Beaches, People, and Change: A Political Ecology of Rockaway Beach after Hurricane Sandy

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BEACHES, PEOPLE, AND CHANGE: A POLITICAL ECOLOGY OF ROCKAWAY BEACH AFTER HURRICANE SANDY

By

BRYCE BEAL DUBOIS

A dissertation submitted to the Graduate Faculty in Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York

2016
This manuscript has been read and accepted for the Graduate Faculty in Psychology to satisfy the dissertation requirement for the degree of Doctor of Philosophy.

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THE CITY UNIVERSITY OF NEW YORK
Abstract

BEACHES, PEOPLE, AND CHANGE: A POLITICAL ECOLOGY OF ROCKAWAY BEACH AFTER HURRICANE SANDY

By

Bryce Beal DuBois

Adviser: Professor Setha Low

This dissertation uses restoration practices of Rockaway beach post-Hurricane Sandy as a lens to investigate tensions between nature and society on urban coasts. By focusing on this New York City beach, this dissertation aims to examine the interaction between the beach, residents, city and federal agencies, and local environmental grassroots stewards in their response to coastal flooding and erosion. This is an ethnographic case study of Rockaway Beach during the two years (October 2012-October 2014) following Hurricane Sandy. This case study is based on secondary data analysis of interviews with 52 key informants, field-notes from participant observation at community and stewardship events, and archival research. This dissertation begins with a critical environmental history of Rockaway. From there, the dissertation examines the steward's practices as a counterpoint to the federal and city agency official approaches in a time of increasing awareness and concern over sea-level rise and coastal erosion. The dissertation examines the conflicts that arise in this unique urban beach over expertise, property, nature, and development. And it concludes with considerations of procedural, distributive, and interactional justice and equity for urban beaches. The dissertation makes the case that beaches should not be managed as separate from people or nearby communities and that such management must be sensitive to issues of equity and power.
Acknowledgements

I am most grateful to the residents, stewards, and employees who participated in this study and generously shared their time and experiences with me. Thank you to Setha Low and David Chapin, who have mentored me throughout my dissertation-writing journey, and to Keith Tidball and Leigh Graham, who provided invaluable advice and mentoring during various steps in the data collection process. Dana Taplin, I truly appreciate your kind words and attention to detail, and also to William Kornblum for sharing your deep understanding of the history of the coasts and waters of New York. Thank you to the members of my cohort and colleagues at the Graduate Center, including Sruthi Atmakur, Scott Fischer, Hannah Jaicks, Bijan Kimita and Jennifer Pipitone. Thanks also to the members of the New York City Urban Field Station, including Erica Svendsen, Lindsay Campbell, and Ruth Rae, along with the members of the Fort Totten Fellows, who have provided thoughtful comments on various presentations that I have given on this topic, especially Nate Gabriel and Phillip Silva. And many thanks to my mentors and colleagues at Cornell University including Marianne Krasny, Shorna Allred, and my colleagues in the Civic Ecology Lab, including Justin Smith, for providing a wonderful second academic home for me. Thank you to all of my Beal and DuBois family, especially my parents Dan and Hope DuBois, brother Scott DuBois, Grandmother Dorothy Beal, and nephew Richard Gonzales for being such relentless cheerleaders of me. Finally, my heartfelt appreciation goes to my wife, Sandra Victorino, who has propped me up from beginning to end of the process and who helped me to make the decision to pursue my doctorate. Your heart and soul is also in this dissertation and I hope that you know that you have opened my eyes to the world in a way that has been more profound than any of my academic experiences. I can close my eyes and see your toes in the sand.
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List of Acronyms

**USFS**: United States Forest Service
**NPS**: United States National Park Service
**USFWS**: United States Fish and Wildlife Services
**NYCEDC**: New York City economic development corporation
**NYSDEC**: New York State department of environmental conservation
**SES**: social-ecological system
(CHAPTER 1)
Introduction
Surfing, Rockaway and Sandy

One morning in November 2012, two weeks after the impact of Hurricane Sandy, I got up early to drive down through Brooklyn to the Rockaway peninsula. A CUNY researcher had contacted me after the Hurricane to help map the services and needs of Rockaway residents (Wridt, Fisher, DuBois, Seley, 2013). We met off the F-train in Park Slope a week later, and I drove my car full car of researchers and a journalist out to the peninsula.

Our drive took us on the route down Flatbush Ave. in Brooklyn that I had used many times to go surf, except now different landmarks stood out. Like the Hess Express gas station at the intersection of Flatbush Ave and Avenue T. This station was one of the few in southern Brooklyn that actually had gas. Rising tensions about a gas shortage after the storm led to an assault by people waiting in the line of cars there and now there was a heavy police presence at that station.

The stoplight at that intersection, and all the rest of the lights south of that, were dark and would be for at least another month. Just past the Hess station we drove by boats along the road’s edge that had been picked up and deposited ten blocks inland as Sandy’s storm surge grew to a height of more than 12 feet, the highest on record since Hurricane Donna in 1962. We slowly drove by Floyd Bennett Field, the site of one of the city’s first commercial airports and now part of the Gateway National Recreation Area. That day Floyd Bennett Field was set up as staging grounds for governmental emergency response vehicles and emergency management operations for southern Brooklyn and Queens.

It was at that point, just before the Marine Parkway Gil Hodges Memorial Bridge, where I began to fear what I would experience on the other side of that bridge. Our first view as we crested over the bridge was a new monument to the devastation caused by the storm surge. There
nearly at the foot of the bridge was a heaping pile of trash several stories high in the Riis Beach parking lot. While I often thought of this oversized parking lot as a glaring reminder of the ill-fated city planning of Robert Moses, that day the space seemed perfectly sized to handle the detritus from homes destroyed during the storm.

Before that drive I heard many stories and news reports about the devastation, but experiencing the impacts directly with my own senses changed my understanding of the disaster. The peninsula had the smell of the stuff of humanity soaked in saltwater, bearable but thick. Wet and greasy sand was piled up on the sides of the roads, up the walls of homes, and even inside cars. Cars were flipped on top of other cars and houses were pushed off their foundations. All of this felt cold and dank in a way that hung over my shoulders and chilled me to the core.

I drove through the streets passing mostly government agencies as well as the Red Cross, faith-based organizations, and other non-governmental organizations that had begun staging their emergency response efforts in this second week following the storm. National Guard Humvees and other military vehicles zoomed up and down the roads and congregated in parking lots near aid distribution centers. We passed food and toiletry distribution centers organized by Christian relief organizations, clothing drop-off locations with piles of rain-soaked clothes, and quite a few neighborhood-established efforts, in community gardens and other public spaces (Chan, DuBois, & Tidball, 2015). We drove passed thousands of residents on our way to the end of the peninsula and back outside of their homes cleaning up the mess looking dazed, exhausted, and determined.

It was during this drive that I first recognized the relevance of the topography of the beach in relation to the Rockaway community. Glaring examples stood out to me. For example, the neighborhood of Arverne-by-the-Sea, between Beach 69th and Beach 73rd Streets, had a wide beach and sand dunes north of the boardwalk that blunted the storm surge (along with other
engineering efforts that went into the building of the neighborhood (Kilgannon, 2012). Even the newly built white picket fences shined bright. Only just a mile down the shore to the east, houses along Rockaway Beach Boulevard in the Beach 90th Streets were in tatters. The neighborhoods in the Beach 90th section of Rockaway, the Rockaway Beach and Rockaway Park neighborhoods, popular among surfers, had been experiencing a minor resurgence among day trippers and Manhattan and Brooklyn transplants. This area draws surfers because it is at the end of the line of rock groins that creates a nicely shaped breaking wave to surf. However, being at the end of the rock groins also meant that the beach has more scouring, or a beach erosion process—due to the rock groin.

This is the first of what will be many examples of something being done to ‘benefit’ some group in some place or time that may have the opposite effect at some other place or time. This area had experienced significant erosion prior to the storm and that erosion meant that these particular neighborhoods were more vulnerable to flooding from storms like Hurricane Sandy. This marked the time when my sense of Rockaway beach shifted from its tourism, recreation, and social activity valences to incorporate an interest in ecology of the beach.

I begin my dissertation with this story because it illustrates two essential points that guide my work. The first is that people make sense of the world and construct meaning about a place based on their personal experience, which is necessarily reflective and not wholly inclusive of all of the potential ways that a place can be understood. Whereas for me Rockaway beach was at one time purely a place to surf, the meaning had shifted because of my experiences following Hurricane Sandy had led me to consider the ecology and geomorphology of the beach.

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1 This while, flooding in Jamaica Bay inundated the many low-lying homes built close to the Bay’s shoreline.
The second point of the introductory narrative is that people are affected by the particular ideas used in producing a particular configuration or beach assemblage. The discussion around what beaches are for has typically focused on two aspects of beaches, the control of erosion and flooding and the recreational and cultural uses of beaches (James, 2000). My experience mirrors these two obviously relevant ideas about the beach, but it oversimplifies the discussion as a ‘hazards-and-playground’ view of beaches that has overlooked beaches as part of a larger socioecology. While it is true that ideas about beaches are changing and managers and researchers are beginning to incorporate human and non-human aspects of beaches (James, 2000) a more critical perspective on these connections is needed in order to recognize different equity issues.

In Rockaway during Sandy, different forms of the beach led to different impacts on residents. This made me wonder how the beach came to physically be what it was, what the human and non-human relationship looked like, and what ideas people had about the beach. I learned that ideas about the beach, especially ideas about who had the right to do restoration on the beach, were highly contested. To help me to understand and engage with these ideas, I turned to literature about political ecology because it provided an approach to understand the political framing of that which is “nature” or “natural.”

Environments are based in historical contexts and urban environments have histories whereby people have proceeded as though humanity is separate from nature (Tidball & Stedman, 2013). This view has prioritized profits and placed a concern about nature on the margins. The Rockaway Beach that I write about exists as a moment in time where these urban environmental ideals have established a process that continues to prioritize profits and marginalize nature. Furthermore, the present configuration of Rockaway Beach is created by a negotiation of the
tension between the control of flows (i.e. sand, money, people) and the movement of flows into Rockaway (i.e. beach replenishment by Army Corps, funding from the city, visitors and tourists). Such a view of the social construction of nature has not been brought to bear in the investigation of cultural uses and conflicts of public beaches. Of course, the actual things that people do in a place and the ideas about the material form of a beach are dynamic, responding most prominently to new forms of mobility (as flows of people, money, etc.). There is interplay between how people think and act on the beach, the social construction of the beach, and issues of power in relating to those who determine the material or socially produced aspects of the beach.

Political ecology provides a lens to look at the Rockaway case because it helps explain the above interplay. In particular, it provides a frame to consider issues, socioecological ideologies, the capitalist economy’s use of the environment, and highlights how people and nature have been separated in order to profit from it. This approach considers the socioecological as well as the capitalist impacts on the social production of beaches. In this dissertation I use the term socioecology to denote that people and nature are interconnected and co-evolving. The language of how to talk about nested relationships between people and nature is quite important. Social scientists affiliated with the discipline of Natural Resources Management engage with a networked view of human and non-human actors that they term Social-Ecological Systems (SES). This terminology is used in this dissertation to describe instances where people or practices reflect a systems perspective. In all other cases I have chosen to forego a ‘systems’ frame. Instead, I situate myself ontologically within a critical social-constructivist perspective. I am most interested in the varied and conflicted meanings that people hold, and understand there to be pernicious effects of capitalism. I choose the term socioecology (Keil, 2003) to denote a
post-structuralist networked view of humans and nature, and how our society interacts with the ecology and the shape that beaches take is bound within a political ecology, which is the approach that I use in the investigation in this dissertation.

Statement of the Problem

The issue is that beaches are managed based in ideas that they are static spaces for recreation or coastal protection. However, the reality is that without human attempts to intervene in these processes sandy beaches would move and shift with tides, storms, and sea level changes. Therefore, beach managers, policy-makers, and residents of coastal communities that have developed up to the shoreline must begin to critically engage with change.

The history of the Atlantic shoreline is a story of change. The sediment and topography of the Atlantic coastline is the result of primarily two ancient events (Dean, 1999). The first is the collision of the American and Atlantic tectonic plates, which pushed up the earth creating the Appalachian Mountains that, eroded and provided the sediment for the sandy beaches and bays. The other event is the glacial retreat that began nearly 18,000 years ago and concluded around 4,000 years ago when the earth’s climate stabilized. That retreat led to sea-level rise that moved the coastline 75 miles inland to the general locations we experience today. However, sea-level rise continues and is expected to increase in the coming years, leading the coastline to move further inland.

Amongst coastal geologists, beaches are understood to be a part of a ‘littoral cell.’ Douglas Inman coined the term littoral cell to explain that beaches are the result of three factors; a supply or source of sand; a transport mechanism that moves the sand; and the final location or sink of the sand (Dean, 1999). The most obvious example of this source, transport, and sink system is that of the Western US. There, the source of sand is sediment picked up by mountain
streams that transport the material down the mountains and hills and deposit it on the coast. On the east coast of the US, things work somewhat differently. As on the west coast, some sand is supplied by sediment picked up from rivers. However, much of this sediment (sand) is released into estuaries behind barrier islands, and only a small percentage of that sediment reaches the beach. The rest of the sand comes from eroding cliffs on the coastline and the longshore or littoral drift.

Sandy beaches are in constant and eternal motion (figure 1.1). Tides ebb and flow with the gravitational pull of the sun and the moon. When the moon is closer to the earth the tidal range, or the difference between the low and high tides, is greatest. Littoral drift brings sand to a sand bar that eventually develops into a beach through wave action. As the seasons change, so too does the type of swell. The relative tranquility of summer means that gentle swells push sand back up onto the beach. In contrast, strong winter storms whip up swells that refract off the beach and pull sand offshore onto a sand bar. Wind blows sand along the beach and the sand can get trapped by small bits of debris, beach grass, or coastal shrubs and build up into dunes. However, storm waves can be so large that they ‘wash over’ sand dunes and push sand into the bays behind the beach, sometimes even breaking through the sand dune and pulling the sand back out to the sand bar (Dean, 1999).
Figure 1.1. Forces that carry sand on and off the beach. Adapted from Dean (1999)

Because these swells come in at slight angles, a longshore drift begins to develop that
pulls sand down the coast in one direction (figure 1.2). This process is significant, moving
as much as seven hundred thousand cubic yards of sand in a given area in North Carolina’s
Outer Banks, for example (Dean, 1999). This transport mechanism also moves massive
amounts of sand from east to west along Long Island and eventually south to New Jersey
or out to sea.
Developing real estate on the shoreline depends on stable land and is therefore in direct conflict with this movement; so coastal engineering has been used to prevent the loss of sand from storms and littoral drift. The Rockaway peninsula is a typical Long Island barrier beach protecting an inner harbor and marshes (figure 1.3) that is part of a chain of barrier islands stretching from New England to Mexico, the longest in the world.
American Beachgrass, or *Ammophila breviligulata*, is the grass most commonly found on sand dunes found on these barrier beaches and barrier islands (figure 1.4). It is common to coasts of eastern North America and including the shores of the Great Lakes (Wiedemann & Pickart, 2008). Beach grass is often the dominant species on sand dunes, and their name comes from the Greek words ammos (sand) and philia (lover). These grasses are found almost exclusively on the primary dune. These grasses develop an extensive network of rhizomes that allow them to shift with sand as it is blown by high winds common to the beach environment. The plant’s ability to thrive and develop a dense root network means that it helps to keep the sand in place to stabilize and prevent coastal erosion.
Sandy beach ecosystems, such as Rockaway, are the world’s single largest type of open shoreline (Maun, 2009). These open shorelines are stressed environments due to human development and pollution, among other things (Maun, 2009). As real estate has been developed, the ability of the coastal socioecology to adapt to change has been compromised in a way that increases the vulnerability of the Rockaways to future disturbances (Defeo et al., 2009). For this reason coastal geologists David Bush, Orrin Pilkey, and William Neal (1996) preface their book, *Living by the Rules of the Sea*, by stating, “We do not recommend living on barrier islands and we definitely would not want our loved ones to live there” (p. xi). But people do live in on the coast and on barrier beaches. Private property, among other things, complicates the idea that people should or would leave this place.

Groins and other structures are used to stem erosion landward. Groins are made of stones or concrete and extend several hundred meters out into the ocean. These are examples of what
coastal engineers describe as hard structure approaches to beach protection systems. Hard structure approaches are typically paired with soft structure approaches, such as pumping sand onto beaches, to complete the ‘system.’ These erosion control structures have been critiqued for their role in increasing the need for replenishment, and their design to protect property, not beaches. Young (2013) applauds beach replenishment for providing a recreational beach and for creating habitat. However, he suggests that these efforts are only temporary fixes. He also argues that they have unknown environmental damage on the seafloor where sand is sourced, neighboring shoreline can be adversely affected and it can be difficult to find sand. There remains the larger problem of who should pay for sand replenishment. Young (2013) argues for a need to understand the limits of ability to predict processes and storms and therefore suggests that the relocation of infrastructure is the most environmentally beneficial and the safest for people as sea levels continue to rise.

However, development right up to the edges of the Atlantic has occurred in most communities on the coast in North America. Among other things this development has diminished the ability for the natural geomorphological shifts that occur on a barrier island (Steinberg, 2001). Furthermore, development in coastal areas is something that has been institutionalized through federally backed flood insurance subsidies from the Federal Emergency Management Agency (FEMA). Disaster aid and the FEMA, introduced in 1969 and 1972 respectively, were designed specifically to respond to natural disasters and to support homeowners in the repair and rebuilding of their homes (Steinberg, 2001). Furthermore, the Army Corps receives significant amounts of money to engage in beach replenishment practices to repair eroded coasts instead of arguing for alternatives, such as retreat (Steinberg, 2001; for a more detailed description of the governance structure of Rockaway beach see figure 3.13).
Beaches and People

Development on the coast has occurred because people like to spend time on beaches and be near the ocean. Around the globe people flock to beaches during summer months, or year-round in equatorial regions lucky enough to have consistent ‘beach-weather.’ Beaches have deep meaning and even spiritual qualities for some people, especially notable among surfers (Taylor, 2007). The desire to be near the beach and coast has increased in our modern era (Corbin, 1994) and is a fact that has further exasperated the issues of coastal erosion.

Beaches mean different things to different people and that has changed over time and space. Alan Corbin (1994) points out that the historic role and interpretation of beaches has shifted based on cultural uses and interpretations. Where once beaches invoked terror and suffering in medieval times, popular ideologies of contemporary beaches are of sexualized tourist and leisure spaces. North American beaches are places offering synesthetic experiences where people seek out various cultural practices. Tourism and consumptive practices globally reshape many beaches and coastal communities often marginalizing local people. In response, there is an emphasis on the beach as a public space that meets multiple cultural interpretations and needs. But beaches are also highly valued economic spaces both for tourism and the real estate near the beach.

A small number of sociological and anthropological researchers have taken the beach as a focus. In one of the earliest sociological studies of beaches Edgerton (1979) found that visitors to a southern California beach engaged in social activities of an egalitarian environment unlike most other public spaces, such as a willingness to be barely clothed and in close proximity to one another. Edgerton (1979) described recreational activities such as surfing, fishing, and swimming. Flirting and sex were among the scenes he described, as were more “transgressive”
acts of public masturbation and fighting. Although when these behaviors were overt Edgerton (1979) also described efforts to control and punish such behaviors.

People also have deeply emotional attachments to beaches. For example, surfing has been described as being akin to a religion (Taylor, 2007) for surfers. Some people have also described beaches as spaces of spirituality (Anderson, 2013). These ideas about the beach celebrate it as a space that confers an embodied being-in-the-world experience that allows people to feel that they are outside the normal social and cultural constraints (i.e. Preston-Whyte, 2004). This is described as a liminal space (Van Gannep, 1906; Turner, 1967). For example, they are places where young and old, fat and thin, strip naked or nearly naked and spend hours lying on the beach in close proximity to one another. Try to imagine these clothing styles or nudity in another public place, such as a public library, and we can begin to understand how the beach creates a social setting that is something slightly different.

There is a long history of law intended to provide access to the coast in order access places to fish, hunt, and for transport. The government protects access to the intertidal zone and the submerged lands of navigable waterways through the common body of law called the Public Trust Doctrine. This law has a long ancestry that holds certain lands and waterways in trust for the public to benefit and use, i.e. a commons (Benn, 2006). Many of New York State’s saltwater beaches are publicly owned and so access to the foreshore (beaches) is also granted in these locations.

New York State Coastal Policy 20 (http://www.dos.ny.gov/opd/) defines that, “Access to the publicly owned foreshore and to lands immediately adjacent to the foreshore or the water's edge that are publicly owned shall be provided and it shall be provided in a manner compatible with adjoining uses.” Access cannot be reduced, eliminated, or blocked by development. Also,
new developments must provide access. Furthermore, the state will not fund projects to increase access to the water or facility that are not open to all members of the public. New York State also encourages that additional access points be made as long as they don’t adversely impact the coastal lands or waters. Thus, access to the coast is acknowledged as an important need and right as evidenced by its place in the policies of New York State. In the Rockaways the City of New York has taken title to the beach and public access is not in question.

What this literature and these policies don’t engage with is a discussion around the human and non-human networked relationships that get at conflicts that are also apparent in beach environments. King & Blizzard (2006) points out the challenges for understanding the conflicts within beach environments by describing that the shoreline is changing, that development is driven on the coast, that recreational space is shrinking due to erosion, the gap between the rich and the poor is widening, and coastal features are degrading. Such a view of beaches as contested human and non-human spaces requires an expanded view of beach environments aided by a political ecology perspective.

**Political Ecology**

Political ecology offers an interpretive frame to investigate the networked human and more-than-human aspects of the beach. In particular it focuses on the power/knowledge relations in the material production of environments, such as beaches. Political ecology is a diverse group of research approaches rather than a single theoretical tradition. In his introduction to political ecology, Paul Robbins (2011) describes it as a community of practice around a certain type of text that addresses the conditions and changes in a socioecology while paying close attention to the power relations within that system. This ‘system’ is understood to be political and impacted
by ideas that are funneled through pre-existing political and economic processes (Robbins, 2011).  

In order to get to the causes rather than symptoms of problems and to explore a more sustainable way of doing things, Robbins (2011) suggests that a political ecology text should attempt to do two things at once, functioning as both a hatchet and a seed. The hatchet is used, “to take apart flawed, dangerous, and politically problematic accounts” in “critically explaining what is wrong with dominant accounts of environmental change” (p. 20). The second part of the text is a seed that is used to simultaneously support the observed political ecology “to grow into new socio-ecologies” by “exploring alternatives, adaptations, and creative human action in the face of mismanagement and exploitation” (p. 20).

Political economists and human ecologists merged their traditions in order to understand control over and access to resources in developing countries (i.e. Blaikie & Brookfield, 1987; Escobar, 1996). In an attempt to re-orient the dominant social paradigm of othering nature in order to profit from it, political ecology forgoes dualisms to consider the intertwined aspects of

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2 There is a group of academics that continue to use the term social-ecological system (SES) to describe the integrated concepts of humans in nature that align very closely to the political ecology frame. For example, while early approaches to systems thinking and resilience did not engage human social behavior to a large degree and focused instead on biophysical properties of systems (c.f. Holling, 1986), later academics working with SES theory such as Berkes, Colding and Folke (2008) resisted those approaches and brought the notion of complex systems that included humans in nature to the forefront. Current SES theory uses language that is quite similar to that of political ecology. Modern SES theory describes, “interconnected and co-evolving [processes] across spatial and temporal scales,” “emphasizes the humans-in-the-environment perspective,” and describes present day ecosystems as bound in and shaped by human decision-making throughout history (Tidball, 2014b). It is in the deployment of SES and SES resilience theory where the use of the term has become problematic as bureaucracies and institutions have taken up SES terminology, but have loosely defined them. In addition, many managerial approaches that have used SES theory have done so in a way that ignored power and equity in their decision-making. Therefore, I use the term socioecology to maintain distance from such problematic histories and employ the frame of political ecology in order to focus squarely on issues of power and equity.
the world. Theorists have sought to break down boundaries of urban and rural (Harvey, 1997) or social versus natural (Keil, 2003).

Political ecology has developed a strong critique of the management of ecological spaces based in Harvey’s (1997) suggestion that, ‘techno-managerial modernization marries ecological sustainability and economic progress.’ I interpret ‘techno-managerial modernization’ as a formal approach to management that suggests that only experts have the ability to make decisions and may be couched within a trend of economic progress. Power is considered within the politics over socioecologies. For example, in this community of practice cities are conceptualized as a form of nature that is involved in uneven processes where economic interests unevenly distribute natural resources and environmental impacts (Heynen, Kaika, & Swyngedouw, 2005). Similarly, Smith (2006) describes ecological modernization as “a discourse of eco-efficiency” where the “primary concern is the efficient use of natural resources within a capitalist framework (Hajer, 1995; Christoff, 1996; Gouldson & Murphy, 1997). Criticisms have been leveled at the lack of attention paid to social justice (both within and between nations) and the failure to conceive of nature beyond its value as a resource” (p. 4). And so cities and urban areas create vulnerabilities for humans and non-humans because capitalist interest are often prioritized in the management discipline.

In addition to people becoming vulnerable, the social construction of nature has also led to nature being considered outside or other than where people live. A specific offshoot of political ecology, urban political ecology, has furthered the critique of the nature/society dualism. This dualism has been critiqued for allowing for the domination and consumption of nature for capitalistic accumulation (Katz, 1998). Urban political ecologists point out that those interested in profiting from the consumption of nature intentionally separate people and nature,
especially by claiming a rural urban divide (Katz 1998). Once separated, nature is made ‘other’ whereby nature can be consumed for the economic advantage of particular people, such as in the case of mountaintop removal for coal mining.

There are a wide variety of texts that have employed the hatchet and seed effort that fit within the larger political economy community of practice. Robbins (2011) suggests that there are five trends or categories of work within this community of practice: degradation and marginalization; conservation and control; environmental conflict and exclusion; environmental subjects and identity; and political objects and actors (table 1.1). These trends break down the dominant discourse and offer new possibilities in issues relating to environmental conditions, conservation outcomes, access to and exclusion from the environment, identities of people and groups, and the socio-political conditions present.

<table>
<thead>
<tr>
<th>Thesis</th>
<th>What is explained?</th>
<th>Relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degradation and marginalization</td>
<td><em>Environmental conditions</em> (especially degradation and the reasons for their change)</td>
<td>Environmental degradation, long blamed on marginal people, is shown in its larger political and economic context.</td>
</tr>
<tr>
<td>Conservation and control*</td>
<td><em>Conservation outcomes</em> (especially failures)</td>
<td>Usually viewed as benign, efforts at environmental conservation are shown to have pernicious effects, and sometimes fail as a result.</td>
</tr>
<tr>
<td>Environmental conflict and exclusion</td>
<td><em>Access</em> to the environment and conflicts over exclusion from it (especially natural resources)</td>
<td>Environmental conflicts are shown to be part of larger gendered, classed, and raced struggles and vice versa.</td>
</tr>
<tr>
<td>Environmental subjects and identity*</td>
<td><em>Identities</em> of people and social groups (especially new or emerging ones)</td>
<td>Political identities and social struggles are shown to be linked to basic issues of livelihood and environmental activity.</td>
</tr>
<tr>
<td>Political objects and actors*</td>
<td><em>Socio-political conditions</em> (especially deeply structured ones)</td>
<td>Political and economic systems are shown to be underpinned and affected by the non-human actors with which they are intertwined.</td>
</tr>
</tbody>
</table>

*Table 1.1. Five Theses of political ecology and the things they attempt to explain. Adapted from Robbins (2011)*
A focus on degradation and marginalization repositions the lens from the sustainability of local practices to consider the larger production system and the response to state development or integration into global markets (Robbins, 2011). Local actors are unevenly affected by the degradation of environments because of appropriation and accumulation, where declining economic margins lead the costs and risks to be placed on the individual producer. For example, in recent years two major disasters, the BP Oil Spill and Hurricane Katrina, have impacted the residents of coastal Louisiana, keeping them in continued vulnerability. A political view of these events and the continued vulnerability of those residents uncovers that there has been little opposition to the off-shore drilling because the economy of Louisiana is so dependent on that industry (see Bullard & Wright, 2010). The workers are un-unionized and part of a global oil and seafood market that leaves them vulnerable to fluctuations in these industries and reduces their ability to advocate for sustainable practices on the coast. This has meant that these residents are part of a ‘geography of accidents.’ When places have been constructed with values that are purely about profiting politically or economically people become vulnerable, such as in the case of people living in the 9th ward in New Orleans after Katrina. Based on that understanding one can begin to understand that disasters are not “natural”, but are rather the result of political, economic and social systems (i.e. Smith, 2006).

Conservation-oriented political ecologists have developed a strong critique of the management of ecological spaces by showing how efforts to maintain ‘natural’ landscapes have disabled the local systems (Robbins, 2011). In typical conservation practices, landscape ecologists and managers claim territories, meaning they draw literal boundaries around landscapes that they want to protect. Rather than arguing against biodiversity, political ecologists
are concerned with how these practices have failed. Traditional residents and users are most often the people who are pushed to the margins (Robbins, 2011). This community of practice offers a political economic lens to what are otherwise described as commons “tragedies.” For example, Peluso (1992) describes how logging practices in east Kalimantan, Java led to a focus on teak plantation management and then later state efforts to conserve tracks in the forest by declaring and mapping inhabited land as uninhabited forest. This led to the placing of local people and knowledge on the margins, despite their potential to use the forest and resources therein sustainably.

Investigating environmental conflicts and exclusion show that struggles are part of longer lasting issues of inequality. For example, predominantly black neighborhoods in Milwaukee have significantly less tree-canopy than neighboring predominantly white neighborhoods (Heynen, Kaika, & Swyngedouw, 2006). Environmental conflicts around the uneven distribution of the benefits or ills can also be about idealized forms of nature, such as ‘wild’ or ‘urban.’ An example of this is from the Sierra Nevadas where new residents holding an idea of a wild west conflicted with ranchers and loggers who wanted a newly developing planning regime to support ideas about a land for production (Walker & Fortmann, 2003). Often there are political or economic reasons for differentials in power over whose ideologies are promulgated in these environmental conflicts.

Environmental justice movements and especially those that seek just approaches to sustainability have come out of such conflicts. Environmental justice movements are grassroots efforts that respond to the unequal distribution of environmental ‘bads’ (Agyeman, Ballard, & Evans, 2002). These movements are different from the typical environmentalist agenda that seeks to protect an ‘edenic,’ pure, and uncontaminated view of nature/the environment (Cronon,
1996). Rather, environmental justice movements argue that the environment includes concerns related to social justice, local economic sustainability, health, and community governance (DiChiro, 1995). The environmental justice paradigm links the environment and race, class, gender, and social justice concerns into an explicit framework (Tyler, 2000). Instead of arguing that nature is outside of people and urban contexts, environmental justice movements refigure the environment as places where people live, work, and play (DiChiro, 1995).

The concept of just sustainabilities provides a framework to consider overlapping issues of environmental justice and sustainability (Agyeman, Bullard & Evans, 2002; Agyeman, 2007). The just sustainabilities paradigm links environmental justice with the traditional environmental stewardship and sustainability agenda outlined by Catton and Dunlap (1978), which they termed the New Environmental Paradigm. Environmental justice movements are those that seek sustainable environments. Sustainability from this perspective is, “the need to ensure a better quality of life for all now; and into the future, in a just and equitable manner, whilst living within the limits of supporting ecosystems” (Agyeman, Bullard, & Evans, 2002; pg. 5). The just sustainabilities framework incorporates the environmental justice focus on intra-generational equity and/or justice in order to respond to the ‘equity deficit’ of environmental sustainability (Agyeman, Bullard, & Evans, 2002).

Seymour (2012) applies the just sustainability paradigm to urban parks. Seymour (2012) focused on the case of the Audubon Center at Debs Park in Los Angeles California. That nature center was the National Audubon Society’s second urban nature center when it opened its doors in 2003. The center staff set out to design and offer programming at the center that responded specifically to Latino communities in the area. In addition, the center sought to restore natural areas and to provide a safe and enjoyable park experience to underserved, low-income
communities in the area. However, the author suggests that the center’s efforts afford a ‘weak’ just sustainability because they do not privilege justice and equity in the park. This follows from Alkon (2008) who suggested that the just sustainability paradigm could be considered on a continuum with environmental justice and sustainability on opposing poles. This continuum, Seymour (2012) argues, provides a more sensitive instrument to interpret just sustainability than the ranking metric used by Agyeman (2005) that offered scores of zero through three depending on the frequency and degree to which programs mentioned justice and equity on their websites. Instead, Seymour (2012) suggests that procedural (equity in the decision-making process) and distributive (equity in the benefits of some effort) justice is key. To procedural and distributive justice, Setha Low (2013) adds interactional justice, or equity in the way that different cultures and groups are able to act or embody a public space.³

Similar to environmental justice activists, the environmental subjects and identities trend in political ecology suggests that instead of ‘othering’ nature or separating it from urban environments and people, urban nature is better viewed as an assemblage of human and non-human actors (Heynen, Kaika, & Swyngedouw, 2006). This hybridity of socioecologies recognizes that urban environments are within a circulation of material flows of and within nature co-constituted with humans, what Gandy (2008) calls an urban metabolism. This body of theory therefore counteracts a view of nature that considers nature outside of people and therefore available for consumption, and instead places human and non-human actors together (Heynen, Kaika, & Swyngedouw, 2006). This form of research is often oriented towards

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³ Although this dissertation is not framed by public space literature, I use the concept of interactional justice in order to focus on the social activities that occurred during beach restoration. Whereas procedural and distributive justice are useful to interrogate formal practices, the concept of interactional justice provides a lens to examine conflicts over what activities were and were not allowed on the beach.
connected cities with the materials that they consume that come from other places such as rural places or the global south (Keil, 2003).

Urban political ecology theorists also provide a critical framework for attending to political conditions. Political participation is intertwined and involved in the constitution of the human and non-human urban environment (Gabriel, 2014). This is especially relevant to present day management strategies that pursue resilience and adaptation strategies and couch their efforts in a social-ecological systems frame.

Management based in urban ecology and social-ecological systems thinking is critiqued for inadequately dealing with social diversity and power (Fabinyi, Evans, & Foale, 2014). In particular, the argument is that the SES trend in urban ecology management focuses on people’s interests and livelihoods in relationship to the environment and through institutions and organized groups, an approach they argue overlooks power and other motivations and institutions. This critique of the lack of focus on social diversity and power is similar to critiques lofted toward ecological anthropology from the 1960s (Fabinyi, Evans, Foale, 2014), which was critiqued for ecological reductionism (Orlove, 1980). The reductionism in that historical trend of systems theory focused on behavior as a function of a person’s environment and in turn overlooked the broader social, economic, and political structures that were influencing behaviors. Modern SES theory no longer falls prey to similar reductionism, but managers that apply systems ideas do continue to make similar mistakes. For example, the decision about what to count in the system is ultimately fallible to unequal power relations (Fabinyi, Evans, Foale, 2014) that are at the city or ecosystem level (Evans, 2011). This dissertation grounds this conversation in the context of public space, which is both highlighted for its role as a cultural space and more recently often described in terms of its environmental significance. For example,
that Rockaway Beach is both where surfers have developed a close-knit community and the ecological health of the beach is viewed as important for coastal protection.

