephens).

urban areas. There is an increasing number of watermen who oyster in the winter months, generally going out on average 1-2 days per week, particularly when the weather is not too cold or stormy. While oystering is a much smaller part of the local economy than it was historically, it still plays an important role, particularly in providing supplemental income during the winter months, and in keeping mates employed so that they are available during the more work-intensive crabbing seasons (Paolisso and Dery 2010). In addition to watermen themselves, there are a number of local businesses that support the watermen economy as well. There are three commercial harbors in the area, Deal Island Harbor, Wenona Harbor, and Champ Wharf in Oriole. Around lunch time on any given day of the week at Deal Island and Wenona Harbor, one can find a line of seafood trucks waiting to haul away fresh catch to restaurants and seafood distribution centers within and outside of the region, some of it even making its way overseas. Island Seafood, a local seafood distribution center owned and operated by Phillips Seafood is located at Deal Island Harbor; as is Scott's Cove Marina, a full-service marina with dry docks and a supply shop that caters to both workboats and recreational boats.

Deal Island Harbor is also the location of the Labor Day skipjack festival, the area's largest annual event that draws tourists to the area in support of local waterman heritage. Wenona Harbor houses the area's only restaurant and one of two local general stores: Arby's General Store and Dockside Bar and Grill (the other general store, Lucky's, is located in Chance). Both Arby's and Lucky's are gathering points for local watermen, who routinely stop in around 5:00am for coffee and conversation

before heading out for a day's work on the water. Most of the charter boat businesses are located in Wenona, as are a number of crab shanties.

The local tourism industry tends to be limited to fishing charters and the Skipjack Festival. However, there are a number of private vacation rentals in the area, as well as a bed and breakfast, owned and operated by two longtime local residents. Visitors to the Peninsula are usually drawn to the area for recreational activities such as recreational fishing, hunting, and wildlife viewing, widely available in two State managed marsh areas, as well as for a quiet escape from urban areas like Washington D.C. and Baltimore, just 150 miles away. The local non-profit organization, SHI has also established the Skipjack Heritage Museum, a small museum which contains information about local skipjack and watermen heritage, as well as historical information about local families and the communities. The museum tends to be opened on a limited basis, though, due to the small number of visitors and staffing limitations.

Demographics

Aging demographics of the area are also spurred by an increasing number of retirees who are moving to the area in pursuit of affordable waterfront property. The number of retirement-aged individuals (65 and older) in the area in 2016 was estimated to be 36%, a 16% increase from 2000 and about twice that of Maryland's average for this population bracket (US Census Bureau 2016, 2012). The influx of older individuals has shifted the character of the community, which many locals recognize as becoming more of a retirement community. This shift is also driven by outmigration of younger generations from the area, noted in steadily declining

Table 2.1: Age of Population on the Deal Island Peninsula Compared to Maryland (US Census 2016 Data)

Year	Deal Island Peninsula Pop. ⁹ Aged 15 – 44	Maryland Population Aged 15-44	Deal Island Peninsula Pop. Aged 65 & Older	Maryland Population Aged 65 & Older
2000	33.3%	44%	19.9%	11.3%
2010	26.6%	40.7%	23.5%	12.3%
2016*	19.6%	40.6%	35.7%	14.6%

*US Census Bureau estimate

populations since the 1930s (see figs. 2.1 and 2.2). Lack of employment opportunities outside of watermen industries in the Deal Island Peninsula area has propelled many younger residents to move away in order to be closer to other employment opportunities in more urban areas.

It is also increasingly expensive to live in the area, particularly for young families, due to travel time and cost of gas – the nearest grocery store is 18 miles away. Schools, hospitals, and other amenities are 25 miles away or further in some cases. The added expense of flood insurance, which is required with many home mortgages in the area due to their location in the floodplain, also makes living in the area financially burdensome for many younger individuals. The number of individuals between the ages of 15-44 living in the Deal Island Peninsula area is only 20%, roughly 16% lower than the number of retirees in the area, and 13% lower than the number of young people living there in 2000 (US Census 2016, 2012) (see Table 2.1).

⁹ Average population percentages for Deal Island, Chance, and Dames Quarter (no population percentages available Oriole, Champ, and St. Stephens).

Driving down Deal Island Road is a first indicator of the declining socioeconomic status of the Peninsula, as one is quick to notice the number of dilapidated houses and abandoned storefronts -- ghosts of bygone days when the area was much more prosperous with bustling village centers. Socioeconomic declines are closely linked to declines in commercial fisheries, which has for generations been the economic base of these communities. The few remaining grand Victorian houses built at the turn of the 20th century are reflections of the wealth these communities once had when oystering was at its peak; many of these homes are in a state of disrepair today. In general, the Peninsula today is lower-middle class with pockets of higher income areas as well as highly impoverished areas, particularly in the few remaining African American neighborhoods, which are shrinking as a result of outmigration to areas with more opportunities (Johnson 2016). There is a clear socioeconomic divide across the Peninsula that runs between the shoreline and non-shoreline areas, where

Table 2.2: Population of Deal Island Peninsula Communities: 1930-2016

Year	Deal Island & Wenona	Chance	Dames Quarter	Oriole & St. Stephens ¹⁰
1930	1237	628	565	747
1960	810	N/A	124	617
2000	578	377	188	536
2010	471	353	167	523
2016*	261	443	183	N/A

*US Census Bureau Estimates. Sources: US Census Bureau (1952, 1961, 2012, 2016); 1930 population estimate for Chance is from the Federal Writing Project (2013).

¹⁰These numbers reflect the population of the US Census Bureau's designated District 2 (St. Peter's) for Somerset County. District 2 includes the villages of Oriole, Champ, St. Stephens, and Venton. The villages of Champ and St. Stephens are included as part of the Oriole study area as defined by the Deal Island Peninsula Project; Venton is not included in the study area. Therefore, population numbers listed for Oriole and St. Stephens are slightly higher for this section of the study population.

the shoreline households tend to be wealthier, with inland properties demarcating low-income areas. This line also marks the general boundary between those who have moved to the area, locally referred to as “come-heres.” And those with strong generation ties to the Peninsula, or “born-heres.” Many come-heres are purchasing small waterfront homes to renovate or rebuild as their retirement homes or vacation homes. In general, Chance is locally recognized as the most prosperous community on the Peninsula, which the US Census estimates has a median income of \$65,883/year (2016).

Conclusions

Despite the hardships that the communities of the Deal Island Peninsula have been confronted with, they have managed to survive almost four hundred years of change living on this isolated string of islands in the Chesapeake Bay. However, they are now faced with new 21st century challenges, particularly as climate change accelerates and exacerbates the impacts of flooding, erosion, and storms, and the communities continue to undergo socioeconomic changes as a result of changing industries and sociocultural dynamics in the Chesapeake Bay region. The collaborative efforts of the DIPP have made strides to assist the Deal Island Peninsula with adapting to these changes. These efforts have most recently been carried out through an Integrated Coastal Resiliency Assessment (ICRA), a two-year collaborative climate change adaptation planning initiative, and the focus of this dissertation. In the following chapter, I will provide additional background information on climate change, and how it will manifest in the Chesapeake Bay region and more locally on the Deal Island Peninsula. I will also introduce the DIPP’s

ICRA, and review methods used to examine the ways that heritage helped to shape this planning process.

Chapter 3: Climate Change and Adaptation Planning

Introduction

The Maryland Eastern Shore has undergone its fair share of socio-economic change over the last century, from the booms and busts of commercial fishing and farming, to the expanding tourism and real estate industries that are slowly transforming its shorelines. While Somerset County and the Deal Island Peninsula have remained relatively untouched by urbanization and modernization – as one local described it, “going home [still feels] like going back to Mayberry¹¹” -- the next century is projected to bring a host of changes and new challenges due to the anticipated impacts of climate change.

Climate change is increasingly working its way into local vernacular throughout the Chesapeake Bay region, which has been identified as one of the most vulnerable regions in the United States to sea level rise (Spanger-Siegfried et al. 2017). Even on the Deal Island Peninsula, where environmental change has long been viewed as a fact of life, many are taking note of the increasing frequency of roadways flooding and the alarming rate at which some shorelines are crumbling into the Tangier Sound. While many on the Deal Island Peninsula contest the causes of climate change, changing environments are nonetheless a cause of concern for Deal Islanders, too.

The Deal Island Peninsula Project (DIPP) has helped to propel discussions about climate change on the Deal Island Peninsula through the Integrated Coastal

¹¹ The 1960s fictitious setting of *The Andy Griffith Show* (1960-1968).

Resiliency Assessment (ICRA), a collaborative climate change adaptation planning initiative implemented between 2016-2018 and the focus of this dissertation. In order to understand the basis of the ICRA, it is first necessary to understand the implications of climate change for the broader Chesapeake Bay region and for the Deal Island Peninsula. In that vein, this chapter will provide an overview of climate change projections for the Chesapeake Bay region, with specific attention given to sea level rise. As part of this discussion, I will also discuss the implications of sea level rise for the Deal Island Peninsula. I will also provide additional background information on the DIPP and the ICRA to help frame the dissertation research outlined in the proceeding chapters within the scope of ICRA activities. Finally, this chapter will present methods used to collect and analyze data on how heritage informed the DIPP's adaptation planning decision-making processes.

Climate Change and the Chesapeake Bay

One of the greatest threats that we face in the 21st century is global climate change. There is substantial and mounting scientific evidence that the dramatic increase in anthropogenic greenhouse gas emissions (e.g., carbon dioxide, methane, and nitrous oxide) since the pre-industrial era is strongly linked to the alarming rates of global temperature rise observed within the last century, particularly since the 1950s (Pachauri and Meyer 2015). The Intergovernmental Panel on Climate Change (IPCC) estimates that global surface temperatures have increased an average of 0.85 degrees Celsius between 1885 and 2012, with 1983 to 2012 likely being “the warmest 30-year period in the last 1400 years in the Northern Hemisphere” (Pachauri and

Meyer 2015, 2). The National Oceanic and Atmospheric Administration has since listed 2017 as the third warmest year on record (NOAA 2018a).

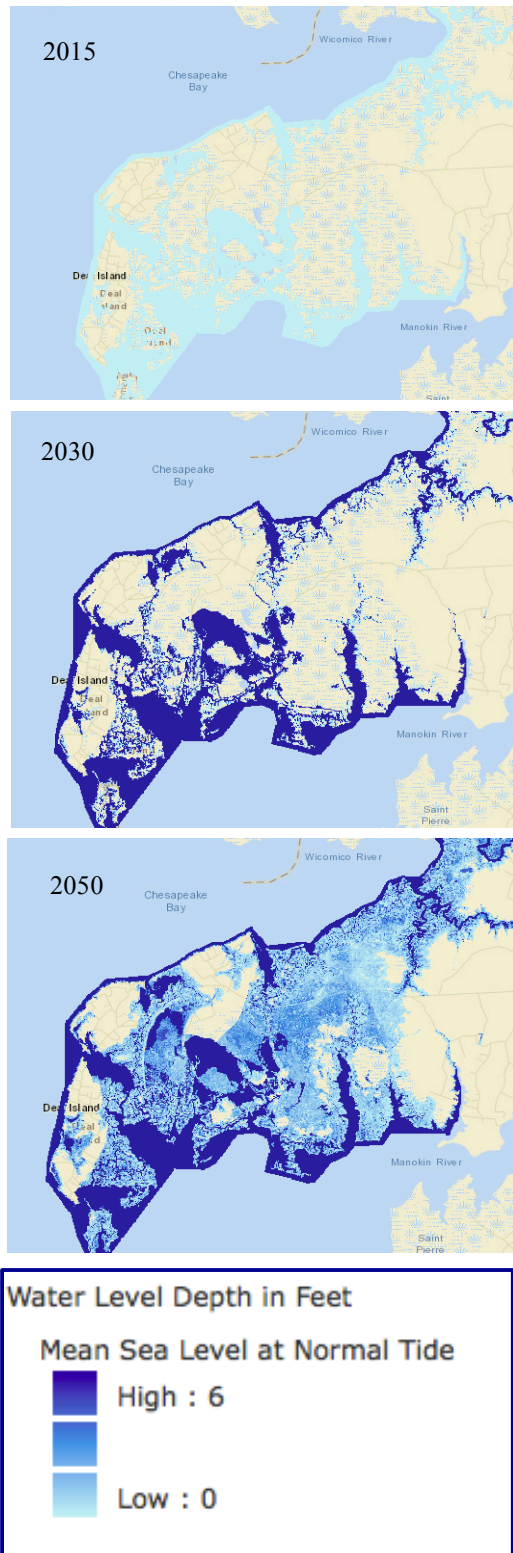
One of the ramifications of global temperature increases is a rise in sea levels worldwide as a result of glacial melt and thermal expansion (Church et al. 2013). Sea level rise, however, will not be equally distributed globally due to the complex cascading effects of temperature increases on ocean circulation systems, among other dynamics. The eastern seaboard of the United States has been identified as a sea level rise hotspot due to its relatively low elevations and the anticipated slowdown of the conveyor belt of deep ocean currents, which has historically carried large volumes of water away from the coast by way of the Gulf Stream (Boon 2012, Ezer and Atkinson 2013, Sallinger Jr., et al 2012). As a result, sea level rise is anticipated to be more severe in this area of the world, including in the coastal zones of the Chesapeake Bay (Ezer and Corlette 2012). According to Sallinger Jr. and colleagues (2012), rates of sea level rise along the northeastern US coastline, from Cape Hatteras north to Boston have increased “three to four times faster than the global average” since the 1990s (884). A new study shows that Atlantic Ocean circulation has already slowed by 15% since the mid-20th century, the slowest it has been in a millennium, with potential future impacts on Atlantic fisheries (Caesar et al. 2018).

In addition to climate-driven sea level rise, the Chesapeake Bay is also prone to land subsidence, whereby the land is physically sinking due to the geological rebounding of the North American continental plate from glacial recession that commenced 15,000 years ago after the last ice age (Boesch et al. 2008). In the southern portions of Bay, these effects are exacerbated by aquifer extraction

(Eggleston 2013). Boesch et al. (2008) estimate that land subsidence contributes to six inches of sea level rise in the Chesapeake Bay region per century, which when combined with the accelerated effects of climate-driven sea level rise leaves the Chesapeake Bay highly susceptible to future inundation. Already within the last century, the Bay has risen by about one foot (Boesch et al. 2008). If greenhouse gas emissions continue at their current rates, the Maryland Climate Change Commission (MCCC) estimates that sea levels for the Maryland portions of the Chesapeake Bay will rise between 2.2 and 4.1 feet by 2100 (Maryland Climate Change Commission 2017, 11). Even under targeted global emissions mitigation scenarios, the Chesapeake Bay is projected to experience at least a 1.4-foot rise by the end of the century (11).

Regional sea level rise projections are particularly problematic for the Eastern Shore of Maryland, which sits exposed to both the Atlantic Ocean to the east and Chesapeake Bay to the west, and is entirely comprised of the low-lying, flat Atlantic coastal plain. Wicomico, Dorchester, and Somerset Counties, which together form the Lower Eastern Shore, are the lowest lying areas in Maryland and most prone to inundation (Boesch et al., 2008). Somerset County, where the Deal Island Peninsula is located, is the lowest in elevation of these three counties, with 58% of the County lying within the flood plain (Maryland Department of Natural Resources 2008). The Deal Island Peninsula is on average only three-feet above sea level today, putting much of the area at risk to rising waters in the face of future climate change projections (Needelman 2012). The effects of sea level changes are already evident in more frequent nuisance flooding, marsh migration into uplands areas, and forest dieback from saltwater inundation (2012). These changes are anticipated to worsen in

Figure 3.1: Sea Level Change on the Deal Island Peninsula 2015-2050



Source: Maryland Department of Natural Resources & Eastern Shore Regional GIS Cooperative 2016

the coming decades. As early as 2030, sea levels on the Deal Island Peninsula are expected to increase by 10 inches (see Fig. 3.1) (Johnson 2016).

Climate change is likely to also increase the severity of storms in the Atlantic Basin. Studies demonstrate that increased global sea surface temperatures are correlated with intensifying cyclones worldwide since the 1970s (Trenberth et al. 2007). Climate change models project these trends to continue into the future, with an increase in the number of Category 4 and 5 hurricanes in the Atlantic Ocean by 2100 (Maryland Climate Change Commission 2017). While hurricanes are hard to project due to their complex nature, their intensification increases risks to areas outside of the immediate impact zone due to the high connectivity of regional economies, transportation networks, and public services. The MCCC, for instance,

points to potential regional economic repercussions from hurricane damage to large commercial ports, such as the Port of Baltimore, which supplies \$3billion in salaries and wages and contributes \$310million to state taxes (2017, 12). Impacts to other working waterfronts and agriculture communities, such as those on the Maryland Eastern Shore, will also likely affect the broader economy and sociocultural vitality of the region given the large concentration of watermen and agricultural industries in this portion of the state. As a result of sea level rise and storm projections, the State of Maryland has focused much of its coastal adaptation planning initiatives on addressing future sea level rise and storm hazards (12).

In addition to sea level rise and storms, there are a number of other ways in which climate change will affect the Chesapeake Bay region that are important to briefly mention here in considering impacts to the Deal Island Peninsula. For one, warming water temperatures and salinity changes in the Bay will likely alter fisheries composition, which may in turn impact the socioeconomic health of commercial fisheries throughout the region. Commercial fisheries may be further impacted by reduced water quality of the Bay as a result of increased nutrient and sediment runoff from intensifying rainfall events (Najjar et al. 2010). These regime shifts are likely to also create more opportunities for parasites and harmful algal blooms that pose human health and economic risks (2010). In addition, increased tidal ranges, storm surge, and intensifying rainfall events are expected to accelerate rates of erosion in coastal areas, impacting property and critical infrastructure (e.g., roadways) (2010). Erosion will also impact wetlands, which importantly buffer shorelines from storm surge and provide ecosystem services as critical nursery grounds for fisheries. The

Deal Island Peninsula is already experiencing some of the highest rates of erosion in Somerset County, upwards of 8-feet per year in some locations (Maryland Department of Natural Resources 2008). This is compared to an average of 1-foot lost annually around other parts of the County and the broader Eastern Shore (2008, 14). These, among other dynamics are likely to be especially problematic for places like the Deal Island Peninsula where watermen livelihoods and shoreline living are defining socio-demographic features.

Socio-Ecological Vulnerabilities of the Deal Island Peninsula

These environmental vulnerabilities are likely to be compounded by a number of social factors at play on the Deal Island Peninsula, and more broadly within Somerset County. At a local level, declining socioeconomic health of the area as a result of out-migration of youth and declines in commercial fisheries have left a number of households at higher risk to future flooding and storms. Many of these households, for example, lack the financial resources to retrofit older houses to better withstand flood and storm impacts, leaving them more at risk to property damage or loss, which for lower-income households can be catastrophic. Additionally, some of these households face exacerbated risks due to their physical location within the floodplain. Some of the most flood-prone areas within the Project's purview are where two historic African American neighborhoods are located. Their location in these extremely low-lying areas can be linked to socio-historical placement of African American communities on marginalized lands, as observed in other areas of the Eastern Shore and more broadly around the United States (Miller Hesed 2016, Colten 2006). Additionally, many of the homes in these neighborhoods are not

elevated, and some are in compromised condition, further compounding their vulnerabilities.

Flood insurance requirements put an additional financial strain on many households. In Maryland, homeowners with mortgages who reside within the 100-year floodplain (i.e., high flood-risk areas) are required by Federal law to purchase flood insurance (Flood Disaster Protection Act 1973, Flood Insurance Reform Act 1994). Most of the Deal Island Peninsula is located within the floodplain, with the exception of a few small pockets of high ground. Therefore, flood insurance is mandated for many of the households in the area, which can cost upwards of \$3,500 for a primary resident and \$4,500 for a secondary resident¹² (Barry Groh, pers. communications). There are, however, a number of homeowners who do not carry a mortgage, having either inherited their homes or purchased them outright as second homes or retirement homes. It is not uncommon to hear of individuals who have opted to forgo insurance coverage because of the expense, which in turn leaves them without protection against future flood damage.

An aging demographic on the Deal Island Peninsula also compounds local vulnerabilities to climate change impacts. Increasing numbers of retirees in the area in recent decades will result in increasing numbers of elderly individuals in coming decades. The elderly have been identified in the literature as one of the most vulnerable age groups to climate change impacts due to their decreased mobility,

¹² These are rough estimates provide by a local insurance agent who lives in and works in the area. He notes that secondary homes, which there are a number of on the Peninsula, have especially been hit hard since 2012 due to a 25% annual rate increase, which is in addition to a \$250 surcharge fee they must pay. The annual rate increase is the result of the Federal Emergency Management Agency establishing a post-Sandy disaster relief fund to reduce the risk of a future catastrophe bankrupting the program. Insurance rates are especially high on the Deal Island Peninsula because of the high risk of flooding.

independence, and physiological changes that leave them less able to cope in times of distress (Filiberto et al. 2009). Aging demographics of the area are also being propelled by the out-migration of youth, which in turn degrades important social networks that in the past have been a source of social capital on the Peninsula for responding to socio-ecological stresses. The declining strength of these social networks is evident in the observable declines of once vibrant social institutions, such as the churches and the Lions Club, both of which provided financial and human resources to residents in need. A number of the churches are struggling to stay open due to dwindling congregation sizes. In response, three of them currently share one pastor who is paid on a part-time basis. Two other churches share a second pastor. At least one of the churches is only open on an occasional basis, and three others have since closed. The Lions Club is also struggling to maintain their membership.