Environmental anthropologists note tradeoffs between various actors in the service of social or ecological goals (Fabinyi, Evans & Foale, 2014). This literature has been limited in the degree to which it recognizes the power relations imbued in the trade offs (Fabinyi, Evans & Foale, 2014). However, incorporating a political ecological approach recognizes that conflicts are inherently and concurrently about material and discursive practices.

In the context of resilience and adaptation to climate change, urban political ecology theory argues that the application of such theories toward managing for resilience focuses on individual and collective life in order to remove uncertainty in adaptation. Grove (2014a) identifies that this is done by treating human and non-human actors in a network as elements in a system and then measuring how they relate to each other. This ‘systems perspective’ is suggested to offer a measurement of their adaptive capacity, which at the outset is a noble effort but has the pernicious result of managing and quantifying affective relations between people and their environment (Grove, 2014a). The particular aspects of the system (i.e. communities, ecologies, etc.) that are measured and deemed to lack adaptive capacity is managed in a way that depoliticizes the debate about what to do (Grove, 2014b). While focusing on resilience and adaptation has the potential to rework positivist approaches to dealing with vulnerability by including community planning processes, a focus on creating resilient lives can potentially depoliticize rather than challenge how people respond and overcome vulnerabilities in their lives (Grove, 2012; Reid, 2012).

Urban political ecologists argue that this current policy modality of urban nature management is therefore post-political (Swingedouw, 2009). By post-political, Swingedouw...
(2009) suggests that by governing through consensus, agreement, metrics, and technocratic frameworks, the right to democratic debate and space becomes closed (Swingedouw, 2009). This closing off includes the closing off of individual or embodied experiences in space, what Ranciére (2003) called the ‘partition of the sensible.’ Equality is the rearrangement of benefits and decision-making hierarchies where people are able to express their needs in the face of wrongdoing by those that have no voice but are being exploited (Ranciére, 2003).

A key reason for maintaining an open, fluid, and messy conceptualization of socioecologies is the emerging concept of mobility and flows (of people and money) that move in and out of political ecologies. Amin and Thrift’s (2002) perspective on the urban and the concept of propinquity is helpful to understand the role of distanciated communities in producing economies that allow space to ‘flourish as a social imaginary.’ The notion of distanciated communities is a direct reaction to the present urban context, which is mobile and incorporates multiple modes of connection and communication. Recognizing propinquity in connections between people through flows, networks, and assemblages leads to an understanding of the city as circulation. Through the tool of circulation, the city is no longer a stable entity, in one bounded region, with a particular subset of people. To use theories proposed by Goffman (1959) and only think of the bounded region where action takes place and where people ‘perform’ is suggested to not be enough using this mobilities frame. We can move beyond this and think of the city and the ways we live and move in this as still developing community, but in a different way. The concept of mobilities suggests that the movements in and out of the city, along with international connections, are as much the urban context as sharing a coffee with a friend in a cafe. Circulation and propinquity push the notion of community beyond a spatially bound geographic region requiring face-to-face contact. The pernicious effects of this mobility are
apparent in the beach and coastal context. For example, surfers who travel the globe to visit surfing breaks put local environments into peril by consuming unsustainable amounts of resources (Cole, 2012).

The changing concept of tourist places through mobilities of capital and flows is blurring tourist spaces and everyday life. John Urry (2007) put forward the notion that there is an end of tourism and that everyday spaces are being reconfigured as tourist spaces because of disorganized capitalism brought about by globalization and mobility. Gale (2009) took up Urry’s (2007) framing in his discussion of an urban beach project called the Paris Plage. This event was the product of Paris Mayor Bertrand Delanoe who launched the project in 2002. From mid-July to mid-August the Georges Pompidou expressway alongside the Right Bank of the River Seine is closed to traffic and over 2 million Euros worth of sand, grass, and wooden decking are brought in to form three beaches. These events subvert the role of spatial fixity that is associated with tourism and it plays to a place’s tourist potential, rather than attending to the everyday lives of the people of Paris (Gale, 2009).

This mobility has fostered a neoliberal restructuring that is disenfranchising urban residents. The notions of the urban commons and the right to the city insist that people should be able to have access to and use public lands (i.e., Harvey, 2008; Purcell, 2002). Harvey (2008) defines the right to the city as,

Far more than a right of individual access to the resources that the city embodies: it is a right to change ourselves by changing the city more after our heart’s desire. It is, moreover, a collective rather than an individual right since changing the city inevitably depends upon the exercise of a collective power over the processes of urbanization. (p. 1)

The commons are publicly shared and limited resources. Rational-choice theorists assume that left to their own devices people would experience a ‘tragedy of the commons,’ where people
would only be concerned about their own needs and desires and neglect those of others. Efforts enacted based on the fear of this tragedy have promulgated a set of rules that govern public space apparently to protect this shared resource. But social theorists point out that some people benefit from these rules and governing strategies, while others do not. Therefore, there is concern about collective power over the processes of urbanization. Cultural anthropologists and human geographers describe that limiting rights through closing off public space to select groups, such as homeless people, establishes a socio-cultural (rather than socioecological) urban order (Mitchell & Staeheli, 2006). For example, rather than being denigrated, the practices of the people who are homeless could be celebrated as successful small-scale efforts to share the urban commons (Heatherington, 1997). However, and more typically, the dominant social order establishes homeless people as unwelcome in the urban realm while those with money or of the appropriate class or race are deemed acceptable and welcome (Mitchell & Staeheli, 2006).

The concept of the urban green commons is one way to conceptualize urban parks that can move management toward an approach that empowers urban residents and situates the conversation in the local context. Urban green commons are described by Colding and Barthel (2013) as ‘urban ecosystems of diverse ownership that depend on collective organization and management.” The typical examples of a commons or urban green commons are community or allotment gardens (Colding & Barthel, 2013). Urban green commons implies that people have rights to access, withdraw, and manage the land (Schlager & Ostrom, 1992). This is in direct opposition to the neoliberal framing of urban ‘green space’ that treats parks and other landscapes

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4 I am aware that Johan Colding and Stephan Barthel publish in the Social-Ecological Systems resilience scholarship literature that I have distanced myself from in this introduction. Despite the differences between the SES viewpoint and political ecology it is not problematic to work across theories from these bodies of literature so long as power and equity issues are attended to in their application.
as locations for conspicuous consumption, such as Central Park. Urban green commons shares an emphasis on diversity and supporting democratic society. When applied to a view of parks, this is an improvement on the sustainable park model (Cranz & Boland, 2004). Cranz & Boland (2004) argue that parks have been too concerned with social problems and that they should incorporate ecological ones. The authors argue that parks managed in these models have three general attributes: “(1) self-sufficiency in regard to material resources and maintenance, (2) solving larger urban problems outside of park boundaries, and (3) creating new standards for aesthetics and landscape management in parks and other urban landscapes” (Cranz & Boland, pg. 102). However, this model would ignore the park as an important social and ecological commons such as what Colding & Barthel (2013) have outlined in their urban green commons ideal. This is in line with arguments for diversity in urban public parks (Low, Taplin, Scheld, 2005) or urban green spaces (Colding, Elmqvist & Olsson, 2003; Tidball & Krasny, 2007) that suggest that public spaces strengthen communities and decision-making by creating opportunities for the sharing of diverse ideas and perspectives.

While the broader work in political ecology has laid a framework for critiquing the capitalist economy and environmental management, and highlighted opportunities for justice and equality in public spaces, work focused on beaches has only explored some of these themes. **The Beach in Political Ecology**

Literature describing beaches or urban beaches from a political ecology frame has primarily focused on tourism, coastal management, and change relating to the wicked impacts of sea-level rise and coastal erosion. Social power and ecology come together in coastal and beach contexts most clearly through the studies of tourism where consumptive practices of tourists has the malignant result of stressing the relationship between sustainable environments for residents...
and economic interests. This results in an imbalance of benefits for particular people and often persists because of an imbalance in social power over the decision-making process. An example of this is in Bali, where the consumptive water practices of tourists is creating a water crisis on the islands (Cole, 2012). There, policy makers stress the economic dependence on tourists as a need for continued overconsumption of water. However, despite this post-colonial era, the development of Bali and these over consumptive practices are situated in imbalances of social power and relationships with the ecology of the colonial era.

Other work in political ecology has highlighted the imbalance in coastal management practices that stress conservation and control. In those studies local residents or indigenous peoples are shown to have limited power in decision-making and access to resources. In those studies, coastal management and conservation practices are weighed in terms of the benefit that management bestows to residents and toward understanding ‘community empowerment’ in these projects. These studies highlight, among other things, that post-colonial contexts are still impacted by the power imbalances that shaped the communities’ relationships with the environment historically. An example is that of Guyana, where Mark Pelling (1999) notes that the present vulnerability of urban Guyanese can trace its historical roots to colonial occupancy. Pelling remarks that during colonial times and later modernization of the coasts has led to an inability to produce or access resources to maintain the coast. The coastal mangrove swamps have been drained, the wood extracted and replaced with sea walls, irrigation canals have been built, and human settlement has increased (Pelling, 1999). However, decision-making about how to respond to coastal erosion continues to be separated by race and the power held amongst the national political elite. International donor agency efforts to create participatory opportunities in decision-making over these issues unfortunately failed because the community groups were
handpicked by a group of elites. This has maintained a disjuncture between the decision-makers and those affected, who in this case were low-income, renters, squatters, female-headed households, young, old and the sick (Pelling, 1999). Thus, this Guyanese case shows a clear yet unfortunate example of environmental conflict and exclusion. Another example is in coastal Suriname, where Nijbroek (2012) shows how inequitable and unsustainable climate change adaptation responses unjustly benefited the wealthy. This analysis focused on how existing coastal environmental crises are historically situated and how sustainable and equitable adaptation can be achieved that is based on local and scientific knowledge.

These studies suggest that there is a need to frame coastal environments, which include beaches and coastal uplands, as places where people live, work, and play. Studies in the global south have highlighted that beaches are socio-political sites and that their present assemblage of human and non-human actors is based in a historical context. In the global south, this historical context includes an imbalance of power where western colonizers control the resources and leave local communities to suffer. However, there has yet to be an analysis of a beach environment using a just sustainabilities frame in the context of the response to sea-level rise and coastal erosion. Nor has there been an analysis of just sustainability in a North American urban public beach.

**More on Beaches**

Before moving on, there is a subset of anthropological work on beaches worth noting here even though it does not explicitly align with political ecology. This work fits roughly into Robbins (2011) categories of environmental conflict and control as well as environmental subjects and identities.
There are several ethnographic accounts of class-based and race-based conflicts on beaches, which relate to the political ecology lens of environmental conflict and control. Those struggles that have been documented have been primarily around the closing off of access to, and limiting use of, beaches to a particular group of people. From Los Angeles (Davidson & Entrikin, 2005; Low, 2006), to the Hamptons (Low, 2006), to Puerto Rico (McCaffrey, 2009), beaches have become contested sites where private interests have made attempts to close off access to the larger public. This privatization and neoliberal influence is brought on by global tourist economies that have especially pernicious impacts on coastal communities. For example, in Puerto Rico, residents were excluded from using several public beaches by limiting access to these beaches to only the people staying in the hotels or living in the homes adjacent to the beach, primarily tourists and wealthy expats (McCaffrey, 2009).

Furthermore, the perspective from which beaches are managed has been shown to intentionally or unintentionally bias rules (socially produce) about appropriate activities or behaviors on beaches. These rules can sometimes lean toward a particular raced or classed ideal of a beach by deeming certain behaviors as inappropriate that are more common among a certain culture or social class. An example is Jacob Riis Park, a National Park Service managed beach east of Rockaway Beach, where managers use a cultural preservation lens that prioritize the perseverance of art deco-inspired buildings and landscapes built during the 1930’s and 1940’s. These management priorities engendered a conflict with the cultural preferences of a large group of Dominican visitors who wanted to use the “back beach” landscapes and beach facilities for cookouts and other cultural events. Tensions arose over practices such as hanging sunscreen devices from tree branches, cooking out next to trees, and other uses that managers saw as inappropriate and abusive. This was because of a management approach that emphasized a
historic preservation interpretation of the facilities (Low, Taplin & Scheld, 2005). This example shows that while people may hold very different meanings for beaches and people may engage in different spatial practices, the representations of space by formal managers and the representational spaces that they produce can and often does highlight one particular cultural interpretation over another.

Other gendered, classed, and raced aspects of beach use and social production have been explored in international contexts. Freeman (2002) argues that in the case of Rio de Janeiro’s Copacabana and Ipanema neighborhoods, beaches only offered only a marginalized citizenship to their users. Freeman (2002) questioned the popular idea that Copacabana and Ipanema were sites for discursive democracy or that they are classless and color-blind spaces, pointing instead to class-based confrontations. On these beaches the social order of class in everyday life was reproduced, meaning beachgoers from the hillside barrios were expected to stay in certain areas and wealthy visitors in other areas. Ethnographic studies have also noted that observable and unobservable boundaries are socially constructed by surfers along lines of local versus non-local (Daskalos, 2007).

Others observe that beaches offer spaces for political struggles to organize. Beaches have been interpreted as what Soja (1996) refers to as a third space, where first space is a specific place and second space is a conception of that specific space. This is because of the positioning of beaches on the edge of societies where spatial practices may be more open to interpretation. For example, residents camped and organized their political resistance on Gaza beach during the intifada of al-Aqsa (Junka, 2006). While their political identities and activities weren’t oriented around the environment per se, the beach provided a space for group members to organize their resistance and was deeply entwined with their livelihood.
Other identity-related literature on organizing around beaches has focused on people organizing to clean up beaches and coasts. The intertwining of identity and environmental action on the coast has been explored in the context of surfers. Surfers have been described as more likely than others to engage in positive environmental behaviors, such as cleaning up coasts and recycling amongst a sample of surfers in Florida (Hill & Abbott, 2007). Surfers in the United Kingdom have also organized to promote the cleanup of beaches and reduce sewage, calling themselves Surfers Against Sewage (Wheaton, 2007). Thus, there is some connection here to political ecology issues of environmental subjects and identities, although this research hasn’t explored the related political economic implications of these actions.

Beaches are impacted by management approaches and social constructions of beach spaces that are based in gendered, classed, or raced-based ideas about who has the right to use the beach. While this literature is limited it suggests that beaches are the material products of politics, however the political grounds are not even and the imbalance in power benefits one group over another. Examples from Guyana (Pelling, 1999) and Suriname (Nijbroek, 2012) suggest that efforts to restore beaches and protect urban communities can unjustly benefit the sustainability of one group over another. But critical interrogations of the just sustainability of urban beaches in the global north are less well understood. Urbanists such as Matthew Gandy (2002) have established that New York City parks represent a “modern pastoral,” meaning parks are both material elements in cities and are also a commodity that relate to the abstract idea of capital accumulation. But whereas Gandy (2002) focused on the Central Park landscape, Rockaway Beach presents a dynamic socioecology where the sustainability of the very place is in question. Therefore, in addition to considering the commodification of Rockaway beach, this dissertation considers Julian Agyeman’s call to, “… ensure a better quality of life for all now;
and into the future, in a just and equitable manner, whilst living within the limits of supporting ecosystems” (2002, pg. 5).

**Purpose**

This dissertation uses the restoration practices that occurred on Rockaway Beach following Hurricane Sandy to investigate shifting ideas about the beach and the unequal power relations that served to produce the material space following this catastrophic event. Management typically focuses on a top-down strategy or even a collaborative strategy that gives primacy to the beach as a mechanistic system. Instead this dissertation gives primacy to the beach as a socioecology, an assemblage of human and non-human actors.

The restoration of Rockaway Beach following Hurricane Sandy provides an opportunity to observe conflicts over the social construction of the beach—ideas over the physical form of the beach and ideas about the interrelatedness of the human and non-human actors that are enrolled in urban coastal networks. Setha Low (2013) describes just public spaces as places where there is distributive, interactional, and procedural justice. If we apply this framework to previous beach research we can recognize that justice in public beach contexts has primarily been interpreted through the lens of cultural uses in the American context (i.e. leisure, access for recreation, etc.), and political (i.e. political organizing, see Junka (2005) for an example) or resource extraction (i.e. fishing or other food, see article about Maori people for example) in indigenous or aboriginal contexts. However, research on beach environments, often the topic of natural resource management, has not considered the social production of this highly contentious public space.

In the next chapter I introduce the methods that I used to investigate this case. I then provide material and social histories of the Rockaway peninsula to situate the modern restoration
practices within the historical management of the beach and the Rockaway community. I begin the dissertation with a critical environmental history of the Rockaway peninsula and Rockaway beach to situate the later analysis of the restoration practices after Sandy within a socio-historical context that is still present in material form and in the discourse that people use to describe the beach. In the chapters that follow the critical environmental history I delve into the discourses of the many actors involved with the reconstruction of Rockaway beach and their material-semiotic practices because it is in these practices that this dynamic interplay is presumably most visible. In addition, I examine the many human literal/littoral practices that overlapped and conflicted, and that together with non-human actors assembled to shape the beach during the two years following Hurricane Sandy.
Methods
This is an ethnographic case study documenting the response of experts and the lay public as they interpreted the meaning of Rockaway beach following Hurricane Sandy through their own expertise and personal experience, contextualized within my observations and readings of literature produced by these groups.

Rockaway beach is a 6.2-mile long public beach along the Atlantic coastline of Rockaway peninsula extending off of the Long Island coast (figure 2.1). The larger Rockaway area is one of many urban coastal communities that were significantly impacted by wave inundation and flooding from Hurricane Sandy on October 29, 2012. This beach is a particularly rich site for study because it consists not only of the public beach itself (which in turn includes installations such as piers and boardwalks), but also because this public beach lies between the Atlantic Ocean and many other forms of “real estate”—privately owned residential lots, businesses, publically owned housing, institutions, poor neighborhoods and wealthy neighborhoods, as well as streets, roads and transit systems.

Flooding and coastal storms are expected to exert significantly greater impact upon the Rockaway peninsula as sea levels rise (Gornitz, Couch, & Hartig, 2002). People in Rockaway are aware of, and in ways in some sort of “denial” about, this threatening future. But these future threats of sea-level rise and the dangers and destruction that it promises to bring to the people of Rockaway sets the context of this study.

**Why Rockaway?**

New York City may seem like an unlikely place to study a beach and beach community, but there are several reasons that make Rockaway an ideal site of study. First, Rockaway has a history of 200 plus years of intense human/beach interaction. It is the largest public beach in New York City, at 6.2 miles long. In addition to its size, the beach is significant because it is quite costly to keep up the beach through beach replenishment efforts. More money has been allocated over the past 100 years to beach replenishment efforts in Rockaway than any other beach in the United States (Western Carolina University Program for the Study of the Developed Shoreline; discussed in greater detail in Chapters 3 and 5). Furthermore, the communities that live on the Rockaway peninsula are heterogeneous in terms of race and socio-economic status (discussed in greater detail below and in Chapter 4). The significance of the site in terms of the overall cost and effort put into its physical construction, and the wide range of people who live near the beach, make Rockaway an ideal place to understand different ideas about the beach and the social production of beaches more generally.

**Geographic Context**

Rockaway beach is managed by many city, state, and federal government agencies. The designs and structures of beaches in and around metropolitan New York were a product of grand societal gestures made during the Robert Moses era (Kaplan & Kaplan, 2003). Kaplan & Kaplan
(2003) describe that Moses himself wanted Rockaway Beaches to be publicly accessible for city residents as a reprieve from summers in the heart of the city. Though Rockaway beach is a borderland on the edge where New York City meets the Atlantic Ocean, it has been maintained as a primarily residential and southern-Queens neighborhood.

Weather is an important part of the Rockaway beach environment, for both its impacts on the beach and its impacts on people. Summer months in Rockaway can be hot, but bring a light onshore breeze along with millions of visitors. From September to December, water temperatures start to fall, about 2-months behind the air temperatures. But it is during this ‘Hurricane Season’ when storms that develop off the southern tip of Africa whip up wind energy and move up the east coast of the US, at times making landfall in the mid-Atlantic coast. More commonly these storms weaken in strength, but still lead to sizeable waves that surfers welcome in exchange for what they typically describe as fickle surf. There have been several hurricanes that have remained in local memory, especially Hurricane Donna, which was the last storm where residents recall ‘the bay meeting the ocean.’ This meeting is flooding that happens because of storm surges that are an additional consideration for Rockaway residents. These storm surges occur as water is pushed towards the coast, leading to higher high tides on both the Atlantic side and even higher tides in the inner harbor in Jamaica Bay. Such surges can occur in named hurricanes and winter storms, but can also occur in heavy rain or snow events any time of the year.

Hurricane Sandy was one of the worst storm events in the area’s history. The storm decimated coastal communities in the metropolitan New York City area through significant wave inundation and flooding caused by a record storm surge, exacerbated by moon related tides, that was four feet higher than the previous high water mark during Hurricane Donna in the 1960’s.
Hurricane Sandy’s storm surge led to the deaths of 38 people in New York City, severe home fires and other property damage, and the loss of electricity and the inability to communicate for days and in some cases weeks after the storm. In addition, Sandy was the second costliest storm in US history, with an estimated $19 billion of damage in New York City alone. Although all Rockaway residents were affected by the storm in some form, the impacts that the storm had on the daily lives of individual Rockaway residents varied mostly based on their neighborhood location and socio-economic status. For example, there was significant flooding and destruction of homes in the higher-status western end of the peninsula that are more vulnerable to future flooding because they are closer to sea level. However, the community on the eastern end of the peninsula is mostly lower income; people living in public housing projects struggled to find food and to restore their residences after the storm. Therefore, both communities suffered from Sandy, but the particular ways that the storm affected them differed by factors such as housing, socio-economic status, and topography. The Rockaway community and the city and federal government were involved in the restoration of Rockaway beach more than two years after the storm.

Research Questions

I focus on the restoration practices and social discourses used to describe the beach to understand the political ecology of Rockaway Beach after Sandy. This research follows Robbins (2011) suggestions to, 1. Focus on the discourse and social construction of a political ecology and 2. Understand how human and non-human actors engage in the production of a space through a process of co-production. Furthermore, rather than causal or hypothesis testing research this work emphasizes interpretation and theorization.

This research is guided by the following research questions:
1. What are the historical human and non-human factors that have created the present coastal geography and how do they impact the present situation?

2. Where and how are knowledge and power currently situated, and how do affected communities participate in restoration practices?

3. What are the dominant discourses about beach restoration practices, and how do these discourses conflict with each other?

4. How are current restoration practices decided, and what can be learned from the processes of different practice groups to improve future efforts?

Data Collection

This dissertation did not follow the linear trajectory that is frequently described as producing rigorous hypothetico-deductive research, nor was that the intention of this work. Rather, this dissertation is the result of several years of ethnographic work during which I was a research assistant on two separate research projects. This dissertation represents the synthesis of those two projects, while engaging in theory and methods wholly separate from either of these projects.

In one project, I was Extension Associate in the Civic Ecology Lab at Cornell University, under the advising of Keith Tidball, Ph.D. This study, Landscapes of Resilience, lasted from April 2013 to September 2013 and used ethnographic methods to learn about emergent stewardship responses to Hurricane Sandy in Coastal New York. This included interviews with fifteen key-informants using a semi-structured interview protocol looking at type of stewardship and how participants described the meaning of their work to them (Appendix A), participant observation and fieldwork at several dozen greening events and stewardship sites, and archival analysis of relevant organizational documents and popular media. That effort framed stewardship practices as part of a social-ecological system. We sought to understand emergent stewardship
practices and how those efforts related to the social-ecological resilience of the system where they were responding. The research questions for that research were as follows:

*Research Question (RQ) 1. In what ways have residents engaged in civic ecology practices in coastal New York post-Sandy?*

*RQ1a. How do residents describe the role of the living elements that they engaged with in terms of their recovery from Sandy?*

*RQ1b. How do residents describe the value and meaning of these civic ecology practices post-Sandy?*

In the second study I was a Research Assistant to Leigh Graham of John Jay College from September 2013-June 2014. This work, Rockaway Recovery Post-Sandy, utilized participant observation (at community board 14 meetings, NYC Parks planning meetings, NY Rising meetings, and other community meetings), in-depth semi-structured interviews of residents about Post-Sandy perceptions of the restoration efforts in Rockaway along with their experiences during Sandy and their interpretations (along with my own probing questions about the beach) of the Rockaway recovery (Appendix B), and archival research of Rockaway’s newspaper, The Wave, and other media about Rockaway recovery. In this project we used a pragmatic approach, an attempt to learn about and improve disaster programs and policies. The research question guiding this work was:

*RQ1. How do perceptions of post-Sandy government recovery and rebuilding programs vary across the Rockaway peninsula in Queens, NY, a geographic community characterized by neighborhoods sharing similar environmental vulnerability but differing according to ethno-racial and socioeconomic measures?*

This dissertation represents for all intents and purposes a secondary data analysis of this material. The result of these two projects was several hundred pages of field notes, nearly a hundred hours of interview material, and a large body of secondary source material. But this material came from two disparate disciplines, one from natural resources management and the
other from public policy. The challenge for me, then, was to analyze these materials using my own lens, political ecology, that is based in the disciplines of Geography and Anthropology.

This work represents what has been termed an eco-ethnography (Capek, 2010). I draw on theory that recognizes that there is no difference between the agency of humans and nature because they are relational and enmeshed with one another (Pickering, 1993). I use Van Hoorweghe’s (2012) model of a dissertation that employed an eco-ethnographic approach focused on Jamaica Bay and so begin first with a critical environmental history of the socioecology before describing present day conflicts and attachments. This dissertation incorporates an environmental history to learn about the social and natural history of the area in order to situate the examination of the present day land and people on it (Capek, 2010). To this I add the political ecology hatchet and seed approach (c.f. Robbins, 2011) by taking apart and critically explaining the dominant narratives and practices, and exploring alternatives to these approaches for Rockaway Beach.

**Participants in Semi-Structured Interviews**

We sought a number of key informants who made up a ‘purposive’ sample in both of these studies (table 2.1). I read and coded transcripts from interviews with key informants that were members of the Rockaway community who were informed about the area and the issues there. The people who I spoke with included residents of Rockaway and nearby communities that were concerned with the restoration of Rockaway Beach and that were politically or civically active, involved with environmental, community action groups, or other community or government agencies. In addition to the formal interviews I conducted several hours of informal interviews while in the field at public events and conferences. In my formal and informal
interviews I incorporated questions relating to the meaning and uses of Rockaway beach, as well as the restoration work that was being done.

Specifically, in the stewardship study, key informants for dune stewardship were first identified through exploratory interviews, and if found to have particular insights into the process, were asked to conduct an open-ended interview. Key informants in the second study were residents who are civically active (e.g. civic associations, Queens CB14, and other committees) or who are known to have particular knowledge of issues facing Rockaway beach. These participants were identified during participant-observation, through media, and through “snowballing.” These informants were strategically sampled, in an attempt to get a wide range of peninsula-wide voices that represented the many communities that lived on the Rockaway peninsula (table 2.1).

<table>
<thead>
<tr>
<th>Neighborhoods, From East to West</th>
<th>Side of Rockaway</th>
<th>Total Interviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Far Rockaway</td>
<td>East</td>
<td>8</td>
</tr>
<tr>
<td>Bayswater</td>
<td>East</td>
<td>1</td>
</tr>
<tr>
<td>Deerfield</td>
<td>East</td>
<td>0</td>
</tr>
<tr>
<td>Edgemere</td>
<td>East</td>
<td>5</td>
</tr>
<tr>
<td>Arverne/Sommerville</td>
<td>East</td>
<td>9</td>
</tr>
<tr>
<td>Arverne by the Sea</td>
<td>West</td>
<td>0</td>
</tr>
<tr>
<td>Rockaway Beach</td>
<td>West</td>
<td>4</td>
</tr>
<tr>
<td>Rockaway Park</td>
<td>West</td>
<td>9</td>
</tr>
<tr>
<td>Belle Harbor</td>
<td>West</td>
<td>5</td>
</tr>
<tr>
<td>Neponsit</td>
<td>West</td>
<td>0</td>
</tr>
<tr>
<td>Rockaway Point</td>
<td>West</td>
<td>0</td>
</tr>
<tr>
<td>Breezy Point</td>
<td>West</td>
<td>2</td>
</tr>
<tr>
<td>Broad Channel</td>
<td>N/A</td>
<td>1</td>
</tr>
<tr>
<td><strong>Other location:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long Island</td>
<td>N/A</td>
<td>5</td>
</tr>
<tr>
<td>Brooklyn</td>
<td>N/A</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>N/A</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td><strong>52</strong></td>
</tr>
</tbody>
</table>

Table 2.1. Key Informants by Neighborhood/Location
In order to attempt to adequately address the socio-political context in Rockaway, I conceptually separated the neighborhoods into east and west based on political, socio-cultural, economic, and racial characteristics (discussed in greater detail in Chapter 4; figure 2.2). I attempted to interview equal numbers of respondents from each section of the peninsula (East $n=23$, West $n=21$; table 2.2), because of the differences between those communities that I discuss in chapter 3.

Figure 2.2. Rockaway West. Adapted from, Google Earth.
Participant Observation

Participant observation involves spending time in a place or at an event and playing close attention to the activities, interactions and general culture of the people there. In Rockaway, I observed people at planning meetings, during stewardship events, and at the beach to try to understand the cultures of the communities in Rockaway and that use Rockaway Beach. While at public planning sessions I was also involved in asking participants about what they thought about Rockaway Beach and what they wanted the restoration to achieve. I attended many hours of community board meetings (Community Board 14), planning meetings, community/neighborhood events, engaged in site visits to Rockaway Beach, visited organizations involved in Rockaway restoration, and spent time in the homes of residents to understand what it was like to experience and respond to Hurricane Sandy, over time.
Method | Data
--- | ---

**Participant Observation** | Field notes on community meetings, civic ecology practices, and other events relating to the recovery/reimagining of the Rockaway coast. These notes also capture my own affective experience and learning about dune stewardship.

**Interviews** | *Exploratory Interviews*: Initial interviews with residents and certain key informants were used to generate general themes for further inquiry. *Semi-structured Interviews*: These interviews followed semi-structured interview protocols (Appendix A and B)

**Archival Data** | *Secondary Print Sources*: This included secondary print sources such as documents produced by stewardship groups, newspaper articles (from the Wave and NY Times), and social media (produced by various people and groups identified during fieldwork).

*Table 2.2: Data collection methods and data, by category*

**Archival Data**

In addition to direct observation, I gathered archival documents including maps, policy reports, newspaper articles (from local and New York City newspapers such as The Rockaway Wave, The Rockaway Times, and The New York Times), social media, personal and organizational blogs, and working papers from individuals, non-profits, and government agencies. These were primarily modern documents created and accessed during my fieldwork with a small number of newspaper articles and reports dated back to the turn of the 20th century. Finally, I utilized physical traces mapping to document the beach restoration projects and their scope of work. This involved walking the site and reviewing print materials, field notes, and interviews for geo-spatial information to document the spaces of formal and community-led stewardship and activism (table 2.2).

**Data Analysis**

The data analysis involved several key components. All key-informant interviews were digitally recorded and then transcribed into written documents. This text along with the text of
field notes and ‘pdf’ versions of archival documents were then transferred to Atlas ti.7.0, a software program for analyzing qualitative data.

There were several phases to this project’s data analysis using Atlas.ti. For the first phase of this work, a summary highlighting the general themes of the interviews, field notes, and secondary data were drawn up (Braun & Clarke, 2006; Miles & Huberman, 1994). I wrote summaries about the major discourses and restoration practices of Rockaway beach. During that effort I differentiated the informant transcripts based on whether they were from the east or west sides of the peninsula (described in more detail in chapter 3), if they were involved in stewardship activities, or worked for a city/state/federal agency involved in the restoration efforts. I then looked among all of the texts for similar ideas among these communities in order to identify shared discourses about the beach and restoration. These themes were used to establish points of convergence or conflicts, and divergence between practices and participant narratives to complete the process known as triangulation (Denzin, 1978; Low, 2005). The analysis of this material allowed me to critically examine, for instance, how place meaning, power, politics, and expertise are leveraged in beach restoration narratives and practices. This was important to ensure that these themes were valid categories. This first phase is called descriptive coding and was an attempt to document and categorize the breadth of opinions stated by my various informants (Saldaña, 2013).

I took these codes and compared what people were saying with concepts from political ecology using a theoretically focused coding strategy (Braun & Clarke, 2006; Saldaña, 2009). I took concepts related to ideas about people’s relationships to nature, governance, and power and sought to understand categories and configuration among the first phase of coding using these
political ecology themes. That strategy led me to the organization and thematic focus of the chapters.

**Positionality and Research Approach**

I am a surfer and my interest in Rockaway beach began because of my interest in the waves and water there. As a surfer, waves are the focus of my fascination and how I categorize the beaches that I want to visit. Often, I surf in places where there isn’t a beach at all and instead sharp and slippery rocks that don’t offer much in a way of ‘towel space.’ Instead, what I care about is the orientation of sand or rocks underneath the water. The shape of the sea floor leads waves to have different shapes and to break differently. Rockaway had a good break for me to surf and that is how I was introduced to the beach and the peninsula. I began to travel to Rockaway in 2010 from my apartment in Brooklyn because it was the closest place to surf. There, next to the last rock groin on Beach 87th Street, are where waves break in a shape that I like because they aren’t too steep. If that area was too busy, I would go to the other section of beach designated for surfing, on Beach 67th Street. And so over time, I began to develop a love for those sections. I would stop and get a slice of pizza from Boardwalk Pizzeria (Beach 67th Street), some wax from Boarders (a local surf shop on Beach 92nd Street), or a coffee from Surfside Bagels (on Beach 96th Street) and so also began to develop a connection with neighborhoods near my favorite surfing spots. That relationship with Rockaway and my interest in surfing shaped how I understood the beach. From my own emotional entanglements, I expanded to meet people from around the peninsula and began to understand the different communities that live on Rockaway in the weeks immediately after Hurricane Sandy.

This dissertation and the analysis herein is imbued with both my relationship to the beach and surfing culture, as well as with my emotional attachments to the people and non-human
aspects of the coast there. As a white male with reddish-blond hair, it was quite easy for me to
gain the trust of the Irish-American community in western Rockaway. It took more time for me
to make connections with the black community in eastern Rockaway, and to some degree I never
felt fully trusted there. Therefore, my interpretation of the communities in Rockaway and their
experiences should be understood, as partial and only ‘true’ in so much as they are my
experiences with other people.