In addition to these local dynamics, Somerset County is the poorest county in Maryland, with the average household earning half that of the average household across the state (Maryland Department of Commerce 2018, US Census Bureau 2016). As a result, County government has limited resources and assistance available to support places like the Deal Island Peninsula. Access to resources and assistance is further hindered by the fact that the communities on the Peninsula are unincorporated and therefore lack direct political representation within County and State government to secure what few resources are available. A general trend of political isolation and procedural injustices experienced by African American communities on the Eastern Shore likely compounds these vulnerabilities for African Americans on the Peninsula (Miller Hesed 2016).

The Deal Island Peninsula Project's Integrated Coastal Resiliency Assessment

In 2012, researchers from the University of Maryland formed the DIPP to bring together local residents of the Deal Island Peninsula with scientists, coastal planners, and environmental professionals from County and State government, and non-governmental organizations. The goal was to form a network of stakeholders who engage in collaborative decision-making in order to enhance the resilience of the Deal Island Peninsula to ongoing and future socio-ecological changes. It employs a collaborative science and learning approach to capture a range of knowledge, viewpoints, and visions in order to identify and address socio-ecological vulnerabilities in ways that support both human and ecosystem health (Johnson 2016, Johnson, Feurt and Paolisso 2018, Johnson, Paolisso, and Needelman 2017). The Project commenced as a NOAA National Estuarine Research Reserve-funded Science Collaborative project (2012-2015), which engaged stakeholders in a series of collaborative research projects to study how local marshes, heritage, and shoreline erosion affect the resilience of the Peninsula. In 2016, the stakeholder network transitioned the DIPP's focus to a two-year Integrated Coastal Resilience Assessment (ICRA), carried out with support from Maryland Sea Grant¹³. The ICRA used findings from the previous research project to develop a collaborative climate change adaptation process in order to identify, document, and address ongoing and future socio-ecological vulnerabilities facing the Peninsula. The goal was to develop and prioritize adaptation projects that would enhance local resilience. As the focus of this

¹³ Maryland Sea Grant Project Number R/PO-7, "Integrated Geospatial, Cultural, and Social Assessment of Coastal Resilience to Climate Change"

dissertation, the ICRA provides a unique opportunity to examine uses of heritage in climate change planning governance, particularly in light of how richly heritage is embedded in the Deal Island Peninsula area.

The ICRA Process: Mapping, Assessing, Planning, Prioritizing

The ICRA was carried out through a three-phase process that culminated in the developing of adaptation strategies. During Phase One, the stakeholder network convened a workshop to review and discuss a series of flood vulnerability maps of the Deal Island Peninsula. These maps, developed by the Eastern Shore Regional GIS Cooperative, detailed projected sea level rise and storm surge under different scenarios for the years 2015 through 2050. The maps were used as a starting point for identifying focus areas for discussing vulnerabilities. Focus areas were selected by workshop participants using criteria to ensure each area had a range of social, economic, and environmental features important for supporting local resilience. The flood vulnerability maps are available on the DIPP website (www.dealislandpeninsulaproject.org/flood-risk-maps), and can be tailored to individual property owners' interests.

Phase Two was used to document climate change vulnerabilities within the focus areas. This phase was critical for building the case for adaptation strategy development and prioritization in Phase Three. During Phase Two, 13 semi-structured interviews were conducted with individuals extensively familiar with the focus areas' history, sociocultural and economic activities, community and environmental changes, and who could provide insights on localized vulnerabilities. Qualitative data collected was used to define a baseline of understanding of focus area socio-

ecological characteristics and to target specific areas of vulnerability for focus group discussions and activities. Interested individuals from the stakeholder network formed focus area teams, which were responsible for conducting collaborative field assessments of their select focus area. First, focus area teams met to review and discuss qualitative baseline data, and develop an itinerary to collaboratively assess three to five selected locations for vulnerabilities. Focus area teams then conducted site visits to these locations to document social (e.g., household income estimates, age) and environmental vulnerabilities (e.g., hotspots for shoreline erosion, roadway flooding) using household-level risk assessment worksheets. Risk assessment data were then aggregated to assess the extent to which documented vulnerabilities were shared across focus areas to guide Phase Three discussions.

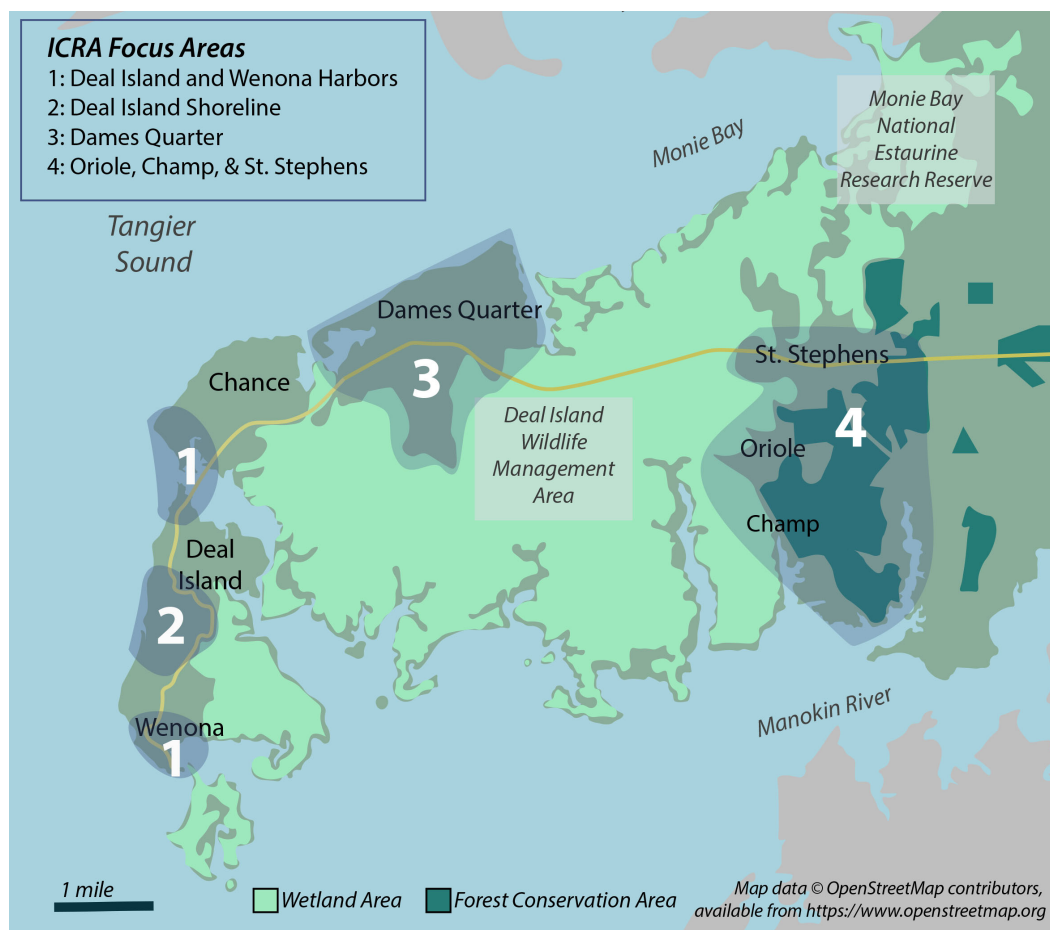
Phase Three was used to develop actions to reduce vulnerabilities across the Deal Island Peninsula. Two workshops were hosted during this phase, one to develop adaptation strategies and a second to prioritize activities and develop implementation plans. During the first workshop, focus area teams collaboratively reviewed risk assessment outputs and identified two priority areas of concerns: tidal ditch flooding and shoreline erosion. Participants then formed two “action teams” to discuss these priority issues. Each team developed a series of adaptation project options through facilitated discussions and identified potential locations on the Peninsula where adaptation projects could be implemented. Project leaders shaped action team input into proposed strategy plans, which were presented to the broader stakeholder network for input at a second workshop. During the second workshop, the DIPP stakeholder network developed strategies for implementation, which included

identifying potential funding sources, resources, project leadership, and defining future actions.

The ICRA Focus Areas

To provide context for the focus of the ICRA, the following section introduces the four focus areas assessed by focus area teams. They include: 1) the Deal Island and Wenona Harbors, 2) an erosive shoreline area on Deal Island, adjacent to the Tangier Sound, 3) Dames Quarter, and 4) Oriole, Champ, and St. Stephens (see fig. 3.2) . The discussion below provides a brief overview of these areas, including their socio-ecological vulnerabilities.

Figure 3.2: Integrated Coastal Resiliency Assessment Focus Areas



Deal Island and Wenona Harbors, as noted in Chapter Two, are the commercial centers of the Peninsula. Located at Deal Island Harbor are two marinas, docks, and a seafood distribution center. Scott's Cove Marina, the primary marina on the Peninsula, provides critical services for watermen and recreational boaters. The second, smaller marina, which only provides boat slips, is located on low-lying land near Scott's Cove and is prone to frequently flooding during higher tides. Wenona Harbor houses many of the commercial fishing charter businesses and serves as a distribution point for seafood trucks buying daily catch from watermen. Also located here is the area's only restaurant, and one of two general stores. There are a number of watermen shanties in the vicinity of both harbors as well. The harbors are also important places of community congregation. Deal Island Harbor is where the annual Skipjack Race and Festival is held, as well as a popular beach used recreationally by local residents. A number of stakeholders have noted high rates of erosion on this beach. Wenona Harbor is also experiencing the effects of erosion from nearby Little Deal Island, sediment from which is silting in the harbor. A number of stakeholders have raised concerns about the potential impact this has on local industries if the harbor becomes inaccessible. Wenona Harbor has also been identified as an area prone to flooding during storm events. Many of the houses in this area are older non-elevated structures, putting them at higher risk to flood damage.

The second focus area is a portion of Deal Island in between a highly erosive natural shoreline on the Tangier Sound and Deal Island Road, west of Deal Island

Harbor. Between the 1970s and today, this section of shoreline has lost approximately 275 feet and is at its thinnest point roughly 25 feet wide (Michael Scott 2016, pers. comm.). As recently as 1991, the shoreline had 10-foot high dunes, all which are now gone. Today, it becomes temporarily inundated during abnormally high tides and storm events, overflowing into the Middle Creek marsh area behind it, and is at risk of permanently breaching. The shoreline has historically been a popular recreational beach area, and it remains so today -- it is what has drawn a number of newcomers to purchase adjacent shoreline property. Locals also use Middle Creek for crabbing and hunting. More importantly though, the shoreline and marsh buffer the interior areas of Deal Island from storm surge. Should the shoreline permanently breach, it has the potential to cut Deal Island in half, impacting roadway access to Wenona and other points south. Breaching risks are particularly problematic for a historic black neighborhood and its church located just behind Middle Creek, an area that includes a number of lower income households. The neighborhood already experiences routine nuisance flooding and marsh encroachment. More affluent, mostly white property owners along an adjacent section of shoreline are concerned about the increasing expenses associated with shoreline protection. Maintenance of bulkhead and riprap¹⁴ can be cost prohibitive for some, resulting in owner negligence. There are a few documented cases around the Peninsula where shoreline property owners have neglected to maintain bulkhead and/or riprap, which is causing erosion problems on surrounding sections of shoreline.

¹⁴ Bulkhead and riprap are structures used to reduce erosion by “hardening” shorelines. Bulkhead consists of a wooden wall built along a shoreline, while riprap is composed of large piles of rocks sloping away from the shoreline to reduce wave impact.

The third focus area encompasses the community of Dames Quarter. Like Deal Island, Dames Quarter is predominantly residential, and also has racial and socio-economic divides that importantly shape socio-ecological vulnerabilities here as well. The dividing line tends to fall along Deal Island Road. The communities between Deal Island Road and Tangier Sound are typically more affluent predominantly white households. Across Deal Island Road is the Riley Roberts Road neighborhood, a predominantly black community with lower-income households. Located in this section of Dames Quarter is the historic Macedonia United Methodist Church, an African American church that is occasionally still used for services. The mostly-white Somerset United Methodist Church sits in between the two areas along Deal Island Road. Both church congregations are dwindling in size. There are also several watermen shanties throughout the focus area, mostly located in backyards, as well as a few small farm fields. Dames Quarter is also the access point to the Maryland Department of Natural Resources Wildlife Management Area, an expansive marsh area used by recreational hunters, fishers, boaters, and wildlife enthusiasts.

The primary concern for those in Dames Quarter is the frequency of nuisance roadway flooding, caused by water overflowing from tidal ditches. Several main arteries to these neighborhoods are typically wet but passible during standard high tides but become inundated during abnormally high tides and storms. During these flood stages, many residents are unable to reach their homes, nor are school buses or other public utilities able to service these areas. For those with houses in these low-lying areas, floodwaters pose additional risks of damage to property. Marsh encroachment is also occurring throughout low-lying areas, providing an indicator of

where these highly vulnerable residential areas are located – most evident in the Riley Roberts Road neighborhood.

The fourth focus area of the ICRA includes the communities of Oriole, St. Stephens, and Champ, located east of Dames Quarter. This focus area is the most agriculturally rich area of the four areas. Several large farms border its eastern boundary. The western half of the focus area is predominantly residential. St. Stephens is located on the lowest-lying section of Deal Island Road and sits just inland from a large expanse of marsh. The pine forest that separates St. Stephens from the marsh is slowly dying due to saltwater intrusion. Marsh grasses can be seen migrating inland, with some already surrounding houses on the western side of the village. It is clear that the water table is high here from elevated septic tanks in some yards. It has been reported that if any portion of Deal Island Road floods, it floods here. Oriole and Champ are located further north of Deal Island Road near the headwaters of St. Peter's Creek, which opens onto the Manokin River. Champ has a small County wharf, which includes a boat ramp, public dock, and at least one crab shanty. Further north of the shoreline and visible from the wharf are a number of other crab shanties that utilize the public amenities at the wharf during crabbing and oystering seasons. The residential areas are largely middle-class white neighborhoods, with more prominent homes located along the shorelines. There are three Methodist churches in the focus area, but only one is still in operation: St. Peter's United Methodist Church. The other churches, St. James United Methodist Church, a historic black church in Champ, and St. Stephens United Methodist Church, a historic white church in St. Stephens both still stand but are no longer in

use. Like Dames Quarter, several main roadways in sections of Oriole and Champ are also prone to flooding during higher tides and storm events from tidal ditch overflow. During these events, roadways can become impassable.

Ethnographic Methods for Accessing Heritage in Climate Change Planning

This research employs an ethnographic approach to examine how heritage shapes climate change decision-making carried out as part of the ICRA. To remind the reader, I frame heritage as a practice for drawing upon the past to root a collective identity and shared vision for negotiating ongoing and future change. As such, heritage exists in a range of knowledge, values, and practices that connect people to a shared past. To access heritage ethnographically requires understanding what these heritage-based knowledge and values are, which can then be used to understand how they inform a range of actions and decisions about climate change. The following discussion outlines three research phases, and the ethnographic methods used in each phase to answer these questions.

Phase One: Eliciting Heritage-based Knowledge and Values

Phase One was used to elicit heritage-based knowledge and values guiding stakeholders' engagements in the ICRA. Heritage-based knowledge and values can be defined as the range of understandings, positions, practices, and beliefs about a place or people that are informed by or explained through a reference to the past. This phase was important for developing a baseline of understanding of heritage operations in ICRA activities.

I first conducted key-informant interviews with a range of stakeholders representing the views of local stakeholders, categorized as “born-heres,” and “come-heres,”¹⁵ and non-locals, who included researchers from regional universities and County and State government agencies, as well as environmental professionals from government and non-governmental organizations. The categories of born-here, come-here, and non-local stakeholders were selected to capture a range of temporal and cultural positions used to frame understandings, attitudes and beliefs about socio-ecological change on the Deal Island Peninsula. Born-heres for instance have a deep temporally- and culturally-rooted understanding of socio-ecological dynamics on the Peninsula, since to be a born-here requires that one has grown up in the area and also have generational ties to the place. Come-heres, on the other hand, have some temporally informed understandings of the Peninsula as local residents, but lack the generational perspective of born-heres and bring a range of cultural backgrounds from other places. Non-local stakeholders typically have no temporal ties to the Peninsula, but most do have a broader understanding of Chesapeake Bay and Eastern Shore history that helps to frame their perspectives of socio-ecological dynamics on the Deal Island Peninsula.

A total of 40 interviews were completed, 37 of which were semi-structured interviews. These included 13 semi-structured interviews with born-heres, 11 interviews with come-heres, and 16 interviews with non-local stakeholders (see Table 3.1). Most of these were recorded semi-structured interviews that were guided by an interview instrument of eight questions (See Appendices 1 and 2). Semi-structured

¹⁵ The ‘Born-here’ and ‘Come-here’ categorization employs locally-defined categories that draw distinctions between residents who were born and raised on the Peninsula, and those who have moved to the area from elsewhere.

interviews lasted approximately one-hour and were transcribed in MaxQDA, a text analysis software (VERBI 2018). An additional three informal interviews were conducted with born-here watermen. These were done informally due to the difficulty of getting these individuals to commit to an hour-long interview in the midst of long days of work. During informal interviews, I sought out similar input, but often had to collect it across multiple encounters. Extensive notes were taken following each conversation on heritage-based knowledge and values.

Table 3.2: Key-Informant Interview Participants

Born-here residents		Come-here residents	Non-local stakeholders	
Watermen	8		Researchers	7
Other	8		Environmental Professionals	9
16			16	

I

In addition to key-informant interviews, I also conducted extensive participant observation. As a method of learning by doing, participant observation was valuable for accessing the often-tacit level understandings of heritage-based values and knowledge through local practices (Musante 2015). Participant observation was conducted at a number of local community events, such as at the Skipjack Race and Festival and Skipjack Heritage Inc. events. I also attended a number of church services and Homecomings¹⁶, and spent time at places where the community tended to congregate. In addition, I assisted local stakeholders with daily activities, such as prepping crab pots or learning to bake Cream Devil Cake, a local delicacy. Following

¹⁶ Annual event hosted by the churches that are intended to bring old and new members of the congregation back home for a celebratory sermon and family-style dinner.

participant observation, extensive notes were written to document activities, observations, and conversations that could later be analyzed for heritage-based values and knowledge.

Next, I conducted text analysis on the transcriptions of the semi-structured interviews and notes from informal interviews and participant observations using MaxQDA (Ryan and Bernard 2003, Wutich et al. 2015). Text analysis was completed through a stepwise process of inductive and deductive coding. I first inductively coded interviews and participant observation notes to identify segments of text that captured references to the past in framing values and knowledge about socio-ecological dynamics on the Deal Island Peninsula. These were coded as “heritage.” I then deductively coded heritage text segments to categorize them under a range of themes that helped to describe heritage-based values and knowledge. These themes were used to code text data once more to capture other emergences of these heritage threads in order to validate these codes. This third round of coding was more iterative, allowing for both inductive and deductive processes to guide coding and to narrow the code list to a set of core themes using hierarchical nesting. Nine primary codes were identified: “working the water,” “skipjacks,” “seafood traditions,” “faith,” “rich experiential knowledge,” “close-knit communal ties,” “independence/freedom,” “hard work,” and “adaptability/flexibility.” These codes were used to guide Phase Two data collection and analysis.

Phase Two: Observing for Heritage in the ICRA

Phase Two of the research was focused on understanding how heritage-based knowledge and values was explicitly and implicitly drawn upon in the ICRA

activities by project stakeholders. The primary means of data collection during this phase was through participant observation during ICRA activities. As a stakeholder of the DIPP, I participated in all project meetings, during which I recorded detailed notes of activities, with special attention to how heritage themes informed individual reactions, input, preferences, prioritizations, and group dynamics. Meeting discussions were also recorded and transcribed, providing additional data to assess for how heritage-based knowledge and values informed individual engagements, and more broadly the ICRA decision-making process. In addition, I conducted informal follow-up interviews with key-informants throughout the process to collect additional insights and feedback on patterns observed during the ICRA.

Notes and meeting transcriptions were again analyzed using text analysis methodologies. Data were deductively coded for instances where heritage themes were either implicitly or explicitly drawn upon in framing statements about climate change-driven socio-ecological vulnerabilities. Statements were then inductively analyzed to identify a range of drivers for these uses of heritage (e.g., to challenge climate science, government regulations, prioritization of recreation/environment; to empower experiential knowledge, faith-based knowledge; to frame resilience, vulnerability, adaptation, socio-ecological change). Drivers were then used to identify pathways by which heritage-based values and knowledge shaped the overall decision-making process of the ICRA. Identification of these pathways enabled me to assess how they led to particular decisions about priority concerns and adaptation strategies pursued by the stakeholder network.

Phase Three: Quantifying Heritage Mobilization

Phase Three was used to collect quantitative data through an online survey to complement Phase One and Two qualitative analyses. I developed 13 rating statements (see Appendix 3), which were derived from a range of local heritage- and non-heritage-based adaptation approaches discussed at various points during the project. These statements included the adaptation strategies that the stakeholder network pursued during the final phase of the ICRA. These statements were developed from my qualitative data analysis of key heritage threads and participant observation data of adaptation pathways. Respondents were asked to rate each statement on their level of importance, based on a four-point Likert scale of very important, important, somewhat important, or not important. The goal was to collect quantitative data to assess how widely supported heritage-based strategies were among the broader stakeholder network in order to further enhance my analysis of heritage mobilization.

Questions were distributed to the network as part of a larger survey effort carried out as part of the ICRA to collect cultural consensus data and social network data (Paolisso et al. 2018). The larger survey, which was distributed at the beginning, middle, and end of the ICRA, was used to assess changes in shared cultural knowledge within the stakeholder network to determine how shared knowledge correlated with network connectivity. The thirteen heritage questions were distributed as part of the third and final ICRA survey. Responses were collected between November 2017-January 2018 from the stakeholder network (N=71) using Qualtrics,

an electronic survey platform (Qualtrics 2018). Due to the limited amount of time following this data collection, data have not yet been analyzed.

The following chapter is the first of three substantive chapters outlining findings from this analysis. It will explore three prominent heritage threads that very powerfully shaped the ways that stakeholders engaged in discussions about climate change and associated socio-ecological vulnerabilities.

Chapter 4: Framing Climate Change through Heritage

Introduction

The previous chapter provided an overview of the science of climate change in the Chesapeake Bay, demonstrating the complexities and challenges that global climate change presents both regionally and locally. While developing this scientific foundation is important for guiding climate change adaptation planning processes, it is also important to consider the ways that climate change is culturally framed by those who call the Deal Island Peninsula home, the focus of this chapter.

Climate science is often presented in such abstracted and broad spatial and temporal scales that it becomes unreadable and un-relatable to people living within a local context despite the fact that it has very real local implications. This is particularly true for those who understand the world outside of a scientific knowledge framework, where ‘climate change’ tends to be framed in ways that fail to account for how climate change impacts are socially and culturally articulated in local contexts (Adger et al. 2009, Brace and Geoghegan 2010, Chisholm 2017). The concept of climate change itself is complex, and full of social and political ambiguities that challenge the ways that it can be successfully engaged in climate change adaptation planning (Giddens 2009). Approaching climate change through a strictly scientific framework makes it much more difficult to develop adaptation planning processes that support local needs because they become gridlocked by knowledge misalignments, resulting in critical disconnects that promote vulnerabilities (Brace and Geoghegan 2010, Naess 2012). To overcome these challenges, Brace and Geoghegan (2010) suggest that we dig deeper into the ways that these changes are

temporally and culturally situated within the landscape by teasing apart the lived experiences that inform local knowledge constructions of climate change. In doing so, we can create inclusive spaces “that allow for different ways of knowing to play a legitimate part in framing a relationship with landscape” that in turn help better support local socio-ecological resilience to climate change impacts (285). Heritage provides a valuable framework for accessing this knowledge through how it facilitates meaning construction and guides responses to change, as will be explored in this chapter.

I begin this chapter with a discussion of heritage as a cultural process that frames local knowledge of climate change. I next present three prominent threads of watermen heritage that emerged from ethnographic research that importantly frame local born-here knowledge about climate change on the Deal Island Peninsula. These threads are tied to local Methodist roots, traditions of working the water, and histories of isolation and celebrations of independence. I conclude with a discussion about how ethnographic research on heritage-based knowledge of climate change provide important insights that highlight barriers and opportunities for engaging local ICRA stakeholders in adaptation decision-making processes.

Heritage and Climate Change Knowledge

As discussed in Chapter One, we can understand heritage as a social processing of the past for navigating ongoing and future change. It informs the ways we retrace our pasts through lived practices and discourses that ground who we are, how to be in the world, and direct our pathways towards desirable futures (Hafstein 2012, Lowenthal 1996). Heritage is also the mechanism that gives meaning to the

environment as a cultural landscape, molding how we experience and engage with it (Ingold 1993, Gray 2003, Salmón 2012). Through this process, we come to know about how it changes, which in turn helps us understand how to adapt to these changes into the future. Tim Ingold (1993) frames the landscape itself as “a story” that is told through particular remembrances of the past. As such, we can understand the landscape as part of the heritage process:

“It enfolds the lives and times of predecessors who, over the generations, have moved around in it and played their part in its formation. To perceive the landscape is therefore to carry out an act of remembrance, and remembering is not so much an act of calling up an internal image, as of engaging perpetually with an environment that is itself pregnant with the past” (59-60).

Ingold situates our knowledge of socio-ecological change within the ongoing process of dwelling, and more specifically the tasks we carry out on a habitual basis that informs *how* we dwell (1993). It is through these tasks that we develop knowledge of the social practices, movements, and rhythms that shape how we encounter the environment. An important part of dwelling, as Ingold notes, is the process of learning how to perform the various tasks and read the landscape by retracing the pathways laid by those who came before. It is through this process that we develop temporal roots that inform how we navigate the world around us. In this way, the act of dwelling is deeply embedded within a temporal dimension that is at once part of the past, present, and future, imploring us to remember where we come from as we imagine how we will be in the future. Brace and Geoghegan (2010) take Ingold’s conceptualizations on the temporality of dwelling one step further, imploring us to move beyond a focus on how dwelling teaches us simply how to be in the world to understand how it also shapes “a future-orientated temporality” (293). It is by

engaging with future-orientated temporalities of the landscape that we can engage other forms of knowledge in approaching climate change in local contexts (293). In many ways, we can understand this future-orientated temporality as the heritage process: a future-oriented engagement with the past that we to use to navigate change.

In the context of the Deal Island Peninsula then, how does the temporality of dwelling guide how local ICRA stakeholders understand climate change on the Deal Island Peninsula, and how does this knowledge shape their views on climate futures and adaptation planning? In the following section, I ethnographically explore these questions, providing insights into how locals, particularly born-heres engage with the past to frame their experiences of climate change on the Deal Island Peninsula. Developing these understandings provides critical insights on how heritage more broadly shapes the ICRA process, which will be explored in later chapters.

Heritage Framings of Climate Change on the Deal Island Peninsula:

Throughout the ICRA, the past has been richly woven into shaping discussions about climate change on the Deal Island Peninsula. It works its way into these discussions as part of the temporality of the Deal Island Peninsula as a landscape, guiding how Deal Island Peninsula residents frame their knowledge about climate change and adaptation. It presents itself in the context of climate change as part of three temporal undercurrents of local heritage: Methodism, traditions of working the water, and isolationism. These undercurrents are discussed in detail below through an ethnographic explorations of a range of practices, discourses, and engagements with the past that inform how watermen dwell within the landscape and in turn experience climate change locally.

Methodism and The Blessed Assurance of Faith

One prominent undercurrent of local Deal Island Peninsula heritage is tied to temporally rooted practices of Methodism, which inform a range of faith-based values and beliefs about climate change and associated risks. For many locals who were born and raised in the Deal Island Peninsula area, they are guided by a strong faith embedded in rich Methodist traditions dating back to the early 19th century. The importance of this part of Deal Islanders' identity is visually palpable as one drives down Deal Island Road, past the seven active Methodist churches (not including the three inactive Methodist churches) that serve the 1,000 residents of the Peninsula. These churches are integral parts of the communities, serving not only as places in which to spiritually dwell with God, but also as the communal places that set the rhythms of faith-based living and where one learns how to embody their faith in their daily practices. In many ways, the churches themselves are the communities. They are literally, figuratively, and spiritually the places where one comes home -- whether during a Sunday service when one sits within the House of the Lord while listening to the words of God; or during annual Homecoming festivities when families return to the Deal Island Peninsula to reunite in the eyes of God; or at the end of one's life when one is finally called Home to be with God in heaven.

Behind one of the seven active Methodist churches sits the celebrated Joshua Thomas Chapel, the designated site on the National Register of Historic Places where Joshua Thomas, the famed 'Parson of the Island,' first brought Methodism to the Eastern Shore in the early 19th century on his sail-powered canoe aptly named "the Methodist," and introduced the people of the Deal Island Peninsula to the power of

Figure 4.1: “The Methodist” and Joshua Thomas



A replica of Joshua Thomas's sail-powered canoe at a small watermen's museum on neighboring Tangier Island tells the tale of Thomas's travels around the Tangier Sound, and how he helped spread the gospel of Methodism. A similar display of "the Methodist" can be found in the Skipjack Heritage Museum in Chance Maryland, located near Joshua Thomas's final resting place on Deal Island.

faith-based living (Webster and Paolisso 2016, Wheatley 2004). Even the name Deal Island alludes to the influence of the area's Methodist roots, which as the story goes, spurred a renaming of the place formally known as Devil's Island after a local pastor proclaimed that, "the Devil has no claim here." Joshua Thomas is to this day a celebrated household name among practicing Methodists who were born and raised on the Deal Island Peninsula. Several interviewees recalled performing in Joshua Thomas plays as children, and shared with me the well-versed story of how he famously foretold British troops stationed on Deal Island during the War of 1812 of their defeat in Baltimore through the word of God. Locals still pay homage to his gravesite, located next to the Joshua Thomas Chapel, and celebrate the Peninsula as the cradle of Methodism on the Eastern Shore.

For many locals who identify with these Methodist roots, they strongly rely on their faith in God in helping them navigate day-to-day challenges and uncertainties. This can be observed in the waterman's reverence for the power of nature –

understood as the workings of God -- which he and his family plan for accordingly, adjusting to the ebbs and flows of natural dynamics while remaining guided by their faith in God's "blessed assurance" that all will turn out as it should according to

Figure 4.2: Watermen Workboat "Blessed Assurance"



His plan. As explained to me by a local resident who used to work the water:

If they [watermen] can catch and make a living [working the water], they'll keep on going. If not, then they'll have to do something else. Because there's no guarantee that they're going to go out there and do the same thing they did last year. Most of them have faith that they will, and they live by that faith. ...The boys that I know they believe that God has a big hand in whatever happens out here. So they're trusting God every time they go out.

It can also be observed in the number of prayers requested and received during Sunday sermons for those suffering from illnesses, hardships, losses, and uncertainties. And it can be observed in how born-heres understand and prepare for the uncertainties of climate change. As stated by one born-here¹⁷, "Faith has sustained us through every hurricane, and storm, and flood, and faith will get us through these challenges too. If God desires to save us from climate change, he will." Through all of these struggles and uncertainties, they are guided by their faith in God, a faith that

¹⁷ Born-here residents are those who have familial ties to the Peninsula, and typically are from watermen families, if not watermen themselves. When able, I identify quoted watermen as watermen. While most interviewed come-heres (i.e., newly arrived residents from elsewhere) do not strongly identify with these heritage threads, many do acknowledge and appreciate their importance on the Deal Island Peninsula.

is engrained in them through the traditions, practices, and knowledge handed down through generations of practicing Methodists on the Deal Island Peninsula.

For many locals guided by this blessed assurance, rising sea levels and increasing storm severity are complex problems that cannot be fully explained by humans. They understand these changes to be part of God's broader plan, changes that are out of human control and incomprehensible due to our limited capacities as humans. Science, while a valiant attempt to explain socio-ecological changes, is viewed as an inherently imperfect tool because it is designed and carried out by humans, who are inherently imperfect themselves (Paolisso 2002). Therefore, many born-here residents involved in the ICRA turn to their faith and trust in God in navigating these challenges, and are skeptical of scientific claims about climate change futures. One waterman explained these perspectives on science by drawing my attention to changing scientific opinions on the dietary risks of eating eggs, pointing out that doctors used to recommend against eating eggs to suggest that scientific recommendations change because we are continually correcting for human mistakes or misunderstandings. He then explained, "Since we don't have all the answers about whether the science is right about climate change, why should we make any moves? We have trust in God and trust what we know while we don't have all the answers sorted out. ...God knows all, and it is all in God's hands."

This knowledge and reliance on faith can be better understood when one looks more closely at Methodist doctrine. Methodism teaches one that a life lived in servitude and devotion to God frees one from the often-overbearing worries of earthly struggles and hardships by providing assurance that God will provide for all of one's

needs and salvation. This assurance gives those of faith the ability to focus more of their energies on giving gratitude to God and developing deeper connections to Him through their service to those in need (Webster and Paolisso 2016)¹⁸. This is eloquently expressed in a passage from a blog post written by a Methodist bishop (Johnson 2017) that was shared with me by another longtime local in an effort to help me understand local Methodist attitudes towards climate change vulnerabilities. The author writes:

It all comes down to faith. Faith is that which we cannot see but the substance of which we have full confidence. Faith gives us the patience, peace and hope for the future despite the fearful conditions of this life. Jesus reminds us not to worry like the Gentiles (who don't know God). So believers: "Don't worry, be happy." God is with you.

These assurances, however, do not free Methodists from a need to act in the face of uncertainty. Rather these assurances give them permission to do what they are humanly able to do, and to leave the rest to God. In the context of climate change impacts on the Deal Island Peninsula, those guided by their Methodist faith frame their understandings of these changes as God's will. This was nicely exemplified during a church sermon I attended, during which the pastor reflected on a recent visit from a reporter who was interested in his thoughts on climate change. The pastor explained, "I told him that I don't deny climate change or that there's sea level rise, but all of these changes are happening because they're the will of God. We can't control God's will, we just have to go along with it." I noticed a lot of heads nodding around me, as he continued, "He then asked me, 'then why are you involved in the [Deal Island Peninsula] Project if you don't think we can do anything about climate change?' I told him it's because we need to do something so we're prepared! Just like

¹⁸ See Webster and Paolisso 2016 for a more in-depth explanation of Methodism.

when you're on a boat that is slowly sinking, and you know there's nothing you can do about it sinking, you still know you can put your life jacket on. And with sea level rise, we also need to be prepared to put our life jackets on. And when we do that, we can protect our cemeteries and [other places that are most important to us]."

Some local ICRA stakeholders have drawn upon their faith-based knowledge to challenge project leaders' focus on future climate change impacts in arguing that the future is out of human control. During one workshop, for example, a born here encouraged participants to focus less on future storms, and more on current environmental changes, suggesting that future concerns are part of God's plan and not up to humans to fix: "It's not just 100 years down the road [or] 50 years down the road. It's everyday flooding.... We have a normal high tide that is a lot higher here in recent years since I remember. And we can protect [against] these [everyday] floodings (sic), not what's going to happen during a storm. Because God is the one controlling the storms. We can't control God." In other discussions about climate change, local stakeholders have expressed visible discomfort and sometimes frustration in being asked direct questions about climate change and sea level rise, phrases which from their perspective represent more secular worldviews and support for government controls on natural dynamics that they understand to only be in God's control. One individual expanded on this perspective in explaining that science has transformed the environment into a secular god, thereby disregarding God as the Creator and ultimate arbitrator. Others have pointed to the way that science enables the government to play the role of God, making decisions about how to regulate the complexities of climate change -- complexities that as noted above are believed to be

only knowable to God. This perspective on science was demonstrated to me during a conversation with one waterman, who described government officials as “walking around like demi-Gods,” expressing his own frustration about government overstep on decisions that are not theirs to make.

However, in this same vein, a strong reliance on faith has also helped to foster a willingness among some local Methodists to work with scientists involved in the DIPP and ICRA. As explained by the local pastor during the same sermon quoted from above, “God not only controls climate change, but he is also the one who sends the doctors to help cure cancers and other illnesses,” implying that God sent the scientists involved in the ICRA to assist with climate change impacts. Interestingly, non-local stakeholders involved in the ICRA have developed similar ways of thinking about the power of faith. One environmental professional, for example, suggested, “Maybe we can work with them to say, well maybe we’re put here to help you. Or have those conversations. ... Maybe this is why we’re all put together to figure out how to work together, and figure out how you can keep living in this vulnerable area.”

Working the Water

A second important heritage thread that frames climate change on the Deal Island Peninsula is linked to the area’s temporally embedded rhythms of working the water. As discussed in Chapter Two, the traditions of working the water on the Deal Island Peninsula date back to the 1600s, when settlers first began harvesting the Tangier Sound as part of their subsistence practices, gradually shifting these practices to more economic-based industries by the 19th century. These traditions are carried on

as part of the local inheritance of watermen who live there today. The area's historical ties to skipjacks serve to reinforce the importance of these traditions within the local communities. These old oyster dredge boats, or "drudge boats" as they're often called, represent a long line of men who work the water and believe in the importance of hard work in navigating socio-ecological uncertainties. Though far fewer numbers of these boats still work the Tangier Sound today, they still are an emblem of local identity in the place celebrated as the "the Home of the Skipjack." Many longtime residents can proudly list which skipjacks were captained or crewed by their fathers and uncles, grandfathers and great grandfathers. Even those who are new to the area have come to appreciate the richness of the local waterman heritage, marveling at the fact that they live in one of the few remaining places in the Chesapeake Bay where one can still watch skipjacks dredging oysters from the Bay.

The most outward celebration of these watermen traditions is enacted during the three-day long annual Labor Day Festival. The event is widely attended and in many ways serves as a homecoming for those who have moved away, drawing them home to dwell once more within their local watermen roots. This heritage is encapsulated not only in the skipjacks themselves but also in other festival traditions, such as eating softshell crab sandwiches, caught and prepared by local watermen, and the boat docking contest, where watermen demonstrate their experiential skills in single-handedly reversing 40-foot long diesel workboats into boat slips and tying them off as quickly as possible, usually in about 20 seconds. Skipjack Heritage Inc. (SHI) also celebrates these traditions through their small heritage museum, which contains stories and photos of the generations of people who worked the water and

supported local watermen industries. In addition, SHI sponsors skipjack restoration projects, which revive long forgotten oyster dredge boats, putting them back to work supporting watermen livelihoods.

Embedded in the traditions of working the water are values, knowledge, and beliefs that guide how watermen, their families, and descendants understand and navigate change. For one, it necessitates a willingness to be adaptable and flexible, and to work hard in order to adjust to the inevitability of change. Experiential knowledge handed down through generations of watermen and developed through the daily practices and seasonal rhythms of making a living from the water have instilled a rich understanding and appreciation for the dynamism of the local environment, and an acceptance of the fact that things change. A waterman is intimately familiar with wind and weather patterns, and seasonal changes such that he will be able to tell you “when the peelers¹⁹ will start to run” based on how water temperatures are changing, or offer predictions for the upcoming oyster season based on his knowledge of catch rates, and estuarine and oyster health in previous years. He knows how to move across the landscape (and seascape), adjusting to ongoing daily and seasonal changes, fluctuations in fisheries and seafood markets, and increasingly so, environmental regulations. If the “peeler crabs” arrive early, as they did in the spring of 2017, he will have his pots ready for the first run, and be prepared to work the intensive daily cycle of harvesting his pots and “fishing up” his peelers every 4-6 hours. When catches are low, he relies on money saved during more profitable periods to support his family, frequently taking on different jobs to supplement his income, from fishing, to running charters, to tonging oysters or crewing for other captains, to working part

¹⁹ Crabs that are in the process of molting their shells, at which point they become soft shell crabs.

time off of the water. The ease at which a waterman navigates this landscape is developed through knowledge handed down to him from his father and through his accumulation of experiential knowledge. In fact, learning the art of adapting to change through one's day-to-day experiences on the water and through a willingness to work hard is what defines a waterman's success and what is celebrated by many as the mark of a good waterman. As explained to me by one waterman, it is by developing this art that, "in good times [a good waterman] will do very good, and in bad times, he still does good." This statement matches what Paolisso (2005) similarly found: watermen self-identify a waterman to be one who works the water, making a living from it in good and bad times. It is the knowledge of how to do this that they want to pass onto future generations. It is also knowledge they draw upon in approaching the uncertainties of climate change.

Adapting to change is part of the waterman's rhythms and they inform how he and his family live with the dynamic landscape that is the Deal Island Peninsula, and it also informs how they approach local climate change impacts. As put by one born-here, "Change is something that is going to happen every day. So we have to accept that and just move on." Ask any number of born-heres about storms or floods, for example, and more often than not the response is, "We've always just dealt with it. We sweep the water and the mud out, and we move on with life." One waterman traced local adaptability to the area's first settlers, using his understanding of this history to explain local attitudes towards climate change: "When the people who formed [these communities] came here, they didn't change the environment to suit them, they changed to fit into the environment that they came to. ... Things are always

changing. If sea level is rising, if global warming is happening, if young people are leaving the island and it's just old people -- we can't change the environment around us. We have to learn to live within it." In a separate conversation I had with this individual about future flooding vulnerabilities on the Deal Island Peninsula, he drove this point home in stating, "We're past a point where we can stop [climate change] from happening, so let's make the best of it while [these islands] are still here. It's all about adaptation." He then asked me, "What do you think we'll do when we can't drive down Deal Island Road anymore?" I naively guessed, "You'll leave?" He laughed and said, "No, we'll get a boat! And then we'll be like Smith Island²⁰ for a time, until we can't live on the island anymore. And then we'll leave."

As noted above, traditions of working the water reinforce the importance of experiential knowledge in navigate change. Within the ICRA, watermen stakeholders frequently draw upon their experiential knowledge to challenge scientific alarm about future sea level rise. For many, sea level rise is occurring at such an incremental pace that it is not a priority concern, in part because their experiences with these changes to date match their experiences with past changes as well as their capacities to adapt to these changes. Countless times in response to questions about individuals' concerns about climate change on the Deal Island Peninsula, born-heres have simply responded that, "It's always flooded here" or "the shorelines have always eroded." These statements are usually followed by a story about past memories of flooding and/or erosion and how it was dealt with. Others do acknowledge that the environment is changing, pointing to locations where erosion is occurring more rapidly and where

²⁰ Waterman communities located on a nearby island in the Tangier Sound. It is frequently recognized as the last of thirteen Maryland island communities of the Chesapeake.

marshes have become soggy, but they do not link these changes to the globalized and abstractive definitions of climate change put forth by science. Rather many point to tidal or storm-driven influences and to land subsidence -- factors that fit their observed day-to-day and broader lifetime experiences with the local environment. In cases where individuals have considered scientific model outputs for sea level rise, they temper these concerns -- outcomes that, as discussed in the last section are understood as in God's hands -- as they point instead to more immediate issues that they do have control over, such as overflowing ditches as a result of infrequent ditch maintenance.