Despite the fact that I surfed in Rockaway regularly starting in the fall of 2010 other
surfers in the water that lived in Rockaway always viewed me as an outsider by. This was
something that was challenging in my initial work focused on surfing and this outsider identity
became an even more challenging hurdle to overcome in the work on this dissertation post-
Sandy. Because although I had been surfing in Rockaway for over 2-years when the storm hit, I
still lived in Brooklyn. In fact, I was not in NYC during the night of Sandy, but rather visiting
my fiancé at her home in Providence, RI. During the two years of this study I was employed as a
research assistant on two projects. Those projects are the sources of the data for this dissertation.
And although I am proud of the work that we did on those projects, I was nevertheless an outside
researcher of which I was one of at least a dozen that were studying the Rockaway community
after Sandy. Although I probably never shook that role, I embedded myself in the community.
Attending community events, lectures, stewardship events, and found other ways to support the
community. In many ways it was easy for me to perform as an insider in west Rockaway, as my
reddish blonde hair and beard and blue eyes represented the insider ethnicity in this mostly Irish
section of neighborhoods. But for that community, as well as the Black and Jewish communities
on the east end of the peninsula, I struggled to break the fourth wall with residents and thus the
data from this dissertation represents my interpretations of the Rockaway recovery as an admiring outsider.

As mentioned in the opening section of the introduction, I went out to Rockaway in the weeks following Hurricane Sandy to map needs and services there. Although this work was not a part of my official data collection, it is at this point that I began to keep a notebook about my experiences in Rockaway and began to track the local media (i.e. subscribed to The Wave). I was connected with two organizations through those initial efforts, Rockaway Youth Task Force (Far Rockaway) and Rockaway Waterfront Alliance (Arverne). I subscribed to their emails, followed them on Facebook, and attended events related to the work of both of these groups.

Formal research (i.e. interviews) began in April 2013 as a full-time research assistant to Professor Keith Tidball, Ph.D. of Cornell University on a project entitled, ‘Landscapes of Resilience.’ I was hired to conduct research to document civic ecology responses to the Hurricane Sandy disaster in New York City and surrounding areas. I was directed to use mixed methods (interviews, participant observation, document review, surveys) to examine civic ecology practices of memorialization, organizational partnerships (governance), social learning, ecosystem services restoration, and monitoring of impacts. Furthermore, I looked at multiple sectors defined by natural resource management (e.g., community gardening, community forestry, oyster restoration, pocket park replanting, wildlife habitat restoration). This effort led me to identify groups in Rockaway as well as many other locations in other boroughs of New York City and Nassau County. However, given my interest and knowledge of Rockaway and the significant impacts experienced there, I took a special interest in Rockaway. I used my connections in the surfing community there to make contact with groups that were working on environmental activism on the peninsula (i.e. Smallwater) and also beach restoration (i.e.
Rockaway Waterfront Alliance, Surfrider Foundation NYC, etc.). Beginning almost immediately in March 2013, I volunteered at beach grass planting events in Breezy Point, attended programming with Rockaway Waterfront Alliance, and visited the MoMa/PS1 Dome that was installed in the months following the storm to function as a temporary community gathering space on Beach 95th Street in Rockaway. This research was oriented around stewardship efforts and so key informants were primarily professionals from the different sectors described above, although the focus on community gardens also led me to interview residents. We concluded data collection in September 2014, although we pursued additional interviews and participant observation of community gardens into Spring 2014. As a result of the emphasis of this research on emerging stewardship practices, the spatialization of the material and cultural context of Rockaway did not play a role in the research approach for that project.

Just as I was concluding work on this study, I began a part-time research assistant position with Professor Leigh Graham, Ph.D. of John Jay College, in September 2014. We employed similar ethnographic methodology as the work with Dr. Tidball (i.e. semi-structured interviews, participant observation, and analysis of media). Instead of emphasizing practices, this effort sought to compare recovery experiences across a range of population groups in Rockaway. We were interested in wide-ranging topics such as civic engagement, the role of government in the recovery efforts, resident perceptions of the recovery progress, and the recovery priorities of the different actors. During interviews I was also able to ask about resident relationships and ideas about the beach and Jamaica Bay. It was in this study that the spatialization of the socio-cultural, material and topographical context of the Rockaway peninsula and beach began to be a focus of the research.
When I joined Dr. Graham in this research effort she had already begun to identify potential key-informants that were activists in Rockaway that had a high professional or public profile, ‘grasstops,’ that she gained access to through a previous research assistant that was from the Belle Harbor neighborhood in Rockaway. Our first group of interviewees was a snowball sample of grasstops that were suggested by a Community Board 14 member from Belle Harbor who the previous research assistant knew. These key informants yielded other informants from the west side of the peninsula. Yet, we sought informants from the entire peninsula that represented a range of socio-economic and ethnic backgrounds, especially public housing resident council members and tenant association leaders in private, low-income housing. Through peer-referral we were eventually able to interview five of the six tenant association leaders, although our final sample of forty resident interviewees (forty-eight total, eight interviewees were non-residents) was over-represented by Breezy Point, Belle Harbor, Rockaway Park and Broad Channel residents (seventeen), slightly over-represented by residents from the neighborhoods of Rockaway Beach and Arverne (fifteen), and under-represented by residents from Far Rockaway and Bayswater (eight). Research and data-collection for this project ended in June 2014, however I continued to track media in the area and continued my informal engagements with the people and organizations that I had come to know through this writing.

It was not until after the data collection period with these two projects that this dissertation took on a political ecology frame. I compared the data that I had collected in these two projects, one on community stewardship practices and the other on community activism and engagement. Each of these studies and body of data included information that looked across scales of practices. And in each there were conflicts that informed interpretation of data from the
other. And so, through an iterative process of data analysis and writing I began to focus on an analysis of the ideas and practices of beach management in the two years following Hurricane Sandy that was grounded in a critical reading of ideas about and management of Rockaway Beach. In particular, I investigated how power and social diversity were accounted for in the reconstruction efforts and whether what was materially produced equitable and just results.

**Setting**

Rockaway beach has been managed by the New York City Department of Parks and Recreation (NYC Parks) as public beaches from the perspective of the traditional beach user. NYC Parks manages 6.2 miles of Rockaway’s Atlantic coastline, which is the nearly the entirety of the coastline that fronts the public communities in Rockaway except for neighborhoods east of Beach 9\textsuperscript{th} Street. As a result of their efforts to serve the ‘beach user’, the beach had been raked clean of debris including plants in all but a few sections. Easy access to the beach and the Atlantic Ocean, along with providing a number of other recreational opportunities, has been the priority for NYC Parks managers of Rockaway Beach. These included barbecuing, baseball fields, basketball courts, bathrooms, eateries, fitness equipment, handball courts, playgrounds, roller hockey, skate parks, spray showers, and volleyball courts. In the summer, swimming was (and still is) allowed only in lifeguarded sections, and as described above, two two-block sections of beach have been managed for surfing (Beach 62\textsuperscript{nd} to Beach 64\textsuperscript{th} Streets and Beach 87\textsuperscript{nd} to Beach 92\textsuperscript{nd} Streets).

The surfing sections are particularly unique insofar as they are the product of an effort from local surfers and the New York City Chapter of the Surfrider Foundation. Although illegal before 2005, there is evidence that surfing has been done in the Rockaways as far back as the early 20th century (Warshaw, 2005). Before 2005, it was illegal to surf in the Rockaways
because of a provision in the State’s health code from 1850 that prohibited visiting the beach unguarded, while surfing was illegal on guarded beaches altogether. Local surfers, with the help of local congressmen and Surfrider Foundation NYC, successfully lobbied for the creation of Rockaway Beach’s Beach 87th to 91st Street, to become the first legally surfable beach within New York City limits in 2005. In addition, the overturning of this provision meant that surfers could surf anywhere they liked in the Rockaways before and after the lifeguard shifts, as well as in the offseason (October 1- April 30), without needing to be concerned with police harassment. In 2007, at the requests of the Rockaway surf community, a section of beach along Beach 67th-69th Streets was added as a second surf-only beach because of surfer preference for the wave shape there (Stoppard, 2007).

Despite Sandy’s physical and social impacts, the beach was as popular as ever in my two years engaged in fieldwork, with more than three million visitors to Rockaway beach in summer 2013 despite the fact that much of the boardwalk was gone (Nessen, 2013b). People continue to come by car and subway (and ferry for a short-lived period post-Sandy) to Rockaway beach just as they have for the last 150 years. Visitors and residents who travel by car must choose to drive over one of two toll bridges, or around Jamaica Bay and past JFK Airport. Those without a car take the A-train, entering the Rockaways coming south over Jamaica Bay, forking at about Beach 84th Street; the Beach 116th Street A-train heads west toward Rockaway Park and makes stops at Beach 90th, Beach 98th, Beach 105th, and Beach 116th Streets; the Far Rockaway A-train heads east towards Beach 67th, Beach 60th, Beach 44th, or Beach 36th Streets but by the time it reaches Far Rockaway it is inland, away from the beach (figure 2.4). This train also demarcates Rockaway East and Rockaway West, because travelers are literally separated at Broad Channel and take either a train that goes east or a train that goes west in Rockaway.
Tourist activity on the beach is focused in the center of the peninsula. Because there are no parking lots or boardwalk west of Beach 116th Street, the majority of the beach activity in this section is residents from the area. The main parking area for the beach is on Beach 95th Street (referred to by locals as “Beach 95th”) directly off of the Cross-Bay Bridge. That parking area and the boardwalk and boardwalk islands congregate visitor activity in the sections of beach in front of the neighborhoods of Rockaway Park, Rockaway Beach, and the western portion of Arverne ending on Beach 57th Street. Starting in the summer months an area between Beach 57th and Beach 44th Streets is cordoned off for piping plovers and is designated as a Forever Wild5 site (figure 2.5).

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5 NYC Parks describes the Forever Wild Program as, “an initiative of the New York City Department of Parks & Recreation to protect and preserve the most ecologically valuable lands within the five boroughs. The 51 Forever Wild Nature Preserves include over 8,700 acres of towering forests, vibrant wetlands, and expansive meadows. These vital open spaces are home to thousands of critters, including flying squirrels, bald eagles, and fascinating rare plants. They also give New Yorkers and visitors the chance to walk in the woods, paddle a stream, or observe wildlife with family and friends.” NYC Parks (n.d.b)
Figure 2.5. Rockaway Beach/Arverne Shorebird Preserve. Image from, NYC Parks (n.d.b).

From Beach 44th Street easterly to Beach 32nd Street the beach is open to beachgoers. But this area infrequently sees visitors because there are no lifeguards and because it is situated along an undeveloped, littered section of land that is sometimes a body-dumping site. A school and
then beach bungalow community front the sections of beach from Beach 32nd to Beach 24th Streets and some social activity from those neighborhoods are common in those sections, although no lifeguards are positioned here. The remainder of the beach is tucked behind Silver Point, which is the westernmost end of Long Beach Island, and forms the East Rockaway Inlet. The inlet is dredged for navigation and is also spanned by the Atlantic Beach Bridge. This section is extremely popular in the summer and is used by a diverse set of local users, including residents from apartment complexes situated along the beach to Beach 17th Street, and others that come from greater distances. O’Donohue Park and other NYC Parks-owned facilities front the remainder of the beach, to Beach 9th Street, and parking is available there. Lifeguards are on duty in this section of beach and yet there is a lot of controversy about swimming safety because the beach falls off abruptly due to scouring in the inlet. There are reports of people drowning in that section of beach, including a tragic story of three girls trapped in the surf and drowning in 2001 (Jones, 2001). Visitors to this section of beach are frequently from the orthodox Jewish community who live in the section of Far Rockaway that they have taken to calling ‘West Lawrence’, in reference to the Long Island community of Lawrence just east of Rockaway. There are also three residential towers there, one of which is city-owned housing for the elderly who are vulnerable to storm impacts.
With the addition of public housing the racial and social spatialization of the beach becomes apparent. Whereas public swimming beaches are primarily on the western end, public housing residents on the east end of the peninsula have over a mile and a half of beachfront blocked or off limits to swimming. This is because of historical and institutional decisions that led to the undeveloped section known as Arverne East and also public housing to be clustered in one place. This has created different material circumstances of the beach and the east and west ends of Rockaway (figure 2.6).

The official “beach season” runs from May 1 to September 30th. During this season, lifeguards are spread along the beach in two-block sections. These guarded sections are the only places where swimming is allowed. In these sections, no floatation devices such as body boards or surfboards are allowed, nor is fishing allowed. However, these are the most popular areas where masses of people congregate, especially on warm weekends in the summer. From west to east, the beach is primarily “residential” (that is West of Beach 116th Street due to lack of
parking and end of the A train), then a staffed public swimming beach, a surfing beach, the piping plover protected area, and public but unstaffed beaches where swimming is not allowed, and finally a beach and park on the far western shores. Other programmed beach spaces are surfing areas, which are from Beach 67th to Beach 69th Street and from Beach 87th to Beach 92nd Streets. In addition to these programmed spaces, a large section of beach from Beach 57th to Beach 42nd Streets is fenced off during piping plover mating season, April to September (figure 3.16). Sunbathing, people watching, recreation and flirting are the primary activities that you will find at Rockaway Beach in the summer months.

Visitors tend to congregate in the various sections of beach that have lifeguards are also sections that are easily accessible to the A-train. As a result, visitors from outside of Rockaway tend to congregate toward the Beach 80th to Beach 90th Streets, with additional locations such as the Beach 60th Streets and Beach 116th Street areas also popular because they are programmed for swimming, easily accessible from the A-train, and have comfort stations nearby.

During the off-season October 1-April 30, the social use of the space changes drastically, primarily marked by the fact that during these months visits to the beach wane significantly, although records of visitor numbers are not kept during the offseason. Residents refer to the late edge of the beach season (especially September-October) as the “locals season,” when the water and air are still warm enough to swim and sunbathe, but crowds are much less common. Late fall-early spring it is easy to find the beach relatively deserted save the hearty and those desperately seeking solitude, especially because strong offshore winds often blow during these months.
“Toys and Thanksgiving Turkeys”: Divisions among the many Rockaway communities

The overwhelming public image of Rockaway—especially that espoused by residents on the Queens Community Board 14 during my fieldwork—is oriented towards the beach. At the same time the neighborhood of Far Rockaway [part of Rockaway East] has high rates of unemployment and the public housing projects in the eastern neighborhoods of Rockaway are marked with an unfortunate history of gang violence (Kaplan & Kaplan, 2003). The differences in experience between Rockaway residents during Sandy are a result of the way that communities on the Rockaway peninsula vary by the social divisions described above, although the neighborhood makeup is slightly more complex than simply east and west. At the far eastern edge of the peninsula is a majority middle class Jewish population. Adjacent to that Jewish community are six public housing developments and many subsidized private housing developments. Many poor or working class African American, Asian and Hispanic families reside in these housing developments and in the neighborhoods of Far Rockaway, Bayswater, Edgemere, and Arverne. Public housing residents in Rockaway are particularly vulnerable from a public health perspective. Recent studies have shown that there are high rates of heart disease, obesity, depression, and asthma, with low rates of access to care among these Rockaway residents (Al-Sheri et al., 2012). The neighborhoods of west Arverne and others west of that are majority white Irish, Italian, or Jewish residents of middle or upper-middle class socio-economic status.

While opinion varies as to the degree of separation between Rockaway East and Rockaway West communities, one respondent from Rockaway East described the challenge in these terms:

To be honest there is a wall. The end of the peninsula they have been very giving to us. Toys and Thanksgiving turkeys. St. Francis had the first relief center there… There is a wall, a dichotomy. After Beach 112th or 116th Street, there is a different world there.
Sometimes as a community we try to make a hole in that wall. I think it’s on the basis of affluent neighborhoods. Maybe fear, I don’t want to say prejudice or guard their own neighborhoods. It was always that way. They are very kind. They bring turkeys on thanksgiving and they always send toy drives. But stories about when people of color were getting into things, they were pushed back. There is a wall. The most affluent communities don’t want to be involved. Perhaps the reasons why, the mentality, I don’t know, I don’t want to speculate. FEMA got here 10 days after the storm. We were one of the last places to get attention. This area has always been forgotten, this area. (personal communication, Rockaway East resident, 2/26/2014)

New York City is broken out into community districts, which are represented in city governance by community boards. Comprised of members appointed from among community district residents, the community boards have advisory roles in budgeting, land use review, and other aspects of local governance. The Rockaways and Broad Channel Island lie within Community District 14. The Rockaway peninsula is also home to six civic associations, which are differentiated by neighborhood boundaries. Separate from these civic associations are the five public housing projects, which each have a Resident Association that is elected by formal election processes.

These civic associations are joined by several other organizations in Rockaway that represent the various racial and ethnic constituencies. The Jewish population in ‘West Lawrence’ organizes around synagogues and other Jewish organizations, young people and people of color in the eastern portions of Rockaway have joined Rockaway Youth Task Force and Rockaway Waterfront Alliance, and others concerned with social justice issues throughout the peninsula have organized groups such as YANA and Rockaway Wildfire. Real estate developers also play a visible and vocal role in Rockaway politics, in particular the developers of all 310 acres in Arverne. Harkening back to the Rockaway Association of the 1830s, a new round of developers working primarily in Arverne have developed homes and businesses catering to a wealthy clientele, and have recently shifted to building for a broader market in Arverne and other sections.
of Rockaway to the west of Arverne.

**Rockaway West**

The Rockaway West identity is a complex amalgamation of a rootedness to the community, an attachment to the beach and a dependence on it as a way of life, mixed with bitter feelings of being forgotten and lacking adequate services. I was able to trace this mixture of traits as far back as 1917, when Bellott, writing the first popular history of Rockaway, made the case that Rockaway was a desirable resource that had not received adequate attention from city government in the building of transportation facilities and other infrastructure. Most present day Rockaway West residents trace, or would like to trace, their genealogy back to include several generations of Irish-American Rockaway inhabitants. They often told me stories of parents or grandparents who came at the turn of the 20th century to live near the ocean. This was the ‘heyday’ of Rockaway, many told me. The starkest example of the Rockaway West in-group is an even more specific group, in the far western edge of the peninsula, who live in the neighborhood of Breezy Point, aptly called “the whitest neighborhood in the city” in one New York Times article (Scott, 2001). In these groups of people, one’s insider/outsider status is socially relevant.

Social ties in Rockaway West are organized by race and ethnicity. Although I saw no overt examples of racism, the nearby community of Broad Channel (situated in the center of Jamaica Bay and included in the western Rockaway census) was in the news in 1998 for a parade float called “Black to the Future, Broad Channel, 2098.” New York Times reporter Clyde Haberman (2003) reported that at least two New York City police officers and two New York City firemen manned the float. The float, reportedly, “showed one of the men mimicking a horrific hate crime: the June killing of a black man in Texas, dragged behind a pickup truck by
three white men” (Haberman, 2003). But despite this, Haberman (2003) quoted several residents stating that they did not agree with labeling the incident as racist. Prior to these events William Kornblum published several essays on the practices of racial segregation in Broad Channel and along the Rockaway peninsula more generally (Kornblum, 1988), and also on the beaches of Rockaway with an emphasis on Jacob Riis Park, part of the Gateway National Recreation Area (Kornblum, 1975; 1983). In those texts, race and class are the lines whereby residents drew neighborhood boundaries along with defining patterns of beach use. Kornblum’s studies (1975; 1983; 1988) and Yardley’s reporting (1998) suggest that in the 1970’s, 80’s and 90’s there was a general tone of racial segregation and overt racism in the community of Broad Channel and the beaches of Jacob Riis Park, Plumb Beach, and Breezy Point. Their work did not extend into the area of this study, the Rockaway communities or the NYC Parks-owned beaches in Rockaway.

Like Breezy Point and Broad Channel, the other neighborhoods in Rockaway West are comprised of white, middle-class Italian, Irish, and Jewish residents. Many residents are public safety employees, particularly the New York Police Department and Fire Department. As a result, this community lost 70 residents to the events of September 11\textsuperscript{th}, 2001 (Boyle, 2002; Barnard, 2011).

Rockaway West was the site of a plane crash when American Airlines Flight 587 crashed into the Belle Harbor neighborhood November 12, 2001; just two months after 9/11. In response, the residents came together in various settings to support one another, leading Boyle (2002) to argue that these disasters strengthened the ties and resolve of the community. Likely, the connections and networks established through coping with 9/11 and then Flight 587 had some impact on the ability for Belle Harbor to respond and deal with Hurricane Sandy.
Many residents of Rockaway West are of the opinion that they are not being heard by the New York City administration, grumbling that Rockaway was a ‘dumping ground’ for the city’s less fortunate residents. As one Rockaway West resident put it,

All the housing projects…Rockaway has its burden and we have its share and it also kind of diminishes our ability to be politically active. It's putting more people on us, diluting our ability to be strong with these guys like [Assemblyman] Phil [Goldfedder] and everybody else. He's putting more people out here that aren't going to vote and they aren't going to be required to tow their own life and just more burden on the police department. We want a quality to life. We deserve it. Those who are here, let's take care of what's going on for the people that are here. They just keep dumping program to program to program. (personal communication, Rockaway West Resident, 2/12/2014)

While not all Rockaway West residents share these views, the above quotation does represent the dominant narrative.

**Rockaway East**

The residue of that narrative--a ‘them and us’ perspective--meant that residents of Rockaway East felt unwelcome at many community gatherings.

[The NYPD Precinct Community Council Meetings] they’re more geared to the people that live like I say in the homes…because we have gone to community council meetings and people actually have not wanted to sit next to us. Yes, they do not want to sit next to us. (personal communication, Rockaway East, 3/12/2014)

This outsider feeling that Rockaway East residents describe contrasts with the reality that more residents live on the central and eastern portions of the peninsula than live on the western side. Although the economic vulnerability of these communities is often the central focus of writing about the area, eastern Rockaway also has a very connected community of black residents who organize through their religious, neighborhood, and political affiliations. Far Rockaway, once the playground of New York City elites, is now the most densely settled, poorest section of the Rockaways. In addition, the eastern end of the peninsula is home to some of the most
economically vulnerable populations, including low-income residents of public and private housing projects and nursing homes.

The large public housing projects built in the 1940’s are all located at this end of the peninsula. These buildings make up more than a quarter of all low-income housing in Queens (Schwarsfeld, 2008).

Dissertation Structure

Three themes of discourse and practices emerged that were each oriented around a shared repertoire of resources and are discussed in separate chapters in this dissertation. The three overarching types of practices include: US Army Corps of Engineers (Army Corps) berm restoration efforts; NYC Parks beach restoration efforts; and community led dune stewardship practices. Each of these themes/practices relate to overlapping but different tensions relating to people and nature. I describe each of these practices and their related social discourses in separate chapters. In the following chapter, I begin with a critical environmental history of the Rockaway peninsula.
The deep inlet which formerly swept straight between the point of the beach and Barren Island was moving in a westerly direction year by year, and the peninsula was rapidly being added to by the enormous sand deposits made by the ocean. Many millions of dollars’ worth of property have in this manner been added to the westerly end of the peninsula and of late years modern dredging and filling in appliances have been brought to work by real estate operators, who have availed themselves of Dame Nature’s kindness and augmented her efforts to give them land by bulk heading it, in order to prevent it getting away again and, by filling in sand from ocean and bay, made it up to a suitable building grade. (Bellot, 1917, p.102)
During the initial weeks and months following Hurricane Sandy the communities on Rockaway were focused on survival and restoring what they had so that they could live. After several months many residents and non-profit organizations also started to have discussions about how the community could respond to the disaster in a way that would preserve and bolster the community. One of these conversations was held by Rockaway Waterfront Alliance on the community space of a low-income housing cooperative in the evening of May 5\textsuperscript{th}, 2013. During that evening Walter Meyer, a landscape architect, surfer and part-time Rockaway resident told the audience about the ecology and geomorphological history of the area (Figure 3.1). On that evening he described what he thought the audience would have encountered on the peninsula in 1491. He walked the audience through the peninsula as a cross-section from south to north. He described a primary dune on the edge of the beach with a lower trough area, also called a swale, behind that. North of the swale would have been a higher and more stable secondary dune that had what he called a spine or rib system. Further north would have been the lowest point on the peninsula; a rainwater bog full of fresh water and at the back of the peninsula would have been a bay dune. Although much of this system is no longer visible in the developed areas of Rockaway, Walter reminded the audience that we could still see the remnants of this substructure. He pointed out that neighborhoods in the beach blocks of Rockaway are higher and lower in line with the topography of the substructure and that the flooding that is so common on Rockaway Blvd. is due to its position in what was the rainwater bog lens. This presentation communicated quite effectively that despite the fact that high-rise apartment buildings have been built in place of secondary dunes, the peninsula is still a part of a coastal ecosystem and is therefore impacted by coastal processes. Academics in the Natural Resources discipline would
refer to this as a social-ecological system, highlighting that there are nested social and ecology aspects that are bound within and influenced by one another.

![Double-dune profile from Local Office presentation. Image from Rockaway Waterfront Alliance (2014)](image)

As a reminder to the reader, I refer back to the coastal processes that impact Rockaway that include wind, tides, currents, waves, accretion and erosion, shoreline recession and shoreline advance, and sea level rise (Army Corps, 2007, table 3.1). These coastal processes are considered in relationship with sand. For example, the wind blows across the sand leading to the migration of sand and dunes. Tides lead to currents that pull sand from the beach and deposit it either down the shore or offshore. Wind creates waves that grow in size with greater wind speeds and longer distances as the wind blows across the top of the water, called fetch. Waves move sand along a beach, through what is called “Littoral Drift” or “Longshore Drift;” any wave that comes into the shore at an angle moves a tiny bit of sand. Big waves, such as those during Hurricane Sandy, also pull sand off of a beach leading to either accretion (the build up of sand) or erosion (the loss of sand). Accretion can lead to shoreline recession as sand builds up and
waves break farther out, while erosion can lead to shoreline advance as waves break farther and farther inland. Finally, as sea levels rise inland areas are exposed to this process. These processes would occur whether or not people were present, but people do not necessarily want all of these processes to occur.

<table>
<thead>
<tr>
<th>Process</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind</td>
<td>Produces currents and waves and also picks up and moves sediment on the beach and dunes.</td>
</tr>
<tr>
<td>Tides</td>
<td>Rise and fall depends on local physical conditions and the gravitational effects of the sun, moon, and earth – generate currents.</td>
</tr>
<tr>
<td>Currents</td>
<td>Formed near the beach through a combination of wind, tides, waves, and the shape of adjacent sand bars. Currents can move large volumes of sediment along the beach or to deep water offshore as a littoral or longshore drift.</td>
</tr>
<tr>
<td>Waves</td>
<td>Those that break during calm weather cause turbulence, which stirs up sediment from the shore bottom.</td>
</tr>
<tr>
<td>Accretion and erosion</td>
<td>Refer to changes in sediment volume in a coastal area.</td>
</tr>
<tr>
<td>Shoreline recession and shoreline advance</td>
<td>Refer to a change in position of the shoreline, farther landward and farther seaward, respectively.</td>
</tr>
<tr>
<td>Sea level rise</td>
<td>Exposes areas farther inland to the coastal processes that move sediment.</td>
</tr>
</tbody>
</table>

*Table 3.1. Coastal Processes. Table adapted from Army Corps (2007)*

The Rockaway peninsula is at the mercy of a littoral drift, which is a sandy beach geomorphological process that pulls sand leeward along the shoreline (Maun, 2009). This means that before human settlement, the space now known as Rockaway beach would have been shifting as currents and storms pulled sand down the shore and into offshore shoals. Drastic changes in land are of course unacceptable from the perspective of a property owner. For, who would pay to own a piece of land that could disappear after a strong winter storm? Therefore, the Rockaway of today is an environment held in place with rock groins and continuously nourished with sand to retain a continuous property with familiar attributes such as a beach, boardwalk,
streets, businesses, and homes. The present property relations have their roots in the Rockaway’s sandy beach shoreline that initially drew city visitors in the late 1800’s. Both the material space and the ideas that people have about the beach are based in a historically contingent process.

**The Urbanization of Rockaway**

This chapter documents the history of the urbanization of the Rockaway peninsula beginning with a focus on sand. Rockaway is made almost entirely of sand west of the neighborhoods of Far Rockaway. Although much of the peninsula now has a crust made of blacktop with bulkheads on the Jamaica Bay shoreline and rock groins on the Atlantic shoreline to hold its form, Rockaway is still at its core a barrier beach. This barrier beach fronts the Long Island mainland and very much functions as a barrier that protects southern Brooklyn and southern Queens neighborhoods from experiencing the brunt of storm surges and other storm-related impacts. However, whereas the Rockaway peninsula once took the brunt of these storms with the main consequence being a shifting of the geomorphology of the sandy shoreline, today these storms threaten over 120,000 people who call the peninsula home.

People have attempted to engineer the beach in Rockaway so that roads and homes are fixed in their position and do not retreat with erosion. Instead of building to work with the coastal processes described by the Army Corps in the above table, the area has been built to maximize real estate interests, as described by Bellot (1917) in the quotation that introduced this chapter. The peninsula has been bulk-headed in an effort to profit from the real estate created by these efforts, as Bellot says, to control “Dame Nature.” The implication is that, “real estate operators,” as Bellot names them, were working against nature in order to make money from that control, capitalistic accumulation. Since Bellot’s time, a particular configuration of the sediment
of Rockaway Beach that seems “natural,” in fact represents certain ideas about the relationship of people to the beach system.

The peninsula west of Far Rockaway moved so dynamically that a geographic history of the peninsula before European settlers can only really highlight movement of sand. A history of Queens, published in 1882 described exactly that issue,

The beach at Far Rockaway and for many miles east and west is undergoing frequent local changes. Many times the surf washes away several rods in width during a single storm, and perhaps the next storm adds more than has been removed by the preceding one. The sea often makes inlets to the bays and marshes and as often fills up others, and for this reason if for no other it is impossible to correctly give a geographical history of this section. (p. 172)

However, the larger barrier beach ecosystem that includes Jamaica Bay and the shifting sands of the Rockaway peninsula has been a humanly significant place for generations of inhabitants of the area.

The Reckouwacky community of Lenape people situated their chief village at Near Rockaway, approximately at the present Rockville Centre, in Nassau County (Bellott, 1917). The terrain between Near Rockaway and Far Rockaway is labeled Rockaway Neck on older maps. In historical times the beach and peninsula were a minor adjunct to Rockaway Neck. Landscape ecologist Eric Sanderson suggests that around the time that Henry Hudson (1609) first sailed by what would later be called Rockaway beach and Jamaica Bay, the peninsula was less than a mile long. The beach and Rockaway Neck were once a unified territory rather than split off as the peninsula is today by the New York City municipal boundary. All this territory was valuable to the Lenape because it comprised an arable upland region between two bays teeming with food resources, Hempstead Bay and Jamaica Bay; also to the Dutch and English settlers and farmers who came later.
Bellott (1917) attributes the name of Rockaway to a corruption of the Lenape people’s name for their territory, Reckouwacky, which has been translated by some to mean “the place of our people,” and others to mean “the sandy place,” although other meanings have been suggested.

Historically Jamaica Bay is as significant or more significant a resource than Rockaway Beach. Until European settlement, the Lenape mainly used the meadows and marshes on the Rockaway peninsula for ceremonial purposes and for whaling. The European settlers also practiced whaling off the beaches until the early nineteenth century when their descendants developed the whaling ships. Both whites and Native Americans scavenged from the many shipwrecks along the beaches.

The importance of Jamaica Bay appears in Henry Hudson’s exploration of New Netherland: when Hudson sailed into Jamaica Bay in 1609 the reactions of the crew were recorded in a journal by one of his officers, Robert Juet. Juet describes a place of great bounty of flora and fauna, “many salmons, and mullets, and rayes, very great” (Juet, 1609 as quoted in Steinberg, 2014). Heaping piles of oyster shells were around the bay, monuments to the Lenape harvest. It appears that Jamaica Bay had great significance to the Lenape because it was a highly productive source of fish and shellfish (Bolton, 1922), especially for oyster harvesting (Black, 1981; Kurlansky, 2007). Down to the twentieth century Jamaica Bay played a central role as source of food and as a resource that fueled the rural economy of the surrounding towns (such as Hempstead, Jamaica, Flatlands, and the many settlements and villages within those towns). Farmers would harvest salt hay and seaweed to fertilize their bayside farms. Fishing and shell fishing in the bay—and other coastal waters around New York—were important to local economies until around the 1920s when the pollution concerns led to restrictions.
Although western Long Island was sold to the Dutch in the 1640’s, the Lenape continued to live near Rockaway and pay rent for the use of the peninsula in the form of bushels of wheat for more than forty years. But in 1685, the Lenape decided to sell, or were forced to sell their interest in Rockaway Neck (the uplands that included land where Far Rockaway is currently situated), to a Captain Palmer as a representative to the King of England (Bellot, 1917). After two years of legal battles with the town of Hempstead, which claimed rights to Rockaway Beach, Palmer obtained the title and quickly sold it to Richard Cornell, of the wealthy Cornwall/Cornwell family whose descendent founded Cornell University (Bellot, 1917).

The sale of the peninsula to Cornell marks the transition in conceptualization of human settlement on Rockaway from transient to permanent. Following the sale of the land, Cornell quickly had a family home built in high ground in what is now known as Far Rockaway. This is the first large structure on the peninsula and the property included a large farm maintained by a great many servants. Following his death, Cornell’s next of kin divided up the land into parcels that were either developed by them or sold to other interested parties (Bellot, 1917). This parceling would lead to the eventual development of utilities, banks, and civic, educational, and religious institutions.

The peninsula, then part of Hempstead town in Queens County, would remain a relatively remote and sparsely inhabited settlement until 1833. It is in this year that the Cornell homestead property would once again play a key role in Rockaway development, this time specifically relating to the development of beach use, when Cornell’s descendants sold it to the Rockaway Association (RA). The RA purchased land for the purposes of developing it and building a grand hotel on the exact site where Cornell’s home once stood (Bellot, 1917). The Marine Hotel, as it
was later called, gained popularity with the Manhattan elite for a number of amenities, including bathing at what was then called Roche's Beach.