Independence

The Deal Island Peninsula also has a long history of isolation that is frequently reflected upon by stakeholders involved in the ICRA in reinforcing the importance of independence and self-reliance in navigating socio-ecological changes. Independence is understood by many stakeholders to be a key characteristic defining what it means to be a true 'Deal Islander,' many of whom are descendants of people who lived life outside of government controls and support structures. Several stakeholders, for example, have referenced the Peninsula's history of rogue pirates who once used these islands as hideaways to suggest that, "Deal Islanders come from a tough bunch of people" who sought out their independence in this isolated landscape. Local lore claims that it was from pirates that Deal Island and neighboring Dames Quarter acquired their former, more infamous names of Devil's Island and the Damned Quarters. Others link local independence to a small group of settlers who

carved out a life on the Peninsula, seeking their own independence from religious persecution as they learned to survive by harvesting from the waters and farming the land, eventually developing into small self-sustaining communities by their own hands. As explained to me by a local waterman, “The Indians were teaching them about getting crabs and oysters and eating them. And [they were] hunting and fishing, and doing all of these things, and they prospered.” From his perspective, it is the environment itself that molded the people of the Deal Island Peninsula into independent people. As he described it, “we’re loners. ...if you go back to the early settlers and what it took to survive here, you were a loner to start with. You had to spend long periods of time cooped up by yourself out on a boat or on a farm, or when there was (sic) only 10 families here on the island.” It is from this history that traditional livelihoods tied to working the water developed, which have further embedded values for independence, as watermen carry on the tradition of supporting oneself and family through seafood harvesting and processing, as has been done for generations. Having the freedom to “be your own boss [and] make your own decisions” is in part what attracts watermen to carry on the tradition.

Others reflect on more recent histories from their childhoods when the communities of the Deal Island Peninsula were far more isolated from the mainland due to poorer road infrastructure and fewer transportation options, and as a result were more insular by nature. Born here residents frequently reflect on the once thriving community centers with grocery stores, general stores, post offices, farms, bustling harbors, and a full-service school, as they reminisce on pasttimes when one could live a good life largely disconnected from the outside world. In one

conversation with a waterman about future flooding vulnerabilities, I asked him whether he was concerned about future access limitation if Deal Island Road were to ever flood, cutting off access to the mainland. He wistfully pondered about neighboring watermen communities on Smith Island and Tangier Island which have retained their isolation, as he replied, “I don’t know, would that take things back to the old way of living, the way I want it to be?”

A long history of isolation on the Peninsula has also reinforced the importance of social support networks among many born-here families on the Deal Island Peninsula. The label of family is broadly cast to include people who are part of these support networks. As described by one interviewee: “Family to me not just blood. There are so many people who are of such big importance in my life. ...If you needed anything, there’s someone that I could probably chuck a rock at their house from this spot who would give me the shirt off their back if I needed it.” These networks are also extended to include the churches, which as noted earlier, are critical support structures within the communities. The church congregations, many which are generationally tied to several main families dating back to 18th and 19th centuries, are frequently themselves referred to as one’s “church family” and they embody this role each time they gather around one another in prayer for those in need, or come together to celebrate Homecoming, which is reminiscent of a family reunion, as people return to their home church and gather together for a large family-style meal in celebration of the event. Familial connections to the churches are physically embedded in the landscape itself within the church cemeteries, where most watermen families have relatives buried, some dating back to the area’s early settlements.

There is a general understanding and acceptance among watermen families that part of being from this place means looking out for one another. It is remembered as an important part of how they survived in the past when access to the mainland was far more limited. While families today have access to resources and are more connected to mainland life, they carry on the tradition of supporting one another in good times and in bad. It is a quality that many locals are proud of, and that they celebrate as an important part of their resilience. Countless times, interviewees have described the importance of these social supports which were best put by one waterman:

I tell everybody that there's two things about the Island: everybody knows your business. Everybody knows what goes on in your house, when you hang your laundry out. They know what your laundry does. They know when you drank too much, they know when you cuss too much, they know who's cheating on who. They know the good, the bad, and the ugly, and that's a good thing [because the people here also look out for each other.]... They know when somebody in their family's hurting. They know when a meal needs taking, they know when somebody needs to look after their boat, or if they're not home and something's happening. They know it's going to be okay.

These traditions are not only carried out by individuals and the churches, but also by the local Lions Club, which has for generations provided an organizational means to financially support those within the community who need assistance with hospital bills, boat repairs, groceries, or even with paying an electric bill. The supportive nature of the communities is also recognized locally as an important asset in planning for future impacts such as those anticipated with climate change, as it is through community networks that individuals have been able to overcome flooding impacts and disasters in the past. As described by one individual, “Whenever a hurricane, comes like this last Hurricane Matthew, there were people helping other people. They

were doing what we do every day here. If somebody is hurting, we go to them.” The increasing influx of newcomers, however, are changing the community dynamics in ways that some suggest is a potential source of vulnerability in the future, as fewer people are engaging in these important support networks. This can be seen in the dwindling size of the church congregations as well as in the struggling membership of the Lions Club.

There is also an undercurrent of resistance from born-heres to the influx of newcomers, or come-heres who mark the increasing connectivity of the Peninsula to mainland life and encroachment upon independent living that has defined the communities for generations. Watermen and their families highly value the ability to be self-sufficient through hard work, and emphasize the importance of not relying on outside help, just as was done by their ancestors who thrived in their isolation on the Peninsula. The independent and self-reliant nature of born-heres was nicely described to me by one born-here in sharing life lessons that she is passing on to her young son: “I tell him, ‘You have to work for what you want, don’t expect anybody to give you anything. You’re not entitled to anything. You work with what you have.’ And part of that is living here. That’s what was instilled in me by these people. You don’t expect a hand out from anybody.” Fostering one’s ability to be independent and self-sufficient is also viewed as a necessary attribute for living in the dynamic and remote environment of the Peninsula, where people in the past had to figure out how to overcome socio-ecological challenges on their own. One resident put it this way:

“If you’re from here, you make do or you do without. Back in the day before [the Deal Island] bridge was here, people didn’t have the luxury of going to down [to the store] to get stuff like they do now. This bridge used to be a rickety wooden bridge that was replaced in the 1980s. If you had an old flour

sack, you used that to make your clothes, you canned your own vegetable and fruit, there were so many cornfields and tomato fields and cattle fields. There was the cannery. People were able to support themselves all right here. You made do with what you had, and you figured it out.”

This sentiment has led some born-heres to push back against come-heres’ interest in securing outside assistance and government services to help them address socio-ecological vulnerabilities. One individual, for example, expressed these attitudes towards come-heres in taking issue with increasing desires for government assistance in addressing shoreline erosion concerns: “Come-heres move down here and build on the shoreline, and then they want assistance! Why do you think we don’t build on the shoreline? Because we know not to from what people who came before us learned about the erosion and the flooding! If you’re going to move down here, you have to have a back-up plan. And we’ve always had to figure out what our back-up plan is.” Another individual pinned these attitudes on an unwillingness of come-heres to adjust to new modes of living required of those who choose to live on a remote Chesapeake Bay island or peninsula. As she explained, born-heres have learned from past generations how to shelter-in-place, and make do with what they have, while the come-here’s,

“want what they had in Baltimore. They want their trash picked up, they want their mosquitoes sprayed, they want all of the amenities they had in the city. They complain about how their roads flood and how their shorelines are eroding. ... They resent that you have to take care of your own out here. ... There’s a self-resilience attitude among the born here’s where they look at things as it is what it is. The shorelines have always eroded, the roads have always had flooding issues, and we just have to deal with it. We always have. And we don’t depend on anyone else to get us out of trouble.”

As alluded to by these two individuals, there is a level of resistance to government intervention in addressing climate change vulnerabilities, where

accepting government assistance represents a reliance on outside help. This is best exemplified by a conversation I had with a local waterman about marsh migration concerns raised during discussions among ICRA stakeholders, where several environmental professionals and researchers pointed to the need to address critical disconnects between State policies on climate change and local realities with regards to marsh migration. In essence, tidal marshes in Maryland are under the jurisdiction of the State, as stipulated by the Critical Area Law of the Chesapeake Bay²¹, but there are currently no provisions in place under this law that enable property owners to seek compensation for property that will soon be State-owned as tidal marshes migrate into upland areas as a result of sea level changes. On the Deal Island Peninsula, there are numerous properties where tidal marsh is taking over sections of property that once had monetary value and represented an important asset for the landowner, but now are unsellable or are soon to be unsellable due to the encroaching marsh, which is protected by a 100-foot unbuildable buffer spanning inland from the marsh boundary. I explained this problem to this waterman, asking for his thoughts on how to help people who may want to move, but are stuck in place because they cannot sell their property due to flooding and marsh migration. I asked, “How do these people recoup their investment so that they don’t lose everything?” He responded, “That’s just part of the gamble you take living down here.” I challenged his answer, asking, “But if there are programs and a willingness from the State or other groups to assist people down here with this issue, don’t you think that would be worth taking advantage of?”

²¹ Critical Area Law of the Chesapeake Bay was put in place in 1986 to protect water quality, wildlife and habitat of the Chesapeake Bay, its tributaries and tidal wetlands.

He shot back, “The Government doesn’t need to be giving out handouts. It’s too bad that’s happening to them, and I feel sorry for them, but that’s just life.”

Conclusions

It is important to note that the values, beliefs, and knowledge explored throughout this chapter are firmly rooted to watermen and their families, or born-heres. While come-heres have developed their own relationships with the temporalities of the Deal Island Peninsula, it is born-heres who most actively draw upon local heritage identities in engaging in climate change discussions as part of the ICRA. The above ethnographic descriptions clearly demonstrate how the temporality of the Deal Island Peninsula helps to frame the ways that watermen and their families understand climate change in a local context. Methodist traditions, watermen practices, and a history of isolation are each important parts of local born-here identity, and it is from these threads that watermen and their families come to understand their own adaptability and resilience to socio-ecological change on the Deal Island Peninsula. To be adaptable on the Peninsula, one must have faith, a willingness to be flexible and work hard, they must have rich local experiential knowledge, and be able to be self-sufficient. It is also from these heritage threads that Deal Islanders frame their knowledge about future climate change impacts on the Peninsula. As discussed in the previous sections, born-here stakeholders tend to frame climate change as part of the ongoing natural dynamism that has always characterized the Deal Island Peninsula: a place where water has always inundated the land and shorelines have always eroded. Their temporally embedded processes of dwelling in such a dynamic landscape have instilled in them an understanding that climate change

is part of the natural changes that God intended as part of his larger unforeseeable plan. While they acknowledge that rising sea levels and increasing storms may present additional hardships in the future, they are hardships they will endure with full trust in God and in their own adaptive capacities to see themselves through these challenges, just as they always have done.

This chapter has revealed the value of eliciting heritage to understand local knowledge frameworks on climate change. Doing so has provided insights into not only how climate change is locally understood and experienced, but it also has helped identify what is meaningful and valuable in a local adaptation context. Developing these understandings is important for identifying opportunities to engage stakeholders in climate change planning processes that best support local needs and priorities. In the next chapter, I build upon these findings to explore local understandings of vulnerabilities to climate change, providing insights into how these vulnerabilities emerge as a result of dissonant heritage uses at competing scales of environmental governance.

Chapter 5: Dissonant Heritage and Climate Change Vulnerability

Introduction:

As illustrated in the previous chapter, heritage strongly influences the way Deal Island Peninsula residents, especially born-heres, come to understand ongoing and future climate change impacts, and their capacities to adapt to these changes. There is another layer to this story, however, that also importantly shapes how they understand their vulnerabilities to climate change, and in turn how these understandings work their way into ICRA discussions. It is a story that is entangled in watermen's sense of disinheritance from the Chesapeake Bay because of how Chesapeake Bay heritage has been used at broader scales of regional governance to mobilize Chesapeake Bay restoration. These uses of heritage have effectively shifted regional values and governance in ways that leave watermen sensing a threat to their cultural identity, as their traditional ways of life are increasingly relegated to the past and excluded from dominant visions of a future Chesapeake Bay cultural landscape. Their experience of disinheritance emerges within discussions about climate change vulnerability, whereby their expressions of vulnerability are most pronounced, not in response to oncoming environmental changes such as flooding and rising sea levels. Rather, they pin their vulnerabilities on their sense of disempowerment and marginalization within governance processes that leaves them feeling excluded, undervalued, and constricted by environmental regulations that hamper their culturally informed adaptive strategies to socio-ecological change.

Heritage Dissonance

This chapter draws heavily on Tunbridge's and Ashworth's (1996) conceptualization of heritage dissonance, or the recognition that heritage is by nature full of conflict and contestation because of how it is engaged in multi-vocal processes of meaning making and identity construction. Heritage is consumed and produced at various spatial scales and for a range of economic, political, and cultural purposes. It is also selective by nature, whereby actors draw upon threads of the past to support or promote contemporary standpoints, positions, values or messages. This selection process is inherently exclusionary in that by selecting one narrative of the past for one intended purpose, it logically follows that it also excludes other narratives and associated identities and meanings, thus creating dissonance (1996). As Tunbridge and Ashworth point out, the dissonant nature of heritage makes heritage particularly prone to becoming a process that promotes disinheritance because of how these exclusions can discredit, marginalize or altogether ignore the experiences of non-participating actors in damaging ways (1996, 21). In the case of the watermen and born-here families of the Deal Island Peninsula, they point to experiences of being disinherited from their own way of life because of how Chesapeake Bay heritage is framed by more powerful environmental groups to mobilize Chesapeake Bay restoration goals.

Others have examined heritage in the context of Chesapeake Bay environmental governance, providing supporting evidence for this sense of disinheritance expressed by watermen within the ICRA (e.g., Chambers 2006, Paolisso 2002, 2006, Paolisso 2007, Griffith 1999). Michael Paolisso (2007), for

example, explores the ways food traditions associated with Chesapeake Bay blue crabs have been harnessed to promote water quality improvements in the Chesapeake Bay watershed. While these uses of culinary heritage have been effective in their own right, he illustrates how associated environmental discourses have also served to disenfranchise watermen from an important part of their own cultural traditions. In other works, Paolisso provides useful insights into watermen's cultural models of the Chesapeake Bay environment, which he finds are squarely rooted within their cultural inheritance of the right to work the water, and within faith-based and local ecological knowledge frameworks (2002, 2006). This is often at odds with more dominant cultural models employed by scientists and resource managers guiding Chesapeake Bay environmental governance, who frame the environment within very scientific and ecological terms, with an emphasis on its natural and recreational benefits (2002, 2006). Paolisso does not explicitly examine heritage as a variable shaping these cultural models, but he does provide valuable insights on competing environmental knowledge and beliefs that will be built upon in the context of heritage dissonance within this chapter.

Erve Chambers (2006) briefly examines the role of heritage in shaping these conflicting cultural models, which he attributes to regional efforts to resituate Chesapeake heritage in terms of 'environmental heritage.' The problem with this, he suggests, is that it "attempts to link cultural practices to the goals of environmental conversation and preservation," which do not easily map onto one another due to key differences in how ecosystems and human systems function (25). In effect, this reorientation of heritage perpetuates assumptions about cultural practices and beliefs

tied to the environment that can conflict with locally situated socio-ecological relationships. In the case of Chesapeake Bay watermen, he points to how the Chesapeake Bay has been refitted to an environmental heritage framework in ways that put watermen's heritage at odds with Chesapeake Bay restoration goals. This has resulted in watermen's cultural claims to the right to work the water being pushed aside by more powerful governmental claims to the Chesapeake Bay as a natural "public right" in need of protecting (27).

Chambers (2006) also presents a useful framework for understanding how dissonance can become a source of social vulnerability through his discussion of "public" forms of heritage over more "private" forms. "Public heritage," or authorized and bureaucratized heritage forms are produced and consumed as an historical experience (e.g., museums, monuments, heritage trails) and used to celebrate and promote the preservation of fading practices, traditions, or socio-ecological conditions. However, these heritage-as-history experiences in turn risk locking more "private," or culturally-grounding forms of heritage in the past, thereby separating social groups from important parts of their identity and way of life. In the context of Chesapeake Bay watermen, Chambers suggests that public heritage initiatives have historicized watermen heritage in the process of re-imagining a Chesapeake Bay for its ecological integrity and recreational values. In effect, it has alienated watermen from parts of their own private heritage that is "necessary to [their] continuance and well-being" (38). In other words, limiting social access to more private heritage forms can make it increasingly difficult for social groups to draw upon the cultural guideposts that importantly ground their own sense of self, and

help them navigate ongoing and future change. This provides a valuable entry point for this chapter, which will explore the ways that Chesapeake Bay heritage dissonance impacts the Deal Island Peninsula watermen and born-here families in the context of ICRA climate change planning discussions. First, I will explore heritage dissonance as it manifests in the context of the Chesapeake Bay oyster fishery in order to understand how this frames experiences of disinheritance on the Deal Island Peninsula. I will then illustrate the ways that born-heres involved in the ICRA speak to this sense of disinheritance as a source of vulnerability to ongoing and future climate induced socio-ecological changes on the Deal Island Peninsula.

Saving “The Great Shellfish Bay”

Chesapeake Bay heritage is intimately tied to the eastern oyster (*Crassostrea virginica*). It is often claimed, in fact, that it was the oyster for which the Chesapeake Bay was named -- “Chesapeake” roughly translating into the Algonquin word, *Chesepiooc* or “Great Shellfish Bay.” Indeed, no other place in the United States is perhaps more culturally rooted to the eastern oyster than the Chesapeake. It has for centuries been a source of nourishment, the basis for a way of life and celebrated seafood and maritime traditions, and the region’s economic engine, fueling the rise and fall of one of the most productive fisheries in the United States. While the Chesapeake oyster fishery is significantly reduced from its historic numbers, it continues to define regional identities in important ways that are integral to understanding how dissonant uses of heritage have created a sense of vulnerability among the Deal Island Peninsula watermen and born-heres in the face of ongoing and

future socio-ecological changes. To understand these uses, it is first important to understand the basis of Chesapeake Bay environmental governance goals.

In 1983, the states of Maryland, Pennsylvania, and Virginia, and the District of Columbia joined forces with the Environmental Protection Agency (EPA) to sign the Chesapeake Bay Agreement, a joint commitment by these jurisdictions to “improve and protect the water quality and living resources of the Chesapeake Bay’s estuarine systems” (Chesapeake Bay Agreement 1983). The agreement was developed in response to a five-year congressionally funded study carried out between 1976 and 1983 to understand the drivers of declining fisheries and aquatic health in the Chesapeake Bay (Ernst 2003, 14). The study found nutrient overloading to be the primary culprit and prompted this joint governance initiative to reduce nutrient inputs as means to restore the Bay’s ecosystem health.

The signing of the Chesapeake Bay Agreement marked the creation of the Chesapeake Bay Program (CBP), a regional governance partnership established to coordinate multi-jurisdictional environmental policy and management decisions and to promote environmental stewardship to achieve nutrient reduction and living resources goals. The Partnership was later extended to include Delaware, West Virginia, and New York as the states that make up the headwaters of the Chesapeake Bay watershed, as well as other Federal agencies, non-governmental organizations, and universities. It is guided by annual directives set forth by the governors of the states, the mayor of the District of Columbia, and the head of the EPA. Since its inception, the CBP has grown into a powerful regional entity that has very effectively shaped the governance of the Chesapeake Bay and public values for the Bay,

attributed in part to how its partners have drawn upon the past to mobilize political and public support for its restoration goals.

For the CBP and its partners, the oyster is not only an important cultural marker of Chesapeake Bay, but as a filter feeder, it is integral to Chesapeake estuarine health. These bivalves individually circulate on average seventy-five liters of water per day, providing an important ecosystem service in achieving water quality improvement goals (National Research Council 2004). Moreover, they form complex reef structures that provide habitat for other organisms, thereby helping to support the CBP's second goal of improving and protecting living resources (National Research Council 2004). However, declines in oyster populations throughout the 20th century have reduced their capacities to support bay-wide restoration objectives; wild oyster populations in the Chesapeake Bay are a mere 0.3% of their historic numbers in the early 19th century (Wilberg et al. 2011). In 2000, the CBP established its goal to increase the Chesapeake Bay oyster population tenfold by 2010 to support estuarine health. This commitment was renewed in 2014, with the goal to “continually increase shellfish habitat and water quality benefits from a restored oyster population” and to “restore native oyster habitat and populations in 10 tributaries by 2025 and ensure their protection” from harvesting²² (Chesapeake Watershed Agreement 2014). New water quality regulations set forth by the 2010 EPA Total Maximum Daily Load (TMDL) mandate propelled new management discussions on how to utilize oysters for nutrient reductions (Lukenbach et al. 2013). In 2015, the CBP initiated an expert

²² This follows 2011 recommendations from the University of Maryland Center of Environmental Science to place a moratorium on commercial fisheries to enable oyster recovery to better support estuarine improvement goals (Wilberg et al., 2011). While a moratorium was not pursued by Bay states, the report prompted Maryland Department of Natural Resources to commit 24% of its oyster reefs to sanctuaries and enhance penalties for poaching (Wheeler 2011).

panel to establish oyster aquaculture as a best management practice by which States could receive nutrient reduction credits towards meeting their TMDL commitments (Cornwell et al. 2016). The State of Maryland, as a partner of the CBP has been a leader in these oyster restoration efforts. In 2007, they established an oyster advisory commission, which reviews the state of the science and restoration goals, and provides recommendations on future regulatory actions. In 2010, Maryland revamped oyster regulations in line with these recommendations to begin transitioning the state's wild oyster fishery to sanctuaries for the purpose of cleaning the Bay, and to encourage commercial fisheries to shift towards aquaculture (Maryland Department of Natural Resources 2016).

To mobilize public support for these efforts, the CBP partnership has drawn upon the Chesapeake Bay history of oysters and oystering to promote ecological values and knowledge about oyster ecosystem services. This has been done through the construction of narratives that, in essence, reframe the wild oyster as an ecologically important resource not for harvesting and eating, but for restoring the Bay. The narrative often begins with a recounting of John Smith's 1607-1609 explorations, during which he reported, "oysters lay thick as stones" and provided evidence of a Bay with clear waters, abundant wildlife, and thick canopies of virgin forests (Chesapeake Bay Program 2018). Often this narrative serves to reinforce the importance of oyster filtration in facilitating healthy ecosystem dynamics, and to demonstrate how today's depleted oyster stocks are in part the reason why the Chesapeake Bay remains degraded. The *Bay Journal*, a regional environmental news source, funded in part by grants from the CBP, eloquently recited this narrative in a

1997 article entitled *History Lessons for the Future*, in which the author reflects on the abundance of oysters found by Smith in making the case that protecting oysters is necessary for Chesapeake Bay restoration. The author writes that during Smith's time,

Billions of oysters prospered naturally on grounds covering thousands of acres around the mouths of the Bay's tributaries and at spits or points in the rivers. Here, the ebb and flow of tidal currents swirled a perpetual, living soup of plankton around them. They had only to open their shells to eat, and in the process, they filtered out immense quantities of particulates, clarifying the water. Dr. Roger Newell, of the University of Maryland's Horn Point Environmental Lab, estimated that the Chesapeake's virgin oyster stock had the capacity to filter the entire Bay in several days²³, a feat that would take today's remnants more than a year to accomplish. (Mountford 1997)

The public now has the opportunity to retrace Smith's famous explorations by boating along the National Park Services' *Captain John Smith Chesapeake National Historic Trail*, established in 2007 as part of CBP commitments. Visitors are invited to enjoy wildlife, which can also be viewed from afar through wildlife webcams accessible online. Users are also encouraged to visit 'Smart Buoys' operated by the National Oceanic and Atmospheric Administration's (NOAA) Chesapeake Bay Office (a CBP partner), where they can read real time water quality data, as well as access other scientific data about wind speed, tides, and currents (NOAA 2018b). These buoys also allow visitors to listen to descriptions of each site as documented by John Smith, which provide sometimes stark contrasts between the healthy Bay found 400 years ago and the degraded Bay of today. A description of one of these buoy sites at Stingray Point, for example, describes the dense underwater grasses that covered

²³ This estimate of historic oyster filtration capacity was derived from a "back of the envelope" calculation, yet it has become public scientific gospel in the public narrative on oysters cleaning the Bay.

this spot in 1608, as they go on to explain that, “Unfortunately, underwater grass beds began to disappear from Stingray Point shoals in the 1970s due to loss of water clarity caused by nitrogen and sediment pollution. Today there is very little....” They also make note of the abundant oysters that were once at this site, which have disappeared:

Outside the shoal’s narrow shelves of firm sand and mud bottom grew abundant oysters in Smith’s time providing excellent deeper water habitat to compliment the shallow grass beds. Today they too are gone, though reef restoration projects in both the Rappahannock and the Piankatank [Rivers] have begun to turn the population around after a century and a half of over harvest, pollution and disease decimated it.

As alluded to in the previous quote, the CBP’s history lesson on the importance of the oyster is intimately tied to reflections on commercial watermen practices, which are often identified as a leading cause of a depleted oyster fishery in the Chesapeake, along with pollution and oyster diseases (discussed in Chapter 2). There is a reverence for how commercial watermen industries have culturally defined the region – look no further than the dedication of the oyster dredge boats known as skipjacks as the official

Figure 5.1: Main Exhibit Hall at the Annapolis Maritime Museum



Entrance to a small museum located in what was once an oyster house in a thriving waterman community. The surrounding neighborhood is now an upper class pleasure yachting community that proclaims itself the “sailing capital of the world.” Upon entering the museum, visitors are led to this large oyster aquarium, where they can watch time lapsed videos of oysters filtering dirty water. In the background are old watermen workboats from the early 20th century.

state boat of Maryland, or the myriad collections of old workboats at any of the region's maritime museums. However, embedded in these celebrations are also messages that suggest that traditional ways of working the water, such as those still practiced on the Deal Island Peninsula are ways of the past, and not a way forward in achieving a healthy, restored Bay. Often, they point to the damage caused by watermen overharvesting in the past in driving this point home. Instead, what is envisioned is a future Chesapeake treasured for its intrinsic natural beauty and vibrant ecosystems; a place not to work, but for recreating and protecting. Perhaps the best illustration of this is found in how the Chesapeake Bay Foundation, an influential environmental nonprofit and CBP partner has repurposed the skipjack, the *Stanley Norman* from its original uses as a commercial workboat to an educational vessel that provides visitors with "an authentic setting to study the Bay's resources," where they can dredge for oysters and troll for organisms that live on oyster reefs while learning about water quality and the importance of oysters as filter feeders (Chesapeake Bay Foundation 2018). In a blog post on their website, author Drew Robinson reinforces the importance of the *Stanley Norman* in fostering environmental values for oysters and skipjacks that are vital for achieving progress in "Saving the Bay" (the organization's tagline). He writes:

While the steep decline in the Chesapeake Bay's oyster population has several causes, including disease, changes in water quality, and habitat loss, it is undeniable that the overharvesting of the Bay's oysters played a large role. This overharvesting was greatly assisted by the skipjack and its incredible efficiency at dredging oysters.

It might seem a bit counterintuitive therefore, to celebrate a boat that in some ways represents the overharvesting and accompanying decline of the Chesapeake Bay oyster. A closer examination however reveals our great progress as a society. Where once the skipjack was used to exploit the Bay's

oysters, the *Stanley Norman* is now educating thousands of students on the importance of oyster restoration. **And more importantly, the *Stanley Norman* is helping cultivate in our future leaders a love for nature through exposure to the beauty, history, and culture of the Bay and its waters.**

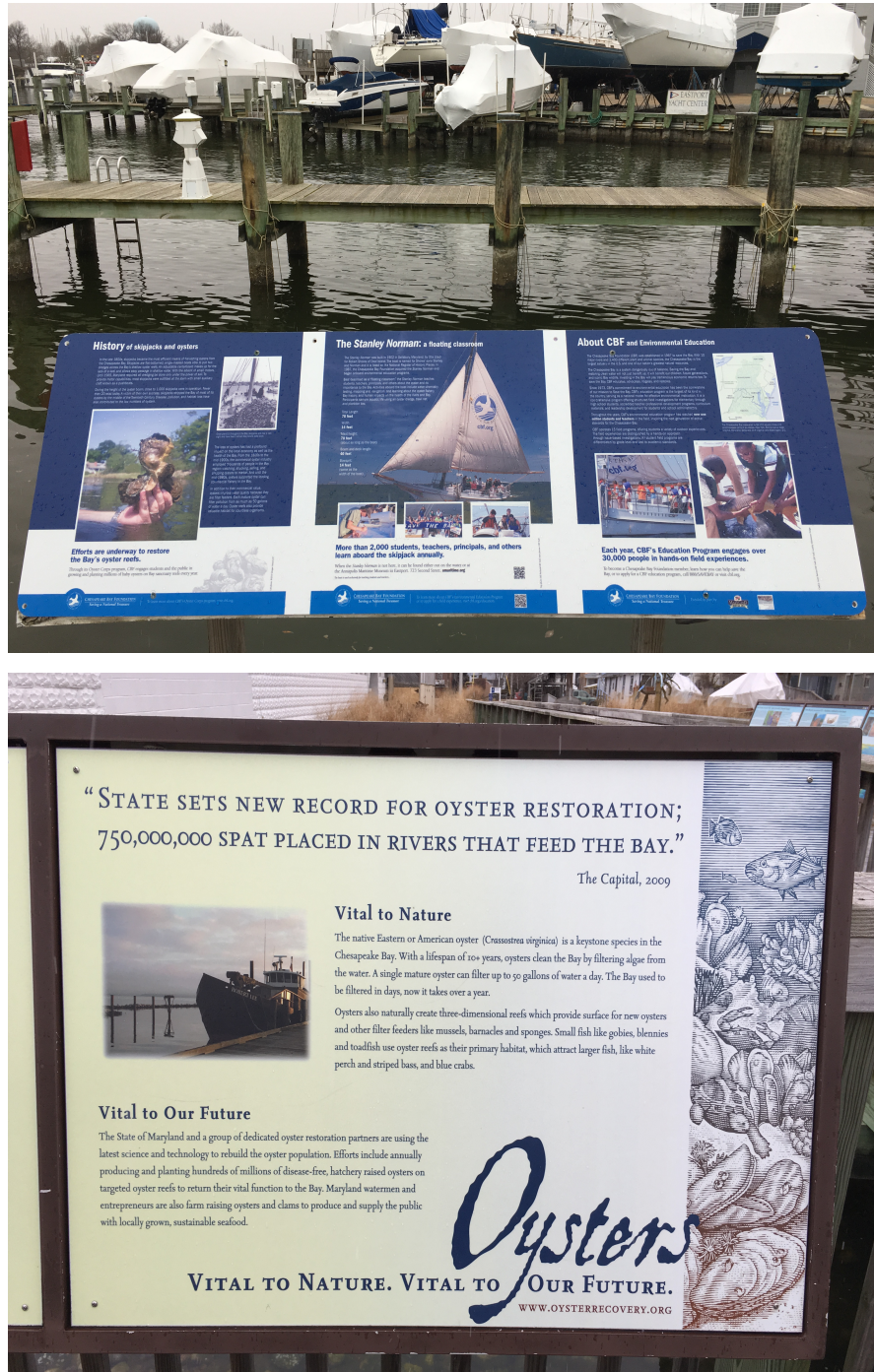
If the *Stanley Norman* will make it another 112 years is anyone's guess. But perhaps this old skipjack will continue to defy the odds, not in just mere survival, but in helping to restore the great Chesapeake Bay oyster and the waters which it calls home. (Robinson 2014. Emphases all original.)

The Oyster and the Right to Work the Water

The CBP's and the Chesapeake Bay Foundation's rendition of the Chesapeake's oyster story has been powerfully influential in mobilizing public support for Chesapeake Bay restoration goals. While I was attending an Earth Day event on the Eastern Shore, one attendee demonstrated this in making the comment: "I have been working closely [with a local environmental organization] as a volunteer planting oyster spat²⁴. My neighbors and I all have oyster gardens. We nurse the oyster spat over the winter and then they are spread out on sanctuary bottoms during the spring. It's so important to invest in practices like oyster gardening to help restore the Bay!" Increasing numbers of residents like this individual are engaging in water quality improvement practices, from growing oyster gardens on their docks to planting rain gardens and installing rain barrels in their backyards to soak up nutrient runoff (e.g., Furgurson III 2017).

²⁴ Oyster larvae that have permanently attached to a surface.

Figure 5.2: “Oysters: Vital to nature. Vital to our future.”



These signs, located on the former docks of the old oyster house turned museum, emphasize the importance of oysters for nature and for Chesapeake Bay restoration. The exhibit on the top includes photos of the Stanley Norman, and a discussion of the impacts that skipjacks had on oyster populations, and ultimately on the health of the Bay. Near this sign is information about “oyster gardening,” which allows waterfront residents to participate in restoration by growing oysters on their docks for filtration. Oysters are collected by organizations like the Chesapeake Bay Foundation, where they are placed in oyster sanctuaries.

There are also efforts to increase recreational access to the Bay in hopes that developing meaningful watershed experiences will promote environmental stewardship in support of water quality improvement goals (Chesapeake Bay Program n.d.). While this increased public initiative has been invaluable for harnessing political support for Bay restoration progress, this version of Chesapeake oyster history conflicts with watermen's own understandings of this history as it relates to their cultural identity.

For watermen and many born-heres on the Deal Island Peninsula, the oyster is part of their lifeblood. Oyster harvesting is not only how many watermen continue to support themselves and their families by working the water, but the oyster also represents a set of traditions, knowledge, and beliefs passed down through the generations that, as discussed in Chapter Four, emphasize the importance of hard work, independence, flexibility, and faith – the foundations of their adaptability and their resilience. The oyster, in many ways, is therefore a celebration of their way of life and their survival. From generations of oyster harvesters who came before them, today's watermen and their families celebrate their ability to live through both feast and famine, thriving from their catch in good times and managing the hard times in ways that enable them to remain resilient to ongoing socio-ecological change.

There is a sense, though, that their way of life is being erased from the Chesapeake Bay cultural landscape through how the oyster has been harnessed in mobilizing environmental efforts to “save the Bay,” a widely used tag line that, as suggested by several of my key informants, frames watermen as an environmental threat. There is a sense that watermen are blamed for the declining health of the Bay

as a result of a focus on destruction by past overharvesting practices. There is also a sense that regional environmental initiatives to frame the oyster as an ecologically important organism for cleaning the Bay leaves no room in a future Chesapeake Bay landscape for watermen to carry on their traditions of working the water. Informal conversations that I had with several watermen stakeholders on the topic of oyster restoration prompted sometimes visceral reactions in part because of this sense of blame and dispossession. One waterman, for example, shared this sentiment:

In my mind, it's a grotesque lie that they tell when they say oysters are filtering the Bay. They're just trying to convince all these people that we need these oysters out there to clean the Bay. No effort is being made to plant more shells for commercial harvesting though.

He followed this comment in expressing his frustrations with how watermen are, “labeled and branded as poachers. And I’m all against poaching. We need to catch those guys and penalize them. But the minute one of us [watermen] messes up, we make headline news.” He paused and then added: “We’re too often portrayed as we want to go out and harvest as much as we can. All we want is it to be a little easier to make a living. We’re not out there to catch as much as we can. We’re out there to catch enough to survive.” Another watermen expressed similar frustrations: “People think I don’t care about the environment, but I do. And I get it, I definitely see the other side of the story, but I’m not who they paint me out to be.” This experience of being branded as poachers is reminiscent of Laura Ogden’s (2011) recounting of alligator hunters in the Florida Everglades, who were similarly “criminalized” following the implementation of environmental regulations to protect the Everglades.

This sense of erasure is also picked up in conversations about the skipjack, which many see as being celebrated in ways that imbue skipjacks with new meanings

that marginalize watermen's own cultural identity and way of life. One waterman, for example, points to the ways that skipjacks are increasingly used to promote recreational activities: "The Chesapeake Bay [didn't used to be] an area for play. It was an area for survival. But our survival items, like our boats, have become pleasure items." He then rhetorically asked, "When there are no more watermen though, who is going to get your food? ... We need less recreating and more creating [of industries]. It [public and political interest] is not about watermen surviving." Another waterman shared with me that he overheard someone say, "I hope they all sink!" in expressing his or her own frustrations about how skipjacks are being appropriated in ways that marginalize ongoing practices of working the water. He

Figure 5.3: Skipjack in Scott's Cove Marina, Chance



Photo Credit: Julia Keane

followed this story in saying, “I don’t personally have anything against skipjacks, they’re actually meaningful to me. Most of my family, going back generations, worked on skipjacks, were captains of skipjacks or skipjack builders. But they’ve come to mean something very different to the public,” implying that these public interpretations misrepresent the waterman’s way of life.

Heritage Dissonance and Climate Change Vulnerability:

In the context of climate change adaptation planning being carried out through the ICRA, these experiences of disinheritance frame the way many born-here stakeholders understand and express their sense of vulnerability to climate-induced socio-ecological change. These frameworks of vulnerability broadly fit into three categories: prioritization for nature, shifts towards recreational uses of the Chesapeake Bay, and a prioritization of scientific over experiential knowledge.

Prioritization for Nature

In discussions about climate change vulnerabilities, born-here stakeholders in interviews as well as within ICRA workshop discussions frequently noted their sense of a growing prioritization for protecting natural landscapes over working landscapes as a source of their vulnerability. One frequently cited example given by stakeholders is that of Smith Island, a neighboring watermen community, which received a portion of Federal funding from the State of Maryland as part of Hurricane Sandy relief. The initial plan proposed by the State was to use these funds to buyout damaged homes in an effort to reduce the numbers of at-risk families on Smith Island. In response

though, the communities of Smith Island revolted by organizing Smith Island United, a grassroots initiative to give the local communities political voice in resisting the proposed buyout program, which the Baltimore Sun reported was viewed by locals as the State “basically saying, ‘We’re not going to invest in Smith Island anymore’” (Dance 2017). Eventually, the State, working in partnership with the Army Corps of Engineers, Somerset County, and Smith Island United revised their plan, opting instead to invest \$6.88 million in building two jetties to protect the Island’s most exposed community, and to dredge navigational channels that have silted in as a result of erosion. The dredge spoils from this project will be used to protect and restore 15 acres of marsh on Smith Island (MDDNR 2017). This project was referenced by one local waterman in an ICRA workshop discussion about procuring funds to implement a dune reconstruction project along a section of eroding shoreline on Deal Island. He exasperatedly shared these thoughts:

You can put all the people in this that you want... But if you don’t put the harmful dangers to the animals and the marshes [in your requests for assistance], you can forget it. But if you put the marshes first, with the wild animals, the eagles -- we’ve got a lot of eagles! -- You will get anything you want. People don’t matter. I’m telling you! Seven million dollars for Smith Island to protect the marsh. Not to protect the island at all. Make sure you put the wildlife in this, or you can forget it.

Another local resident responded to his comment in saying, “You want to put an eagles nest on [the Deal Island shoreline], you’ll have the money to fill that out,” prompting another born-here to yell out in agreement, “Exactly!” A fourth individual added, “You put something in about wildlife, you’ll get [your money].”

In another example, a waterman and his wife who participated in an interview referenced Smith Island during a conversation about climate change vulnerabilities.

The waterman's wife shared these thoughts:

It would be awesome not to be forgotten about and to get some help around here. But I think people are to the point where talk is cheap. They want to see it happen. They want to know someone cares enough to make a difference. ... I mean, look how long Smith Island's been crying that they were washing away. And now they're finally getting help, and it's too late.

This comment prompted her husband to share his perspectives on why watermen communities like those on Smith Island and on the Deal Island Peninsula have a difficult time getting assistance, pointing to his sense of prioritization for protecting nature over people. To make his case, he referenced Calvert Cliffs in southern Maryland where the Puritan Tiger Beetle (*Cicindela puritan*) has sparked a battle between residents and the State of Maryland:

They said that Calvert Cliffs is eroding so fast that they're going to do something there with the offshore bulkheads²⁵ or whatever. I saw that. And they're trying to say that it's for the Tiger Beetle. The tiger beetle's habitat is leaving.

This sense of prioritization for protecting nature over people is also raised in the context of increasing environmental regulations, such as those in place to protect marshes (e.g., Critical Area Law of the Chesapeake Bay). As sea levels rise and land subsides, properties around the Deal Island Peninsula are increasingly being overtaken by migrating marshes, which are protected under State and Federal Law from development impacts. As marshes continue to encroach upon private property, it

²⁵ Rather than investing in protecting against erosion, as suggested by this individual, the State and Federal government actually put protections in place to enable natural erosion to continue, causing backlash from residents who risk losing their properties as a result. Interestingly, this beetle is cited in several places as an important indicator of Chesapeake Bay ecosystem health (e.g., Goodman 2010, Entomology Today 2014).

is resulting in property owners losing use rights to portions of their property and in turn the rights to associated land assets. It also limits what property owners are able to do to protect against future marsh encroachment, as marsh migration also extends the critical area buffer further inland, a 100-foot or more buffer of undevelopable land between the marsh and landward edge of property in order to protect marshes from practices that would impact their water quality health (Maryland Department of Natural Resources 2018). According to one State representatives involved in the project, there are currently no mechanisms in place to compensate landowners for lost property assets as a result of marsh migration impacts. One local property owner, who is also a waterman, highlighted these vulnerabilities during an ICRA workshop discussion in saying,

I understand protecting the wetlands and all of that. I get that, but boy, the wetlands. We're losing the wetlands! I mean, the wetlands are leaving at such a concerning rate that now we're concerned about our own personal property. And there's several different options [we have to adapt], but we're up against such rigid regulations and they have to be amended especially for areas like this so that property owners, if they have the money, they can bring material in and build up their property and protect it from saltwater intrusion. This is certainly first and foremost on my list because I would like to bring in some material and try to keep the water off it, but I'm not allowed to because, oh, it's wetland!

As alluded to by this individual, a number of watermen have expressed that they have the capacity to handle ongoing and future environmental changes, but that their adaptability is stymied by environmental regulations, which as noted by one individual, leave them feeling “as if you can't [sic] hardly move! It's like having a wet blanket over you.” The waterman quoted above drove this point home at a second workshop in sharing his own experience of being fined \$25,000 for infilling

encroaching wetlands on his property to protect against flooding. He followed this story in saying,

[We property owners are] going to be at the end of this.... We're going to be in rooms like this asking for help, pleading for help.... And yet, our hands are going to be tied because we depend on the government agencies to help us out. ...There's a lot of regulation. ...That's what's holding us up. As property owners, there's a lot we can do, but I can't do a lot of it legally because my land is wet.

Lack of Government Investment in Working Watermen Communities

There is a sense that working watermen communities, like those on the Deal Island Peninsula, are the last to receive government support for public infrastructure and services critical for adaptation because of value shifts away from working landscapes and towards recreational landscapes. Several individuals have pointed to the Maryland state capital of Annapolis, which is one of Maryland's recreational centers and home to the CBP and Chesapeake Bay Foundation, in highlighting stark differences in resources available to assist communities with flooding and erosion concerns. As put by one waterman, "the road from [Deal Island] to Annapolis is the Yellow Brick Road. And they say everything goes up there where the Wizard lives, and a little will trickle down here." During an ICRA workshop discussion about adaptations to flooding, one individual highlighted the ways that money is redirected towards recreational interests, re-emphasizing what others have said about regulation as a primary source of vulnerability:

If we can get past the regulatory part of it, I think we can make a big difference. If there are facilities you need, that doesn't matter. It's a recreational focus. They're looking at it from that angle, not [what you need] where you live. You know I've been to Annapolis.... They're a lot better off than we are down here. They don't understand our little corner.