![A Dip in the Ocean at Roche's Beach, Far Rockaway](image)

**Figure 3.2. Roche’s Beach in early 20th Century.** Image from Bellot (1917)

In 1833, Roche's beach was a private beach fronting the Marine Hotel, in what is now Far Rockaway. Offshore Hog Island provided access to the Atlantic waves and water by way of a bridge and even included summer residences, but was washed away in a fall storm in 1893:

During a great storm in the fall of 1893, the outer beach disappeared beneath the waves and every vestige of it and of all the buildings upon it was totally destroyed. Where one day had appeared this excellent pleasure resort of many thousands of people, which thousands of dollars had been invested upon, next day nothing was to be seen except an unbroken surface of water. Father Neptune had claimed his own again, but fortunately had taken no toll in human lives. (Bellott, 1917, pg. 95)

The fact that this island no longer exists is an early hint of the temporality of this space.
On the mainland, the Marine Hotel offered the well-to-do opportunities for recreating on the coast, in the style of that day. The Marine Pavilion was built to support the act of bathing. At this time, bathing was an incomprehensibly cumbersome activity compared to today. Bathers were, “provided bath horses on wheels after the English style. In these, bathers changed their dress, were pulled into the surf by horses hitched on” (Bellot, 1917, p. 85). Although the Marine Hotel was destroyed by fire in 1864, the Rockaways had gained enough fame as a popular place to escape the city for the wealthy that development on the peninsula was inevitable.

By the 1880s, a steam railroad stop was built to accommodate travel to and from Manhattan by the Long Island Railroad because of the increasing popularity of Rockaway in the summer (Bellott, p. 104). This ease of access meant that there was a large population of commuters who traveled to Manhattan to work. This also led people to build homes meant for year-round residence. This popularity even inspired massive public works proposals, such as the infilling of Jamaica Bay in order to ease transportation to the peninsula (Black, 1981). But
immediately west of the old Cornell property, what would eventually be called Far Rockaway was a large swath of low-lying sandy marsh that prevented the train from crossing. For example, a sandy marsh and an inlet known as Norton’s Inlet often flooded and was used by boats to get from Jamaica Bay to the Atlantic Ocean. That inlet was filled in to form what is now known as Edgemere.

But just before that infilling west of the inlet, the neighborhoods of Rockaway Beach and Rockaway Park were developed. Following the construction of a hotel in the Hammels area, others followed suit, attracting thousands of visitors a day that accessed the beaches by taking a boat across Jamaica Bay or by carriage from Far Rockaway. By 1872 a steam railroad had been built across Edgemere and to Rockaway Park.

Back east toward Far Rockaway, four houses were built in Arverne in 1882 followed by a short section of boardwalk in 1886, and finally the sandy marshes in Edgemere filled in to build three homes in 1892 (Bellot, 1917). During this burst in building a massive hotel was constructed in the early 1880’s, the Mammoth Rockaway Beach Hotel, however the developers ran out of money before it was completed and it was dismantled in 1884 to help build other residential and commercial properties. More building included the construction of Iron Side pier at Seaside, near today’s Rockaway Beach neighborhood (not to be confused with the sandy Rockaway Beach), on the Atlantic shoreline.

All of this was an attempt by real estate speculators to make their land desirable for real estate development. They did so by flattening their land and prepping it for homes to be built on top. “…Owners set men to work leveling sand dunes, filling holes, clearing up and straightening the old sand path and making the property more attractive to intending purchasers and home seekers” (Bellot, 1917, p. 98).
With the consolidation of Greater New York in 1898 the western towns in Queens County, including Flushing, Newtown, and Jamaica, were dissolved and incorporated into the new expanded city. Far Rockaway and the peninsula were taken away from Hempstead town and incorporated within Queens Borough as part of Greater New York. The eastern Queens County towns of Hempstead (including Near Rockaway), North Hempstead and Oyster Bay, became Nassau County. The remainder of Rockaway Neck remained within Hempstead and was incorporated into the new Nassau County. After the consolidation of Greater New York the bay became less significant and the beach more. This appears to be partly due to increasing interest in beaches as recreational and leisure spaces. And now that the peninsula belonged politically to New York City rather than remaining as part of its immediate geographical context, it became a place for capitalists and city administrators to use for their gain, either to profit from real-estate development or to dump the urban poor, place landfills around the bay, and later to build an airport over the salt marshes.
While this urbanization in Rockaway was an economic boon for speculators, it was an ecological bust for Jamaica Bay. By the turn of the twentieth century, particularly in the neighborhoods of Rockaway Beach, Rockaway Park, and Far Rockaway, economic prosperity for developers came with a precipitous decline in the ecological health of Jamaica Bay. By 1910, Jamaica Bay was so polluted that the consumption of oysters, then a significant source of food in and around New York, was leading to cases of typhoid and were deemed not suitable for human consumption (Stiles, 1912).

By the early 1900’s attention from real estate speculators turned towards the Rockaway peninsula and Rockaway’s beach in particular. Rockaway was characterized as “one of the most...
popular summer playgrounds and breathing spaces on the Atlantic seaboard” (Bellott, 1917).

Ambitious projects meant to drive tourism were developed at grand scale, including an iron pier that extended 1,300 feet into the Atlantic Ocean (Bellott, 1917). Recreation at the beach was also more popular than ever. For example, the famous pioneer surfer Duke Kahanamoku introduced surfing to Manhattan residents during a surfing exhibition at Rockaway Beach in 1912 (Warshaw, 2003). During this time, Far Rockaway was the most populated of the neighborhoods in Rockaway that combined with Bayswater continues to be today. For the next two decades Rockaway would develop a beach community with low-lying bungalows and other accommodations for New York City residents (then a term reserved only to residents of Manhattan Island) to escape the city for a summer at a time.

Although the heyday of Rockaway was in the turn of the 20th century, the 1929 stock market crash significantly decreased tourism to the area and thus eroded the economic basis for the Rockaway community leading to a rearrangement of property owners. At least in part because upkeep of the beach and coastal infrastructure at the time was mishmash of public and private property owners and these owners were vacating their properties, the coastline of Greater New York became integrated into the NYC Parks Department in the 1930s. In preparation for this, the Borough of Queens Parks Department (each borough had a separate Parks Department from other Boroughs until 1929; NYC Parks, n.d.a) began to construct the Rockaway boardwalk in 1920 out of tropical hardwood, including teak, cumaru, and greenheart from Brazil and Guam. The Parks Department also constructed rock groins in the Hammels section of Rockaway, and a more extensive network of wood groins, to contend with beach erosion common to the peninsula (c.f. figures 3.6 to 3.9).
Unfortunately, the construction of the boardwalk and draw of a public beach was not enough to revive the economy of the Rockaways. By the 1960s, many of the beachside bungalows that had originally been made for 3-season use had become subsidized housing where landlords had low-income residents sleeping in garages and other spaces with little or no heat or running water (Kaplan & Kaplan, 2003). The Housing Act of 1949 provided the necessary federal subsidies and backing to support urban renewal in Rockaway that had been of interest to Robert Moses. This act allocated federal financing for slum clearance programs associated with urban renewal projects in American cities, and the extension of federal money to build 810,000 public housing units. Faced with a growing need for inexpensive housing from returning war veterans and black southerners migrating north, the New York City administration, including Robert Moses, set their sights on Rockaway (Kaplan & Kaplan, 2003). By 1965 Robert Moses had procured enough support from the administration to bulldoze bungalows in several hundred acres of oceanfront property. And although some of this land was quickly redeveloped into high-rise developments to accommodate the needs of public housing residents, over 308 acres of ocean front land in the Arverne section of Rockaway were never developed.
Figure 3.5. “Arverne Renewal Area” Pre-1924 and 2012. Images from New York City Department of City Planning (n.d.)

This beachfront section of Arverne has been a focus of the New York City Department of Housing Preservation and Development (HPD) for the last several decades. In 2001, the Beechwood Organization was designated as the developer of the area between Beach 62\textsuperscript{nd} and
Beach 81st Streets. Following Sandy, HPD has sought and awarded the development of an additional 81 acres called Arverne East. Awarded to Swedish Firm White Arikitectur, their proposal called ‘Small Means and Great Ends’ seeks to turn the area “into a resilient and affordable urban development for the community” (White Architecture, n.d.). They link to the growing interest in surfing in the area by suggesting that, “The community must develop a symbiotic relationship with the environment, similar to how a surfer rides the waves” (White Architecture, n.d.). As of this writing, the development had yet to break ground.

This and previous efforts haven’t directly benefited the individuals who live in the public housing projects in Rockaway East, which have many of the social and cultural scars from the City’s highest rates of crime and violence in the 1970’s and 1980’s. The struggle and turmoil experienced by these residents is the result of what Kaplan and Kaplan (2003) characterize as a ‘forced ghettoization by the sea.’ Kaplan and Kaplan (2003) go on to describe how they interpreted the city administration’s lack of concern about the consequences of their work on the people sent to live in Rockaway,

The negligible political fallout from the warehouse approach to poverty on this isolated peninsula led politicians and bureaucrats to conclude that they could make decisions with impunity in peripheral areas involving people who were invisible to the larger population. Shipping problems off to a distant place was the equivalent of sweeping them under the carpet. From the perspective of city officials, it did not matter that the carpet grew bulky. The Rockaways became a convenient disposal outlet for inconvenient individuals and families. (p. 188)

In turn here are accounts of reified ethnic, community and class divisiveness inherent to the rockaway community played out on the beaches in Rockaway (Kornblum, 1975). But this dissertation is about more than just the social activity on the beach or the peninsula. It is also about the physical infrastructure of the beach and peninsula and how that relates to the social ecology. And so in the next section I describe the history of coastal infrastructure in Rockaway.
Coastal Infrastructure In Rockaway

Although NYC Parks manages the beach the Army Corps has authority over erosion control and the ‘betterment’ of the beach. The Army Corps has been engaged in beach replenishment practices—largely by pumping sand from offshore—in Rockaway since 1930. This has come at a huge cost, for which the beach has gained the unenviable title as ‘The Most Expensive Beach in America’ (Nessen, 2013a).

The Western Carolina Program for the Study of Developed Shoreline has tracked Army Corps beach replenishment throughout the US since their efforts began (Program for the Study of Developed Shorelines, n.d.). This publication indicates that the 85 years of beach replenishment in Rockaway Beach by the Army Corps has cost $254,990,556 (in 2014 dollars). To put this in perspective this is 1/3 of the total cost of replenishment for the entire NY coast ($738,003,604) and is nearly the same as the cost of replenishment for the entire coast of California ($316,005,945). The director of this institute, Robert Young, has become well known following Hurricane Sandy for his calls to limit beach replenishment and building on the shoreline (Young, 2014).

It was during Robert Moses’ time that people actively became involved in the supply of sand to Rockaway Beach. Sand has both been sucked by barges from offshore and dumped onto Rockaway’s beaches, and strangely, has been ripped from Rockaway beach and taken by barge to create other New York City beaches. The US Army Corps of Engineers (Army Corps) supplied their first batch of sand to nourish the beaches to the area in 1930 because many sections of beach had eroded so much that high tide would wash seawater under the boardwalk. However, Robert Moses employed contractors to pull several million tons of sand from other
sections of Rockaway Beach to create a new public beach in Pelham Bay Park in the 1930’s (Steinberg, 2014).

The Army Corps has continued to hire contractors (such as Weeks Marine, that I introduce in Chapter 4) to complete beach replenishment activities in Rockaway since 1930. To date the Army Corps has dumped over 33 million cubic yards of sand during 35 different efforts (table 3.2). The beach has been nourished at various profiles in that time. The profile that the beach is presently being rebuilt to was first constructed by Army Corps in 1970, when they placed approximately 6.3 million cubic yards of sand from Beach 19th Street to Beach 149th Street. Smaller scale re-replenishment efforts continued until 2004. The dune profile, to which the NYC Parks Department aims to add an additional 4 feet in height, will be a 100-200 foot wide beach berm at an elevation of 12-16 feet above mean low water (Lau, 2013).

<table>
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</tr>
<tr>
<td>Length (Feet)</td>
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Table 3.2. US Army Corps Beach Replenishment Totals on Rockaway Beach, NY. Adapted from Program for the Study of Developed Shorelines (n.d.)

At some time, some entity (not NYC Parks or the Army Corps) also created a series of rock groins from Beach 87th to Beach 59th Streets roughly every 3 blocks. Using aerial images of the Hammels neighborhood in Rockaway, starting in 1924 we can see the impacts that both sand replenishment and more so hard structures have had on this same section of beach. By 1924, development up to the waters edge along with natural littoral drift meant that water was lapping at oceanfront homes and businesses and under the sections of boardwalk that had been built at the time (Figure 3.6). Just left of the middle of the picture one can make out what appears to be
an erosion control structure. This structure, most likely wood, has the telltale sign of a hard structure with a build up of sand on the windward side of the coastal revetment. On the leeward side, we can see the scouring process that is the reason that the Army Corps has since moved away from this practice when possible.

Figure 3.6. Image of Hammels Neighborhood, 1924. Image from New York City Department of City Planning, (n.d.).

By 1951, sand replenishment efforts and wooden groins had stabilized and widened the beach. Although it is unclear who built these groins, they were constructed during the same time that the NYC Parks built the boardwalk. The aesthetic characteristics of the beach and the nearby communities were reconfigured by these efforts because they literally drew a line in the sand. Where once the beach was rambling and appropriated by various ‘property’ owners, once the beach became the property of NYC Parks it was engineered to be contiguous with the parks property lines (figure 3.7).
By the 1990’s, rock groins line the coast from Beach 62nd to 87th Street (figure 3.8). Whereas wood groins extended only several dozen feet into the shore break, these rock groins now extend more than 100 yards and several feet above the water, depending on the tide. This form of revetment, and a series of Army Corps beach replenishment projects, created a beach more than twice the width of the beach mid-century. Even more impactful is the influence of urban renewal efforts in the Hammels section of Rockaway. In the left hand side of the image we can see new large-scale housing stock where small bungalows once stood. The big buildings in the lower left are the Dayton Towers, condominium complexes. Heading east, the image shows 310 acres cleared of all habitation. This is the Arverne renewal area described in chapter two.
In the 2015 image (figure 3.9), the beach has retained the same profile as that shown in the image from the 1990s. Of course, the reader knows that the boardwalk in this picture is in a tattered form, but from this scale/perspective little has changed in the coastal space. However, one can make out further development in the Arverne renewal area in the right hand side. This is Arverne-by-the-Sea, a development also described in Chapter 2.
In addition to growing the beach width wise, hard structures built on the Rockaway peninsula have also significantly impacted growth of the peninsula westward. Prior to the Civil War, the land west of Fort Tilden didn’t exist. This is due in part to the construction of a groin field consisting of wood groins along the Fort Tilden shorefront. Fort Tilden had been an outer harbor defense post since the war of 1812 and was expanded following the Spanish-American War, and thus this groin field was used to protect the land from erosion.

Additionally, in the 1930’s a rock jetty/groin was built in along the tip of what is now known as Breezy Point. This jetty was created to block sand and sediment from filling the Rockaway Inlet and the access to the NY harbor. These two actions worked in tandem with littoral drift to create and stabilize nearly 4-miles of the western end of the peninsula (figure 3.10). These actions and the other erosion control structures described above are the material practices that have allowed for Rockaway to become a place where property ownership is possible, but they are also the practices that have led to the development of a community on a barrier beach that is not able to shift in response to the coastal processes introduced at the beginning of this chapter.
Figure 3.10. Map showing the accretionary growth of Rockaway Spit. Image from U.S. Geological Survey (n.d.)

Rockaway Beach Management

Rockaway Beach has been the property of NYC Parks since 1920. Their primary role is to keep up the facilities of the beach, such as comfort stations, bathrooms, and spray showers, as well as to develop the programming of the space. Although Cranz (1982) argues that the US is now in the open space park system, where parks are planned and valued for their open space, Rockaway Beach’s material form and programming is very much rooted in the view of the park as a recreational facility.

The basic material form of Rockaway Beach as a park is based in the early form typical of the mid-Atlantic coast and New York City’s public beaches, with boardwalks and concessions lining the walk. The emphasis in this era was on a routine style of form, function and economic efficiency, which is highlighted by the similarity between Rockaway Beach structures and those found in Coney Island Beach and Boardwalk, and to a lesser extent South Beach in Staten Island.
The form is also influenced by the recreation facility era style, which was spearheaded by Robert Moses from 1930-1965 (Cranz, 1982). However, Jones Beach (to the East of Rockaway) and Jacob Riis Park (in western Rockaway) reflect the architectural forms that Moses pursued with greatest zeal inspired by art deco and other contemporary styles (figure 3.11). At these beaches he created massive parking lots and art deco bathhouses.

![Figure 3.11. Map of Jacob Riis Park (bottom left), Floyd Bennett Field (upper left), and Rockaway Beach (continuous area bottom center to right). Adapted from, Google Earth.](image)

Kaplan & Kaplan (2003) capture Moses’ feelings about Rockaway beach in a quotation from a Rockaway Chamber of Commerce publication:

> Such beaches as the Rockaways and those on Long Island and Coney Island lend themselves to summer exploitation, to honky tonk catchpenny amusement resorts, shacks built without reference to health, sanitation, safety and decent living. The better residential areas are threatened by spreading neighborhood blight. Finally after years of neglect ambitious ‘real estate’ people buy up the oceanfront from complacent politicians, build a boardwalk over high water and line it on the inside with junk. The City then has to buy back what the old townships once owned and what the original settlers fondly thought was inalienable, and so what was potentially a summer resort on salt water and the best year round residential community, lacking only convenient transportation, becomes in large part a slum, and finally a new generation of public officials faces the problems of rehabilitation of what should have never have been allowed to deteriorate. (p. 15).
In the above quotation Moses did not sugar coat his disdain for the way that Rockaway beach had developed. But it was not that he would rather there be no development, instead he thought it could be “a summer resort on salt water and the best year round residential community.” He blamed the “slums” that had developed in Rockaway because of people’s efforts to make money through real estate, and so sought to change that through (autocratic) planning.

But Moses was only partially successful in convincing other agencies to join him in his plans. This partial success is most apparent in the grand boulevard, Shorefront Parkway, that runs parallel to the beach from Beach 78th Street to Beach 108th Street that he intended to eventually connect all the way to Long Beach but never finished. The four-lane boulevard style parkway begins and ends abruptly with little functional properties. Other examples of a failure of Moses ability to complete his vision included the Arverne renewal area that was cleared of homes, but otherwise left undeveloped.

Despite the monumental effort to continue to bring sand to Rockaway, NYC Parks hadn’t successfully implemented a complementary beach grass program for Rockaway before Sandy. This is surprising given that Hurricane Sandy was not the first Hurricane or Nor’easter to significantly impact the Rockaway peninsula nor is it likely to be the last. However, the material form of Rockaway beach has already and is likely to be increasingly influenced by a new partnership between NYC Parks and the National Park Service. In July 2012, just months before Sandy, NYC Parks joined the Department of the Interior in developing a joint effort to manage

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6 There are a number of named and unnamed storms that have hit Rockaway. Major Hurricanes that have hit New York City that led to significant flooding in Rockaway in the last 200 years include the 1821 Hurricane (which cased the tide to rise 13 feet in one hour and washed away Hog Island off the coast of Rockaway), the 1938 Hurricane (the most powerful Hurricane to hit NYC, at category 3), Hurricane Carol (1954), Hurricane Donna (1960; created an 11-foot storm surge), Tropical Storm Agnes (1972), and Hurricane Irene (the first-ever mandatory evacuation of coastal areas). City of New York (n.d.)
the more than 10,000 acres of federally and city-owned property around Jamaica Bay (NYC Parks, n.d. a). This partnership was intended, “to encourage people to visit, learn about the area, and take advantage of all of its recreational activities.” The Jamaica Bay-Rockaway Parks Conservancy is a partnership intended to, “expand public access to the area, increase recreational and educational opportunities, foster citizen stewardship and volunteerism; preserve and restore natural areas, enhance cultural resources, and ensure the long-term sustainability of the parklands, including the development of the Science and Resilience Institute at Jamaica Bay.” The Jamaica Bay-Rockaway Parks Conservancy includes the properties managed by the National Park Service and NYC Parks in both Jamaica Bay and the Atlantic ocean-side beaches on the Rockaway peninsula (figure 3.12).
NYC Parks also utilized the partnership that it had developed with the National Park service just months before Hurricane Sandy. NYC Parks joined the Department of the Interior in developing a joint effort to manage the more than 10,000 acres of federally and city-owned property around Jamaica Bay (NYC Parks, n.d.a). This partnership was intended, “to encourage people to visit, learn about the area, and take advantage of all of its recreational activities.” The Jamaica Bay-Rockaway Parks Conservancy is a public/private partnership intended to, “expand public access to the area, increase recreational and educational opportunities, foster citizen stewardship and volunteerism; preserve and restore natural areas, enhance cultural resources, and ensure the long-term sustainability of the parklands, including the development of the Science and Resilience Institute at Jamaica Bay.” The Jamaica Bay-Rockaway Parks Conservancy includes the properties managed by the National Park Service and NYC Parks in both Jamaica Bay and the Atlantic ocean-side beaches on the Rockaway peninsula. This partnership began to push management of the beach to incorporate ecological aspects of the beach before Hurricane Sandy, in addition to the traditional focus on recreation. The partnership has promoted several initiatives including the Jamaica Bay/Rockaway Parks Restoration Corps that hired 200 local residents $11.11 per hour to work on cleanup and restoration efforts in Jamaica Bay. The Restoration Corps efforts included dune plantings and stewardship in Rockaway Beach. The National Parks of New York Harbor Conservation & Resiliency Corps also hired local resident young people to work on similar stewardship projects on Rockaway Beach an and other parks adjacent to Jamaica Bay.

The overall network of interests that includes the Jamaica Bay-Rockaway Parks Conservancy is shown in figure 3.13. Each of these groups has different interests in Rockaway Beach and their roles will be discussed in the following chapters. Each of these interests will be
drawn out in the following chapters to greater or lesser degrees depending on their role in the restoration. This figure is not comprehensive, but represents the prominent actors involved in the restoration of the beach. What will become clear is that the US Army Corps had a great deal of power because of their access to significant federal monies, but other human actors were also actively producing the space. Furthermore, and left out of this diagram, are the coastal processes and non-human actors described in chapter 1 and the beginning of this chapter that ultimately respond to and reshape whatever practices occur on the beach.

*USDA and USFS have no jurisdiction over any lands in New York City

Figure 3.13. The federal, state, city, and private agencies with jurisdiction and/or interests and involvement in the land and other natural resources in Rockaway Beach.

The Jamaica Bay-Rockaway Parks Conservancy is promoting some changes to the material form of Rockaway Beach through planting and stewardship of the ecological elements
on the beach, but this work and the larger material history of Rockaway beach is only the ecological aspect of the socioecology in Rockaway. While it is true that the health and well being of the ecology of the area relates to that of the people who live there, the overall socio-cultural context of the peninsula has progressed in disparate and important ways that were apparent following the impacts of Hurricane Sandy. The storm revealed the close ties between the shape and topography of the beach and the communities in Rockaway.

Sandy’s Impacts on the Rockaway Community

When Hurricane Sandy came ashore on the night of October 29th, 2012, the community had ostensibly entered the winter beach season. Beach towns typically see their numbers dwindle from the exodus of the *villegiateur*, a French term for the type of vacationer that takes to the mountains or seaside and takes up residence there for the summer and was a common practice in Rockaway in the early 20th century. However, modern Rockaway is primarily a year-round residential community. The peninsula is home to a relatively stable population of over 120,000 residents in all seasons of the year with only daily commuters retreating from the beach and tourists down for the day. Rockaway residents call tourists from outside of Rockaway DFDs, short for down for the day. Less frequently they used the term “shoebie” for these tourists, which is a phrase that came from the mid-to-late 20th century practice of carrying a lunch to the beach in an old shoebox. Residents in Rockaway West identified boundaries for who counted as a resident. The most common answer was anyone north of Ozone Park in Queens was an outsider.

The impacts of Hurricane Sandy were on residents in Rockaway and not tourists. But Rockaway residents are not homogenous. Instead, one could say that Sandy’s story in Rockaway is of two slightly different types generally differentiated between the same eastern and western Rockaway communities described above. For the purposes of the discussion of Sandy’s impacts,
I split the community along the lines of the NY Rising Community Reconstruction Program\(^7\) committees, Rockaway East and Rockaway West. Rockaway East includes the communities of Arverne, Edgemere, Bayswater, and Far Rockaway. Rockaway West includes the neighborhoods of Neponsit, Belle Harbor, Rockaway Beach, and Rockaway Park (figure 3.14).

There is a social divide on the Rockaway peninsula. The peninsula is often conceptually separated into east and west halves by residents and policy-makers. This bifurcating falls in line with gradation trends in ethnicity on the peninsula, with a high density of non-Hispanic white

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\(^7\) The NY Rising Community Reconstruction (NYRCR) Program is a participatory recovery and resiliency-focused initiative established by the New York Governor’s Office of Storm Recovery to provide assistance to 124 communities around the state that were severely damaged by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee (New York State, n.d.)
residents on the western end (78 percent white, 11 percent Hispanic/Latino, 8 percent Black/African American, and 2 percent Asian-Pacific Islander; US Census, 2010) and a higher density of black residents in the central (55 percent Black/African American, 24 percent Hispanic/Latino, 16 percent White, and 3 percent Asian-Pacific Islander; US Census, 2010) and eastern end (45 percent Black/African American, 26 percent White, 25 percent Hispanic/Latino, and 2 percent Asian-Pacific Islander; US Census, 2010). In addition to being whiter, residents are wealthier as you move from east to west as evidenced by owner-occupancy rates (figure 3.15).

![Figure 3.15. Owner-occupancy rates of the Rockaway Peninsula, 2010. Chart from, Graham (2016)](image)

One interviewee from Far Rockaway described the divide as night and day,

In a community that’s indigent especially in the 101 [precinct] it’s totally opposite of the western end when you look at the numbers, even the demographics. It’s 85 percent minority over here. The exact opposite over there as far as Caucasian and minorities. It’s like night and day, the average dollar of the income. You have five public housing developments on this Peninsula. That’s big. That’s isolation. (personal communication, Rockaway East resident, 5/2014)
As denoted by gradients of purple in the following map, Rockaway East experienced a great deal of flooding on the bayside in the Arverne, Edgemere, and Bayswater neighborhoods and little flooding on the Atlantic side (figure 3.16). Furthermore, Far Rockaway, which is built on the highest elevation on the peninsula, had relatively little flooding save the areas adjacent to the water.

**Figure 3.16.** FEMA flood map of Rockaway East. Image adapted from, Rockaway East Planning Committee (2013)

Rockaway West had much more flooding (figure 3.17). Again, denoted by gradients of purple, Rockaway West experienced bayside flooding from storm surge, but also storm surge levels >12’ on the Atlantic side. I was not surprised that this section of Rockaway was more prone to inundation because of its eroded beach and low-lying topography especially because of my knowledge of the material production of this part of the peninsula.

The settlement of Edgemere and all of the westerly end consists of sand, much of which has been pumped in to make a more solid foundation than was afforded by the sandy marshes, which existed before real estate developers and builders took a hand in the
matter. The other villages are on solid terra firma and lakes, woods and streams abound. (Bellott, 1917, p.8)

After Sandy, many homeowners in the Rockaway West section were unwilling to leave. And although Governor Cuomo’s administration offered a buyout program to purchase homes from community members here, not a single homeowner accepted this program. Quite contrarily, this group pushed back at suggestions that they should consider moving away from this place. One homeowner from this western Rockaway homeowner group described his frustration with the suggestion that they should move away,

I was upset that Bloomberg said- ‘That’s what you get when you’re living on a sandbar.’ 50-60 years ago they were selling this place! “Move to Rockaway. “ I can’t believe they would blame the people and community that lives in Rockaway. (personal communication, Rockaway West resident, 12/16/2013)
Just from a physical damage perspective from storm surge and flooding, Rockaway West appears to have received much greater impact from the storm and to be the community with the greatest need after the storm.

However, when storm surge levels are compared with socio-economic status the storm’s impacts take on a different meaning. The 2010 census data shows that the median income in Belle Harbor was $91,086 with 4.7 percent of the population below the poverty line, versus Far Rockaway where residents had a median income of $51,525 with 27.2 percent of residents under the poverty line. These communities experience a great disparity in access to socio-economic resources. For residents of Rockaway West, for whom home was a larger asset, Sandy was primarily an economic blow. “I'm not discounting all the terrible things that happened to people who were killed. I'm saying primarily, it was an economic thing “ (personal communication, Rockaway West Resident, 12/16/2013).

As pointed out by the Superstorm Research Collective (Cohen & Liborion, 2013), in addition to the direct impacts that the storm had on people with lower socio-economic status, the storm exacerbated issues relating to housing, transportation and employment that were concerns in Rockaway prior to the storm. Unfortunately, because there was less physical damage from the storm surge recovery efforts were slow to get to the eastern portions of Rockaway. Many of the residents that I spoke with from Far Rockaway and Bayswater, for example, mentioned waiting more than a week for help from formal emergency response agencies like the Red Cross as compared to areas in West Rockaway that they thought received much speedier assistance.

Discussion

In this chapter I outlined the changes in the Rockaway community and commented on how these coincide with the development of the beach. Whereas the beach has been an important
aspect of the Rockaway community for its role in the economic sustainability of the peninsula, drawing thousands of visitors daily during the summer season, and as a space for recreation for the residents themselves (Kaplan & Kaplan, 2003), the beach is also a space recognized as playing a role in the resilience of the community. Not all people are ‘equally vulnerable’ on the Rockaway peninsula. Some are more vulnerable because of where they live on the peninsula and how those sections have been manufactured through engineering. Others are vulnerable because of having limited resources. All are vulnerable because of decisions to build up the peninsula, develop homes and businesses, and to profit from the beach.

As of 2014, the Rockaway peninsula had a population of 114,978, with 33.77 percent of the population on some form of income support (City of New York, n.d.). Many still come to visit the Rockaways for leisure, and middle to upper middle-class residents, there is nearly a third of the population that is economically disadvantaged and in many ways isolated on the peninsula. Whereas for the wealthier residents, most of who live on the western areas of the Peninsula, replenishment of the beaches can protect the value of their homes and create space for recreation— the reason many of them moved to Rockaway. However, for the renters in low-income private or public housing, the relationship to beaches role is less clear. Nevertheless, as the realization has set in that storms and impacts from rising sea levels are anticipated to continue to worsen these storm surge events and that the Rockaway community is particularly vulnerable to these changes (Jacob, Gornitz, & Rosenzweig, 2007), ideas about the equitable benefit from the beach restoration of Rockaway beach have become highly contested by residents of Rockaway.
(CHAPTER 4)
Army Corps Practices and the Beach as Political Object
On an evening in early February 2013 I drove to the Knights of Columbus Hall for the Queens Community Board 14 meeting. This was the first meeting that an Army Corps representative was present and so it was well attended, standing room only. The community board members were seated behind tables shaped into a long ‘U’. They had separated themselves by neighborhood, as I would later learn they always do. People that weren’t a part of the community board, like myself, were seated in the chairs set up on the right side of the hall and many had to stand all around those attendees. The meeting was tightly run and we were reminded that anyone not on the community board that wanted to speak had to sign up on a sheet in the back of the room. The meeting began with the pledge of allegiance. The crowd stood and turned toward the southwest corner of the room where the flag hung and loudly proclaimed, “I pledge allegiance to the flag...”

Some initial items are covered, but they are moved through quickly to get to the main attraction, a talk by the Army Corps Representative for Rockaway, Dan Falt [Rockaway resident]. Dan began his talk proclaiming that “We’re getting sand!” to a loud applause. He then went into the details of the process of beach replenishment, some of which satisfied the community and some of which did not, as noted by the ‘boos’ and ‘jeers’ in the crowd. He was applauded when he talked about the timeline and the numbers; “an empire state building’s worth of sand” he proclaimed to the crowd. And more applause when he described that funding would no longer be an issue for coastal protection on the peninsula. He added that they are going to use that funding to make good on this “once in a lifetime chance to build this correctly.” But, he said over boos in the crowd, they will need to wait for the reformulation study to be completed in late 2015 before they could build any hard structures.

When he concluded his presentation, the community board members had the chance to ask questions and they came hot and heavy. “What’s the noise going to be like?”; “When can we get jetties?”; “What about the boardwalk?”; “Will others slow this down and how can you be certain there wont be roadblocks with this process?”... Someone shouted, “Give us rock jetties!” Others pushed for a seawall. It became clear that although there is money to support the building and engineers to plan the work, the community was wary of the promises being made.

After the community board members concluded their questioning a few more short presentations are made, amongst them New York State Assemblyman Phillip Goldfeder, who pleaded with the audience saying, “We need more turnout at meetings” to a loud applause.

Phil sat down and then residents that signed up at the start of the meeting were called up one by one to speak. Residents used this time primarily to state their opinions about what should be done. “We don’t need another study...jetties and groins are the only way to do it,” said one speaker. Another said, “Buyouts, hell no! I’m angry and we’re not gonna take it anymore...this cannot happen again!” Some argued that, “sand is a band aide” and Dan nodded in agreement. Many speakers also flexed their historical knowledge, bringing up storms and impacts as far back as the 1800’s along with previous “fixes” employed by the state and the Army Corps after these events.
It seemed that many residents were intimately aware of their relationship between coastal erosion and the Rockaway community. But residents claim, “No retreat!” and “I want to protect my home!” to great applause. Residents asked that the Army Corps coordinate with other agencies as well as the community and community leaders. The evening ended with those in attendance splitting up into groups to talk about what they had heard, and I drove back to Brooklyn.

I begin the chapter with the above field-note because it exemplifies the main theme of this chapter. That is the hierarchical and technologically oriented approach used by The Army Corps of Engineers, the lead Federal agency equipped with both a legal mandate and funding. Some people in the community organized to demand sand and rock groins and that appeal received a great deal of attention in the media and during community board meetings. Their ideas aligned with Army Corp’s protection of private property by engineering of the beach with hard structures. This was based in historically set precedents that maintained a separation between humans and nature. Not only that, but the claims made by Army Corps and those residents that supported its practices they too aligned with technologized practices and heavy equipment to engage in their work. This approach is in line with viewing the beach from what Escobar (1999) describes as a techno-nature, an attitude in which it is assumed that technology, such as engineering, is a solution to a problem.

In the following chapter I describe the Army Corps material practices along with how these practices are framed. I also describe the community’s response to these practices that was visible and in line with Army Corps’ approach. I highlight conflicts that arose from an argument based in science and the community’s perception of it.

**Army Corps Practices**

This chapter is significant because sand is the substrate that makes the beach. Sand is what people associate with the beach. Ask someone to recount a memory of the beach and they
will likely include sand in their recollection. Sand is also a form of coastal protection when it is mounded up. Although the far western shore of Rockaway is the beneficiary of a westward moving littoral drift that pulls sand from the Long Island shore and deposits it to the Rockaways. The peninsula has had most of its sediment pulled offshore periodically because of wave action from storms. In response, the Army Corps of Engineers has pumped millions of cubic yards of sand onto the beach over the last 85 years. The peninsula gets sand, but also loses it, so the Army Corps continues to pump sand and try to trap it to stay in place.

As described in chapter 3, the Army Corps is the federal agency that receives large amount of federal funding to build structural erosion and coastal protection, and the above beach replenishment is the primary way that Army Corps brings sand to the beach. On its website, the Army Corps described their approach to beach replenishment:

While coastal flood risk reduction is the priority, the Corps of Engineers is keenly aware of Rockaway Beach’s recreational, economic and historic value to the Rockaways as a whole — millions have made it their summer recreation area of choice for decades. In summer 2013, despite less-than-ideal conditions, more than three million people flocked to Rockaway Beach, one of the largest urban beaches in the U.S.

During construction, every effort is being made to minimize impact on recreation while ensuring public safety. Working closely with NYC Parks, which holds jurisdiction over beach closings throughout New York City, only 1,000-foot sections of beach will be closed at any one time. After an area is complete, it is re-opened to the public and work moves to the next section (each section takes approximately 7-10 days to complete). The last major beach replenishment in the Rockaways was in 2004; the Army Corps of Engineers has done smaller replenishments since then. (D'Ambrosio, 2014)

In the above quotation the Army Corps makes it clear that the intention is to reduce the flood risks. However, this work overlaps and in many ways impacts the economic and recreational aspects of the beach.

During Rockaway Beach reconstruction efforts, the Army Corps had power over other agencies because of its access to federal funding. The majority of beach replenishment projects
done in Rockaway have been entirely federally funded. The historic form of this work had the federal support to nourish the beach back to the original design elements that was defined in the 1970s. Similarly, the Army Corps responded to the impacts of Hurricane Sandy through beach nourishment. The Corps did so without community input. Instead, once federal funds were allocated to the project through the Sandy Relief Bill the Army Corps hired a contractor to bring the beach back to the original design. In Army Corps parlance, this was known as their statutory authority. This statutory authority came in two parts. The first was through the Flood Control and Coastal Emergencies Act. This act authorizes the Army Corps to put federal money towards the repair of previously constructed structures damaged in storm events such as Hurricane Sandy. This was a pre-existing authority that allowed the Army Corps to restore the beach to its pre-storm conditions. Their second authority comes from the Disaster Relief Appropriations Act of 2013, part of the Sandy Relief Bill. This act authorized and funded the Corps of Engineers to restore structures and beach profiles previously constructed by the Army Corps, which was severely impacted by Hurricane Sandy. This new authority allowed the Corps to restore landforms affected by Hurricane Sandy to their original design profile—projects such as Rockaway Beach. This meant that the Army Corps would add a great deal more sand to Rockaway Beach to bring it back to the design profile that was established in the 1970’s.

These beach replenishment efforts were carried out in multiple phases beginning in the western portion of the peninsula. For example, Phase 1A involved the construction of a berm extending +16’ above the mean high tide watermark between Beach 86th and Beach 149th Streets. This involved dredging and pumping 600,000 cubic yards (cy) of sand in the months of August and September 2013. Then, Phase 1B involved a 200’ beach extension phase. In this phase, Army Corps added 2,900,000 CY of sand to add 200’ of width to the beaches.
Another way to understand this kind of work is to consider a visitor’s experience at the beach when Army Corps replenishment was occurring. Below I share a field note documenting my experience at the beach in early fall, 2014.

Field note:
9/22/2014, Beach 58th Street, Rockaway Beach

I came to the Rockaways the day after the climate change march in downtown Manhattan to check on the progress of the Army Corps beach replenishment efforts. The night before the march I listened to Rockaway’s New York City Councilman Donovan Richards tell the story of Rockaway to a packed house at a lead up event to the march at the New York Society for Ethical Culture in Manhattan. He told the environmentalists that Rockaway was devastated by Hurricane Sandy and will [continue to] be impacted by sea-level rise due to climate change. He called for mitigation of green house gases, but he also pleaded for protection for his community.

That next morning, I went out to the beach to see the progress. I didn’t know where Weeks Marine, the [for-profit] company contracted by Army Corps to do beach replenishment, would be working that day, but I knew they had been working in the eastern section of the beach, so I went there. Also, the beach replenishment process is difficult to miss even on this expanse of sand. I drove to 58th Street and parked in between the Ocean View apartment complex and the undeveloped Arverne East renewal area. I found my way to the boardwalk and out on the beach were the unmistakable metal pipes used for the beach replenishment process. These pipes, more than half of my 5’8” height, emerged from the water and snaked across the sand east from Beach 58th Street like a massive Anaconda. The rust colored pipes hissed as sand and water passed through the tube. The pressure was so great that it was shooting out of the pipe in one section creating a sand and saltwater geyser (figure 4.1).

I was concerned that this geyser might have been evidence of a problem with the tube, but even if I wanted to tell someone there was no one around to tell. As far as I could see east and west, not a single person was on the beach. I could just make out boats offshore, southwest of Rockaway in the New York lower bay, the triangle of water in between Rockaway and Staten Island. But really, I could not tell where the sand was actually coming from, nor could I see where the pipes ended.
In addition to these efforts, Army Corps was also involved in a Reformulation Study that began before Sandy and continued well after the end of this project, although a draft Environmental Impact Statement and public review was released in 2014. This reformulation study determines future beach replenishment and other coastal protection projects that would be entirely federally funded, as long as the study results were not compromised by other projects. “Agencies were afraid to do work on the beach that would invalidate the reformulation study, under fear of the threat that Army Corps would remove/lose their federal funding” (NYC Parks Employee, Personal communication, 4/8/2014). The threat to losing this funding created anxiety in the NYC Parks Rockaway beach managers and other city agencies. This relationship created a hierarchy in Rockaway beach restoration, putting Army Corps at the top, followed by NYC Parks, and then residents and community groups at the bottom. This hierarchy served to reinforce the ideology that the beach and sand are under ‘state’ control. Thus, the amount of “reformulation” that might be proposed within this study might predictably be conservative.
After my official data collection period, the reformulation study options for beach and bay were released to the community. Dan Falt, the Army Corps spokesperson presented this plan to the Rockaway community at a Community Board 14 meeting and the Army Corps released the document online. The Army Corps requested community feedback on the alternatives for the beach described below (additional measures for the bayside were also offered),

Alternative 1 (Oceanside): Beach Restoration Alternative This option includes construction of beach and dune with periodic re-replenishment of the beach (every 4 years). In this scenario, there would be greater volumes of sand placed in high erosion areas, called “hot spots.” Dunes or berms would be the main source of protection in this alternative. The flat parts of the berm would be 60-100 feet wide.

Alternative 2 (Oceanside): This option would include the beach re-replenishment schedule and dune/berm construction from Alternative 1. Additionally, this alternative would include the relocation of the existing boardwalk from Beach 28th to Beach 39th. [Details of this possibility were not explained in the Army Corps presentation]. This alternative also included the shortening of existing groins from Beach 60th to Beach 86th. The existing groins in this area currently has the effect of keeping sand from getting to beaches to the west.

Alternative 3 (Oceanside). Jetties/groins. The only alternative that includes jetties/groins is this option. Alternative 3 includes the beach and berm elements from Alternatives 1 and 2 and includes the construction of twelve new groins between Beach 90th and Beach 122nd Street. Further, current groins would be extended from Beach 36th to Beach 49th and a new groin would be installed at Beach 34th.

In each alternative, dune reinforcement to reduce wave impact is being considered. The dunes would include “buried seawalls.” In the first alternative, the seawall could be built in segments using rocks (buried and unseen). In the second alternative, sheet metal and larger sized rocks would be used and not be just for segments but for the entire project. (Boyle, 2015)

Additional money was made available to the Army Corps by NYC Parks and the New York City Economic Development Corporation (NYCEDC) to increase the height of the berm from Beach 19th and Beach 149th Streets to the generous proportions of the 1970s, elevating the beach so that it will be 12 to 16 feet above sea level. Mr. Falt was quoted as saying:

It’s a slow process so they don’t hear anything for a couple months they think it’s all over with. Grinding through the process of these big studies takes time, there is a ridiculous amount of red tape. There is a ridiculous amount of environmental studies that you need to do. Whenever you think you are almost done there is always another step. And it has to
go up all the way to various steps of the government to Washington, DC. And you have to justify Rockaway projects for the entire nation. So you really have to make the case that, “ok Mr. so and so in Nebraska, your tax money is gonna come here.” And we have to justify that. (The Rockaway Youth Task Force, August 2015).

Mr. Falt showed awareness of the slow pace of the Army Corps process in the above quotation, recognizing the “grinding process” and “ridiculous amount of red tape.” Mr. Falt lives in Rockaway and to a certain extent mediated the power of the Army Corps by sympathizing with residents. However, he obscured the process and any opportunity for rebuttal by mentioning all that they had to do to “make the case.” Through these comments he was saying to his interviewers at the Rockaway Youth Task Force members, and the public, that they could offer their opinion about the alternatives and then that they had to just sit and wait for the federal process to occur. Here again, even when showing empathy, Army Corps personnel re-instated the hierarchy. However, this hierarchy is not a foregone conclusion and an example of a contrast to this model is just down the beach in Breezy Point where the private ‘Breezy Point Cooperative’ rebuilt their dunes after Sandy. The Cooperative applied for and received $58.2 million from the Hazard Mitigation Grant Program funded by FEMA in late fall, 2014 (Schuerman, 2014). Instead of having their hands tied by the Army Corps’ reformulation study, the FEMA money was available to the Breezy Point Cooperative immediately after its dispersal for use in planning and projects. The lack of community participation in the Army Corps efforts led to local organizing in Rockaway that I describe below.

**Community Discourse**

**Urgency to “Demand the Sand!” and Rock Jetties/Groins**

There was a constant call from residents for sand and more rock groins. A group of mostly white middle-class residents in Rockaway West gained the most fame for speaking
directly to Army Corps efforts. Rockaway United, previously known as Friends of Rockaway Beach, joined the local Rockaway Civic Association in calls for the construction of rock groins. Their efforts culminated in several protests and appearances at Community Board 14 and other civic events. In one such example, over 300 residents from the Hammels, Rockaway Beach, and Rockaway Park neighborhoods organized to demand the construction of groins (figure 4.2). These efforts and this group wanted the beach to be stabilized and to in turn stabilize their property.

![Figure 4.2. Rockaway United Protestors demanding rock groins on Beach 86th Street. Map adapted from, Google Earth. Inset photo from beachtar (2012)](image)

Coastal protection was the prominent theme among these residents in the Rockaway community post-Sandy. For many, ‘sand’ was equated with ‘coastal protection.’

The Army Corps sand replenishment practices, many argued, didn’t come quickly enough. This sentiment was shared amongst residents in both the east and west side of Rockaway alike. One Rockaway West resident described how they felt that it was the Army Corps’ responsibility to provide and respond urgently to their needs by providing sand.
The beach was a perfect set up for large-scale inundation, even with just high tides. The Army Corps of Engineers has a better means to maintain the beach for shore protection… We had rallies on the beach because Army Corps said there is no money that they no longer had money earmarked. What happened in Belle Harbor—first homes were devastated, second homes were just flooded. If we had the protection we would have been better off. They got some sand. But after the sand, it’s not rocket science … we had no beach. We were supposed to get two and a half million cubic feet … got six-hundred thousand feet for the protective dune … That was the biggest complaint. That lack of sense of urgency. (personal Communication, Rockaway West Resident, 02/12/2014)

The desire for an urgent response from Army Corps to bring sand and temporary coastal protection was similarly shared by many Rockaway East residents:

…when you turn on the news, all you hear is, "Extreme weather's happening everywhere! It's going to happen again! We've got to prepare for it! Everybody has to build smart!" Once you've been hit once, you're like okay. You're telling me it's going to happen again. Absolutely they're worried, which makes it all the more important that coastal protection begin now. While we're waiting for the Army Corps of Engineers to do whatever it is the Army Corps of Engineers feel that they need to do. But they need to do something…we've got to wait for the Army Corps of Engineers to come in and do their plans…Give me temporary coastal protection, temporary effective coastal protection. (personal Communication, Rockaway East Resident, 5/13/2014)

These fears highlight a sentiment shared among many residents on the Rockaway peninsula regarding a need for sand as coastal protection and more specifically a frustration with the Army Corps process, which they felt was slow and made them vulnerable to coming storms. The Rockaway East resident also expressed powerless and victimization in needing to wait for the Army Corps. While the Army Corps wouldn’t change their process or approach, the New York City Administration did step in and provide funding and engaged in other practices that were a response to these resident concerns through several NYC Parks projects that I discuss in greater detail in Chapter five.

This urgency was in large part because while Hurricane season runs from July to November, strong winter storms called Nor’easters pack a strong punch as well. Hurricane Sandy hit at the end of Hurricane season and just before the winter, which left many residents
feeling vulnerable to storm surges and flooding from these Nor’easters. As mentioned in the last chapter, residents’ feelings of vulnerability are the result of many different social and economic factors, but nearly all of those interviewed mentioned past experiences and their subsequent fear with flooding on the peninsula during storms.

**Rockaway West: Push-Pull of Beach as Public**

The area residents’ sense of vulnerability led to a desire for coastal protection well before Sandy’s impacts from a vocal group of homeowners that live in the western end of Rockaway. This group of middle-class homeowners, who came to calling themselves Rockaway United were vocal at many community board meetings as well as other meetings with City, State, and Federal agencies that were involved in the after-Sandy restoration of the beach. Rockaway United’s supporter base was with white/non-Hispanic multi-generational Rockaway residents that represent the western neighborhoods of Belle Harbor, Neponset, Rockaway Beach, and Rockaway Park.

This group appeared to be using this moment to claim Rockaway, leading their call for protections to be as much about protecting the Rockaway community identity from outside influence as it was about protecting Rockaway from future storm surge impacts. They were expressing what environmental psychologists call place identity (Proshansky, Fabian, and Kaminoff, 1983) that they wanted to protect and that they wanted the state support to protect. Proshansky, Fabian, and Kaminoff (1983) describe place-identity as created by the “environmental past” of the person, that has been constructed on the basis of a place to which individuals feel that they belong and is related to the shared public image of that place. It is an intimate knowledge (Dixon & Durrheim, 2000) based in memories, feelings, attitudes, values, preferences, and meanings that relate to the everyday physical setting in which people function,
which is itself an aspect of self-identity (Proshansky, Fabian, & Kaminoff, 1983). People use this self-identity to make the distinction between him/herself and other people or groups, as well as the distinction about what they think of as their place. These Rockaway United activists were making a connection between their neighborhood and the beach, and arguing for stability for their community, a majority Irish-American middle-class community.

Figure 4.3. Rockaway Activists leading ‘Demand the Sand’ Rally in December, 2012. Image by Egan-Chin (Photographer; Colangelo, 2012)

Their demand for a ‘Rockaway forever’ both claims a particular Rockaway that they identify with, begs for help in keeping this place that they are so attached to, and claims to have the right to speak for Rockaway. Thus, their calls for coastal protection, by using sand to build sand dunes is a call to help them keep a life and community that they so strongly connect with. Furthermore, this call for coastal protection is recognition that their way of life is vulnerable. And finally, it is a claim that they had the right to speak for all of Rockaway and make their demands and needs priorities. Their efforts highlight the push-pull of a desire to have more
control over this public beach because of the relationship to their private property. They enjoy
the benefits of the public beach, but also demand for their personal and private needs to be
prioritized.

**Rockaway East: Process and Bayside Priorities**

Rockaway East residents have more exposure to increased flooding on the Jamaica Bay
side, however Rockaway East residents often felt that they had little ability to have their needs
heard about these issues, never mind met. The Rockaway East call for beachside coastal
protections contrasts and very much overshadows a desire for coastal protection from residents
that live in the eastern and bayside portions of the peninsula. Their needs were not heard in the
community meetings or rallies, and were not met by the sand replenishment efforts on the ‘beach
side.’ For those on the Jamaica Bay side, sand on the beach wouldn’t prevent flooding. One
interviewee described their frustration about the lack of attention on the bayside that reflected
frustrations that others on the East side had with the Army Corps approach.

That rainstorm that we had, about a week or so ago? People were flipping out behind that.
Places got flooded out again. People were having flashbacks. People were like ... you
know. Because there was real flooding that happened. There was real flooding that
happened in areas. We have no coastal protection. We have no coastal protection. One of
the things that people found annoying, from me, was why a lot of people want to talk
about the beach, the beach, the beach, and what happened on the west end. And I don't
take away that what happened on that end was devastating? But guess what, on the east
end we also have Jamaica Bay. And when you come, this area right over here, like
Somerville and Mill Basin, all over here? Jamaica Bay is right there. They got devastated
too. But nobody talks about that. When we ... I talk about barrier and coastal protection,
I'm not just talking about for the beach side of the boardwalk. And yes we love our
boardwalk, and you know, we want our boardwalk back. But you have people over here
in homes, that they sunk everything into their homes, just to get a boiler. Just to get a
heater. Just to get water pumped out, or mold remediation, you know? (personal
communication, Rockaway East Resident, 5/13/2014)

Rockaway East residents also felt that the conversation about sand and coastal protection
dominated community board meetings in a way that obscured discussions of other needs for
people on the east end. Because the community board meetings were the primary way for people to speak to the community and to Army Corps representatives, this presents a problematic in terms of whose voices could be heard. One community board member from Far Rockaway spoke about their frustration,

> I had to understand what is community board? Why am I coming to community board? I would ask this when I was younger, because I've been with the [Rockaway Youth Task Force] since I was 16. You know, ‘Why do we come to these three-hour meetings once a month, and sit here until 10:30 at night? To hear people talk about sand.’ (personal communication, Rockaway East Resident, 1/15/2014)

In other terms, they were frustrated with their ability to engage in the decision-making procedures and so spoke to the lack of rights in terms of procedural justice. One Rockaway East resident that lives in public housing described how they did not find the community board to be a place where their needs could be heard and was instead only a place for homeowners,

> [CB14 is] not for public housing, that's not where their interest lies…It’s basically about homeowners so there's really no interest in there for us to really work with them…We feel like we don't fit in. (personal communication, Rockaway East Resident, 1/15/2014)

Nevertheless, residents in both Rockaway East and Rockaway West describe feeling vulnerable. Homeowners invested in their homes financially and wanted that place to remain. Similar to Rockaway West residents, Rockaway East residents had no say in how the Army Corps did their work or in what they prioritized. Their vulnerability is informed at least in part by recognizing that Rockaway faces a dubious future in the face of sea-level rise due to climate change.

> I think the reality is that the sea is going to keep rising and will Rockaway even be here when I have grandkids if I have them? Maybe not. I guess that's a very real reality that most people are just not willing to face…I don't really talk about it too much because most people don't want to hear it or don't want to talk about it, but I think it's real. I mean, the predictions and everything, the scientists and people who study this stuff and know what they're talking about it doesn't really look too bright. I definitely think things like double dune systems, I'm a believer in that. I saw that it worked. Some places that didn't
have dunes were like more floods. A little scary. I don't know. There used to be canals in Rockaway that connected the beach to the bay. I wonder if something like that help mitigate some flooding. I know the developers of Arverne East do have in mind flooding a lot and have tried to, as much as they can, create measures for things that can absorb the seawater and their whole plan of whatever they're going to build is totally going to be as resilient as possible to flooding. I don't know…” (personal communication, Rockaway West Resident, 03/25/2014)

These residents expressed a denial about the future of the peninsula, “I don’t really want to talk about it,” while simultaneously arguing for efforts that “worked” to protect people and property during the storm. Not surprisingly this deny-and-protect paradigm was taken up by residents and politicians alike that pushed for the most comprehensive coastal protection plan, alternative three (Schumer & Goldfedder, 2015). When interviewed by a Far Rockaway social justice organization, one resident and owner of a local surf shop spoke nearly identical words to those written by Bellott (19717), who described “real estate operators, who have availed themselves of Dame Nature’s kindness and augmented her efforts to give them land by bulk heading it, in order to prevent it getting away again…” (p. 102).

Well they put in, I don’t know, 1.3 trillion cubic yards of sand or something like that. But the feeling amongst the people in the community is since they didn’t put anything to hold the sand here, if we get a good Nor’easter a lot of that sand, like in the past, is going to get washed away. (The Rockaway Youth Task Force, August, 2015).

Bellott (1917) was speaking about profiting from real estate, and here this Rockaway west resident and business owner was again referring to his own personal real estate investments.

Unequal Distribution?

The Army Corps claimed to distribute sand equally across the entire peninsula. However, the Arverne East section of Rockaway was delayed in getting beach replenishment because it is in a section protected for piping plover nesting. Simultaneously, the delay disproportionately
affected black and low-income residents. And although this may not be exactly a case of environmental racism, the question is about why the burden falls on the vulnerable.

The U.S. Fish and Wildlife Service (USFWS) is the agency that enforces the piping plover closure. The goal of the U.S. Fish and Wildlife Service on Rockaway Beach was to ensure that agency work didn’t impact protected species. Some residents blamed the USFWS for tying the hands of city, state, and federal agencies and preventing those agencies from doing needed work. Although one might argue that it is frivolous to maintain such tight protections in an urban estuary so highly impacted by pollution and urban settlement such as Rockaway, the USFWS are still very much an active agency here.

On Rockaway Beach, the USFWS interest is the federally protected shorebird the Piping Plover. Plovers enjoy flat sandy beaches as their nesting sites, and several blocks of beach east of Beach 59th Street are cordoned off during their nesting season that runs from April to September and is equally off-limits to residents, the NYC Parks Department, and the Army Corps. These sections of beach, in the Arverne section of Rockaway between Beach 73rd Street and Beach 19th Street, must halt all beach replenishment operations during the nesting season to the dismay of many residents. This was met with great ire in the rockaway media and amongst residents themselves, especially residents from the eastern portions of rockaway, such as Arverne and Bayswater. For these communities, their beach was literally for the birds during the summer months, which prevented resident access and halted replenishment on the beach during the nesting season, “[they are] just sand dunes for the birds, what's good about them?” (personal communication, Rockaway East resident). Furthermore, the boardwalk repair was delayed for this section as well, “our section of beach won’t be completed until 2017, because it's the piping plover section” (personal communication, Rockaway East resident; figure 4.4).
This issue places environmental protection interests over resident needs for beach access. The residents in this area of Arverne are primarily a low-income population of renters. The NY State Department of Environmental Conservation (DEC) claimed that they were responding to the preferred nesting areas of the piping plover. Residents countered, questioning the DEC as to why the nesting area couldn’t be moved.

As a reminder to the reader, this is the same area of the failed Robert Moses-era urban slum clearance effort of the 1930s. The land north of the boardwalk had been left undeveloped since the 1930’s. In turn, programming for visitors to the beach south of the boardwalk had become non-existent. That likely led to the use of the area by piping plovers and the eventual sectioning off of the beach during nesting season. While that limited access for residents in the area to the beach, it also pushed decision-making further out of their hands. Not only were they up against the Army Corps and that agency’s emphasis on coastal engineering expertise they were up against the regulatory authority of DEC and USFWS, which emphasized biological and
ecological expertise. The piping plover delay show clearly that the social and material context of
the beach is not separate. The Rockaway Beach Endangered Species Nesting Area was
established in 1996 when piping plover were discovered in this section of beach and because
they are on Federal and NYS-endangered species lists. The area is also managed to include
special consideration for other bird species including the least and common tern (NYS-
threatened), the black skimmer (NYS- special concern), the American oystercatchers (NYS-
species of greatest conservation need), and one plant, the seabeach amaranth (Federally and
NYS-threatened).

This section of beach is made exclusionary by both claiming the need for scientific
expertise and by literally roping off the section and policing access. This closure is enforced by
NYC Parks and also delayed their post-Sandy restoration work (see chapter 5). This provides
another example of the cascading impacts of the emphasis on hierarchy and technocratic
approaches in the restoration of Rockaway Beach. The claim is also there that despite the
realities of the residents’ race, these decisions were not racist. However, this delay does represent
material circumstances that are the result of a historic injustice perpetuated on low-income and
predominantly minority people in Rockaway East.

Discussion

Technonature

The Army Corps operates on what Escobar (1999) would describe as regime of
technonature. Escobar (1999) suggests that the technonature ideology separates people and
nature through making nature an object of scientific study. In the case of Army Corps, their
practices reified that the material was separate from the social, the natural or the ecological. The
Army Corps approach to stewarding Rockaway Beach after Sandy was within an expertise-
oriented model. Their influence to engage in the work was granted through their access to federal funding and the dependence of the Rockaway community on the Army Corp’s nourishment efforts to stem coastal erosion.

The expertise-oriented Army Corps model failed to incorporate a process that could work with Rockaway communities to respond to their local needs/wants, such as to receive sand more quickly in Rockaway West and to have bayside protection in Rockaway East. But the Army Corps efforts did reflect a desire for coastal protection, something that many residents wanted. The Army Corps practices and the resident ideas both represent what Vandana Shiva (1993) calls monocultures of the mind. Shiva describes monocultures as, “merely the globalized version of a very local and parochial tradition. Emerging from a dominating and colonizing culture, modern knowledge systems are themselves colonizing” (p. 2). Shiva (1993) describes that it is not enough to simply emphasize ‘local’ knowledge because truly local knowledge has been made to disappear. In its place is a localized version of western scientific knowledge—which in this case is the certain knowledge that private property will be destroyed without beach protection. So while I emphasized the conflicts between Army Corps and the public in this chapter I also recognize that the ideas and discourses used by residents was still inline with a western scientific idea that people can control nature.

That being said, the Army Corps’ approach missed a key opportunity to critically engage with resident ideas about the beach (Cote & Nightingale, 2012). Although they did make public presentations those efforts did not engage residents in any shared power. Rather, these presentations could be critiqued for placating residents. Furthermore, the Army Corps was concerned with technical knowledge about sand replenishment and engineering options to respond to the unique geomorphological aspects of Rockaway Beach, especially the fact that it is
built over with vulnerable private structures (table 4.1). Some people loved the Army Corps plans and expressed ideas that were congruent with their approach. Others, such as Rockaway United and groups that I will describe in chapter 7, were dissatisfied with the urgency of the Army Corps work. That concern was highlighted over whose expertise was used, what opportunities were made available for multiple perspectives to be heard, and who had the final decision to engage in their practices. This missed opportunity has been highlighted by others that describe the need for increased participation in planning of coastal places, pushing the social aspect of environmental or ecological issues, and that community members can be called on to give feedback to formal managers (Few, Brown, & Tompkins, 2007).

**Sustainable Practice?**

The Army Corps approach was a business as usual approach, certainly not a ‘reformulation’ as indicated in some press releases. Their funding and mandate was to return the profile of the berm to levels previously determined in 1970. That funding strategy, and the closed decision-making process meant that their practices were bound within a particular historical imaginary of the beach. Their beach profile, for example, was not the profile as it was prior to real estate development. That point is clearly made when one considers that the beach west of Far Rockaway shifted so much seasonally as to make a geographic history of that part of the beach untenable. Therefore, using Alkon’s (2008) just sustainability continuum and taking Seymour’s (2012) approach toward applying that to urban parks, we can see that Army Corp’s efforts weakly achieved the ideals of just sustainability. Their beach nourishment practices did not incorporate any of form of participation The Corps did collect community feedback on their reformulation study, but there is no evidence that this affect the recommendations of the study in any significant way. The Corps claimed to distribute the same coastal protection benefits to all
community members, but ultimately those protections were most important to homeowners on the low-lying western portions of the peninsula. Finally, using Low’s (2013) addition of interactional justice, the Army Corps practices specifically prohibited any other forms of restoration activity on the beach while they were engaged in their reformulation study.

**Change/Adaptation of Practice?**

In review, the Army Corps practices highlight one of several responses to restore Rockaway Beach. The Corps consistent approach is to protect private property and prevent coastal erosion. For many residents, this met their interests in protecting their private property and maintaining their coastal community. Other residents, especially those on the eastern bayside portions of the peninsula, did not have their needs met in these efforts. From a political ecology perspective the Army Corps practices were based on a scientific model of knowledge that attempts to predict and control nature (table 4.1). Army Corps Practices were focused on a model of controlling nature and extolled by residents through statements such as “no retreat.” Their practices (and the discourses used to describe and plead for their practices) were based in a social construction that placed humans as separate from nature.

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<td>Top-down, no public participation</td>
<td>Legal and hierarchical (through funding)</td>
<td>Control nature</td>
<td>Coastal protection for property</td>
<td>Beach replenishment, reformulation study</td>
<td>Rockaway United</td>
</tr>
</tbody>
</table>

Table 4.1. Army Corps Beach Restoration Practice Description

The Army Corps did not shift their practices following the storm, despite the rhetoric of ‘reformulation.’ Rather, they used emergency funding to build the sand berms to mimic profiles set in the 1970’s. Their practices did not provide opportunities for community involvement and
did not involve support for the planting beach grass or for other stabilizing ecological elements that constitute sandy beach ecosystems (e.g., Maguire, Miller, Weston, & Young, 2011). Their practices maintained a view of the beach as coastal protection from minor storm surges and hurricane impacts (Adger et al., 2005).
This was not an event of life threatening proportions. This was not a 9/11 event. This is not an earthquake where thousands of people are killed and that kind of thing. This is event of economic proportions. (personal communication, Rockaway West resident, 12/06/2013)
On an evening in later September 2013 I drove to the Knights of Columbus for the second of what would be three meetings run by the Parks Department. These meetings were focused on gathering community input about the boardwalk reconstruction and also to create a conceptual plan for the parks on the peninsula.

There were roughly 100 residents at this meeting, with about 25 parks and consultants here as well. All attendees were asked to sign in at the entrance to the meeting room and were given a nametag. These nametags seemed unnecessary because most of the people seemed to know one another. This meeting was supported by CB14 and many CB14 members were in attendance. I recognized one man from last night’s boardwalk planning meeting, who was a CB14 member. I also met a woman who was a Community Facilitator/Coordinator of SCO Family of Services, a Rockaway United organizer, and a Community Board 14 member representing Rockaway Beach. The target audience was residents of Beach 73rd to Beach 105th Street, along with planners, civil engineers, and landscape architects from M2Hill and WXY consultants, Parks employees, including First Deputy Parks Commissioner Liam Kavanagh, Queens Park Commissioner Dorothy Lewandowski, and Rockaway Parks Administrator Jill Webber.

There was a projector and screen at the front of the room and this was where the introductory slideshow was presented. Ms. Lewandowski, began the meeting in the same way as night one, by reviewing the topic of the meeting. Ms. Lewandowski described that this meeting was about gathering community input from Rockaway residents the reconstruction of the ‘amenities’ along the boardwalk, and also about their ideas for the rest of the park spaces along the entirety of the peninsula. Ms. Lewandowski explained that the evening was to focus on three aspects of the boardwalk reconstruction process. She explained that this was an important opportunity for residents to discuss concerns with the consultants.
A landscape architect consulting on the project followed Ms. Lewandowski. She described the themes that came out of the last meeting. She quickly reviewed some of the highlights from the first meeting such as restoring oyster reefs, double dune system, incorporating a seawall into the boardwalk and a stronger boardwalk, adding more parks spaces to shore front parkway, alternative technologies, and many others.

Everyone had a number on their nametag that corresponded to one of three tables that the night’s conversations would be organized around. These tables were spaces to discuss coastal protection, recreation, and the boardwalk. Things were far more organized tonight compared to last night, possibly due to the larger space, possibly because she was far more specific about the scope of the project, what they could do, and what they couldn’t. For example, she stated that they were working in coordination with Army Corps, but were not completely intertwined with them. We were told that this is also part of the second phase of the design work for the parks designs that were part of community visioning meetings all of last year. I took this to mean that Army Corps was making some decisions and others had been made following round one.

After the introductions we were told to go with our numbered groups to one of the three stations and I start by joining the Coastal Protection group. In that group we were asked to reflect on the kind of damage we noticed, the level of protection that we expected, and our goals for coastal protection. The civil engineer on the project talked to us about his view of the Army Corps, the slower pace with which they work, and the constraints that they put on Parks. This included, he said, a threat to remove future funding if NYC Parks built any type of seawall that impacted the results of the Army Corps’ reformulation study to be invalidated. The community members seemed to welcome this level of frank discussion. These residents were quick to mention concern about their immediate needs for coastal protection and the conversation was about how to achieve that.
We were then told to go to the next group and I moved on to the recreation group. We were oriented towards a map at the front of the group and asked to think about parks property within this area and to describe our desires for amenities. We were asked whether we wanted to bring back the old amenities or build something new. The group asked for clarification several times regarding what they were really being asked to share, anything they wanted or suggestions that have a real opportunity to be constructed. We were told to think about both, but this didn’t satisfy many of the attendees who seemed to want more guidance. One discussion that took hold was about ‘natural elements.’ Residents went back and forth with some arguing for planted dunes in order to help with coastal protection, while others didn’t want dunes because they didn’t want to lose what they see as valuable recreation space. These concerns were noted with marker on the board and we were told that they would be compiled as ‘community input’ and posted online [they were].

Figure 5.2. Discussion about recreation on the boardwalk. Photo: DuBois.

We were then moved on to the last table organized around a discussion of the boardwalk. In that group we were charged with identifying the materials that we wanted the boardwalk to be made of (there are samples to touch and feel), the frequency and types of the entrances and exits, and how we wanted bike lanes on the boardwalk to be designed.
We were told that the boardwalk would be built at new standards. It was going to be higher than the existing boardwalk by as much as 6 feet in some places. To the dismay of many residents we were told that the NYC Parks was not going build a seawall until the Army Corps finished their reformulation study in 2015. Parks had been told, he said, to leave everything in front of the boardwalk clear of hard structures like walls. But in an effort to stave off more rebuttals, the consultant highlighted that a ‘sand retention wall’ (also called a baffle wall in other areas of the peninsula) would be built north of the boardwalk to block blowing sand to help the boardwalk play a role in coastal protection [currently under construction]. That had the effect of halting the discussion and seemed to sooth the audience a bit.

After this group everyone came back together and we were told next steps for the planning. We were told that our answers have been ‘noted’ and compiled to be made available online, and we were given dates for the next meetings. At the end of the meeting, the Parks consultants provided a space for a local resident and activist to stand up and provide information about a rally that was going to be held that Saturday in Broad Channel. That rally was in opposition to potential flood insurance rate hikes that were proposed because of the Federal Biggert-Waters Act, which had been passed into law in June, 2014. He told us that the Biggerts-Waters Act removed all flood insurance subsidies and that we should join him to, “Stop FEMA now!”