Others attributed the lack of financial support to the belief that the government is not invested in protecting small, working communities of the Eastern Shore. In a conversation about climate change vulnerabilities, one individual offered, “the guys that are there [in government] now don’t care about us.” She pointed to the Netherlands in saying, “If they’re holding back the North Sea, why can’t we do that here in the Chesapeake? ... They’re happy to just let these islands go.” Another individual shared similar sentiments in expressing his frustrations with the lack of government action to address ditch-flooding concerns: “You have to know somebody in government to get them to pay attention to you.” During our conversation, he emphasized that the Deal Island Peninsula has some of the worst flooding issues in Maryland, remarking, “the water comes right up to my front door! But we can’t get them [the State government] to do anything to help us out with this issue. The people on the Western Shore don’t care about the people out here. They just want to turn these marshes into sanctuaries.”

This individual’s concerns about ditch maintenance match other threads on vulnerability that emerged within ICRA workshop discussions. Local residents as well as County officials involved in the project have on several occasions highlighted the financial limitations of the County to support local socio-ecological needs, such as ditch maintenance, due to the County’s poor socioeconomic health. According to County officials present at one ICRA meeting, the entire County’s budget for maintaining 350 miles of ditches totals a mere \$100,000, of which \$25,000 is committed to leasing equipment that can service ditches in marsh areas. With ditch

maintenance projects costing \$10,000²⁶ on average, this limits the number of projects that can be completed each year to ten. Many of these ditches pass under driveway culverts, which used to be maintained by the County at no cost to homeowners. Due to budget cuts, however, replacement costs are now the responsibility of property owners. Standard replacement cost of a driveway culvert in Somerset County is roughly \$1,500²⁷ – a substantial fee for some residents, given that the County’s average per capita income is \$17,143 (US Census Bureau 2016). In another example, a representative for Somerset County’s Emergency Services shared his agency’s limitations as a result of County budget constraints, and what this means for the future of the Deal Island Peninsula in the face of sea level rise:

Let’s say your [future flood projections] are correct, and it [sea levels] rise 10 inches. The increased costs to the County and the local fire department are going to be astronomical. They really can’t do it. We don’t have those resources, and we don’t have the way to get them. You can have all the chicken dinners you want, but a fire department needs half-million dollars to have a 21 foot zodiac, and to have it equipped the way you want it for water rescues is another \$50,000 or \$60,000 or \$100,000. We don’t have it! ... We can’t stand anymore Hurricane Sandys.

A number of stakeholders have linked the County’s economic declines to the declining watermen industries, once the source of its prosperity in the 19th and early decades of the 20th century. Industry declines have perpetuated a steady outmigration that has dwindled the tax base and in turn limited the financial resources available to the County government (Ramsay 2013). As put by one individual, “People just can’t make money [here] anymore.” Part of this is attributed to the regulatory burdens placed on watermen, which makes it an increasingly difficult way to make a living.

²⁶ Estimate provided by County official at the meeting.

²⁷ Estimate provided by County official at the meeting.

One individual pointed to, for example, limits placed on commercial fishing licenses: “You have to be a son, daughter, or a spouse to inherit a license. And if you’re not, it can cost a fortune. How are you supposed to be able to keep working the water if you can’t get your hands on a license?” Others point to the economic burden placed on watermen as recreational interests drive up their costs. These include the rising operational costs: “Most of the harbors we can’t afford to harbor in because all of the recreational boaters have driven up the price”; as well as increasing competition with external seafood markets as a result of tourism demands for cheaper seafood (Paolisso 2007). One individual shared these thoughts:

Crabs are flooding the market from North Carolina and South Carolina. We just can’t make a living off of the prices that we’re getting. \$25/bushel. These young guys are used to getting \$50/bushel. They’re not going to go back to it, and we lose more watermen.

This individual followed this statement in driving her point home about what this means for securing government investments in saying, “There’s not enough watermen down here for them to say that it’s worth it to them to invest in us.”

Prioritization for Scientific Knowledge

Another aspect of how watermen frame their vulnerability is through their sense of increasing prioritization for scientific knowledge over experiential knowledge that is in part mobilized through regional heritage uses discussed earlier. The push to expand public values for scientific knowledge can be summarized in the words of the director of the CBP in an *Educator’s Guide to the Meaningful Watershed Educational Experience* (2017). He states:

The robust partnerships and programs in our region have created a culture in which systemic environmental education is poised to become the norm and

where school districts increasingly promote inquiry-based environmental education as a valid and effective way to spark curiosity, improve student achievement, promote Science-Technology-Engineering-Math (STEM) programs, and provide critical life skills.

For watermen, this manifests in the form of more scientific research about the Bay's natural ecosystem and more public support for science-based initiatives that increasingly put them at odds with a future vision of the Chesapeake Bay. It does so in several ways relevant to a discussion about climate change vulnerabilities. First, it limits the capacities for watermen themselves to engage in and contribute to environmental governance due to the fact that most have no formal scientific training themselves. Many watermen are instead guided by their rich experiential knowledge about the environment that is built through their daily practices of working the water (see Chapter Four). There is a sense, though, that their knowledge is invalidated because it does not fit within a scientific framework. As put by one waterman: "The researchers don't listen to us because we don't have a degree. They think they know it all better than we do, but we learn it by living it." Another individual expresses his sense of exclusion from environmental governance processes in stating the following:

I always say, you've got a lot of people studying things. ... You've got a guy who's been to school four years, and now he's in the field for a year, and he's studying the blue crab. I've studied the blue crab for 35 years! I know everything about it. You can ask people. I've studied every species out there. All 154 — even the 73 invertebrates. I know them all out here. They [the government] don't come ask me anything. Nothing. No questions. Never had a question from anybody about the species out here. [It's scientific knowledge] that writes the book. But they've got a lot of people around here who could really tell them something [about how the environment is changing].

A number of watermen also point to increasing prioritization for scientific knowledge as a mechanism by which the government asserts controls over watermen

practices through regulations, thereby infringing on important aspects of their resilience to ongoing socio-ecological changes. As put by one waterman: “They [the government] don’t want to trust us to do what’s right for ourselves.” In another conversation with this individual, he alludes to how governance guided by scientific knowledge (which I interpreted from his use of “intelligence”) creates vulnerabilities for watermen (i.e., their “destruction”) in limiting watermen’s traditional ways of survival. Interestingly, he writes his own heritage story in making his point:

When the ships landed off of Deal Island, and they found some high land and the plowed it up, and they went and caught some crabs. They weren’t living high on the hog, but they were surviving, and they were happy, and they thrived and [got us] to where we have it today. The government has decided that our heritage wasn’t right though. [They say,] ‘Everybody prior to us didn’t know what they were doing. We’re more intelligent.’ Well, our intelligence is going to be our destruction!

A related factor is the watermen’s faith-based knowledge, which is integrally linked to their experiential knowledge. As put by one waterman, you have to “trust your instincts, trust yourself, and trust in God. ... That’s what it takes to be a waterman.” This faith-based experiential knowledge, however, often conflicts with regional prioritizations for science-based governance in ways that contribute to vulnerability on the Deal Island Peninsula and that are important to briefly highlight here. As noted in Chapter Four, Methodist faith is an important heritage-based thread of local identity on the Deal Island Peninsula. It is a crucial part of how many born-heres understand their resilience, guiding how they negotiate socio-ecological changes, including how they plan for climate change. However, faith-based knowledge is largely silenced within Chesapeake Bay governance structures in prioritizing scientific knowledge over other forms. As a result, this prioritization has

helped to facilitate critical disconnects between unincorporated areas like the Deal Island Peninsula, where church in many ways fulfills the local leadership role played by formal government institutions in other place-based contexts. This has implications for vulnerability in that these disconnects result in fewer channels by which funding and resources can reach these communities during flooding, storms, and other environmental anomalies. Disconnects between the Deal Island Peninsula's faith-based communities and government are in part propelled by local resistance to science-based government intervention. This resistance can be observed in local perceptions of scientists as having a "demi-god" complex, where scientists are viewed as positioning themselves as superior. In a conversation with a local pastor, we discussed how to engage more local residents in the ICRA planning processes. He alluded to this knowledge tension in suggesting, "It has to be with stewardship of this land. Of what *God* has allowed us to have. Not the government. Not somebody else. We're guided by what God has allowed us time to do with[in] our season here."

Scientific prioritization within governance processes can also dissuade collaborative partnerships with rural-faith based communities due to the fact these communities are often broadly cast as "climate deniers," a label that comes with negative connotations and can serve to delegitimize their voice within regional climate change adaptation planning (Howard and Sharman 2017). The effects of this labeling are sensed by the defensive responses I frequently received when asking locals about their views on climate change. The DIPP through the ICRA has made strides to overcome this gap by investing in collaborative learning processes. However, it is still an important source of vulnerability that should be acknowledged

in understanding the repercussions of knowledge preferences in hindering access for some to resources and inclusion within climate change decision-making processes.

Conclusion

Many local ICRA stakeholders, particularly those who work the water or who come from waterman families, do not identify themselves as being especially vulnerable to the physical changes associated with sea level rise, flooding, and erosion. These are changes that many point out have always shaped life on the Deal Island Peninsula, and that people have learned to navigate through heritage-based knowledge and beliefs rooted to their faith, traditions of working the water, and independence. Where they do identify their vulnerability, however, is their sense of exclusion from governance processes and increasing numbers of regulations that infringe upon their heritage-based adaptation strategies to socio-ecological change. These frameworks of vulnerability nicely map onto Katherine Johnson's (2016) ethnographic research findings on how stakeholders understand resilience to climate change on the Deal Island Peninsula. She similarly found that local residents, especially watermen, tend to frame their vulnerability to climate change within the limitations created by outside social and political forces more so than on the physical changes associated with a changing environment (2016). In particular, she points to the regulatory burdens placed on commercial fisheries and changing socio-demographics that have eroded key social networks and local knowledge of how to be resilient to ongoing and future socio-ecological change.

The research presented here takes this point one step further to argue that these experiences of vulnerability can be linked to experiences of disinheritance

created through dissonant uses of heritage at more regional scales. As demonstrated here, Chesapeake Bay restoration efforts have very effectively mobilized heritage to achieve their goals of public engagement and support for Chesapeake Bay restoration initiatives. However, their memorialization of more ‘public’ forms of heritage, including watermen heritage forms, such as the skipjack, are used in ways that hinder more ‘private’ forms of heritage critical to Deal Islanders’ adaptations (Chambers 2006). Specifically, for watermen, these public forms of heritage have created a sense of disinheritance through the ways they have mobilized values for nature, recreational interests, and scientific knowledge. I have attempted to demonstrate how each of these values have in turn helped to construct the way that born-here ICRA stakeholders understand their own vulnerability to climate change on the Deal Island Peninsula.

Heritage, however, is not always a source of vulnerability. While the dissonant edge of heritage is always present, heritage can also be wielded in ways that provide a supportive tool for building resilience on the Deal Island Peninsula through how it can be harnessed to empower local stakeholders in adaptive decisions that support social-welling. Transitioning heritage from a source of vulnerability to a source of resilience requires re-carving heritage pathways that enable local actors to harness their agency in governing their socio-ecological futures. The DIPP through the ICRA has attempted to harness heritage for its own efforts to enhance to resilience of the Deal Island Peninsula through the ICRA. In that vein, the following chapter builds upon the findings of this chapter as well as Chapter Four to explore how the

DIPP was able to re-carve supportive heritage pathways in facilitating ICRA adaptation planning process.

Chapter 6: Carving Pathways for Heritage Integration in the ICRA

Introduction

Chapter Four makes clear that heritage threads tied to Methodism, traditions of working the water, and independence, when woven together, provide watermen and their families with an important set of adaptation pathways for addressing ongoing and future socio-ecological change on the Deal Island Peninsula. However, as demonstrated in Chapter Five, these pathways have been eroded as a result of dissonant uses of heritage that promote regional environmentalism interests that are at odds with local values, knowledge, and practices, and in turn threaten a way of life. In particular, there is a sense that rural, working watermen communities, like those on the Deal Island Peninsula, are increasingly left behind as a result of shifting regional values that limit government investments in these places, and that stifle traditional adaptation practices, thereby making it increasingly difficult to handle ongoing and future socio-ecological changes.

In this chapter, I take an empirical and ethnographic look at the ways that the ICRA considered local heritage pathways in developing climate change adaptation strategies. The question I seek to answer is to what degree did the ICRA empower watermen heritage pathways in developing a set of solutions to address socio-ecological vulnerabilities on the Deal Island Peninsula. Specifically, how did the ICRA engage with watermen heritage? How did it help connect associated adaptation pathways to regional adaptation planning processes? And how did these efforts empower local stakeholders, particular watermen and born-heres, to address their

experiences of disinheritance, exclusion, and vulnerability created by dissonant heritage uses?

The ICRA and Heritage Pathways

Through the establishment of the DIPP collaborative network in 2012, the project has sought to build a collaborative learning and decision-making process to help address socio-ecological vulnerabilities that threaten the Peninsula now and into the future (Johnson et al. 2018). The ICRA is the first effort through DIPP to develop a set of strategic adaptation plans that help support this goal. To remind the reader, the ICRA was an effort led by anthropologists from the University of Maryland, and representatives from the Maryland Department of Natural Resources and Maryland Sea Grant Extension (who I will refer to hence forth as the ‘project leadership team’²⁸) to collaboratively target vulnerabilities to ongoing and future socio-ecological change on the Deal Island Peninsula through an adaptation planning process. It drew heavily upon collaborative learning and decision-making carried out through three phases that involved selecting focus areas, assessing their vulnerabilities, and developing adaptation strategies to reduce key vulnerabilities identified by the stakeholder network. In particular, this process focused on integrating a range of expertise, experiences, and resources in targeting key areas of concern through a bottom-up driven process. The intent of carrying out the ICRA in a collaborative manner was to build and strengthen trust, rapport, and knowledge-sharing between local residents and watermen, government representatives, planners,

²⁸ The project leadership team members are also considered part of the ICRA stakeholder network, representing non-local stakeholders and one part-time local stakeholder.

resource managers, and technical service providers in order to facilitate adaptive pathways that support local socio-ecological needs (Johnson et al. 2018).

Heritage as an Adaptation Pathway

In the context of climate change adaptation governance, integration of heritage pathways into planning processes is important for developing locally relevant adaptation strategies that fit local socio-ecological contexts, needs, and desires (Jigyasu et al. 2013). Moreover, local heritage integration can be a tool for empowering traditional knowledge and practices that help to position the governance of vulnerability in the hands of the people who must contend with it on the ground (Lazrus 2009, Sayre et al., 2017). This is especially important in contexts where, like on the Deal Island Peninsula, vulnerability is shaped by the socio-political processes of exclusion and marginalization that have weakened important temporally-embedded social institutions, networks, knowledge pathways, and economic structures that support local adaptability (Nuttall 2009, Maldondo 2014, Marino 2015, Salmón 2012). Too often adaptation planning processes are propelled by top-down scientific and technocratic solutions that fail to account for locally-informed adaptation needs and understandings of risk, which are often linked to issues of agency (Lazrus 2009, Maldondo 2014). As such, numerous social science scholars have highlighted the need for better integration of traditional knowledge within scientific-based adaptation governance to address these gaps through locally-driven and cross-scalar decision-making making processes (e.g., Argawal 1995, Brace and Geoghegan 2010, Cotes and Nightengale 2012, Crate and Nutall 2009, Maldonado 2014) . As Arun Agrawal (1995) suggests, that it is “when we seek out bridges across the constructed chasm

between traditional and scientific [knowledge] that we will initiate productive dialogue to safeguard the interests of those who are disadvantaged” (443). Heritage, as a temporally embedded placed-based process for navigating socio-ecological change offers a valuable tool for facilitating culturally-meaningful adaptation strategies that also empower local actors to take control of their own vulnerabilities and climate futures. How then did the ICRA engage with watermen heritage in developing adaptation strategies, and in what ways did these efforts empower local actors to address their own experiences of vulnerability to ongoing and future socio-ecological change on the Peninsula? As will be discussed below, this was largely driven by the ICRA leadership team’s efforts to empower local knowledge tied to traditions of working the water and to temporally rooted Methodist practices.

Empowering Heritage in Addressing Socio-Ecological Vulnerabilities

The ICRA process drew heavily upon faith-based knowledge and local values for watermen to empower local stakeholders’ framings of socio-ecological vulnerabilities on the Deal Island Peninsula. This was primarily done through the project leadership team’s efforts to integrate Methodist practices and beliefs in the ICRA discussions, and by framing local stakeholders as project “experts.” Both of these endeavors played a critical role in facilitating a bottom-up decision-making process that directed discussions about vulnerability and adaptation towards local priorities and needs.

Integrating Faith-Based Knowledge

Throughout the ICRA, the project leadership team made concerted efforts to elevate faith-based knowledge in discussions about climate change and adaptation. The most explicit way this was done was through the use of prayer at each ICRA workshop. Prayer was always led by a born-here--often someone who was also a lay leader at one of the local churches. Almost all workshops and project meetings were also hosted at one of the local Methodist churches. A number of the non-local stakeholders who I interviewed commented on the use of prayer and churches in the ICRA as a novel experience in their professional careers, and one that encouraged many of them to enter the conversation on more equal footing with local stakeholders. Some highlighted how these practices helped to elevate local stakeholders' role in defining climate change vulnerabilities and adaptation needs through the ICRA process. One environmental professional, for example, noted how the use of prayer forced her and others to step back from their typical role as "the expert" to consider non-scientific understandings of climate change:

I'm not going to lie, the first community conversation I went to and we opened it up with a prayer, it threw me for a little loop. Now I know to expect it. If that's how that community shares information, I think that it's our job to respect that and work with it. ...I think that if we stormed in there and started having conversations about climate change and [saying] this is what's happening, they would totally dissipate. ...Opening in a prayer, having the meetings in the church hall, that is putting the work in their court. It opens up a comfort level there. And I think it makes the outsiders, like us, check ourselves at the door a little bit, and be like, this is their house, and we're just visiting.

Faith-based knowledge was integrated into the ICRA process in other ways as well. Throughout workshop discussions, the ICRA leadership team made a point to acknowledge faith-based viewpoints, and to temper tensions between science and

faith-based understandings in discussions about climate change. The leadership team frequently emphasized to stakeholders that the ICRA was not for debating the cause of socio-ecological changes, but for developing solutions to help reduce their impacts. Efforts to explicitly acknowledge faith-based perspectives were most often done in the context of a set of flood vulnerability maps developed for the Deal Island Peninsula to guide ICRA discussions about ongoing and future flood risks. These maps, which were funded by the Maryland Department of Natural Resources (MDDNR), integrated HAZUS-HM 3.0²⁹ sea level rise projections with geographic information system (GIS) data and LIDAR data to enable stakeholders to visualize flooding impacts on structures, roadways, and parcels under various sea level rise projections and storm surge scenarios for the years 2015, 2020, 2030, 2040, and 2050 (Paolisso et al. 2018)³⁰. The maps were developed to help stakeholders assess future flood risks, and select target areas to focus discussions about how to reduce future flood vulnerabilities.

The project leadership team introduced the maps to stakeholders during the first ICRA workshop, where an in-depth presentation was given on past and future sea level rise in the Chesapeake Bay and on the science used to develop the maps, prior to a walk-through of various flooding scenarios. As part of introducing the presenter, one of the project leaders stood to share these thoughts:

I actually gave a presentation that was similar to this a few years ago, and I learned afterwards that there were a few of our stakeholders who weren't that comfortable with it, [one reason being] that people had biblical interpretations of history that didn't really accommodate things happening 18,000 years ago. And I just wanted to make a statement that those opinions or beliefs are all

²⁹ Hydrodynamic model developed by the Federal Emergency Management Agency (2015)

³⁰ These maps are available on the Deal Island Peninsula Project website (www.dealislandpeninsulaproject.org).

welcome here. That's one of the best and most important things about our project. Whether it's anyone here or outside, all opinions and beliefs are welcome in this group.

Comments like these were important in helping to create space for non-scientific perspectives in discussions about climate change, and perhaps in part shaped the discussion that emerged following the presentation of the flood vulnerability maps. A number of the questions asked by born-heres, for example, inferred a level of skepticism about the ability of scientific models to project future flooding. Some individuals drew upon their past experience with flooding to highlight key dynamics that influence flooding on the Peninsula (e.g., wind, erosion) that the model did not account for. Others pointed to more immediate concerns about ongoing shoreline erosion, and the need to focus ICRA activities on addressing these issues rather than preparing for future storms and flooding, which as explained by one born-here participant “are in God’s hands.” When comments like this emerged in ICRA discussions, the project leadership team was quick to acknowledge the importance of these faith-based perspectives, thereby helping to carve space for, and even encouraging these points of view to be expressed throughout the process.

Efforts to leverage faith-based knowledge in the context of these maps, as well as in later ICRA discussions, played an important role in redirecting the ICRA’s focus away from future sea level rise, a focus that for many local stakeholders exacerbates their experiences of vulnerability. A number of born-heres and come-heres view the topics of sea level rise and climate change as popularized concepts used to exert social and political pressures that in turn create vulnerabilities and have little to do with the physical impacts anticipated with rising waters. These attitudes

were most outwardly demonstrated by the strong push back the ICRA leadership team received from local stakeholders in response to a string of media stories highlighting sea level rise and climate change impacts on the Deal Island Peninsula, which threw residents under an unwanted regional and national spotlight (e.g., Ortiz 2017). For born-heres, ‘climate change’ and ‘sea level rise’ can be perceived as a political ploy to assert additional government controls that threaten local independence and watermen livelihoods. For many come-heres, it can represent a threat to real estate investments; as expressed by one come-here resident in response to one of these stories, “Why would anyone want to purchase a home on this island after this article?” Related concerns were also raised in discussions about the aforementioned flood vulnerability maps, particularly in the context of how the maps may be used by insurance agencies to increase the cost of flood insurance on the Peninsula, which for many, particularly second homeowners, is already expensive and quickly rising³¹. For both local stakeholder groups, the social ramifications of sea level rise and climate change have far greater implications for them than future flooding impacts, which most will not experience in their lifetimes given the age of many residents. Rather than planning for future sea level rise, local stakeholders frequently pointed to the need for strategies that address ongoing social and political exclusions (discussed in Chapter Five) by increasing government investments in the Deal Island Peninsula area through roadway improvements and shoreline protection. Elevating faith-based knowledge in framing socio-ecological vulnerabilities importantly helped the ICRA redirect adaptation discussions towards addressing these local concerns.