I begin this chapter with the above field note because it was an example of the community engagement used by NYC Parks to gather community input, it showed what the NYC Parks emphasized in its description of its practices to the community, and showed how ‘the community’ was limited in their involvement in the process. In the remainder of the chapter I add more detail on the NYC Parks efforts following Hurricane Sandy. I describe their practices in greater detail, the themes of the community’s discourses about the NYC Parks efforts, and I interpret and discuss how these findings relate to power and the politics of the beach. These community charettes and their other community engagement efforts around the construction, design, and stewardship of the beach are examples of evolving practices that are responses to the actions of the beach environment. Here, the beach plays a more active role and is recognized as having some agency in the human and non-human network.
NYC Parks Response to Sandy in Rockaway

Prior to the Hurricane Sandy, the NYC Parks Department has been involved in the fortification of Rockaway Beach. They did so by using sand to reinforce their beaches:

And right before ... I'm trying to remember, before Irene ... after Irene? Anyway, at some point, when the inlet was dredged, the sand was replaced in the Beach 30s, the Beach 20s. We sought additional funding to actually pump that sand all the way into the 90s, knowing we had this severe erosion problem. It's been a problem. And that costs a lot of money, to pump, pipes, and it was a whole to do...then just finished after Irene, got everything fixed up. And then Sandy happened. We didn't, know Sandy was coming, not knowing obviously the severity. We built a sand berm the entire length. We actually used some Jersey barriers to close off some sections of fascia board that weren't complete yet. (personal communication, NYC Parks Employee, 04/08/2014)

Following the storm, the NYC Parks department allowed for their Rockaway Beach facilities to be used as a staging site for many emergency response organizations.

Our parks were used, our parking lot was used for the tent, the relief site, on 95th St....Working with Nautilus [an international development consulting company], and the Red Cross. And we worked with them and made arrangements and agreements and contracts. We had several of our parks, initially, before Nautilus and the Red Cross, they were some immediate relief efforts that were set up in our playgrounds. To distribute food, to charge cell phones with generators. All of that, is...was all the playgrounds. (personal communication, NYC Parks Employee, 04/08/2014)

However, the intense impacts brought by the storm surge and flooding caught NYC Parks by surprise. The surge leveled many of their buildings and facilities. They received substantial support from the Bloomberg administration to bring the facilities into order for the summer season. There are different interests at work here. One is the effort to support the immediate needs and recovery of the people on the peninsula described above. The other interest was to repair/rebuild infrastructure on the beach so as to prepare for the coming summer tourist season. Below, an NYC Parks employee described these different interests.

Right after the storm, we were very lucky. There was a lot of help for us. City Hall was right here, and the elected officials. Everybody was really, "What can we do?" And
Mayor Bloomberg made an announcement, "The beach will be open for the season." Memorial Day we'll be opening the beach. And how was that going to be? We had no lifeguard facilities, we had no bathrooms. Everything was buried in sand and garbage, or destroyed completely. There was a real rush to create things. Some of it hasn't been always so popular. And we did meet with community early on, but decisions were being made citywide. Not only for this beach, but for Coney Island, and for Staten Island. And we are part of a much bigger plan, to operate all the beaches. Some things were done really quickly, and miraculously. Knowing how long a capital project really takes. The fact that this was all turned around so quickly was incredible. A lot of our focus, my focus, and the borough and the agency, was about moving forward to create the facility needed for operations. In addition to that, concurrently we also had to just clean up. The Department of Labor, we were able to see 200 laborers hired. Mostly to work here? And they worked ... Right after the storm, like it was very soon after. Coming to a peninsula that had no food, it had no facilities, it had no bathrooms, and it had no water. It was like, no heat. We had 100s of people reporting to our garage, every day. We uniformed them. We got generators. We got trailers. We catered food, twice a day. Many of them were local. We sent people home with food at the end of the day, when we had leftovers. Trays for their families. We picked people up. We did things that were very out of the ordinary. Just so we could ... How else would people function, as we said? And I think that we were really, for 100s of people, we did clothing drives. A lot of things, in addition our staff ... That was for the staff. And not only those 200 Department of Labor workers, but our regular staff. I mean I lived out here and lost cars. (personal communication, NYC Parks Employee, 04/08/2014)

Members of the NYC Parks Department rose to the occasion to support restoration of the beaches and the Rockaway community. This was different from the Army Corps response because residents were involved in the Parks efforts. They worked to rebuild the beach and they also gave back through cooking meals and giving back to the residents. After these immediate efforts to clean up and prepare the facilities, the work transitioned to efforts to restore the beach.

There was a tension experienced by the NYC Parks managers of Rockaway Beach. They described this tension as about what residents expected of them and what was expected of them by the larger city administration. The tension, expressed as serving tourists versus serving the residents and establishing that the Bloomberg Administration was competent in its ability to respond to the storm, became a conflict about the role that the department needed to play in building sand dunes for coastal protection.
We are trying to do things like that, to make it more livable for everyone…. The visitors are important, the residents are important. Certainly protecting them, if they see that...

And it's really ... And it's never been the job of the Parks Department to rebuild the beach, or to worry about—our job was to operate the beach. Pick up the garbage, put lifeguard chairs out, that stuff…With this new role, we became like the enemy…When it really was, we don't build … we don't build beaches, that's the Army Corp's role. But we certainly could help. So we really had to try to do things, and now we're creating these dunes, that will be ... Years ago we were sued because of dunes; people didn't want them… Now everybody wants them. (personal communication, NYC Parks Employee, 04/08/2014)

A Belle Harbor man and five other plaintiffs did in fact make an attempt to sue NYC Parks and the state Department of Environmental Conservation over the construction of dunes in 2006, as reported by a Daily News article in 2010 (Rosen, 2010). However, the case was thrown out by the judge for failing to show "that they have suffered a different harm than the harm allegedly suffered by the public at large.” In that case, the plaintiff complained that, “We didn't want dunes there in the first place.” The article goes on to describe how the homeowner from Beach 141st Street, who lived about 350 feet from the dunes argued that, "all it did was shrink the beach for people who use the beach." Although history of NYC Parks dune construction is sparse, the article did document the testimony of Henry Stern, Parks Commissioner, who described that the Parks Department constructed the dunes in 1997 between Beach 138th Street and Beach 142nd Street, as an "experiment in erosion control, designed to keep sand on the beach and out of your street and yards and homes.” While the plaintiff argued that the dunes only functioned to give privacy to a few lucky homeowners, a nearby resident describes a reason more akin to the post-Sandy discussion of dunes, “Before the dunes were established, the situation used to be so dire…During a storm, the water used to run down the street and into the houses” (Rosen, 2010).

Residents filing the suit saw the dunes as something that got in their way. The plaintiff stated that building dunes would, “shrink the beach for people who use it.” But while NYC Parks
lacked the public’s support prior to Sandy, following the storm they had the backing of enough residents to begin large-scale dune planting efforts although they only officially answer to the Mayor.

**NYC Parks Dune Stewardship Practices**

In the two years following Sandy, NYC Parks responded to a new appreciation for dunes residents, which was consistent with its new and formal focus to make coastal protection as a key aspect of its work. NYC Parks defined coastal protection as providing coastal storm risk reduction measures, both interim and long-term. NYC Parks identified the Army Corps beach replenishment as key to the immediate term risk reduction measures, along with the Army Corps reformulation study because that study would define the federal governments approach for coastal protection planning for the peninsula for the foreseeable future. But NYC Parks had additional goals beyond the Army Corps and so they set out to improve upon the beach nourishment efforts of the Army Corps. NYC Parks began efforts for the ‘betterment’ of the berm created by Army Corps. Betterment meant NYC Parks provided funding to raise the new berm/dune elevations to match FEMA’s 100-year flood measures. Betterment also involved NYC Parks-led dune plantings and efforts to extend the dune and to bring sand underneath and behind the boardwalk for additional coastal protection.

These coastal infrastructure planning efforts and projects were made possible by the federal Hurricane Sandy Relief Bill, which provided $60 billion in aid to Sandy-impacted communities. This aide has been criticized for reifying the notion that property is a fixed construct. Robert Young (2014), professor of coastal Geology as Western Carolina University, argues:
This is not emergency disaster relief. It is the development of coastal policy. And that ill-advised policy is this: We will try to hold the precarious shoreline in place and protect property and infrastructure with a major investment of taxpayer dollars in coastal engineering. (p. 1)

But rather than heed this warning and move communities away from the shore, there began an increasing focusing on planning along the coast.

In light of this and other federal funding following Hurricane Sandy, then Mayor Michael Bloomberg convened a round of planning to update PlaNYC, a planning effort begun by the Mayor’s office in 2007. This newest version includes a Comprehensive Coastal Protection Plan (CCPP), which was created by a number of partners, lead by The Nature Conservancy. The plans explicit purpose was to strengthen the coastline of the city to provide protection from storm surges such as that created by Sandy. The authors of the CCPP argue for a combination of green (c.f. plants) and gray (c.f. concrete) infrastructure. Gray infrastructure, being the less “modern” approach in the view of coastal engineers, involves the use of gates, rock groins, and other hard structures. Though this approach is controversial for its role in exacerbating erosion in front of and leeward to the structure due to a process of scouring (see left side of figure 4), the authors lament that it is necessary in some cases to protect people and property on the coastline. In contrast, green infrastructure is the much more popular option in modern New York City planning. Applauded for its dual role of providing ‘ecosystem services’ for people as coastal protection while simultaneously providing habitat for wildlife. Ecosystem services are the positive benefits that wildlife and ecosystems provide to humans. The United Nations Millennium Ecosystem Assessment (MA, 2005; table 5.1) outlined four types: provisioning (food, water, fiber, fuel, medicine, etc.), regulating (pollination, water filtration, air pollution mitigation, etc.), supporting (water and carbon cycle, soil formation, photosynthesis, etc.) and
cultural (aesthetics, spirituality, education, recreation, etc.). The coastal green infrastructure outlined in the CCPP includes wetlands, oyster reefs, living shorelines, sand dunes, and beach replenishment.

<table>
<thead>
<tr>
<th>Services</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Provisioning</strong></td>
<td>Products obtained from ecosystems like food, fiber and energy.</td>
</tr>
<tr>
<td><strong>Regulating</strong></td>
<td>Benefits from regulation of ecosystem processes like pollination, seed-dispersal, pest regulation, air- and water filtration.</td>
</tr>
<tr>
<td><strong>Cultural</strong></td>
<td>Nonmaterial benefits from ecosystems, like spiritual enrichment, cognitive development, recreation, and aesthetic experiences.</td>
</tr>
<tr>
<td><strong>Supporting</strong></td>
<td>Ecological functions such as nutrient cycling and soil formation seen as necessary for the production of all other ecosystem services.</td>
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*Table 5.1. Ecosystem Service Types from the Millennial Ecosystem Assessment. Table adapted from MA (2005)*

In an address to the Rockaway community at a Community Board 14 meeting in December 17th, 2013, NYC Parks commissioner Liam Kavanaugh stated that NYC Parks was working on a system of projects that they would be constructing in the years to come in response to Sandy. He described this system as being designed “for lifesaving coastal protection and protection of your property.” He described that dune enhancement and baffle walls would be done concurrently, stating that “This is a big ugly machine, and a big and ugly process, but once it gets going it’s full steam ahead.”

Although the “machine” that Mr. Kavanaugh describes was enormous, NYC Parks moved quite swiftly and nimbly to get the beaches up and running for the beach season. The critical context that established this priority is based in Mayor Bloomberg’s economic development strategy to increase tourism. Mayor Bloomberg set the goal of 50 million tourists by 2015 in an effort to pull the city out of the post-911 recession, later increasing that number to 55 million (NYC EDC, 2012). This was such a focus of his term that less than two months after
Hurricane Sandy Mayor Bloomberg was pleased to announce that New York City broke the tourism record in 2012 with 52 million visitors (NYC EDC, 2012). And so employing his emphasis on innovation and efficient leadership he provided ample funding to NYC Parks to rapidly hire new people, build new infrastructure, and to expand their operation and management to focus on catering to new businesses and real-estate development in Rockaway by providing enhanced coastal protection. And, not surprisingly given this emphasis, he enlisted the NYC Economic Development Corporation to undertake the boardwalk reconstruction. As a result of this administrative level prioritization, many of the efforts that I describe below are at the same time innovative in their ability to withstand coastal storms and can simultaneously be critiqued for insufficiently taking resident opinions and needs into consideration in the recovery process. Instead, these efforts emphasized administrative goals for economic development through tourism.

**NYC Parks Dune Practices “System” After Sandy**

Following sandy, NYC Parks engaged in what they described as ‘interim measures’ to stabilize the shoreline and block blowing sand. NYC Parks brought in 4’ high and wide geotextile bags from Beach 55th to Beach 149th Street (figure 5.3). They suggested that these bags provided interim protection against future storm events.
In a community well known to NYC Parks for their vocal critiques of beach management, residents referred to these as glorified plastic bags. Nevertheless, they became ubiquitous along the NYC Parks property after Sandy. These trap bags have been integrated into the beach berms created by the Army Corps beach replenishment efforts.

In addition to these interim measures, NYC Parks built what they call baffle walls along the parks property line from Beach 126th to Beach 149th Street (figure 5.4), and the same structures but termed sand retaining walls from Beach 86th Street to Beach 97th Street where they will be underneath the boardwalk. These replaced walls that were lost or damaged during the storm, although some were new. Supported by 22’ deep piles, NYC Parks suggests that the intended purpose of these baffle walls are to prevent sand migration into the nearby neighborhoods. The baffle walls will be integrated into the boardwalk and will form a border on the northern underside of the boardwalk.
These two measures appeared on the beach with no community input. However, they contributed to a sense of safety for many residents and were examples to those residents of coastal protection action on the part of the NYC Parks department. For example, the baffle walls were engineered to block and hold blowing sand, and not to hold back storm surge. Over time, these walls will block sand that will mound up to the height of the walls and provide some protection. However, they only work so long as sand is in front of them and available to collect. A number of factors, such as sea-level rise or if the Army Corps were to stop engaging in beach replenishment, would mean that sand would be ripped from the area in front of the baffle walls at an increasing rate. Nevertheless, residents in areas where these walls were built expressed feeling that these efforts as contributing to increased safety because they had a concrete wall in between them and the ocean.
In addition to these measures, NYC Parks rushed to create and upgrade other facilities in an effort to prepare the beach for the summer season. NYC Parks was relatively defensive when discussing these efforts,

They're comfort buildings…both of them. We have ... At 116th St., there's an elevated bathroom there, because we had underground bathrooms before that can't be rebuilt. But the rest of them are lifeguard facilities. And people keep calling them bathrooms in the sky, they're really lifeguard [stations] (personal communication, NYC Parks Employee, 04/08/2014)

The lifeguard stations mentioned in the above quotation are pre-fab corrugated aluminum buildings that were designed to be modular. They are modular in both construction and use, as they could serve any one of three options of lifeguard stations, comfort stations, or offices. They were designed by Garrison Architects and built offsite for use in Staten Island and Coney Island, in addition to Rockaway beach. The architects and NYC Parks applauded these structures because of their ability to respond to future coastal storms. They were designed to meet engineering profiles for a 500-year storm by sitting high atop concrete chassis, and they had photovoltaic and solar water heaters. This design profile meant that they were FEMA-reimbursable, which was a key phrase in the city’s efforts following Sandy. “And there was a decision made, FEMA reimbursable and make it above the flood plain, to withstand future storms.” (personal communication, NYC Parks Employee, 04/08/2014) Nevertheless they were lambasted for being $2 million ‘bathrooms in the sky,’ “They just thought that we weren't listening. That we were building something for the visitors, not for the Rockaway residents” (personal communication, NYC Parks Employee, 04/08/2014; figure 5.5). Here, the NYC Parks employee is recognizing that the community was keenly aware and frustrated with the different goals of the agency that were described above.
The other major rebuilding effort that occurred alongside these buildings involved the construction of four boardwalk ‘islands,’ at Beach 86th, Beach 97th, Beach 106th, and Beach 16th Streets (later expanded to include rebuilt islands at Beach 59th Street and Beach 32nd Street). These islands were built around sections of the boardwalk where the buildings that held the concessions and bathrooms still existed, but where the boardwalk no longer did. In order to officially open the beaches for the summer beaches were required to have bathroom facilities and drinking fountains. Having pledged to reopen beaches for the summer, NYC Parks rushed to create bathrooms and other comfort stations in these ‘boardwalk islands.’

These platforms were designed by the New York City-based architecture firm Sage and Coombe Architects, “to allow access to and from the Street and beach” (Sage and Coombe Architects, n.d.). While they refurbished and refurnished these existing sites with outdoor showers, shade structures, and access to concession facilities, they also created new amphitheater style seating on the southern beach-facing portions of the islands (figure 5.6). Sage and Coombe
Architects titled this project, ‘Rockaway Beach Open Up.’ The architects described that their project supported the “resilience of the City (Sage and Coombe Architects, n.d.), by getting Rockaway Beach to be ready to officially open for the beach season, and to open up for future economic development.” This rhetoric was used to sell the idea of the islands and in turn sold the idea of Rockaway Beach as a resilient beach.

![Figure 5.6. Boardwalk ‘Islands.’ Map adapted from, Google Earth. Inset photo: DuBois.](image)

Both of these projects represent a high-design aesthetic and were even described as opportunities for the city to flex newly found design muscles. They came at a cost of $140 million. However, even the architects of these projects were sensitive to the reality that their projects were serving two masters and that the decisions being made would upset someone, “You have pressure from the community locally and at the metropolitan level. Every idea is going to make someone upset at the end of the day (Sage and Coombe Architect Sam Loring told the online blog Gizmodo; Campbell-Dollaghan, 2013). Their decisions and the way that they were constructing the discourse around Rockaway Beach was that they were willing to respond to the metropolitan level rather than the community. At the city level, these islands create an
opportunity for the administrators to tout resilient designs that can withstand huge storms and still provide a place for city-goers to escape and relax. But at the local level their benefits are most apparent for the mostly Rockaway west, home and business owners because they supported a real-estate resurgence.

**A Surprising Windfall**

Over four and a half miles of boardwalk were still in disrepair after the construction of the boardwalk islands. Those remaining sections between Beach 19th Street to Beach 126th Street are slated to be completed by 2017 at a cost of $480 million. When originally announced NYC Parks and their project management agency, the New York City Economic Development Corporation (EDC), suggested that they had to work within what they called a tight $270 million operating budget. But nearly two and a half years after the storm in February 2015, FEMA revealed that it had approved $210 more to complete the boardwalk. Only one aspect of the increased cost was made clear, that was the offer of $25 million to Skanska and CH2MHILL, the firm hired by EDC to design and engineer the boardwalk, if they finished the boardwalk on time. But exactly how and what caused the funds to nearly double was unknown. The mysterious allocation was of such concern that City Councilmember Erich Ullrich immediately requested that Senator Scott Stringer audit all of the FEMA money (Healey, 2015). This came at quite an affront to residents and local newspapermen, who described this increased amount as, “Monopoly Money” (Healey, 2015). This was because time and again during the boardwalk design charettes such as the one that I described at the opening the chapter, consultants from CH2MHill spoke to the crowds about tradeoffs. They described restrictions in their ability to satisfy everyone’s needs because of a limited budget, especially relating to the design and amenities.
While the residents questioned the money, New York City administrators applauded these changes for supporting the resiliency of the Rockaways. New York City spokeswoman Amy Spitalnick was quoted as saying in an interview with Katie Honan (2015) from DNAinfo.com “While the [letter of understanding] has not been completely finalized yet, FEMA’s commitment marks an important step forward for the Rockaways and for a stronger, more resilient NYC.” But while the physical infrastructure created by the nearly half billion dollars could potentially contribute to coastal protection, there is a clear need for employment and other forms of community investment in Rockaway East that the boardwalk efforts did not respond to, which I will describe in more detail below.

Emphasizing Green Infrastructure Practices

In addition to rebuilding the boardwalk and using other interim measures to provide coastal protection, NYC Parks began to plant beach grass on the berm created by the Army Corps. This was a new type of management practice in Rockaway for the NYC Parks. Here bulldozers were traditionally used to mow the beach flat to increase recreational space were now being actively roped off to support the growth of beach grass and other plants. In coordination with Army Corps, NYC Parks began to fence off sand dunes and support stewardship days to plant dune grass to reinforce these dunes—some of which included volunteer support. These efforts responded to a recognition that intact dunes play a role in coastal protection, as is alluded to in signs that were placed along with the fences that stated, “Protected Dunes; Please Keep Off!!!” (figure 5.7). They represent what landscape ecologists would call “green infrastructure” because they are structures built out of plants and other “natural” material that provide some intentional benefit or “ecosystem service” to people.
The NYC Parks Department has long supported stewardship within their parks. In recent years these efforts have focused primarily on collaborations with large scale coordinated efforts such as Million Trees NYC. These efforts were put on the city’s agenda during Mayor Bloomberg’s term and involved a wide-ranging network of city, state, and federal agencies and community groups. Post-Sandy these efforts continued and expanded on their beaches and incorporated two new efforts: dune creation using old Christmas trees, and dune grass planting along with snow fencing to protect these dunes. Both efforts are designed stewardship opportunities, relatively simple, that build and strengthen the dune ecosystem infrastructure.

Several groups took to building Christmas tree dunes in impacted areas along the Atlantic shoreline including Long Beach and New Jersey following Hurricane Sandy, in the early spring of 2013. This type of stewardship involves basically a three step process; 1. Collect used
Christmas trees and chop them into manageable sections, 2. Identify volunteers and a location where a primary dune has eroded that does not get submerged during high tide; 3. Cart the tree debris to the site and have stewards create piles at a 15-30 degree angle leeward of the prevailing winds roughly 3’ (high) x 3’ (wide) x 30’ (long). The concept was to build a wall of Christmas tree debris and let the wind blow the sand onto the piles, which would theoretically trap the sand and build higher dunes. The intention, it appears, was to offer the general public an opportunity to do something related to coastal protection that related to a ‘green’ or natural approach.

Surfrider Foundation, NYC and their sponsor Barefoot Wine coordinated the Christmas tree piling with the NYC Parks Department one summer day in 2013 (figure 5.8). Most of the attendees were Brooklyn DFD’s, surfers and surfer friends that were down to lend a hand (and possibly here for the party that happened later that afternoon/evening). For this mostly non-resident group, the effort was about pitching in to restore a place that they liked to visit and surf. In addition to these volunteers, a smattering of community members had gotten wind of the efforts and were there to help for reasons that had more to do with protecting their homes and less to do with their recreational preference or identity.
In addition to these efforts, and likely in part a response to the desire for coastal protection NYC Parks began to protect intact dunes with dune fencing and started beach grass planting efforts, some of which included volunteer support. These efforts responded to the recognition that intact dunes play a role in coastal protection (figure 5.8). There were at least a few places of intact dunes in Rockaway prior to Sandy. These primarily existed on the east side of the peninsula.
The most common form of dune stewardship by NYC Parks involved the planting of dune grasses, and if there were a general mascot for dune stewardship this plant would likely be chosen. For example, hundreds of volunteers responded to a call to plant dune grass on April 26 & 27th 2014. The volunteers who participated on planting days, such as the two in April 2014, were a mixture of residents and professionals volunteering their time through their workplace. In their call for volunteers, NYC Parks required that participants sign up online, with the disclaimer that, “Space is limited and pre-registration is required” (NYC Parks, 2014). An emphasis was put on getting the job done, by seeking volunteers mostly from businesses that were looking to meet their volunteering goals. Of course, the scale of their work was immense. The goal was to plant over 70,000 culms, or stems, of beach grass in just over a half-mile of beach. By 2016 the NYC Parks hopes to have all 6.2 miles of their Army Corps replenished dunes planted with beach grass by volunteers (Foderaro, 2014).
NYC Parks embraced this model so wholeheartedly that they began to farm beach grass at Floyd Bennett Field. This farm was possible because the National Park Service controls Floyd Bennett Field. This ‘native crop’ is intended to provide supplies for future planting efforts (Boyle, 2015b). Where Army Corps provided the substrate, sand, and they are planning hard structures to control littoral drift, the NYC Parks efforts use ecology to keep the dune in place. It is as if Army Corps dumped a mountain of sand on the Mayor’s front yard with no plan to keep it from blowing away. NYC Parks is in turn using beach grass and dune fences to stop it from getting away, a la Bellott (1917).

The form of the actual planting of dune grass is relatively the same whether NYC Parks or another organization does it. However, whereas NYC Parks has access to a ‘native crop’ of beach grass growing in Floyd Bennett Field, community groups wishing to also plant beach grass had to purchase their grass from nurseries (there are several in New Jersey). In addition to obtaining grass, volunteers were called on to plant while the crop was dormant, during late fall to
early spring. Volunteers used shovels or spades to plant the grasses in staggered rows roughly 18” apart along the front, top, and back of the dunes. These stewardship efforts were ongoing volunteer opportunities that NYC Parks was engaging in as the Army Corps continued beach replenishment and dune construction.

**Community Planning of the “System”**

**Community Charettes**

As mentioned earlier, NYC Parks also engaged Rockaway residents in community planning sessions. The goal of these sessions was twofold. The first was to get input for a schematic design of the boardwalk. The second goal was to again get input, but for a conceptual plan for replacing storm damaged play features and new recreation, concession and access opportunities. The conceptual plan centers on a plan for parks and open space on the Rockaway Peninsula from the Bay to the Ocean between Beach 9th and Beach 149th. It focused on connections between park spaces, replacement of recreation and parks facilities, boardwalk access, and beach access.

NYC Parks organized their first ‘community visioning session’ in April 2013 with a crowd of around 100 participants. They also simultaneously launched an interactive online visioning tool to capture input from an even wider audience from April through August. These planning tools focused on four aspects of the boardwalk; coastal protection, recreation, economic development and aesthetic. Nearly 25,000 votes were tallied on ideas for the boardwalk. During the design planning charettes and web-based interactions, residents were asked for their input in regards to the access points, surfaces, and overall design of the boardwalk. They were asked to comment on the look and feel of the boardwalk, as well as the opportunities for access (figure 5.11), as images from one such meeting in September 23, 2013 show.
While NYC Parks ran these charrettes, the NYC Economic Development Corporation (EDC) was managing the boardwalk rebuild. The EDC defines the scope of their work quite differently from that of NYC Parks. They defined the boardwalk reconstruction in terms of storm resistance measures. In public meetings, they suggested that the boardwalk would be rebuilt to resist storm forces, to integrate with Army Corps work, to incorporate the rebuilt islands, and would be designed at varying elevations similar to comfort stations that were built well above the FEMA flood heights (Dailey, 2013). This reconstruction was planned to coordinate with the rebuilt sand dunes both in front, below, and in some points continuing behind the boardwalk. NYC Parks contracted project managers CH2MHILL to oversee the reconstruction efforts.

As mentioned in chapter 4, the NFWS piping plover moratorium delayed NYC Parks efforts similarly to Army Corps. This was because over 3-miles of boardwalk, in the eastern section of Rockaway from Arverne to Far Rockaway, will be delayed and will be the last set of
neighborhoods to have their boardwalk repaired (Figure 5.12). This ‘piping plover moratorium’ delayed the boardwalk reconstruction efforts until 2017 for this section of the Rockaways. Other phases of work, however, have been ahead of schedule. In exchange it protected around protect the fewer than 2,000 pairs of the plovers that remain in the Atlantic area, according to the US fish and wildlife service (Hennen, 2015). This was a trade off that many community members were frustrated by. The breeding ground of 2,000 plovers was protected and conserved while thousands of residents were left concerned that they were not receiving adequate protection and without this valued social space.

Figure 5.12. Boardwalk reconstruction phases, piping plover delayed sections in pink. Image from, Honan (2014)
Discourses about NYC Parks Practices

Recreation

The fact that even a few residents were willing to accept a beach with dunes and dune grasses is significant because recreation is one of the primary ideologies that they expressed about what they wanted from the restored beach. This recreation was related to personal satisfaction from individual forms of recreation, such as the joy that people get from going out surfing. It was also related to an attachment to the beach as a place for them to bring their families for various forms of passive (sunbathing on the beach) to active recreation (playing volleyball).

Before Sandy, NYC Parks measured beaches based on ability to access playgrounds and facilities on and adjacent to the beach. Working within a recreation model, park managers believed that the facilities developed on and adjacent to the beaches in Rockaway had a focus on equity before Sandy,

I have to say first, before we even go to what happened to Sandy. We had a PlaNYC program here…before Sandy. And so we had, even though some areas are less ... You know, more impoverished than others. There was a huge focus on Far Rockaway, where they have need….Even though there are conservancies, and there are private fundraising arms, there's also a lot of focus on sustainability. And especially under the Bloomberg administration, there was a lot of division of resources. And PlaNYC was a huge proponent of really looking at where the need is going to be, where is the city growing. Where aren't there enough resources for recreation. We had that, and that was great. Some of it really did well with Sandy, and some did not. (personal communication, NYC Parks Employee, 04/08/2014)

But whereas the NYC Parks employee described sustainability in the above quotation, as focusing park improvements in impoverished areas the sustainability of the Far Rockaway community is not the same. Their ability to sustain lives and livelihoods appears to hinge on increasing opportunities for employment.
But while the NYC Parks efforts did not resonate well with Rockaway East residents, NYC Parks’ historic and increasing emphasis on recreation drew several community partners that had developed deep knowledge of and place attachment to Rockaway beach. Surfers are the most visible group of people in Rockaway in terms of their place dependence, because of their presence both on and off the beach. Describing surfing as recreation and conjuring images of tanned blond-haired teenagers and young-adults overlook the significant knowledge that these enthusiasts develop about places that they surf. Walter Meyer described his understanding of the waves in Rockaway to the Rockaway Waterfront Alliance,

They didn't realize how much water was coming over towards us at that time. So the wave condition needs to be discussed separate from flood, and that's why Rockaway becomes very important. Because Manhattan gets flood, Rockaway gets flood plus storm surge and waves. What makes us, and everyone knows about this Hudson canyon that surfs in Rockaway, there is this centerline of the Hudson River that runs down under water that funnels that swell energy straight into Rockaway. And Breezy Point gets the crux of it. As we zoom in there are these valley's along the shore and you get these hot spots where you get more surge than others because of that funneled wave action. (Rockaway Waterfront Alliance, 2014)

Furthermore, surfers played a role in responding to Hurricane Sandy. One surfer told me about her efforts and those of other surfers in the area,

Well, I don't know if you know of the business on the corner called Veggie Island... right after the storm she had sort of offered her place up as a location where you could drop off supplies, pick up supplies, and became very quickly a site where people could come to. And I lived a few blocks from here and so I went to Elizabeth's to see if I could help out, and two or three days after helping out there I found myself manning that location which very quickly became a full on operation dealing with lots of people, dealing with hundreds of people dropping off supplies, food, gasoline, people looking for ways they could help and volunteer… And so you would come up to the window across the street and you would ask for what you need and they would put together the things that you needed. And once that needed replenishment over there they would walk you over to the staff over here. And then we would bring things from here over there… Everyday we would send out groups of volunteers, which was an area where we were kind of focusing on to see what their needs were. They would fill out our canvassing form and check off all the boxes of things that they needed. These are people who were elderly, or had children and couldn’t make it here. Lived too far away, lived on the fifteenth floor of a
building that had no elevator service and hadn’t left their house in a month…Food, clothing, hot meals, flashlights, batteries, diapers, whatever. It was so amazing. It was a pretty incredible operation. (personal communication, Rockaway West Resident, 7/22/2013)

In coordination with Veggie Island, surfers also led an effort to provide supplies and other support through the Rockaway Beach Surf Club on Beach 87th Street in Rockaway. This led for some Rockaway residents to reorient their interpretations of surfers that moved into the area.

During the storm, I can remember clear as a bell—the so-called hipsters came by bicycle loaded with fruits, water, [and] supplies. Pedal down, give out all the food, work all day, and then pedal back. This was when we had no electricity, no transportation. I remember one guy—peter pan looking guy—had a basket of granola bars and bananas, walking in the middle of the street. Said, do you want granola bars or a piece of fruit? He said take two bananas sir. I just watched him going up the block, very quiet, very humble. About 8 hours later, I see him walking back, has his basket, filthy dirty. Long day, going to head back to Williamsburg. He said, that is the least I can do. I wondered how he was getting back, I didn’t have my pickup, but before I could make up my mind what to do, he was gone. A couple days later he was back walking down the street again. I heard an expression the other day, they’re not hipsters, they’re helpsters. (personal communication, Rockaway West Resident, 1/15/2014)

In addition to responding to the community’s direct needs, surfers started to work specifically on Rockaway beach to build and rebuild sand dunes. Surfers held favorable ideas about sand because of the importance of sand in creating the appropriate bathymetry for wave riding. It also was not lost on them that these dunes were a way to give back to the beach and also the community of people who use the beach. Their particular form of support came in the form of convening large groups of volunteers (~200) to support NYC Parks and other community-dune planting efforts. Surfrider Foundation, NYC described that their stewardship was an, “opportunity to strengthen the shoreline against future storms by laying the foundation for new dunes. It was evident that communities that had dunes during the destructive hurricane had fared far better than those without. Our mission was simple: assemble a bunch of stoked volunteers, gather in Rockaway, and build some dunes” (Surfrider Foundation, NYC, n.d.).
During these efforts surfers spoke of a desire to give back to the beach and the community to New York City reporters. One surfer stated, “I’m a surfer, and I am here all the time. So it makes total sense to come down here and give a little back to try to make my habitat a little cleaner.” This was echoed by another surfer, “I wanted to give back because I’m always here taking from the ocean. And it was time to give back to la playa.” These statements and the efforts of surfers to restore Rockaway beach and to support the recovery of the larger Rockaway community speaks to the strength of their ability to connect their recreation with sand and its role in supporting the community and their surfing practice, in tandem. In another interpretation it also may speak to an intention of surfers to be seen as stewards. Their stewardship then can be understood as an attempt to develop a social identity of caring about nature.

However, many residents maintained the old model of the flattened beach without sand dunes and with easy access to the water when they talked about the dunes. They spoke about dunes as limiting their access to the beaches and ways of access.

I’m not crazy about the dunes. They change how we’re going to get to the beach. The wagons will be obsolete. I don’t know how we’re going to get over, they’re not there now, but so much more sand has to come in. It’s a way of life from June-September. (personal communication, Rockaway resident, 10/17/2013)

While this may seem like a trivial distinction, this was an ideology that had driven the programming of Rockaway beach pre-Sandy as a flat beach with no sand dunes. But while one might suggest that this is an uninformed perspective, sand dunes do inhibit access to the beach for many residents such as the elderly and others with different forms of mobility. For example, one mother of a child in a wheelchair spoke of the importance of blue ‘mobility mats’ for her son to access the beach, “[It’s] Not easy in this neighborhood for people with mobility issues. I am a very big advocate of the beach mats, allow for wheelchairs. [We have one on] 116th and one on
my beach. This is the best thing! One woman hadn’t been on the beach in 15 years. [The mats] Allow easy access” (personal communication, Rockaway West resident, 10/17/2013). The dune presented a possible impediment for her son to get up and over in order to be at the beach and she was concerned that the dunes could prevent her son from getting to the beach.