³¹ According to a local real estate agent, second homeowners face a 25% increase per year, in addition to a \$250 surplus charge.

Selection of ICRA Focus Areas

As mentioned above, the ICRA was guided by the selection of stakeholder-identified focus areas, a process that was largely driven by stakeholder input using a set of criteria developed by the ICRA leadership team (see Table 6.1). During the first workshop, stakeholders divided into small groups of local and nonlocal stakeholders and were given a map of the Peninsula to circle areas that fit the criteria and that they believed to be most important to assess for vulnerabilities and target for adaptation planning projects.

The criteria used to guide this process were developed specifically to ensure that the selected focus areas incorporated key socio-cultural and socio-economic resources and infrastructure, such as commercial businesses that may be impacted by flooding concerns, residential areas, critical facilities, and areas that are “culturally important to the community.” In fact, of the eight criteria, six had direct linkages to the communities, and in turn to important heritage pathways critical to the Peninsula’s social resilience. For example, commercial businesses on the Peninsula predominantly include independent watermen businesses and seafood processing businesses. Other commercial enterprises, such as the marinas and the local general stores support local commercial watermen industries in various ways (e.g., boat repairs, tackle supplies) and are located near the harbors -- the commercial centers of the Peninsula. This helped ensure that places critically tied to watermen livelihoods would be prioritized in focus area selections. The criterion for culturally important areas also helped capture some of these areas and more directly targeted key heritage sites (e.g., the festival grounds for the skipjack races, the Skipjack Heritage Museum),

as well as the churches as key cultural institutions on the Peninsula. While each focus area selection team consisted of a mixture of born-heres, come-heres, researchers, and environmental professionals, the criteria's slant towards social and cultural priorities resulted in the selection process largely being directed by local knowledge, giving born-heres and come-heres agency to target areas of most concern to them.

Table 6.1: Selection Criteria for ICRA Focus Areas

1. Impact to this area will have detrimental impacts to other parts of the Peninsula
2. Critical facilities are located in this area. (List the facilities)
3. At least 2 commercial businesses impacted are located within the area
4. At least 5 households are located within the area
5. This area is culturally important to the community (describe)
6. This area has environmental significance (describe)
7. Is the size of the area large/small enough for us to actively engage the property owners?
8. We believe there are residents in this area who would be willing to participate in small group conversations, allow a walking assessment of their property for vulnerabilities, allow photos to be taken if needed; take part in other activities to evaluate and discuss vulnerabilities.

Each focus area should:

1. Meet 3 or more of the selection criteria
2. Include 2 or more unique attributes that can be further assessed
3. Not be larger than 20 households
4. Be in some way representative of other areas on the Peninsula or it should be clear why this area is unique and assessed more closely.

It is worth noting that four of the five focus areas that were selected centered around where born-heres and come-heres live and where flooding and erosion are most impactful on their livelihoods and their lived experiences on the Peninsula. Only the fifth focus area prioritized marsh areas as a result of researchers and environmental professionals who work in neighboring marsh reserves managed by

NERRS-MDDNR partners. However, these stakeholders later decided to drop this focus area in order to allow the ICRA for focus on the community-relevant focus areas.

Framing Local Stakeholders as “Experts”

The project leadership team also made concerted efforts to position local stakeholders as “experts” during workshop discussions. This practice, in combination with efforts to empower faith-based perspectives, further promoted locally-driven decision-making processes that elevated the role of local knowledge in framing socio-ecological vulnerabilities, and in particular the heritage-based experiential knowledge of watermen. Watermen stakeholders played a pivotal role in defining focus areas, prioritizing issues, and identifying adaptation needs. During workshops, environmental professionals, scientists, as well as many come-here stakeholders frequently turned to watermen for their perspectives on past flooding trends, shoreline erosion, and storm dynamics. Watermen knowledge also largely shaped the baseline data for selected ICRA focus areas, which were developed through 13 semi-structured interviews. Nine of these interviews were conducted with born-heres, most from watermen families. These interviews were used to characterize the focus areas and informed site selection and data collection needs for in-field collaborative assessments of focus area vulnerabilities. Due in large part to the interview data, in-field collaborative assessments focused on documenting the conditions of non-climate related concerns related to ditch conditions and shoreline erosion. Data collected from these in-field assessments were used to define adaptation projects that were later

developed to “build the case” for external financial and implementation support. Several of these projects will be outlined later in this chapter.

ICRA stakeholders who I interviewed who work within regional adaptation governance often pointed to the need to better integrate local experiential knowledge into what tend to be top-down techno-scientific decision-making processes, highlighting how the ICRA helped to empower local actors. One environmental professional even highlighted the tendency for experiential knowledge to be disregarded in environmental governance, an issue that several watermen who I interviewed pointed to as a source of their vulnerability vis-à-vis their exclusion from decision-making processes (discussed in Chapter Five). As she put it, “The world we work in mostly rewards education, formal education, more so than what you learn by working or doing. I appreciate that while they [watermen stakeholders] may not have as much formal education, they have just as much knowledge about the topics that are important to them as anybody would.” Another environmental professional, in reflecting on his involvement in the ICRA, shared these thoughts: “Rather than going in and talking at them, these experiences have made me realize that we [government] need to be talking *with* them.”

These sentiments were influential in shaping government-supported initiatives where local experiential knowledge was used to inform how scientific and technical resources were implemented. One of the best examples of this comes from the development of a large dune reconstruction project on a sandy stretch of shoreline on Deal Island. The project, which is being funded by the MDDNR, emerged from ICRA discussions as a priority due to its highly erosive nature, and the potential flooding

threat it poses for property owners on the interior portions of the island should the shoreline breach, and in particular a low-lying African American neighborhood located behind it (see Fig. 6.1). Residents are also concerned about the loss of the shoreline as a valued recreational beach that has long supported leisure and livelihood activities within the communities (e.g., fishing and crabbing in the marsh behind the shoreline) (see

Figure 6.1: The Deal Island Shoreline



Image above shows the large dunes that were in existence in 1991, while the below photo (taken in 2016) is of current conditions. During extreme tide events and storms, water now inundates the marsh area located behind this shoreline and next to a low-lying African American neighborhood. Photo Credit: Randy Bethke (top); Katherine Johnson (bottom).

Chapter Two discussion of the Deal Island Shoreline focus area for additional details). The MDDNR representatives overseeing the dune reconstruction project's implementation drew heavily upon local experiential knowledge in developing the project design. One of these individuals shared his reflections on the value of local knowledge, saying:

They [local stakeholders] actually helped us dial down the project to make it unique to this place and cost effective. I don't think we've done anything like this in any other place. Earlier we had a template project we were going to put in, but talking to them helped us come up with a design that's better fitted to this shoreline.

In discussions with local watermen during the design process, MDDNR representatives were told that the beach once had oyster reefs located off its shoreline that watermen harvested from. This input led to discussions within MDDNR about how innovative material could be used to construct a set of submerged breakwaters that could support oyster reef re-growth in addition to reducing wave energy along the shoreline, with the idea being that these oyster reefs could help support local watermen livelihoods while also protecting the communities from future storms and flooding. MDDNR has also engaged local stakeholders in identifying other local design considerations, which include shoreline access features (e.g., a ramp) to enable local stakeholders to continue using the beach as a recreational space.

Government Investment in Protecting Rural Watermen Communities:

The above example of watermen heritage integration also points to ways that the ICRA helped channel adaptation strategies towards solutions that address local-experiences of vulnerability. In this case, this includes addressing local concerns about flooding and erosion that threaten local property values, as well as watermen's sense of vulnerability as a result of limited government investment in traditional livelihoods tied to wild-caught oyster and crab fisheries in the Chesapeake Bay. The dune reconstruction project on Deal Island further illustrates increased State investment in these rural watermen communities in that the State selected the Deal

Island shoreline as one *of only six* projects in Maryland to be funded under a newly established coastal resiliency grant program established by the governor in 2017 (Maryland Department of Natural Resources 2017). Over the next two years, the State will spend \$1 million for the design and implementation of the dune reconstruction project. The identification of the Deal Island shoreline as a State priority was due in large part to the engagement of ICRA stakeholders from MDDNR, who were able to channel the project proposal to the granting office at MDDNR, and fit local priorities and needs within State funding structures and policy mandates. The dune reconstruction project importantly demonstrates how the State has prioritized community well-being over marsh health and “bald eagles,” as one watermen suggested at an early workshop, and in large part because of locally-driven decision-making processes that connect local stakeholders to key governance institutions. While the project does provide protection to a small marsh area and benefits wildlife as a result (in fact, it was these attributes that the MDDNR representatives emphasized in efforts to secure external funding for the shoreline project), ultimately what drove their decision to invest in restoring this shoreline in a small, rural waterman community was the protection it offers to the people of the Deal Island Peninsula as a direct result of their engagement in the ICRA process.

Government Investment in Improving Tidal Ditches:

Another area where the ICRA helped expand government investment is the Deal Island Peninsula was through efforts to address ditch maintenance concerns. One of the key issues identified by local stakeholders was roadway flooding caused by clogged tidal ditches. To remind the reader, most of the ditches located throughout

Figure 6.2: Roadway Flooding in Dames Quarter



These images are of a road that frequently floods in the Dames Quarter focus area. The left photo is the road under dry conditions, while the photo on the right is the road following a rainstorm during the fall of 2016. The ditches, which are overgrown with phragmites (*Phragmites australis*), an invasive wetland plant, are visible on either side of the road. Photo credit: Alane Ortega.

the communities are part of a complex network of ditches that were put in place to direct water on and off the landscape during extreme tidal events and storms. Many of these ditches, however, are overgrown with weeds or have accumulated detritus such that water does not properly flow through the ditch system, causing water to overflow onto roadways and flood properties in areas. These impacts affect the daily practices and lived experiences of both born-heres and come-heres, preventing some residents from reaching their homes and limited access to key public services (e.g., school buses, emergency service, etc.). In some of the most problematic areas, roadway flooding occurs during standard tidal events. Many of these ditches are County-owned and maintained; however, as discussed in Chapter Five, County funding to maintain ditches has been significantly reduced due to State budget cuts. For a number of born-here stakeholders, these budget cuts represent another example of how rural working communities are being left behind, and as a result are made more vulnerable to flooding.

In response to these concerns, the ICRA leadership team organized a workshop for local stakeholders to meet with County planners and directors of County roadway and ditch maintenance to develop strategies to secure additional funding for ditch maintenance. One of the outcomes from this discussion was commitment by the County's Director of Planning to apply for State funding to contract an engineered assessment of the most problematic sections of the ditch network in order to identify the problem spots causing ditches to overflow. If funded, the outputs from this assessment would provide the County with the scientific data needed to pursue additional State monies to develop and implement engineered solutions. In fact, it was an individual from the State's granting agency who alerted the ICRA network of the funding opportunity, and encouraged the County to submit a proposal. Through the involvement of this individual and the County Planning Division staff as project stakeholders, the ICRA was able to help carve adaptation pathways towards increasing County and State investment to help address ongoing flooding concerns.

In February 2018, the County Planning Office organized its first meeting to develop the proposal for the ditch assessment. Without being prompted by the ICRA leadership team, the County Planning Director requested a small group of local stakeholders from the ICRA network to attend the meeting in order to help draft the proposed scope of work to ensure it fit local needs and priorities. County effort to integrate local experiential knowledge in developing requests for external funding and support provides another example of how the ICRA helped propel a bottom-up decision-making process to address local experiences of vulnerability.

Expanding and Rebuilding Traditional Social Networks through Collaborative Learning and Decision-making

Looking more broadly at the structure of the DIPP and the implementation of the ICRA as a collaborative learning and decision-making process, the project has importantly helped support traditional adaptation pathways tied to strong communally-based social networks, many of which have been degraded as a result of outmigration and aging populations on the Peninsula. These traditional networks, which were largely facilitated through kinship ties and the churches, have historically played an important role on the Deal Island Peninsula in providing support for individuals and families facing hardship, including impacts from flooding and storms. These networks were especially important when the Peninsula was much more isolated from the mainland, but they are still strongly relied upon by many born-heres. The DIPP's efforts to build a stakeholder network as a means to support socio-ecological resilience on the Deal Island Peninsula builds upon this traditional adaptation pathway to include come-heres, as well as outsiders from government agencies, non-profit organizations, and research institutions as a means to channel resources, information, and technical and financial support to enhance local capacities to maintain a way of life on the Peninsula in the face ongoing and future socio-ecological changes. These efforts not only help reinforce these pathways but they also help to adapt them to be more integrative with the present-day social dynamics of the Peninsula (i.e., increasing numbers of retirees and second homebuyers, many who

bring valuable knowledge, skills, resources, and social connections for facilitating actions that benefit the communities).

Building upon these traditional networks during the ICRA process was at times challenging because of the sense of wariness that many born-heres have towards outsiders, and in particular towards government. At various points during the ICRA, local attitudes about government were quite palpable and visibly straining on some nonlocal stakeholders, particularly those representing government agency perspectives. To a lesser degree, this caution towards outsiders also extends to come-heres, particularly those who limitedly engage with born-heres or in local social activities, which tend to largely revolve around the churches. Most of the come-heres who I interviewed or who were surveyed through other ICRA activities do not attend local churches. The ICRA's collaborative process, however, was able to overcome these barriers, enhancing trust and rapport among participating local and nonlocal stakeholders, as well as between born-heres and come-heres. This was especially valuable for fostering supportive relationships that continue to facilitate actions for targeting shoreline erosion and ditch maintenance concerns. Born-heres and come-heres who live near the Deal Island shoreline area remain in regular communication with MDDNR stakeholders in helping to track shoreline changes. MDDNR is hosting a community conversation in June 2018 with local stakeholders to collaboratively review engineered project designs, and collect local input to inform the next phase of the project. In addition, local stakeholders continue to engage with the ICRA leadership team to photo document roadway flooding events, erosion, and storm damage around the Peninsula. The DIPP network has grown significantly as a result

of a monthly newsletter, Facebook page, and website, activities which emerged from the ICRA. The newsletters, which were first distributed in March 2016 to roughly 60 stakeholders are now sent to over 250 local and nonlocal subscribers. Similarly, the Facebook page, which was created at the beginning of the ICRA, now includes over 100 followers. These resources provide users with updates on project activities, relevant news stories, links to resources, and information about upcoming events, and have prompted a number of new participants to attend workshops and assist in documenting flooding and erosion concerns on the Peninsula.

As a result of this increased engagement and from my own observations and interactions with local stakeholders in particular, I would argue that the DIPP has come to be viewed locally as an important and valued resource, and one that has opened new opportunities and provided a sense of hope in the face of socio-ecological challenges. This was perhaps best expressed to me during one of my many visits to the Peninsula during the two-years of the ICRA, when I visited with a born-here involved in the ICRA – a waterman and local leader on the Peninsula to talk about the project. Just the day before, while attending a church service, I had been touched that he included the DIPP in a prayer that he recited before the congregation. As we sat in his office, talking about local flooding concerns, he paused to express his gratitude for the project's efforts, saying, "DIPP has shown us down here that there are things we can do while we still have our island. And that's been a really good thing." He then shared these thoughts,

I actually invited you here because you [ICRA leadership team members] are always down here checking on us, but I want to make sure that you know that we care about you too! You're part of our community. Now, you're not *from* here, but you're one of us, and we care about you, and how you're doing.

That's why I said what I said in church the other day. We are grateful for everything that you've done for us down here. Even when it doesn't seem like it, we're grateful. Even the watermen.

Engaging Churches in Adaptation Governance

As noted above and in other sections of this dissertation, traditional support networks on the Peninsula are intimately tied to the area's Methodist churches, and faith is an important factor guiding how many local residents, particularly born-heres, navigate socio-ecological change. In some ways, the churches fulfill the role of a local governing institution, guiding individuals through their daily lived experiences, at least among those who are part of their congregations. The pastors are the closest representatives the local communities have to a community leader, though only in the sense that he or she leads the community from the pulpit through the words of God. The church buildings themselves and their cemeteries are the centers of the local communities, both physically and socially, and they are where many born-heres' roots are buried (quite literally). As such, they play a significant role in supporting local identity and wellbeing on the Peninsula, as well as in facilitating local decision-making.

A number of the local churches, however, are struggling to stay afloat due to the area's aging population. At least two of them are on verge of closing as a result of steadily declining congregation numbers. Engaging the churches was therefore a priority for the ICRA leadership team, who hoped the ICRA would be able to facilitate discussions about how to support these social institutions as part of building socio-ecological resilience to ongoing and future change. The topic was raised only

once during an ICRA workshop in the context of how one of the communities could fundraise to help keep one of these churches open, but it was not actively pursued.

While the ICRA was able to empower participating watermen and born-here stakeholders through faith-based knowledge integration, engaging the churches in more direct ways in the ICRA decision-making process was challenging. The majority of local church members did not participate in ICRA activities, though a number of them were engaged through the project newsletter and/or in personal communication with members of the project leadership team. The participation of two local pastors in the ICRA also helped build a bridge to the churches. At least one of these pastors made announcements about project activities during church services, referenced the DIPP during several of his sermons, and even engaged with the topic of climate change during at least one sermon as a direct result of the ICRA discussions. One of the anthropologists on the project leadership team co-authored a short article with a local Methodist in an effort to promote more engagement with the faith-based communities on the Peninsula (Webster and Paolisso 2016).

Yet, despite the above efforts, the churches remained relatively disengaged from the process, with the exception of one DIPP-led project indirectly tied to the ICRA. This included a DIPP-sponsored Masters of Applied Anthropology graduate student research project to create a digital archive of a local cemetery, which prompted significant church participation and interest. The goal of the project was to create a digital archive of a local cemetery in order to preserve local stories at risk of being lost (Hartge 2017). The project resulted in the creation of a website for one of the local churches, complete with biographies and photos of individuals buried in the

church cemetery, and a GIS map that connected biographical information to specific cemetery plots. The website was created in such a way that it could be easily managed and built upon by the church. The intent was to create a tool to help bridge social connections with individuals who have moved away as well as create a virtual cemetery that can survive future flooding and erosion impacts on the Peninsula, thereby preserving these stories even when these places are no longer inhabitable. The website and maps were presented during a community conversation midway through the ICRA. It was the only DIPP sponsored event during the two years of my fieldwork where the churches were most actively engaged; almost all in attendance were members of local churches, several who were also ICRA stakeholders. At least one of these individuals approached me afterwards to share his thoughts on how important the project was for their community. Others in attendance were interested in how DIPP could support similar projects for other churches in the area, illustrating the value of these efforts for local adaptive needs in the face of socio-ecological change.

What has been made clear to the leadership team through the ICRA process is that the churches on the Deal Island Peninsula extend far beyond the buildings and Sunday service. In many ways, the churches *are* the communities, and they play a key role in guiding local decision-making, and in support of local resilience. However, as conservative faith-based institutions located in a highly rural setting, they remain largely separated from broader adaptation support. This can be attributed to the stark separation of Church and State in government, as well as to the political and cultural tensions between climate science, government, and evangelical Methodist beliefs. In

recognizing this gap and the need for better support of the churches, the project leadership team pursued research funding through NOAA to explore ways to strengthen networks between local churches and government institutions. The goal of the new project is to develop pathways that empower churches in climate change planning, and help direct resources to address socio-ecological vulnerabilities that fit their adaptation needs and priorities. The DIPP was awarded the grant in 2017, and will carry out the new project through 2019.

Conclusion

In this chapter, I explored how the ICRA leadership team integrated heritage into the adaptation planning process to re-empower local adaptation pathways on the Deal Island Peninsula. In particular, I examine the ways that the leadership team engaged with faith-based practices and local experiential knowledge to mobilize a bottom-up decision-making process to support local adaptation pathways. These efforts were especially valuable for empowering local actors, particularly watermen and other born-heres in shaping these processes. Use of prayer and churches in workshops and other project activities helped to elevate faith-based knowledge in discussions about climate change. This in turn positioned local-stakeholders in leadership roles and fostered more productive dialogue about how to integrate scientific tools in ways that match local needs and priorities. The framing of local stakeholders, especially watermen as “experts” further empowered non-scientific perspectives and priorities in climate change adaptation planning discussions.

By drawing upon these watermen heritage threads, the ICRA helped facilitate adaptation strategy development that targeted local experiences of vulnerability tied to a sense of regional exclusion and reduced agency created by dissonant uses of Chesapeake Bay heritage. In particular, these efforts helped leverage local knowledge and empower local actors to govern their experiences of vulnerability that resulted in pathways towards increased government investment in protecting local watermen communities through shoreline protection and increased ditch maintenance. It also created space for local stakeholders to have a more active role in shaping how these government investments are implemented, thus enabling them to have more control over their futures.

In addition, this chapter shows how the ICRA was also able to support local adaptation pathways by replicating and building upon traditional social networks that are important for supporting the communities' resilience to socio-ecological challenges. While it was challenging to engage the churches in more direct ways as part of the ICRA, the process facilitated new opportunities to enhance these important social institutions as part of developing resilience on the Deal Island Peninsula. However, there are still some gaps that remain, and some questions left to answer, which I will raise in the final chapter of this dissertation.