For older residents, primarily from Rockaway West, the prospect of having to pull their beach carts over a dune was enough to make them opponents to the dune restoration efforts. For this group of residents, the dunes are a barrier to their ability to access the beach and a way of life that they cherished. For example, one Rockaway resident described the importance of the social scene of the beach and how being able to see for long stretches makes that life possible,

This is a family oriented community here. It’s not unusual to have 5-6 children, out at Breezy Point, 7,8,9 children. You’re talking about large families. One of the beautiful thing here is you can let your kids out and play. This could be 1950, 60, 90, 2000, have kids out playing stickball, roller-skating. I’m at the beach everyday- it’s a social thing and you go with the kids they swim, they make sandcastles, they socialize. It’s easy to watch them, they’re in front of you all the time. When you’re at the beach, everyone is visible. (personal communication, Rockaway West resident, 10/17/2013)

Their concerns about losing their way of life were an emotional attachment that they were reluctant to compromise and so they were wary of the dunes despite having significant flooding in their homes.

**Implied Attitudes Towards Nature**

Post-Sandy, NYC Parks shifted its emphasis on managing the beach as a recreational facility to management approaches that included the ecology of the beach. The change is twofold; 1. that NYC Park’s management of the beach must now help in coastal protection efforts, and 2. that the form of the beach has implications for the vulnerability of rockaway residents. Liz Jordan, a Landscape Architect for NYC Parks, told Surfrider Foundation, NYC reporters that, “Dunes are kind of nature’s way of providing a first level of defense against storm
surge and wave action. Sandy helped us to figure out that dunes are really important” (Surfrider Foundation, NYC, n.d.).

In the Christmas tree effort, one resident provided a clear description of the protection discourse. This 85-year old woman, whom I took to calling superwoman in my notes, had this to say about her participation (Figure 5.13):

Interviewer (I): What brought you to build the dunes today? You don’t look like a surfer to me.
Participant (P): I live just right back there on Beach 43rd Street, but on the bay side.
I: Oh, on the bayside? Was it true that the bayside had the worst flooding?
P: Yes, we had it really bad...
I: Do you live in one of those bungalows there?
P: Yes, I live in a bungalow kind of home, no basement. But I have two floors, so when the flooding happened I was able to go up to the second floor. A lot of people had it worse than me near here, the people who didn’t have a second floor had to leave their houses during the flooding. I didn’t understand why all those people stayed after Katrina until this happened here. At the time, I thought, why would people put themselves in danger like that? But then Sandy happened here. I know why they stayed there, because it’s their home.
I: Is that why you’re out here?
P: I’m out here trying to bring back the beach. I’m doing in my part to build back the beach to help protect us during the next storm. But I’m not sure how long we’ll be able to live here. Many of my neighbors moved and aren’t coming back. I’m hoping to be able to stay here forever, but I’m not sure anymore... Ok, back to work! (personal communication, Rockaway resident, 8.9.2013)

She saw this as an opportunity to build back the beach and to protect her home. Even though she felt that her life on the peninsula might not be forever, she was trying to do something to protect what she had for as long as she could have it. She links to New Orleans residents who suffered through Katrina, and in doing so aligned herself with others that were criticized for staying and even coming back after the storm. But she made it clear that for her, home was something she was willing to work to protect and to risk herself for.
Although this resident seemed to express an understanding that her home might not remain, NYC Parks did not make public comments related to such concerns. Instead, NYC Parks claimed that they could build structures on the beach that met certain resilience standards that meant that they would remain into the future. They did build these structures, but in building them these represent hubris that people can continue to maintain the beach as property. This led to material practices that established a rationale of order and control and served a particular power dropped onto the beach. That perceived power was defended using notions of expertise to sustain a singular techno-managerial approach. Some residents took up this binary interpretation based on the same hubris that property can be established in this barrier beach ecosystem (figure 5.14).
This conflict reveals that a turn in coastal infrastructure, no matter the degree of natural or green elements, is still working within the same mental frame. This mental frame is about maintaining fixed property relations by controlling the beach geomorphology. A turn to green infrastructure places an emphasis on recognizing the space as an urban ecological space that is connected to and impacts a social system. But it does so while maintaining the problematic binary of the beach (nature) as separate from Rockaway neighborhoods (humans). While the beach is still public, these efforts maintain a view of the beach as separate from people and oriented towards concerns about private property. Therefore conflict on the ground was about an ideology focused on engineering structures to control erosion, versus the ideology that dunes with beach grass would be better put in their place. Whether an engineered service or an ecosystem service, the attempt to control erosion was about valuing the beach while simultaneously valuing a life on the Rockaway peninsula. After all, before human settlement on
the Rockaway peninsula, it functioned as a barrier beach that could shift in significant ways due to the impacts of severe storms off the Atlantic, from which the peninsula itself was created.

**Economic Development Through “The Spine Of The Rockaways”**

Amongst nearly all participants the boardwalk was described as a truly cherished social space. The boardwalk was an actively used public space that was used for transit, for recreation (such as bike riding or walking/jogging), cruising, for watching the waves and surf, for concessions, for getting fresh air, as a place for teens to hang out. One interviewee spoke about the significance of the loss of boardwalk to them,

> For me, I still mourn for the boardwalk. I really do. Growing up here it was just such a center of everyone’s life that we didn't realize until it was gone….It literally connected the community from one end to the other and we all have our memories of that so I think there's a really important community aspect to that that's gone. I've heard the argument that it's sort of a luxury problem that I could respect and understand. While people their homes are still messed up and their lives or they're living in deep poverty and the boardwalk is sort of like a luxury problem. I definitely understand and respect that, but I think there's a really social significance to it. (personal communication, Rockaway East resident, 03/25/2014)

Rockaway West residents, such as those who formed the group Rockaway United, tended to view the beach as an extension of their private property. They spoke of ‘their’ beach, and frequently lamented that they didn’t have more control over the reconstruction process. One aspect that they wanted greater control over was having the boardwalk repaired more quickly and to designs of their choosing. Many Rockaway West residents pointed to the coastal protective factor of the boardwalk in addition to the desire to have the boardwalk back for its use as a public space. There were some portions of the wooden structure that slammed into the residential areas of the Rockaways after Sandy and so residents pointed to the intact sections of the concrete boardwalk that withstood the storm and in some cases buffeted neighborhoods from the storm surge.
However, for the 17 percent of Far Rockaway residents that were unemployed, the boardwalk reconstruction was significant as a potential employment opportunity. And early on the rebuild appeared to be a first step towards employment. For many of the Rockaway East and public housing residents, conflicts over Rockaway beach reconstruction were about their right to access employment in the boardwalk reconstruction.

Also, very few public housing residents had their homes actually flood because they live in high rises that have few residences on the first floor. Sandy was yet another missed opportunity for the improvement of their housing. This particular issue is emblematic of the social inequality in Rockaway and the discussion of the peninsula as a ‘dumping ground.’ As described in chapter 1, many residents in Rockaway did not move to the area with an interest in being near the ocean, but rather because they needed a place to live. With little in the way of financial resources, many low-income residents were hoping that the public financial investment in the boardwalk might provide employment opportunities.

Residents, particularly in Far Rockaway, made their desire for jobs clear during the three job fairs that the Economic Development Corporation (EDC) held in the community in early spring, 2014. During those meetings, representatives from EDC described requirements to hire locally on federally subsidized projects through HUD, such as were being proposed. These representatives described that Section 3 of the Housing and Urban Development Act required that Skanska, the construction manager on the project, hire at least 30 percent of new hires from the local area. Furthermore, this HUD Act required that contractors and subcontractors with contracts over $100,000 provide new job training, employment and contracting opportunities for low-income residents in connection with the project. But exactly how did that $480 million benefit the Rockaway community that is most in need?
There were essentially three opportunities for Rockaway residents to get hired onto the job: general employment opportunities (such as flag persons, construction cleanup, fencing, laborers, and watchpersons), employment opportunities for construction trades (dock builders, electricians, plumbers, carpenters, operating engineers, concrete masons, and iron workers), and business opportunities (for those that owned concrete, plumbing, electrical, and/or trucking businesses). Consultants from EDC publicly stated that there would be about 200 to 300 workers employed during the project and only a few dozen hired locally. These local hires had one of three opportunities to apply for these jobs, mostly as general laborers, plumbers, carpenters, and concrete masons. These job fairs were held by the EDC in the early spring of 2014 where it created a database of workers. City Councilman Donovan Richards (D-Rockaway) pushed for unemployed residents to get first dibs on these jobs, and appealed for the percentage of local hires to be raised to 50 percent. But his appeals were not accepted when the budget was $270 million, nor were they met when the allocation for the boardwalk rebuild was increased to $480 million. While what happened and would eventually happen to the entire $480 million is still under investigation by New York City Controller Scott Stringer, it is clear that very little of this money was turned into employment opportunities.

The lack of local jobs was made clear during an address to the standing room only third and final job fair, held in the cafeteria at PS43 in Edgemere. On that evening, Greg Clancy (EDC) stepped in during a heated debate about employment opportunities that started when the crowd learned that only a few dozen people would be hired locally. “Not to be callous, mean or jaded but we’ve only got about 200 jobs, and some of those jobs are going to be filled by company employees that come from elsewhere. Not every one of the 200 is going to be from the Rockaways. But there are going to be jobs for people in the Rockaways.” He continued, “There’s
going to be skilled and there’s going to be unskilled jobs,” and that of these jobs, “It’s a prevailing wage person who we need to perform a valuable function who gets paid $16 an hour.” He concluded that, “You look around the room and not everyone in the room here is going to get a job because there are not enough jobs [but] the good news is the whole pool of applicants is probably about a couple of hundred.”

A man running for state senator (figure 5.15) stepped in and asked why not 80 percent of jobs? He said that in Atlanta they didn't allow work until they hit the 80 percent, “we can do that here.” The response from Mr. Clancy (EDC) was that the only teeth they had came from the federal regulation for 30 percent, and that they would be making sure that Skanska and other contractors were doing things correctly. Mr. Clancy added, "We're not going to be the end all be all for the economic recovery in Rockaway." He said he was not there to fix the inequities of the world, but that the NYCEDC has “a few good paying jobs that people can get.” He said there was low turnout in the other two sessions, so the attendees were really the competition. A man in the audience stood up, "We want to build back Rockaway, this is our home. When we make something with our hands here, it is beautiful." Mr. Clancy responded, “we all have skin in the game, I will lose my job, Skanska wont get contracts if they do things wrong, and the city wont get reimbursed by the federal government if they mess up.”
The night ended abruptly after Mr. Clancy’s statement and I left the school feeling that the theme of the night was, ‘Forget it, you will not have jobs and there is nothing you can do about it.’ The administrative structure was visibly top-heavy just based on the number of employees present. In contrast were the men and women looking for jobs, and the community showed their nuanced understanding. Mr. Clancy compared his ‘skin in the game’ with those in the audience, however the audience felt they had much more to lose by not gaining employment from this opportunity.

It became apparent that at both the city-level and amongst Rockaway residents and business owners that a reconstructed boardwalk was expected to have the potential to support the economic recovery of the peninsula. This was true repeatedly during my time spent at community events, discussions with residents, and reading views expressed in the local papers and by local community leaders. While Mayor Bloomberg claimed that the building of boardwalk islands and the opening of the beach for the 2013 Summer season would support the
economic recovery of the area, when he opened the beach on Memorial Day, this was certainly not the case for all types of businesses. Rockaway business owners had conflicting experiences with the reality of the economic recovery of the area that appear to split down the category of tourist businesses versus businesses with a focus on resident needs. For example, the owner of M and L Hair and Nail Salon on Beach 116th Street was quoted in the WNYC news (Nessen, 2013b) that the Summer of 2013 had been, "No good… Nobody come back yet." However, this is contradicted by the manager of Rockaway Taco, a popular eatery especially amongst visitors and tourists to the area, “It’s as if nothing changed,” said Robert Wagner, a manager at the popular Rockaway Taco who says the eatery has been busier this year than last’ (Nessen, 2013b). Efforts focused on bringing tourism and developing coastal real estate meant that the city overlooked the needs of the communities that lived in these coastal places.

**Discussion**

**NYC Parks and Just Sustainability**

The immediate response from the city administration was to repair boardwalk islands in efforts to open the beach for economic considerations, however it would later provide opportunities for participation through community charettes and stewardship activities. When considered from the just sustainabilities paradigm (Swyngedouw, 2005; Alkon, 2008) the NYC Parks provided some opportunities for procedural justice. It shifted how it typically worked and engaged in partnerships with a number of actors including the Army Corps, the National Park Service, Rockaway communities, and environmental activists (i.e. Surfrider Foundation, NYC). However, it did not provide opportunities to make final decisions about how the money would be spent, most notably in the boardwalk rebuild. In terms of distributive justice, the people who benefited the most were the politicians such as Bloomberg that came across as competent in their
ability to respond to the storm, those that used the beach for recreation, lived closest to the beach, and were those people whose property prices went up because of the restored beach. NYC Parks were undermined in their ability to engage in restoration efforts in the piping plover protected area, but other decisions could have been made in order to distribute the benefits of their efforts to Rockaway East residents.

For the low-income residents on the peninsula, especially those in public housing, I argue that NYC Parks overlooked the needs of the Rockaway East community. Through the conflict and unequal power relations in the boardwalk conflict, this case furthers the critique of the neoliberalization of public space because of the closing off of opportunities in exchange for economic development. This case suggests that there is also a trade-off where some people must live in degraded environments in order for the restoration of another environment. While the sources of money for public housing are from HUD or require a separate negotiation for FEMA money, the employment needs of residents that live in public housing could have been met by providing more employment opportunities to residents during the boardwalk rebuild. Instead, through an economic development lens, the ability to benefit from the boardwalk reconstruction was limited to those people, residents or non-residents that had some stake in property or business on the peninsula or access. Whereas concessioners, recreationists, local business owners, and even homeowners stand to benefit personally and financially from a restored Rockaway boardwalk, low-income housing residents in any of the peninsulas public or private housing complexes did not.

Finally, interactional justice was weakly produced because NYC Parks limited restoration activity to only those approaches that it approved and managed. The boardwalk reconstruction and dune interventions were framed in their role in benefiting people. This argument relates to
the urban ecology concept of ecosystem services. Framed in this way, the boardwalk reconstruction would appear to be a net positive for all members of the community in Rockaway. The reconstruction meant that there would once again be a valued social gathering space and also would support the renewal of the beach and the boardwalk space specifically for economic development. But this emphasis overshadowed the employment needs on the east side of the peninsula. This supports Fabinyi, Evans & Foale (2014) suggestion that SES research should consider varied and conflicting meanings about places in order to keep heterogeneity in understanding the trade-offs in restoration efforts. If mechanisms had been in place to respond not only to the resident’s ideas for the design of the boardwalk, but also how the boardwalk rebuild could have responded to the needs of the community, it would have better achieved a just and equitable outcome.

Similar to the findings of the Superstorm Research Lab (Cohen & Liborion, 2013) across much of New York City, these results suggests that the boardwalk reconstruction efforts were not equitable, where equity, “is about fair or just allocation, where greater needs receive greater attention and resources with the goal of bringing everyone to similar levels of vulnerability and resilience” (Cohen & Liborion, 2013, pg. 7). Money spent on the boardwalk was money that was not spent on other issues. The inequitable issue is that the boardwalk rebuilding unevenly distributed risk among groups in Rockaway (Fishburn & Sarin 1991). In this case, distributive equity is apparent because risk in the form of inadequate housing and under-employment in Rockaway East was overlooked. Whereas the residents all got the same thing, a new Boardwalk, the notion of distributive equity would suggest that unemployed and low-income residents should have received more resources than they did.
Fixing Binaries Through Planning and Volunteerism

While coastal infrastructure in Rockaway beach transitioned in some ways to incorporate green infrastructure, this work is still about fixing property relations. Instead of an entirely new way of thinking about the beach, I argue that this can be seen as a transition of the property regime of Rockaway beach from a recreational space to an urban ecology. In describing what a property regime is Bromley (2004; as quoted in Mitchel & Staeheli, 2006) suggests that, “urban land… needs to be recognized as land over which a legal regime of real property is operative.” These regimes are institutionalized through roles that owners, users, and the police play in defining use, access and behavior in the urban land (Mitchell & Staeheli, 2006). However, during moments of transition and change such as that following Hurricane Sandy, these spaces can become dynamic and open to contestation. Public spaces can become pseudo-private spaces by being publicly owned but controlled and regulated by private interests that seek to profit from the remaking of these spaces (Crilley, 1993). In this chapter, I suggest that the NYC Parks practices are the form by which property is maintained in Rockaway. I argue that their turn towards green and soft infrastructure exaggerates the benefits that their actions have on residents of Rockaway. Instead, this maintains the historical practice of controlling sand in order to profit from it and are ultimately about protecting private property.

A tradition of protecting private property has been established through programs such as flood insurance, and the 1988 Stafford Act specifically [which created FEMA as a response to disasters] (Young, 2013). Young (2013) argues that, alternatively, such policy could be emphasizing greatest benefit with least environmental harm. Such a program would move people and communities away from coastal places. This type of program was essentially what Governor Cuomo proposed following the storm. He called this the NY Rising Buyout and Acquisition
Program. This program was designed to buyout homes at their pre-Sandy market value. This program offered buyouts to homeowners whose homes were damaged or destroyed during Sandy, Hurricane Irene and Tropical Storm Lee. Gov. Cuomo first introduced this program during his state of the state address on February 3, 2013. During that speech, he made a striking statement about the state of coastal communities,

> There are some parcels that Mother Nature owns. She may only visit once every few years, but she owns the parcel and when she comes to visit, she visits. We want to run a program that will provide the funds to buy out those homeowners who don’t want to rebuild and want to move on to higher ground literally, and that would be smart. (Cuomo, 2013)

However, no Rockaway neighborhood was included in this program because of a lack of interest among residents on the peninsula. But despite Governor Cuomo’s insights about “mother-nature,” he followed up his statements with the suggestion that, “We must harden our infrastructure.” In the paragraphs that followed, he went back on his argument to retreat and described how coastal communities needed to harden various parts of their infrastructure.

This hardening was in line with the primary governmental response (Army Corps and NYC Parks), which was to create structure and order in the littoral process in a way that emphasized the stability of the beach and private property in Rockaway (table 5.2). The Army Corps created order in Rockaway beach by defining the boundaries of the beach and using sand berms to build up the beach. Furthermore, NYC Parks created many structures, such as baffle walls, the boardwalk, and boardwalk islands that further reified the notion of stability in Rockaway.

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8 Mayor Bloomberg also developed a housing acquisition plan. However, the Mayor’s plan supported redevelopment of this land whereas Governor Cuomo’s plan would have that land remain undeveloped.
**Table 5.2. NYC Parks Beach Restoration Practice Description**

**Stewardship Versus Ownership**

Support for sand as coastal protection leads to projects that look very different from sand as a sandy beach ecosystem, for example. Sand as coastal protection includes such things as sand filled geo-textile “trap bags” that line the shorefront (figure 5.3). Furthermore, sand as coastal protection draws a hard stance on territories, even if it is through an understanding of soft structures. This hard stance claims that sand is appropriate on one side and not on the other. In this way, sand as coastal protection also leads to the construction of things such as baffle walls, which are built to block blowing sand from entering into neighborhoods. The recent trend of incorporating green infrastructure into policy and planning in New York City continues traditional notions of decision-making in natural resources that highlight control, technocratic expertise, top-down hierarchical, singular, and a-political responses. Agency employees worked to incorporate community voices and engage in new practices, but due to systemic flaws and other citywide intentions their practices appropriated a view of the beach as about tourist and cultural development.
While NYC Parks can be considered another actor that engaged in efforts to restore the Rockaway coast, Rockaway residents on both the east and west ends of the peninsula both felt left out for different reasons. Rockaway West residents problematize the beach as public because they view themselves as homeowners that have an interactional relationship with the beach and resent that their knowledge from this interaction is not followed by NYC Parks or Army Corps. In essence, they viewed the beach as an extension of their private property and so feel that they should have been taken into greater consideration. In contrast, there are many more renters than homeowners in Rockaway East and so that type of discourse isn’t present. They have less representation on community board 14, have less public swimming beaches that they have a vested interest in, and less access to the beach overall. This results in at best a muted struggle and at worst a non-existent one as Rockaway East residents described feeling hopeless in their ability to affect change in the NYC Parks context. Where there was some expression of a counter-narrative was in the interstitial spaces on the central/east side of the peninsula, the Arverne East area, where property ownership and managerial control was less obvious.
In order to build resilience and face uncertainty and change means...this requires an involvement of society in its broadest sense towards a change of culture that makes ‘‘collaboration’’ between society and the environment (rather than mere ‘‘interaction’’) the central focus of attention. (Ernstson, et al., 2010, p.538)
Field note
11/11/2013. Visit to Rockaway Waterfront Alliance

One day in late fall 2013 I took the far Rockaway line, passed the Broad Channel stop, and east of the recently renovated Arverne-by-the-Sea/Beach 62nd Street stop to Beach 59th Street. I came out on this brisk fall day to the Arverne neighborhood of Rockaway to meet with Jeanne DuPont, the executive director of the Rockaway Waterfront Alliance (RWA). I met Jeanne several months earlier at a community event where she told me about a dune stewardship effort that she was putting together and that I should check back with her again in a few months. Although RWA was about to move into a renovated firehouse that is meant to function as a forward thinking community center, at the time her organization was located in the basement of a privately owned low-income housing complex on Beach 58th Street.

At that meeting, Jeanne told me that RWA was one of the community groups that played an active role in supporting the recovery of residents after Hurricane Sandy, especially the low-income and mostly black residents living in private and publicly owned housing on the eastern end of the peninsula. These residents were stranded for months without electricity, heat and adequate transportation. Youth participating in RWA programs helped to organize volunteers and mucked out whole neighborhoods that had homes inundated with floodwater and consequently several inches of sand.

Jeanne, her program manager, and her youth participants, also organized resource drop offs and even organized an effort to get the phone numbers of everyone in their area to create a network that could connect residents in the event of a future storm or disturbance.

I came out to meet with Jeanne because of something else that she was doing. She was trying to build sand dunes. Despite the fact that she and others in rockaway saw these dunes as playing an important function in protecting their community from future storms, the efforts that she showed me were relegated to one small section of sand that was not owned by the New York City parks department (NYC Parks). This was because RWA’s efforts to build these dunes on Rockaway Beach had been rebuffed by NYC Parks.

Jeanne told me that following unsuccessful efforts to work on Rockaway Beach, RWA decided to start to restore land on the Arverne East section of the Arverne renewal area in Rockaway. In order for the non-NYC Parks community members to engage in dune restoration, the leaders of RWA’s efforts told me that they had to get a letter of support from developer of Arverne East and navigate a number of agencies and organizations with disparate interests. They described struggling with identifying whom to approach to request access to this area, because this space was marked by fragmented ownership, which is similar to other places in Rockaway that are de-mapped or at least difficult to ascertain the property owner. RWA was eventually able to identify the New York City Department of Housing Preservation and Development as the previous owner of the Beach 32nd to 54th land, that is now the property of the developers of Arverne East and Arverne View. However, in this same section of land, NYC Parks owns property from Beach 54-56. Furthermore, while RWA’s work is not allowed on the beach, they are supported by grants from federal and state agencies: USFWS for the planting of shrubs and grasses and a reimbursable grant from the NYSDEC for the sole purpose of planting trees.
I introduce the chapter with the quotation from Ernstson et al. (2010) in order to juxtapose it with the above field note. Whereas researchers interested in social-ecological system resilience such as Ernstson et al. (2010) are interested in supporting collaboration between people and the environment, support for that collaboration is not always born out in management practices. My experience with RWA, an example of which is the above field note, was that collaboration occurred only when tightly controlled by NYC Parks. As a result, and what I will show in this chapter, is that groups such as RWA eager to work in ways that differed from NYC Parks were forced to the margins. But on the margins it was able to proceed with less regulation and literally being in-between places and ecosystems meant that it offered important opportunities for bridging ideas and practices. Following Hurricane Sandy, many residents experienced how dunes protected neighborhoods from storm surge impacts. The federal government supports the building of sand berms in Rockaway through the Army Corps’ large-scale beach replenishment projects. However, without dune grass and other plantings the sand would blow away. In response to this many groups, including NYC Parks, developed volunteer opportunities to help them to plant dune grass on this berm. However, many residents felt the NYC Parks efforts were inadequate and sought to engage in their own work.

In this chapter I will focus on different forms of stewardship of sand dunes in Rockaway beach. This chapter explores the different environmental stewardship actions, which have different forms of support from local and large-scale agencies. I describe these from the perspective of civic ecology practices (Tidball & Krasny, 2007). Civic ecology practices are grassroots or local environmental stewardship actions to enhance the local environment and neighborhood (Krasny & Tidball, 2014).
Researchers from the US Forest Service have identified more than 5,000 stewardship groups that are active in New York City, and many of these groups are community-led. These groups have been described as forms of urban governance, where groups have come together to create changes in their local neighborhoods, often successfully navigating various city agencies (Svendsen and Campbell, 2008; Fisher, Campbell, & Svendsen, 2012). These types of efforts are described by Hoyte (2005) as a shift from government to governance of public space. However, others such as Angotti (2013) warn that these are examples where state responsibilities are offloaded onto local actors. I take the perspective that both are possible simultaneously; these practices can both provide opportunities for increased governance of public beaches while simultaneously being efforts that are a response to inadequate efforts by the state.

**Dune Stewardship Practices**

Community-led efforts to restore the dunes in Rockaway occurred both on NYC Parks property and in areas just adjacent to it. I begin with the most visible human efforts that were ongoing in the Arverne East section of Rockaway and then discuss seed bombing activities that were dispersed throughout the beach.

**Restoration of Dune on Arverne East (HPD) property**
Dune Mapping and Planting

The Rockaway Waterfront Alliance engages its program participants and community volunteers in learning about the natural and social aspects of the Rockaway peninsula. The primary dune mapping responsibilities are those of participants in the RWA’s Shore Corps program. This program hires young people, ages 14-18 from low to middle income households in nearby Rockaway and Broad Channel neighborhoods, to learn about Rockaway and engage in various stewardship practices. Young people are hired on a recurring 6-week programming schedule for the fall, spring or summer. Many young people return to work with RWA for several years. During my observation of the program the young people were introduced to tree-identification, GIS-mapping, and dune grass planting techniques. They also worked in groups assigned to particular areas in their stewardship site and took part in activities sometimes unrelated to their dune restoration work, such as community planning, surfing, and design charrettes (Smith, DuBois, & Krasny, 2015).
The goals of their work were developed in tandem by landscape architect Walter Meyer of Local Architects. Mr. Meyer’s architecture firm had won the contract to plan the landscape of the Arverne East section of land nearby the RWA’s Beach 58th Street headquarters. With RWA, Walter identified a plan to map invasive species and other plants in the Arverne East land. Shore Corps members were introduced to the concept of mapping the Arverne East dune through collaboration with a United States Forest Service forester. Shore Corps members learned tree-identification, including how to measure and identify the trees using a book as well as how to use GIS mapping software. Over the course of several weeks, participants walked the dunes of Arverne East measuring, identifying, and mapping trees and plant types in the area (for a detailed description of the social learning process and outcomes of this program, see Smith, DuBois, & Krasny, 2015).

In addition, Shore Corps participants and other RWA members developed beach grass planting events in the same Arverne East space (figure 6.2). These events, held on weekends in the late fall, winter, and early spring brought hundreds of participants to the otherwise untrodden section of beach north of the boardwalk. To do this they contacted beach grass seedling greenhouses in New Jersey and bought as much as they had funding for. Then, on the day of the planting event, Shore Corps members and other RWA staff assisted volunteers to plant these dormant grasses in rows until the crop ran out.
Bio-mimicry

In addition to planting dune grasses, Rockaway Waterfront Alliance used a bio-mimicry approach to try to build dunes. This type of dune stewardship is a program introduced by a marine ecologist Gordon Peabody, who is the director of programs at Safe Harbor in Truro, MA. On their website, Safe Harbor defines biomimicry as a “minimal profile, random matrix, coastal restoration system” (Safe Harbor, 2015). Though the ‘system’ is a relatively simple process of placing wooden shims into the sand to block sand as it is blown in the wind, similar to how dune grass works to build sand dunes. After a week or two, the shims are pulled up a few more inches and the process is continued until the desired dune height is reached. This, Safe Harbor proclaims, is a system that creates land from air because the shims are harnessing the process whereby the wind blows sand. After the dune reaches the desired height, dune grasses are planted in the newly created dune to stabilize the sand. After Sandy, Gordon Peabody took to his
car and reached out by phone to people and places that were impacted by Sandy to highlight the utility of bio-mimicry. Although Gordon lamented to me that he knew of few programs that had taken up his work in a conversation with me in March 2014, one program in Rockaway did make an attempt at it working with volunteers. This program used the method of placing wooden stakes in the sand (figure 6.3).

![Figure 6.3. Dune stewardship biomimicry practice. Photo: DuBois.](image)

NYC Parks Department employees thwarted their efforts on the southern (NYC Parks property) side of the boardwalk by pulling out the stakes. NYC Parks did this out of concern that the project would invalidate the Army Corps reformulation study. However, the people who started the biomimicry project were stymied,
And I was like furious that, we're doing this work and there's no reason, if you're going to remove garbage from the beach, that's great. But why would you go and remove stuff that you know was put there specifically as a restoration effort. And has been effective in other parts of the country. (personal communication, Rockaway East resident)

The assumption was that NYC Parks would welcome this effort because of the community-led nature of the effort. Unfortunately, because of this lack of support from NYC Parks and difficulties with alternative sites, the RWA abandoned this technique within the first year of their efforts.

**Seed-Bombs**

Seed-bombing was another practice of dune stewardship that community members and activists engaged in after Sandy in Rockaway. The main group behind this work, Love-Bombs Seed-Bombs, learned that the dunes and soil behind the dunes were very polluted by the storm water. Sandra [a pseudonym] described to me that she felt that after sandy, the moment was right to seed bomb. Sandra had recently learned about permaculture because she was interested in Guerilla Gardening and also that beach grass and their root system is what holds the rest of the seeds in place, but also learned that you cannot plant dune grass from seeds. So Sandra sought out seeds that she could use in seed-bombs that they would throw in places with existing dunes with dune grasses. She found only two plants as seed sources in this region, Switch grass and Atlantic grass. She wanted to source beach seeds and was able to get these from a local harvester that found some in Portstown, NJ. Sandra worked for about 3 months in post-production with children’s groups and other seed bombing factories making 20,000 seed bombs. They located a source of mud nearby, put that in a bowl with water and seeds and mixed that vigorously. They then let dry on drying racks in the sun, like rows of cookies waiting to go into the oven at a bakery. After drying, they put the balls in containers or baggies, labeled each container by
geographic location and then sold them in one week at farmers markets, museum, and other places all along the New York and New Jersey coast (figure 6.4).

Later, Sandra started a website to teach people how to use the seed bombs where she describes how she thinks of this work as core action to bring back natural safety and uses this to teach/learn about how ecology works. She went to only one site in the Rockaways, between beach 55th and 57th Street, where there is a closed off section for piping plover. Interestingly, the hardest part for her was to get the seeds, even just to buy a couple of the seeds. For example, it was difficult to buy a certain kind of beach grass because there is only one place in Cape May that is willing to sell it, and they sell it as a seedling. Nevertheless, this activist pursued her seed-bombing efforts in spite of the legal, financial, and logistical complications because of her desire to restore the ecosystem in Rockaway.

Figure 6.4. Seed-bombs for Rockaway Beach. Image from personal email communication, 5/14/2014.
**Embodied Beach Restoration**

These community-led stewardship efforts such as those of Rockaway Waterfront Alliance, are examples of what Escobar (1999) terms the organic nature regime. These practices were oriented toward a view of people and nature as inseparable. Furthermore, they were based in personal experiences that were part of a social learning process whereby stewards were reflecting on a situation, deliberated about the issue, acted on what they thought could work, and then reflected again on the outcome in a feedback loop (figure 6.5). Marianne Krasny and Keith Tidball (2015) have created a diagram to represent this social learning process. In this figure the individual on the right is shown to be part of a larger group of people who begin with a particular set of materials, in this case beach grass and shovels. They perceive a problem on the sandy beach on the left, and act to restore the beach. After they restore the beach they reflect on what they have done, denoted by the double arrow, and potentially rework or reconsider their approach thus begetting a feedback loop. NYC Parks efforts limited this social learning process by providing a top-down stewardship opportunity and limiting the reflection and deliberation stages to within the agency.

*Figure 6.5. Social learning process of dune Civic Ecology practice. Image from, Tidball & Krasny (2015)*
Similar to Barthel, Folke & Colding (2010) and Tidball (2014a), I found that community-led stewardship functioned as a community of practice whereby ideas about people being connected and intertwined with nature were shared, developed, and reproduced. They offered opportunities for the living body to be a store of knowledge through embodied experience, and theoretical knowledge through cognitive experience (Tidball, 2014a). Because of this, these practices clearly differ from community participation in planning, for the simple fact that, “Planning is indoors, this [dune planting] is real” (personal communication, Rockaway Resident, 5.5.2013).

But more than just being outside these civic ecology practices are embodied actions. They represent an ecological approach that is slower in producing coastal protection than the large-scale projects of the Army Corps and NYC Parks. They involve people in the shaping of their environment and are an important civic expression for the community. They engage in processes of communicative action, meaning when stewards are working on dunes they are sensory experiences whereby people are working with others to deliberate, reflect, and act (Wescoat, 1991). They represent what Bridge (2013) calls a ‘transactional rationality,’ because they are a variety of efforts and experiences between the ‘natural’ and human environments.

While aspects of these efforts are rational, such as attempts to plant dune grass 12-14” apart from one another, they do not call on the same rationality required of formal efforts such as the Army Corps. These experiences can even be aesthetic, such as a desire to build dunes in a certain pleasurable shape, and may even be non-discursive or not about language but rather based in tactile senses (Langsdorf, 2002). At their heart these efforts are experimental, but their critical appraisal can vary amongst a greater set of criteria than just how big or tall the berm is, for example (Bridge, 2005; 2009). For example, when RWA Shore Corps members were
mapping dunes and trying to make decisions about where they needed to plant dune grass (figure 6.6), they came across a homeless encampment.

![Shore Corps Members Mapping the Dune Near the Homeless Encampment. Photo: DuBois.](image)

Some may have just said that they should remove this human encroachment, and that decision might still be made, but when they came across this camp they first physically experienced it with their bodies. Shore Corps members led me to the entrance of the trail to the encampment with trepidation, but excitement. They walked along a path that had been lined with cardboard boxes, being sure to make a lot of noise in case someone was near. Deeper in, the group found a wind chime hanging from a tree limb. As we turned a bend we found what amounted to someone’s living room (figure 6.7). My young guides were careful not to disturb the person’s things, although they remarked that the space looked abandoned. We took pictures and wondered what this place was and then exited quickly and quietly walking with the same uneasiness that we entered. This act of resistance and non-conformity was similar to seed-bombing in that it
eschewed approval of NYC Parks. For some participants, that non-conformity was difficult to come to terms with while for others they appreciated that a person was able to create a space for their needs.