Chapter 7: Heritage Pathways Towards Resilient Climate Futures

This dissertation has sought to ethnographically unravel the ways that heritage shapes processes of climate change adaptation planning being carried out on the Deal Island Peninsula. In selecting this research topic, my aim was to understand the various ways in which the past is mobilized in shaping how people engage with climate change and in molding decision-making processes related to climate resilience on the Deal Island Peninsula. It specifically asks these questions in the context of the Integrated Coastal Resiliency Assessment (ICRA), a collaborative adaptation-planning project carried out by the Deal Island Peninsula Project (DIPP), an initiative with the goal of enhancing local resilience to ongoing and future climate change impacts. It also explores these questions with explicit attention to the role of watermen heritage.

This final chapter provides a synopsis of my dissertation research, as it looks to the broader contributions of this research, as well as remaining challenges, and next steps. Below, I briefly revisit each chapter to provide an overview of what has been presented thus far. I then reflect on the strengths and benefits of a heritage approach for the ICRA, DIPP, and more broadly for climate change planning processes. Next, I discuss some of the challenges and gaps that remain, particularly in the context of the DIPP. I conclude with some final thoughts on next steps for this research.

Summary of Chapters

In Chapter One, I provided an overview of the literature, presenting the theoretical framework in which I situate heritage as an ongoing sociocultural process of change, and one that is intimately linked to identity, knowledge, agency, and resilience. This chapter demonstrates that there is a rich and useful array of heritage approaches and applications, providing researchers with many avenues to understand social processes of change. In particular, it illustrates the value of a heritage approach for questions related to climate change. Chapter Two provides a rich accounting of the history of the Deal Island Peninsula from the 17th century to present day in order to help understand the dynamics that have shaped the people who call this place home, and the basis of the heritage threads that are pulled upon in discussions about climate change. By developing the reader's understanding of the area's history, this chapter enables us to understand how this history is used in various ways to construct heritage processes explored in later chapters of the dissertation. Chapter Three discusses the impacts of climate change in the Chesapeake Bay region and more locally on the Deal Island Peninsula, focusing specifically on sea level rise impacts that are anticipated over the coming century, and current sources of socio-ecological vulnerabilities. Climate change impacts are significant, with the broader region expecting between a 2.2 - 4.1 foot rise in sea levels by the turn of the century, resulting in much of the Peninsula becoming inundated. It also is within this chapter that I introduce the reader to the DIPP and the ICRA, and the ethnographic methods that I used to access heritage during the course of this research. DIPP is a collaborative initiative that brings together multi-local stakeholders with a range of

backgrounds, expertise, and access to resources to enhance the resilience of the Deal Island Peninsula to ongoing and future socio-ecological changes. The ICRA was specifically developed to collaboratively design adaptation strategies to address ongoing and future vulnerabilities related to climate change. It is also the focus of this research.

The substantive body of research from this dissertation is presented in Chapters Four through Six, which provide key insights into the ways that heritage shaped local perceptions of the socio-ecological change and vulnerability, stakeholder engagement in the ICRA, and ultimately the overall ICRA process itself. Chapter Four draws upon Tim Ingold's (1993) notion of landscape dwelling to ethnographically locate the heritage threads that frame local knowledge about climate change on the Deal Island Peninsula. In it, I highlight three key threads tied to born-heres: Methodist traditions, temporally-rooted practices of working the water, and local histories of isolation that instill strong values for independence and social support structures. Through a discussion of each of these threads as they relate to born-heres' temporal relationships with socio-ecological changes on the Peninsula, I demonstrate how they each importantly ground local knowledge and perceptions about climate change and adaptation that inform how born-here stakeholders engaged in the ICRA. The ethnographic research presented in this chapter captures important cultural knowledge that shaped the ICRA process, and that is further examined in other contexts explored in both Chapters Five and Six.

In Chapter Five, I step away from the Deal Island Peninsula to examine how heritage is mobilized more broadly within the Chesapeake Bay region in ways that

create experiences of vulnerability to socio-ecological change on the Deal Island Peninsula. I draw upon Tunbridge and Ashworth's (1996) concept of heritage dissonance to frame my discussion, pointing to the conflictual nature of heritage, and inherit risks it carries in silencing or marginalizing opposing narratives it encounters. Specifically, this chapter demonstrates how heritage narratives tied to the Chesapeake Bay oyster have powerfully and persuasively redirected regional values towards meeting Chesapeake Bay restoration goals. In turn, however, these narratives have also left watermen and their families sensing their own erasure from a future Chesapeake Bay cultural and economic landscape. Drawing upon qualitative data collected from key-informant interviews, I demonstrated how watermen draw upon these broader heritage deployments to frame their own experiences of vulnerability to climate-induced socio-ecological change, which they situate within an increasing prioritization for nature, a lack of government investment in working watermen communities, and prioritization for scientific over experiential knowledge in climate governance.

In Chapter Six, I turn back to the local context to specifically examine how heritage is tacitly drawn upon in ways that help mobilize a bottom-up decision-making process that re-empowers born-here and come-here ICRA stakeholders in governing their own vulnerabilities. In particular, I demonstrate how heritage integration in the ICRA directed the stakeholder network towards discussions about local adaptation needs and priorities, and broader considerations of the role of faith and local experiential knowledge in understanding and responding to socio-ecological change. This resulted in the development of adaptation strategies that led to increased

government investments in these working watermen communities through projects targeting ditch maintenance concerns and shoreline erosion that threatens the places where residents live. This chapter importantly illustrates how heritage can be deployed in ways that help carve culturally meaningful adaptation pathways that enhance the social and ecological resilience of the Deal Island Peninsula.

The Value of a Heritage Approach in Climate Change Adaptation Planning

Looking more broadly at the findings from this research, heritage theory was valuable in a number of ways. First, it provides many theoretical frameworks and conceptual avenues that allow a holistic understanding of how the past shapes lived experiences of change. This includes an examination of how the past presents itself through tangible features and intangible practices, knowledge, expressions, and narratives; as well as how it facilitates broader social processes of landscape dynamics. The range of conceptual pathways affords a level of flexibility in how one elicits heritage constructions and heritage operations in specific contexts, which allows it be applied in diverse ethnographic settings.

Second, with its explicit attention to the sociocultural processes of change, a heritage approach necessitated an examination of the underlying entanglements of power, culture, and history that importantly shape human response to climate change (Beel et al. 2017, Brace and Geoghegan 2010, Cotes and Nightingale 2012, Lafrenz Samuels 2018). Integration of heritage theory into this research enabled me to put these entanglements into more direct conversation with climate change planning processes carried out through the ICRA, and to highlight their implications for the

project's overall goal of enhancing socio-ecological resilience on the Deal Island Peninsula. It specifically did so by highlighting how local watermen draw upon the past to frame their knowledge of climate change and attitudes towards adaptation goals of the ICRA. It also highlighted the ways that broader uses of heritage implicate local watermen's experiences of vulnerability, showing how these are more embedded within broader social and political dynamics than within local concerns about physical change. In this way, this research is able to speak to some of the critiques of socio-ecological resilience that highlight the need to look well beyond the external, physical shocks of climate change impacts to understand the ways that climate change is entangled with issues of human agency and identity (Adger 2000, Cotes and Nightingale 2012). Heritage theory importantly allowed me to explore more deeply these social processes and productively engage them with questions about climate change adaptation.

Relatedly, this research also illuminates the double-edged sword of heritage, whereby heritage can be both a source of resilience as well as a source of vulnerability. This is due in large part to the ways that heritage becomes a tool for wielding power, but one that is inherently dissonant, and therefore prone to cutting off the social mobility and agency of others, which in turn can hinder social resilience. As this research has illustrated, when the dissonant edge of heritage disconnects social actors from the parts of their identity that enable them to effectively navigate change, it becomes a source of vulnerability. What sets the conditions for heritage to become more damaging is when cultural heritage markers are mobilized for purposes that do not support their cultural heirs. In the case of the

watermen communities on the Deal Island Peninsula, skipjacks and other parts of watermen heritage have been powerfully linked to Chesapeake Bay water quality improvement goals that do little to support traditional cultural practices of working the water tied to local identity. As a result, watermen's social networks have become weakened, local experiential knowledge is being eroded, and culturally-embedded practices of resilience are hindered, making the communities increasingly vulnerable to ongoing and future socio-ecological changes on the Deal Island Peninsula as they lose the cultural tools that have for generations helped them navigate these change. How heritage is deployed and engaged in planning processes determines which edge of the heritage sword is used to carve pathways forward. When working in local contexts, it is imperative to find ways to lead with the supportive edge of heritage, which enables planning initiatives to assess sources of vulnerability caused by dissonant uses of heritage and to develop adaptation projects that support key socio-ecological relationships necessary for the resilience of a place and its people.

In the context of the ICRA adaptation planning efforts, an ethnographic examination of heritage processes at work on the Deal Island Peninsula helped identify opportunities for the ICRA to lead with the supportive edge of in planning for ongoing and future environmental changes on the Deal Island Peninsula. For one, this research helped to tease apart the underlying cultural sources of resistances and tensions that affected how stakeholders engaged in a collaborative project on climate change. This was most readily apparent in the context of regional heritage dissonance and local experiences of exclusion discussed in Chapter Five. In particular, I point to the ways that broader framings of Chesapeake Bay heritage deployments tied to “save

the Bay” messaging elucidate strong pushback from watermen, who often feel criminalized as over-harvesters and targeted by environmental regulatory agencies. An understanding of this helps illuminate some of the tensions between watermen and stakeholders from government agencies, and explains some of the strong reactions observed during discussions about climate change vulnerabilities. A heritage approach also illuminated some of the underlying drivers of some born-heres’ wariness towards outsiders and come-heres’ desires for external assistance, which as discussed in Chapter Four, can be linked to a long history of isolation, and strongly rooted values for independence and self-reliance that are woven into watermen identity. This may also help explain why it was difficult at times to engage more born-heres in the project.

A heritage approach also helped to link resistances to discussions about ‘climate change’ and ‘sea level rise’ to temporally-embedded knowledge of socio-ecological change, as well as concerns about politically-imposed threats to their local identities and way of life. In particular, these resistances could be better understood when examined through the lens of Methodist heritage threads and watermen’s concerns about government imposition on their freedom and independence. These insights ultimately can help foster culturally-sensitive planning approaches to navigate these tensions in ways that allowed for productive dialogue about climate change and adaptation.

This research has also helped to highlight the importance of watermen livelihoods, Methodism, and local independence for local socio-ecological resilience. This was important not only for engaging and empowering watermen in project

discussions, but it also highlighted the value of local heritage among come-heres and non-local stakeholders, fostering a greater appreciation for it even when they may not have personally identified with it. In particular, it illuminated the importance of faith-based considerations in discussions about climate change, it highlighted the value of the rich local experiential knowledge of locals and particularly of watermen, and it fostered an appreciation of the inherent resilience of local watermen and their families, whose heritage has taught them how to survive in a very-dynamic environment. Use of key-informant interviewing techniques for understanding how stakeholders understood and valued aspects of these local heritage threads helped insert heritage considerations more actively into discussions.

Remaining Challenges

This dissertation largely examined climate change adaptation planning processes through the lens of watermen heritage on the Deal Island Peninsula. This was largely a result of the ethnographic trail I followed in elucidating heritage, as it presented itself through the ICRA process and the DIPP stakeholder network. However, an important thread of local heritage that was not captured in this research is tied to the rich African American history of the area, which I briefly discussed in Chapter Two, and which is linked to several highly vulnerable communities on the Deal Island Peninsula in the most flood-prone areas. Their absence in this research does not reflect a lack of effort on the part of the ICRA leadership team to engage with these residents. In fact, several individuals from these communities were interviewed as part of the ICRA vulnerability assessments, and regularly invited to participate in ICRA activities. Efforts to reach out to these individuals were very

limitedly received, and often with hesitation. These responses may be linked to racially fraught histories, ‘negative heritages,’³² and ongoing social relations that have created high levels of distrust, especially towards government (Mangum 2016, Madoshi 2012). Finding opportunities to engage these individuals and empower their voice in the DIPP is important for enhancing their resilience in the face of ongoing and future socio-ecological change. Additional ethnographic heritage research provides one mechanism for engaging with them in ways that empower their experiences of vulnerability within the DIPP, builds trust and rapport, and helps identify socially and culturally-sensitive pathways that support their social-welling moving forward.

A second challenge confronting the DIPP that relates to heritage considerations is the need to address the widening gap between local experiential knowledge and rates of environmental changes that are anticipated with future climate change trends. While watermen and their families have a wealth of knowledge that has served them well in the past for navigating socio-ecological changes on the Peninsula, the question remains as to how well this knowledge and other traditional adaptive practices will serve them as flooding and erosion rates accelerate in the coming decades. The answer to this question has important implications for sustaining local socio-ecological resilience into the future. This question is further complicated by the shifting socio-demographics of the Peninsula, which are leading to a slow loss of traditional adaptive knowledge and practices as watermen’s sons and daughters are pursuing work off the water and away from the

³² What Lynn Meskell defines as the “repository of negative memory in the collective imaginary” (Meskell 2002, 558)

Peninsula, and newcomers who lack this place-based experiential knowledge fill their place. These shifts are in part attributable to the socioeconomic decline of watermen industries across the region as a result of changing fisheries and cultural landscapes.

To address this concern, which is a significant source of socio-ecological vulnerability on the Peninsula (as this dissertation has shown), additional heritage research is needed in developing pathways forward that support local community development opportunities, and specifically for watermen industries. The heritage threads identified and explored in this dissertation provide a starting point for engaging in this conversation. Specifically, how could the DIPP assist born-heres and come-heres in transitioning local industries in ways that create more economic opportunities on the Peninsula without imposing upon key aspects of watermen identity? What role could watermen heritage tourism play in facilitating this transition, and what would this look like? Another important consideration as part of this discussion is how to transition watermen industries in ways that will be resilient to future socio-ecological changes, including impacts to fisheries that are anticipated with changing water temperatures, salinity, and hypoxia, as well as local flooding and storm impacts on the Peninsula (Najjar et al., 2010).

This points to a related challenge, which is how to utilize heritage to create culturally sensitive adaptation pathways that also accommodate additional considerations of future climate change impacts. Strong reliance upon sometimes-romanticized past ways of being came be a source of vulnerability in that it can create blind spots that prevent local residents, and particularly born-heres from being more fully prepared for what is to come in the future. Born-here heritage-based

perspectives tend to assume that future climate change impacts will remain manageable in spite of increasing hardships, and that they will continue to be able to adapt in place well into the future. Strong ties to place that these perspectives perpetuate may lock local residents into an increasingly difficult way of life that many may not be prepared for or able to handle, despite the highly adaptive nature of watermen and their families. This is true for those on the Deal Island Peninsula, as well as for those in other areas of the Eastern Shore (Lampman and Casagrande 2018). Integrating more future-oriented considerations of climate realities is especially important given that the Peninsula is anticipating sea level rise that the ICRA's flood vulnerability maps (see fig. 3.1) project will significantly increase flood risks for a number of the residents on the Peninsula, with impacts becoming more exacerbated even over the next 10-20 years. Local heritage mobilization within the ICRA shifted the project's focus towards more immediate concerns with shoreline erosion and tidal ditch maintenance. However, the fact remains that living on the Deal Island Peninsula will become increasingly difficult in the not-too-distant future due to these climate-induced environmental changes, and it will be important to help the communities better prepare for what is to come.

These challenges will be exacerbated by State and Federal funding resources becoming increasingly constrained as a result of the increasing numbers of rural coastal communities in Maryland and around the United States at risk and in need of assistance (Sanger-Siegfried et al. 2017). Already, the State of Maryland is channeling some of their funding away from flood-prone areas through new policies that require future flooding projections to be considered as part of land acquisitions

and infrastructure investment decisions (Maryland Department of Natural Resources 2010). Future government assistance for these communities is likely to continue to become more limited. As the County, State, and Federal governments develop programs now and into the future to assist communities with these socio-ecological transitions, whether adapting in place or assisting with relocation decisions, it is imperative that they lead these efforts with respect to local cultural dynamics and seek out ways to protect these dynamics in developing and implementing adaptation governance. These programs *must* account for the ways that underlying socio-cultural factors, such as heritage-based processes of dwelling are intimately tied to local climate resilience, and work with local stakeholders to develop strategies that help them transition while also protecting core parts of their identity and sense of place. It is by leading with these cultural considerations that those on the ground will be able to maintain a sense of who they are and the socio-environmental relationships that importantly support their well-being, even as the physical world changes around them.

A Return to the Farmhouse

As I conclude the writing of this dissertation, I reflect back on that quiet evening at the farmhouse that began this quest to understand the operation of heritage in climate change decision-making. At the time, I was still grappling with my own understandings of what heritage is, how it functions, and how to go looking for it on the Deal Island Peninsula. It was for these reasons that the SHI member's question of "*but why*" was seemingly impossible to answer that night. However, as I write these concluding words of my ethnographic journey, there is a great deal to say about what

this research is able to give us in the face of uncertain futures on the Deal Island Peninsula. For one, it has demonstrated that there is an immense wealth of heritage on the Peninsula, a great deal of which can be and has been mobilized for the betterment of the people who live there. The rich cultural resources available on the Deal Island Peninsula provide opportunities for local residents to empower their voice within the broader conversation about the future of the Chesapeake Bay, and the DIPP provides an important vehicle to do this.

Secondly, by carrying out ethnographic research on local heritage of the Deal Island Peninsula, we are able to better understand how particular heritage threads become intimately tied to the resilience of the Peninsula and its people. It is the knowledge, practices, and tools that are embedded within threads to the past that have enabled people to survive for generations on end in the often harsh and unpredictable environment of the Peninsula. There are important lessons to be shared within those threads that can provide the necessary guidelines for how to protect local identity, a way of life, and resilience in the face of the increasing uncertainties in the future on the Deal Island Peninsula. In addition, this ethnographic research has helped to tease apart key heritage values that are shared among born-heres and come-heres that can help point us towards opportunities to transition local ways of life to be more sustainable with ongoing and future socioeconomic changes facing the Chesapeake Bay region. In the end, this journey in search of heritage pathways has been a productive exploration. While there are a number of challenges ahead for the Deal Island Peninsula in the face of climate change, this research highlights a number of paths forward that can help ensure that the “Home of the Skipjacks” remains.

Appendix 1: Semi-Structured Interview Instrument:
Local Key Informants (Born-Heres and Come-Heres)

Interviewee Name: _____

Interviewee Code: _____

Date: _____

- 1) What is your relationship to the DI?
- 2) Why is the DI important to you?
- 3) In what ways have you noticed the DI change, and how have these changes affected the community?
- 4) What do you think is important to commemorate or celebrate about the Deal Island area and why?
- 5) Do you know of or participate in any local traditions or festivities? Why are they important?
- 6) How do you think the DI will change in the future due to climate change, and how will these changes impact the community?
- 7) What do you want the future DI to look like?
- 8) What is the most important part of the Deal Island area's heritage to preserve for future generations? Why?

Appendix 2: Semi-Structured Interview Instrument:
Non-local Key Informants (Environmental Professionals and Scientists)

Interviewee Name: _____

Interviewee Code: _____

Date: _____

- 1) What is your profession?
- 2) Why did you decide to get involved with DIPP?
- 3) How would you describe the Deal Island Peninsula?
- 4) What makes it special or unique?
- 5) What are some aspects of the area's heritage that you find interesting or important?
- 6) In what ways has your involvement with the Project changed your understandings or perceptions of the Deal Island area?
- 7) In what ways do you think the past can be useful in climate change planning?
- 8) How do you think the area's history or heritage can be helpful or a hindrance in planning for climate change impacts on Deal Island?

Appendix 3: Survey Questions: Adaptation Strategies that Build Resilience

Instructions: Please rate how important each adaptation strategy is for building resilience to social and environmental changes on the Deal Island Peninsula.

- | | | | | |
|--|-----------------------|---------------------------|---------------------------|----------------------|
| 1) Accepting a level of risk that cannot be fixed. | <i>Very important</i> | <i>Somewhat important</i> | <i>A little important</i> | <i>Not important</i> |
| 2) Being willing to be independent and self-sufficient. | <i>Very important</i> | <i>Somewhat important</i> | <i>A little important</i> | <i>Not important</i> |
| 3) Strengthening ties to place. | <i>Very important</i> | <i>Somewhat important</i> | <i>A little important</i> | <i>Not important</i> |
| 4) Having faith in God's plan for the Deal Island Peninsula. | <i>Very important</i> | <i>Somewhat important</i> | <i>A little important</i> | <i>Not important</i> |
| 5) Enhancing skipjack tourism to draw more people and money to the area. | <i>Very important</i> | <i>Somewhat important</i> | <i>A little important</i> | <i>Not important</i> |
| 6) Increasing the role of churches in the community. | <i>Very important</i> | <i>Somewhat important</i> | <i>A little important</i> | <i>Not important</i> |
| 7) Utilizing advanced computer models to predict flooding. | <i>Very important</i> | <i>Somewhat important</i> | <i>A little important</i> | <i>Not important</i> |
| 8) Securing government assistance for shoreline protection. | <i>Very important</i> | <i>Somewhat important</i> | <i>A little important</i> | <i>Not important</i> |
| 9) Securing government assistance to reduce ditch flooding. | <i>Very important</i> | <i>Somewhat important</i> | <i>A little important</i> | <i>Not important</i> |
| 10) Enhancing built structures to better withstand storm surge. | <i>Very important</i> | <i>Somewhat important</i> | <i>A little important</i> | <i>Not important</i> |
| 11) Participating in workshops with scientists and academics. | <i>Very important</i> | <i>Somewhat important</i> | <i>A little important</i> | <i>Not important</i> |
| 12) Collaborating with County and State government. | <i>Very important</i> | <i>Somewhat important</i> | <i>A little important</i> | <i>Not important</i> |
| 13) Developing a local organization to facilitate adaptation plans and implementation. | <i>Very important</i> | <i>Somewhat important</i> | <i>A little important</i> | <i>Not important</i> |

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