Figure 6.7. Homeless Encampment Found by Shore Corps Members. Photo: DuBois.

Civic Ecology Practice Motivations

Coastal Protection

Sand dune restoration was described primarily as a form of coastal protection. Stewards pointed to the decreased storm surge impacts on the sections of beach that had dunes, or at least taller and wider beaches. The earliest efforts were described as beginning in 1982 for this reason.
Richard George, the resident and activist leading this effort, met with Rockaway Waterfront Alliance to reflect on his efforts,

I was like one of the first people to start planting trees and grass and shrubs. I think the dunes, which we planted beach grass and shrubs and trees along the south side of the boardwalk, and also the northern side of the boardwalk, it builds up, it mounded up and it helped keep the ocean and waves back. So they didn't come crashing into our bungalow community. We planted beach grass, which grows, once you plant it the roots grow 50' in each direction, and it forms like a net and it goes down. And as it catches the sand it will build up and up and up, and as the roots grow out you will have new shoots. So you have this net which will catch the sand, and every year it grows higher and higher and higher. Then we planted a Bay Berry and Beach Plum, which is in the background, and the same thing happens with those roots, they're heavier roots. They're more like wood roots. And that catches the sand and holds it in place. (Rockaway Waterfront Alliance, 2014)

Inherent to this quotation is a connection to the development of a healthy dune system that could provide protection to “keep the ocean and waves back.” Similarly, RWA advertised for their dune planting efforts by appealing, “Let’s Protect Rockaway: Do your part, plant a tree” (figure 6.8).
This is similar to language used by the NYC Parks Department regarding their stewardship efforts. NYC Parks put out a call to volunteers stating, “Protect your beach: Plant beach grass with NYC Parks” and that, “dunes are essential for protection against damaging coastal storms” (NYC Parks, 2014). The difference between NYC Parks and RWA was that NYC Parks appealed for people to work with NYC Parks while RWA vehemently claimed that it couldn’t do their work without the support of the community. NYC Parks situated their project as people coming to help, while RWA situated their work as part and parcel of the community. However, the reality of the framing of RWA’s efforts as within and by the community can be problematized. While it does hire young people from Rockaway, it is a non-profit with employees and an
executive director that are not full-time residents. In this way, both RWA and NYC Parks are similarly institutionally driven, but with different goals. Whereas NYC Parks responded to Mayor Bloomberg’s economic development model, RWA was responding to what it felt were community needs and worked on efforts that they was able to get funding for.

**Ecosystem Restoration**

A view that dune stewardship was restoring the Rockaway dune ecosystem was the other ideology that was present in the discourses used by stewards to describe their work and at community events. For many, this perspective was much more difficult to translate into material practices or activism.

They’re doing it again, making the same mistakes by building a seawall, trying to stop the water…what a dream for rebuilding. Bring in international community to rebuild in a permaculture way, to bring the community together, to recycle things that have no use, these are beautiful things that make the dune. I am amazed by the possibilities we have. The money that came in… there was over $1 million spent on each beach station and $20 million altogether. They could have done so much…that makes me really sad. There is a need to make [the beach] more fluid to work better with nature. (personal communication, Dune Steward, 06/2014)

However, for activists such as those that worked on seed-bombing, their stewardship activities were specifically about restoring ‘nature’ at the beach. These seed-bombs, which as I noted came to be known as “Love Bomb, Seed Bombs” and were described by the stewards in the following way, “This project's aim is to restore lost coastal ecology by replanting native species. Seed bombs are packed with nitrogen fixing plants, local natives, and wildflower species.” Here, the emphasis is toward restoration ecology, in spite of the coastal protection factor that these efforts might potentially play. Furthermore, these stewards seemed to revel in how their practice challenged authority. For seed-bombers, their practice was pushing for an
ecologically oriented view of the beach. This view, however, included people and coastal protection as part of their effort.

I think the dunes, which we planted beach grass and shrubs and trees along the south side of the boardwalk, and also the northern side of the boardwalk, it builds up, it mounded up and it helped keep the ocean and waves back. (Rockaway Waterfront Alliance, 2014)

**Working and Learning Together**

These practices connect with academic literature on civic ecology practices. Working and learning together is the spirit of civic ecology practices, which has been argued to be sources of social-ecological system resilience (Folke, 2006; Folke, et al., 2010; Walker & Salt, 2012). However, in order for resilience to be achieved, there are key attributes of civic ecology that must be considered. First, civic ecology practices depend on diversity. This diversity is both a bio-diversity, of different species being planted, such as in a community garden or as different plantings on a beach. Second, they contribute to social capital in the community particularly because they are self-organized and have a polycentric governance structure. This suggests that these actions are by people, who organize themselves, but who are not guided by a single governance structure. Finally, these actions contribute to ecosystem services, but do so through a process of social learning whereby the group is learning about and adapting their practices in terms of the ecosystem benefits to the community and to the ecological resource itself.

Participants in civic ecology practices like dune stewardship work together to deliberate about what should be done, then they do something and follow that with an opportunity to discuss amongst themselves and reflect on how well what they did worked. This reflection then provides an opportunity for them to change their approach and do something different if necessary. This opportunity to learn and adapt practices together is unique amongst the dune stewardship types.
Discussion

Civic Ecology Practices and The Right to The City

When weighed against the two other practitioners of dune restoration, the Army Corps and NYC Parks, the dune stewardship activities that I describe in this chapter disrupt ideas about the beaches boundaries. Cote & Nightingale (2012) argue that, “when knowledge is conceptualized as process, found in the everyday, it brings it fundamentally into conflict with current efforts to insert some form of homogenized, uniform…knowledge” (p. 482), be it scientific or ‘indigenous.’ They push the boundaries of the process of knowledge and right to make decisions about the form of the beach. Their practices with the literal beach space and with the material things that they produce (table 6.1). Their decision mode was grassroots in orientation. Instead of using legal authority, the practices were insurgent in their engagement. This insurgency worked sometimes illegally to counter the dominant management approach of the space. The main attitude toward nature implied in these insurgent practices was that they were working with nature to produce something, not against it or as an ‘other’ as in the two other example practices in this dissertation. The implied motivations were granular, meaning they responded to the particular needs and attitudes of the actors. These varied motivations led to varied practices.

<table>
<thead>
<tr>
<th>Practice Groups</th>
<th>Decision mode</th>
<th>Authority</th>
<th>Implied attitudes towards nature</th>
<th>Implied motivation(s)</th>
<th>Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community-led stewardship practice*</td>
<td>Grassroots</td>
<td>Insurgent</td>
<td>Working with nature</td>
<td>Coastal protection, ecosystem restoration, environmental learning, resistance</td>
<td>Mapped and planted beach grass and other native species on Arverne East secondary dunes, built and dispersed seed-bombs, used wooden stakes for biomimicry</td>
</tr>
</tbody>
</table>

Table 6.1. Community-Led Stewardship Restoration Practice Description
These practices literally placed their ideas about nature in the environment in a way that led them to directly confront the technonature [authority] or capitalist functions of the space identified in the other two practices. These actions could be considered counterspaces as Lefebvre (1991) might have described them that situated the civic ecology practitioners as active participants in the creation and interpretation of the city. These practices were forced to the margins of the beach, those third spaces (Bhabha, 1990) where the interpretations of the beach as capitalist or techno-scientific space could not overtake their efforts. These efforts suggest a need for management that does not stifle the expression of nature, because there is the possibility for different or even new formulations of human-beach relations if we do.

Similar to Occupy efforts, these practices could potentially gain power in governance by linking to more cities and locations globally (Shields, 2013) or by connecting with similar efforts towards justice. RWA began to do this by connecting with Dutch authorities and researchers. The Dutch authorities shared how they have approached flood management and even invited RWA participants to travel to the Netherlands to learn more about their work. The continuation of this alliance and other intentional linkages are possible and a clearer connection between their works other than just as a response to a negative event is needed. Drawing on Lefebvre (1995) and Purcell (2002), Shields argues that the urban dweller, or *citadin*, has the key role of re-envisioning the relationship between the capitalist economy and liberal-democratic citizenship. But drawing from examples of other social movements it is apparent that community stewards must find solidarity with other people in other cities around the globe if they are to gain traction (Shields, 2013). Agyeman’s (2007) concept of just sustainabilities could be applied to RWA, where the RWA’s environmental justice movement is also responding to issues of equity in the
distribution of resources and decision-making procedures. We can consider these community-led practices as strong just sustainabilities. They incorporated opportunities for residents and non-experts to be involved in all levels of the decision making process (procedural justice). Their practices also sought to intentionally distribute the benefits of their restoration actions to people in the section of Arverne where the NYC Parks and Army Corps practices were delayed. Their work attempted to improve the health of the ecology of Arverne East while also seeking to create a space for the community’s use. Finally, none of these community-led practices worked in conflict with one another and each allowed for a diversity of practices, prioritizing interactional justice.

**Complicating Stewardship Practices**

While these stewardship practices, especially those of Rockaway Waterfront Alliance, represent emergent practices that connect with an environmental subjectivity they are not of the Rockaway East community. Rather, all of the practitioners leading the above mentioned practices live elsewhere and work in Rockaway. Each of these practices exists because of some form of privilege. For example, Jeanne DuPont (Executive Director, Rockaway Waterfront Alliance) has personal and professional connections that have allowed her to gain access to L&M, Pratt University, US Forest Service, Dutch professionals, and to secure funding from a number of sources. Contrasting her privilege with public housing residents dampens a wholesale acceptance of the work of Rockaway Waterfront Alliance as representing the needs of Rockaway East residents. For example, NYCHA tenant community gardeners at Beach 41st Street houses have been able to partner with the US Forest Service to rebuild their gardens after Sandy, but pre-Sandy had very little support from the NYCHA greening and gardening program beyond gaining access to the land. But while they are receiving some assistance to rebuild their garden,
Resident Association leaders of Beach 41st Street expressed feeling stifled in their ability to advocate for housing and employment needs that are most pressing for their tenants.

Contrasting the work of Rockaway Waterfront Alliance in another way, Rockaway West residents also see themselves as community stewards of the peninsula. In interviews they often spoke of several generations of family members that have lived in the Rockaways because of a desire to live, breathe, and co-exist with the sea and ocean air in Rockaway. Essentially, they view themselves as embedded within the socioecology of the peninsula. Where they contrast with Rockaway Waterfront Alliance and residents of Rockaway East is in the discussion of who should have access to the beach and the decisions about the beach. Rockaway West residents want to limit access to their sections of beach while they desire to have a beach that is both easily accessible to them and protects their private property. Rockaway East residents want access to the beach where they currently do not have access, while also desiring to set administrative priorities towards other needs such as employment.
(CHAPTER 7)
Conclusion
In this final chapter I will link this dissertation to applied and theoretical contributions. While there is a concern about the privatization of beaches and a call for a national policy on the public’s right to the beach (Karhl, 2012), Rockaway’s case suggests that greening the beach is not enough to ensure that public beaches are truly just public spaces. This appears to be the result of the fact that the management of the beach has retained a concept of the ‘beach as property.’ Rockaway’s coast has been a public beach for nearly a century. However, the form of that beach has been shaped to fit economic interests about real-estate and other development intended to profit from investment in the peninsula.

Following Hurricane Sandy those people and agencies that have been given the “right” to decide the form of the beach have continued to engage with that same ideology of beach as property, despite the fact that ecological aspects of the beach have been improved. For example, the city built boardwalk islands within 6-months after Hurricane Sandy in an effort to support the economic recovery of the peninsula, while many Rockaway residents were still displaced from their homes and many, many others remained deep in the process of recovery. Despite a turn toward conceptualizing the beach as an ecological site by NYC Parks, the material practices and discourses around the beach indicate that its form and function is guided by a view of the public beach as related to property. For example, despite nearly identical practices, community-led stewardship efforts were expelled from the beach only to be undertaken in very similar form by the NYC Parks department. The right to control property was apparently more important than what was done, a frame embraced by homeowners in Rockaway West.

Comparing Practices

This dissertation has used both the material and social history of the Rockaways, as well as an investigation of the current practices and social discourses about Rockaway Beach.
restoration, to interpret the social construction and social production of the beach. It is clear that the various practices were based in different decision modes, assumed different types of authority, incorporated different implied attitudes towards nature, worked with different implied motivations, and took different forms, as summarized in table 7.1 below.

<table>
<thead>
<tr>
<th>Factors</th>
<th>Army Corps</th>
<th>NYC Parks</th>
<th>Community-led stewardship practice*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decision mode</td>
<td>Top-down, no public input</td>
<td>“Public input”, some action without input “apparently for political gain”, “political input”</td>
<td>Grassroots</td>
</tr>
<tr>
<td>Authority</td>
<td>Legal and hierarchical (through research and funding)</td>
<td>Park manager, work for New York City Mayor</td>
<td>Insurgent</td>
</tr>
<tr>
<td>Implied attitudes towards nature</td>
<td>Controlling nature</td>
<td>Controlling nature while incorporating some ecological considerations</td>
<td>Working with nature</td>
</tr>
<tr>
<td>Implied motivation(s)</td>
<td>Coastal protection</td>
<td>Tourism/Recreation, coastal protection, some ecosystem restoration</td>
<td>Coastal protection, ecosystem restoration, environmental learning, resistance</td>
</tr>
<tr>
<td>Practices</td>
<td>Beach replenishment, reformulation study</td>
<td>Built comfort stations, baffle walls, boardwalk, and created volunteer beach grass planting days and community planning charettes</td>
<td>Mapped and planted beach grass and other native species on Arverne East secondary dunes, built and dispersed seed-bombs, used wooden stakes for biomimicry</td>
</tr>
</tbody>
</table>

*I am including several different local organizations in this category

Table 7.1. Beach Restoration Practice and Discourse Comparisons

These practices each constructed the beach in different ways that mapped roughly onto Escobar’s ‘regimes of nature.’ Of course, none of the practices should be considered separate
from the others as they all make up aspects of the governance of the beach. What becomes clear by comparing these practices and highlighting the regimes that are operating behind them is that the perspective that had the most power in shaping the space was an interest in coastal development and protecting private property from storm damage. Community-led practices that involved bottom-up decision-making processes and which did not focus on protecting private property were pushed to the side unless it could be tied to the larger system of coastal protection enforced and envisioned by the New York City Parks Department. In the following pages I present arguments for rethinking the beach and rights to accessing the beach and follow that with an alternative model that considers the beach as a commonly held resource.

**Right to the City, Right to the Beach**

Without coastal restoration the beach would erode and allow oceanfront homes to be swept into the ocean, leaving these residents literally homeless. However, this conflict isn’t just about socio-cultural frictions. The conflicts over Rockaway beach post-Sandy suggest that the closing off of the beach to only US Army Corps and NYC Parks employees establishes a particular hierarchy, or socioecological urban order. This socioecological order is closely related to governmental and neo-liberal practices worked within a model of humans versus nature in order to protect property and for economic gain. These practices had legal authority to impose the human-nature relationship implied by their work through the control of the beach as property of the city, allowing them to produce a beach for a particular public. NYC Parks efforts to restore Rockaway Beach represents a response to Mayor Bloomberg’s tourist and economic development approach. Rockaway West members also benefited from the renewed focus on coastal protection that was part of the economic development model that implicated real-estate as a primary means for development. They viewed the beach as an extension of their private
property and although they at times felt that the city and Army Corps didn’t respond to them with adequate urgency, they benefitted the most from the restoration practices. Left out of much of the equation of for whom this public beach appears to be for are those that desired to have more rights to access the beach, including environmental stewards and residents of Rockaway East.

The contrast is over rights of access and control of the beach and is similar to what Naomi Klein (2014) has recently argued is a key problem in this climate change era. She outlines key concepts potentially useful to this paper such as ‘usufruct,’ which she defines as people having the right to use and enjoy a given resource so long as this use and enjoyment preserves the resource itself (Klein, 2014). Usufruct highlights ‘stewardship’ over ‘ownership,’ an important distinction because the concept highlights a responsibility to protect, cultivate, and respond to the resources that provide us life, rather than emphasizing ownership as a right to do as we please (Klein, 2014). From this, public space arguably becomes a space about which a community controls the socio-economic decisions that affect their own lives and livelihoods (Klein, 2014). That would imply that a public beach would need, at minimum, to have administrative mechanisms that allow for a local community to have greater participation in the decision-making process than attending a design charrette, volunteer at a stewardship planting day, or opportunity to voice their opinion on one of three Army Corps options. The restoration practices, including the money to fund those practices, would be open to contestation.

This distinction becomes clearer when we consider Evans’ (2011) argument that a turn to thinking of spaces as ecological sites renders them experimental. Evans (2011) argues that a systems perspective, be it ecological or socioecological, makes a claim that an effort should be made to understand all of the constituent parts of that system. Once those constituent parts are
understood, or at least a model is theorized, an attempt can then be made to control the system. This is done through an experimental trial and error period. A dose of beach grass is added; some money is taken from one area and put towards another. The design of this experimentation is inherently the contrast between the Army Corps/NYC Parks efforts and the community-led stewardship efforts. NYC Parks is responding to a call for resilience efforts through experimentation with sand dunes as green infrastructure berms and their efforts are rendered experimental by interpreting the beach as ecological site. However, dune planting and bio-mimicry are not only about the ecology of the beach but also about the ability to access and determine what should be done on the beach as a community and inherently positions the community within the dunes themselves. The experimentation is horizontal, meaning between humans and nature. So rather than being experimented upon, these efforts include the people who live, work and play as active agents in the restoration process and thus engage in an environmental justice paradigm (DiChiro, 2002). But it is important to point out that the most neglected site along Rockaway Beach allowed for the experimentation. And that experimentation was made possible because of the privilege of non-profits that were able to leverage connections to agencies and other funding sources.

**Privatization, Safety and the Urban Ecology Agenda**

While intact high dunes planted with beach grass and shrubs offers some coastal protection, the remaking of Rockaway beach as ‘natural’ is also a way to appeal to a wealthier class. This trend involves selling the concept of the space as ‘safe’ by functioning as coastal infrastructure. Furthermore, the greening of the space functions as signifier that this space is for a certain class of people—the new urban middle-class (Angotti, 2013). As an aesthetic, it has signifiers that link it to other similarly classed spaces such as in the eastern shores of Long
Island, with dunes and dune fencing. And the new toilets and boardwalk islands provide an additional aesthetic appeal to tourists, if even just residents of neighboring boroughs. The development of the strengthened and ecologized beach follows in line with the construction of the Arverne-By-The-Sea development, with homes selling for $500,000 that has touted their resilience to Sandy and wide beach as creating a safe space. Arverne-by-the-Sea describes their resilient design, “The intelligent design of Arverne By The Sea is completely storm-surge conscious, with a number of adjustments made to ensure all residences are prepared to sustain hurricane conditions” (Arverne By the Sea, n.d.). Unfortunately, residents reported that the increased infilling of the Arverne-by-the-sea land made flooding worse on the edges of the property. Nevertheless, this resilient design argument has also been used to propose and sell the idea of a new development in Arverne East.

**Ecological Modernization or Just Sustainabilities?**

In its most expansive form, this dissertation traced the New York City administration’s attempt to govern New York City in the form of a resilient city (Wakefield & Braun, 2014) that on the surface attempts at engaging a view of a hybrid nature. I attempted to describe certain concepts that have emerged in these efforts, such as green infrastructure, that inherently face issues of social justice and power similar to other urban development efforts; the linkages between urban ecological theory and property being too obvious to ignore. In one sense, all residents benefit from an improved environment and the ecosystem services that provide a healthier environment. However, if various and competing interests are green-washed through a highly managed and technologized system then the community’s ability to truly benefit from the process decreases. In essence, the highly integrated and technologized system that manages the beach benefits from the beach. Their efforts, for example, actively confronted the other plausible
alternative response that would have meant retreat from the shore. The management of the system both deferred the exit of people and the exit of the government (Wakefield & Braun, 2014). Furthermore, many of the residents themselves called on the government to regulate the flows of the system. As ‘urban subjects,’ the ‘operative rationales’ as Huxley (2006) describes them, are governmental practices that establish essentialized understandings of urban spaces, societies, and people (Gabriel, 2014). That is, that one idea about what urban spaces should be like and who they are designed for. In New York City and a growing network of cities around the country the benefits of urban ecologies are being heralded as modern achievements. But other models are possible and examples of those models are available and were active in Rockaway after Sandy.

Dune stewardship efforts differ from governmental green infrastructure projects. These efforts are similar to other civic ecology practices, such as community gardens, because they contest traditional forms of a-political spatial arrangements (Eizenberg, 2013). This dissertation sought to respond to Fabinyi, Evans & Foale’s (2014) critique of SES research by focusing on social diversity and attention to power relations. The focus on social diversity recognizes that even within a case study approach, social aspects of a community are often homogenized into one type. While I recognize that this dissertation does not include the various opinions of every person in Rockaway, there was sensitivity to the many discourses and groups expressing these opinions. I pursued this diversity of discourses by reaching out to residents from across the peninsula; going to meetings held or run by Rockaway East residents and reaching out to Rockaway East community leaders, and intentionally reaching out to public-housing resident associations and community groups in Rockaway East. Furthermore, there is a recognition that these conflicts and differences of opinion are not only personal, but reflect power relations that
are both constructed within the site and beyond through social, political, and economic structures (Fabinyi, Evans & Foale, 2014). Instead of interpreting the beach as an ecological site, this project maintains that the beach is a place that is conceptualized and used by many actors for many different purposes. In response to this I have attempted to trace how conflicts over rockaway beach stewardship are political struggles over representation and material practices (figure 7.1).

Figure 7.1. Contrasting top-down versus community-led dune stewardship practices in Rockaway. Photos: DuBois

One proposal that would move much closer to a just sustainabilities paradigm is to consider opportunities for ‘everyday environmentalism,’ as described by Alex Loftus (2012). Such an approach would unite efforts from people of various urban experiences and material circumstances in their efforts to engage in social transformation. An everyday environmentalism
would also forego a crisis oriented approach and instead those daily interactions with the environment. Going one step further, an everyday environmentalism on the beach could reconfigure the ways in which people engage with and talk about the beach because it would re-situate everyday actions of people in a socio-natural context. That is, a context that is not oriented towards controlling nature or profiting and consuming nature, but rather one that is about embedding oneself and their everyday practices within nature. For example, surfers and their everyday practices and RWA Shore Corps dune stewards would be understood as two actors among many that are constructing and shaping the beach. Rockaway West residents and homeowners also expressed an embeddedness based on their way of life and their private property. The difference here is that they didn’t want to share their beach with others conflating the concept of the public beach with private ownership. By focusing on the everyday, it brings the discussion down from a discussion of systems and structures to one based in personal, affective, everyday experiences and practices. While all experiences are relevant, everyday environmentalism highlights that the different forms of environmentalism claims different ideas about the beach. On the one hand stewards’ practices argue for the ecology of the beach to be considered along with their personal affect, while homeowners argue for an engineered beach that is in line with their view of the beach as a part of their human settlement and an extension of their private property.

Rockaway planning and policy was responding to the community’s refusal to retreat. Despite the vulnerability amongst residents and their efforts to confront this vulnerability at the beach, at least in part, no residents took up Governor Cuomo’s offer to buy their homes. For homeowners, this may be an economic decision (they think they can get more money), or an attachment decision (they love the Rockaways and wont leave). But for low-income residents,
particularly public housing residents, they do not have the ability to move. NYCHA policy is rigid and does not allow for fluid movement out of the Rockaways, trapping these residents in a potentially anxiety ridden life-space. For many of these residents in public housing and on the east side their concerns about a need for increased coastal protection measures on Jamaica bay was much more important to them than on the beach side. Taking the suggestion of Fabinyi et al. (2014) to focus on social diversity within a socioecology, this research suggests an approach to considering how Rockaway would be better able to understand how current or changed system configurations affect different people in different ways. This is particularly important in places such as Rockaway where there are very different needs within different spatial (e.g., individual, household, community) and temporal scales (historical, present, intergenerational). Finally, I believe that the findings of this dissertation suggest that there is a need for rockaway beach managers and other urban beach managers to move beyond the beach ‘user’ model and to include a social-ecological and equity perspective.

This research has focused on both discourses and material practices in order to highlight how power works in this place. This includes the multiple dimensions of beach meaning influenced the practices at the beach in far reaching ways. Also, there were a number of meanings that were not represented in the more formal discussions or practices and where beach restoration unequally attended to needs of the Rockaway East and the needs of unemployed/underemployed low-income Rockaway residents. This lack of equality is akin to the concept of circuits of dispossession (Fine & Ruglis, 2009) that describes that social goods are inequitably distributed amongst social groups as a systemic design, but here applied to urban ecology and public space. From this perspective, these are strategies of accumulation by dispossession, whereby money potentially better spent on social service, transportation, public
housing improvements, schools, or coastal protection are instead funneled into securing the beach as a site for capitalistic accumulation, such as spending $480 million to reconstruct the boardwalk. Whereas the beach could potentially be a place where various interests are served, efforts are made to secure and improve infrastructure that provides opportunities for financial gain for developers and the city-as-business. In this way, the capitalist economy acts both as an overarching urban process (Harvey, 1997) and affects personal experience in everyday life (Lefebvre, 1991). This extends Bridge (2014) who argues for breaking down capitalist forces and power structures to create more space for people to transform the world that they live in (as described in Wescoat, 2004). Central to this argument is an emphasis on human sensuous activity that is activity in the form of labor or communicative intelligence that people develop through experience and learning together. Therefore, everyday and community-led practices such as those described in chapter six provide unique and potentially revolutionary contexts for socio-nature developments.

**A Case for the Beach as an Urban Green Commons**

One potential model for rethinking public beaches is to incorporate the concept of the urban green commons. While such an approach might seem out of context on the beach the section of beachfront property known as Arverne East presents an interesting case for consideration. These 81 acres (from here onward referred to as Arverne East) of the original 310 acres that were part of the Robert Moses era Arverne Renewal Area have become prime targets for development. Following a series of design competitions, a Swedish firm’s design was awarded the contract. Replete with green infrastructure elements such as dunes and bioswales,

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9 Although beyond the boundaries of this dissertation, this site would have been within the dune system and sections are part of NYC Parks property.
this proposed development project would have Jane Jacobs-esque design elements such as mixed-use buildings and walkable neighborhoods (figure 7.2). From a Natural Resources perspective grounded in social-ecological systems thinking, this proposal would appear to balance urban needs and ecosystem health quite well. However, this work would develop the largest undeveloped land in New York City (Kaplan & Kaplan, 2003), which is located in the Arverne section of Rockaway that is one of the most underserved populations on the peninsula.

![Figure 7.2. Arverne East Winning Proposal From White Architecture. Image from White Architectur (n.d.)](image)

This site is the location of several of the dune stewardship activities described in this dissertation, including biomimicry and beach grass planting. But in addition to this stewardship, Rockaway Wildfire, a community group coming out of the Rockaway based arm of Occupy Sandy, organized to figure out how it could be sure that the community’s interests were included in the development.

Rockaway Wildfire is a community members organized with the support of 596 Acres (an New York City-based land advocacy organization), an attorney from the Urban Justice Center, City Councilmember Donovan Richards, the community organization YANA, and
collaboration with Hunter College Urban Planning professor Tom Angotti and his students. Through a series of community meetings and outreach efforts, this group developed a community benefits agreement (CBA). This agreement calls for: local hiring and living wage jobs, disaster preparedness, green building and affordable housing. Although this list may not be so different from the benefits afforded by the Swedish firms proposed plans, the form of participation is very different for it asks for and describes the needs of the community as opposed to interpreting how the community might benefit from the site’s construction.

In order for this model of urban green commons to be taken up in Rockaway it would require an acceptance of hybrid nature regime (Escobar, 1999). That is one where an organic and deeply embedded understanding of Rockaway and Arverne East would be combined with a techno-scientific approach to responding to existing and emerging issues on the Rockaway coast. However, as has been shown in the previous chapters capitalist ideas about the beach continue to exist in the minds of the people who live on the peninsula and in the minds of those who have been given the formal power to make decisions. Furthermore, even with greater participation in the beach restoration/rebuild process they would still reside in a vulnerable coastal space. Incorporating a view of the beach, as an urban green commons would bring the management of the beach closer to viewing it as a place where people live, work and play. However, it does not solve the issues of living in a highly dynamic coastal environment affected by climate change and sea-level rise.

**Conclusion**

In May 1968 in Paris, French students and activists used the slogan, ‘beneath the cobblestones, the beach.’ Fed up with conservative and capitalist ideals, Parisian students and workers took to the streets to protest and strike. These protests at times turned violent and
protesters at times traded blows with the police using cobblestones that they pulled from the streets. Underneath they found sand and so that is how they came to this slogan. The beach took on additional meaning, as a site of freedom of expression and democratic opportunity. But literal beaches, and public parks more generally, are not a utopia void of regulation and other residues of power. Sociologists and cultural anthropologists warn of the control over public parks by the state and other private entities, and applaud efforts where the public challenges the social production and construction of these places through various expressions of place meaning (Low, 1996). These conflicts have been played out in places such as Puerto Rico, where access to beaches that were once public is now limited to the wealthy tourists and second homeowners (McCaffrey, 2011). Furthermore, beaches are touted as tourist spaces and an interest in catering to and capitalizing on tourists has led to the decay of many global south communities (c.f. Cole, 2012). Therefore, this dissertation makes the case that beaches are not separate forms of nature from nearby communities. They are bound in a socioecological network and there are increasing concerns about sea level rise that require that the just sustainability of this network be incorporated into the management of beaches. Despite the push for a social-ecological systems view of beaches and beach environments (James, 2000), such a frame is not concerned with power in the management and approach of these places.

Therefore, this dissertation responded to this by employing a case study approach that looked at both the cultural uses and practices in a public space and the politics around the ecology of that space. I showed that the form of Rockaway beach and ideas about the restoration of the beach are bound in historically contingent processes. I recognized multiple voices, and highlighted power inequities, and reflected on the multiple scales of actors involved in the social production of the beach. By highlighting the conflicting meanings and practices, this dissertation
rendered place as inherently contested through meanings and practices. I described conflicts in Army Corps, NYC Parks, and community discourses that relate to questions such as; Who is the beach for (Is it for visitors/tourists? Is it for residents?) Is it only for residents with power and voice? Who has the right to the beach? And who literally has access to it?

As a result, I suggest that despite the popular image of public beaches as places of warm summertime enjoyments, beaches are highly contested socio-cultural sites because of the conflicting meanings and power held by such actors as beachgoers, stewards, managers, and coastal engineers. At the same time, the role of beaches and the ‘ecosystem services’ they provide communities is gaining greater traction as an important factor in coastal strategies to adapt to climate change. However, decisions about how to restore beaches even when they incorporate an urban ecological lens tend to unequally address the needs of communities and often recapitulate the inequalities that were present prior to this restoration. In order to prevent this, governance systems must become more flexible, participatory, and precautionary (Charles, 2012) and to frame coastal environments as places where people live, work, and play. In closing, even those efforts to remake the beach that incorporate the restoration of ecological aspects of the beach must be cognizant of issues of power and inequality in how decisions are made, what practices are allowed on the beach, and what those practices produce.
Appendices

Appendix A. Civic Ecology Research Program

DEPARTMENT OF NATURAL RESOURCES, CORNELL UNIVERSITY

Date & Day of week _______________________________ Interview #_____

Context (here researcher may describe the circumstances and/or atmosphere during the interview and any other contextual information)

1. Do you personally engage in (insert greening practice)?
2. How often?
3. For how long have you done this?
4. What activities do you specifically do?
5. (If applicable) Do you see yourself as representing (even if informally) a particular group or community? Where do they engage in most of their work?
6. What uses does this group/community make of this space?
7. Sometimes groups and people change the focus of their work in order to respond to the needs of people/the environment following a natural disaster. How has your group’s work changed after Hurricane Sandy?
8. Could you characterize the value or importance to this community/group of these greening efforts before and after Sandy?
9. Speaking for yourself, do any of these efforts before and after Sandy have any special meaning for you?
10. Sometimes objects or things are especially important to people, especially following an event such as Hurricane Sandy. Are there any specific objects or things that have been important to you or the group that you work with following Sandy?
11. Is there anything I haven’t asked that you that you would like to speak about?

Additional Probe Questions:
Sometimes people have a particular ecological connection with a place. If it comes out strongly that someone is making a particular connection, ask more deeply about their connection.

1a. Could you characterize the value or importance of this tree/animal/plant to you and to your group before and then after Sandy?
   1b. Were they particularly hard hit, or do they represent something important historically about this place or your culture?
2a. How have you been considering this tree/animal/plant in your recovery work?
3a. Does this tree/animal/plant have any significant meaning to you or your group following Hurricane Sandy to now?

Resident Encounter Interview Protocol:

<table>
<thead>
<tr>
<th>Approximate Age:</th>
<th>&lt;18</th>
<th>18-65</th>
<th>&gt;65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender:</td>
<td>Male</td>
<td>Female</td>
<td></td>
</tr>
</tbody>
</table>

What brings you here today?
<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why did you choose to come here as opposed to somewhere else?</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>How often do you visit this place?</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>If it is because of an iconic plant, animal, type of ecological resource,</td>
</tr>
<tr>
<td>‘Sometimes objects or things are especially important to people, especially following an event such as Hurricane Sandy. Are there any specific objects or things that have been important to you or the group that you work with following Sandy?’</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Have you been involved in any community forestry, wetland or dune restoration, or any gardening after Sandy? If so, how would you describe this work in relationship to your recovery?</td>
</tr>
</tbody>
</table>
Appendix B. Rockaway Recovery Interview Protocol

Rockaway recovery – Interview protocol

Demographic data
1. Name:
2. Street Address/Neighborhood:
3. Occupation:
4. Household residents:
5. Years in Rockaway:

Superstorm Sandy: October 29, 2012
6. What was your experience during Sandy?
   a. Did you evacuate?
   b. What kind of damage did you house/ street/ neighborhood sustain?
   c. Were you displaced? For how long?

Rebuilding your home after Sandy
7. What is the rebuilding process like for you?
   a. Did you get adequate insurance payments?
   b. Did you get FEMA or SBA funds?
   c. Any other sources of support?
   d. How long is the rebuilding process to date?

Experience with government agencies and programs
8. With which, if any, government agencies have you interacted in the rebuilding process?
   Please briefly summarize your interactions with them.
9. How has your experience with them been? Please provide examples of successful interactions and problems working with them.
10. How do you think the challenges you mention could be resolved? What changes to their programs, services and approaches to rebuilding would you recommend, if any?
11. How have your elected officials assisted or hindered the rebuilding of Rockaway?
12. What is a model of a successful government intervention/response, either here in Rockaway or in another post-Sandy community?
13. What is a model of a problematic government intervention/response, either here in Rockaway or elsewhere?

Understanding Rockaway
14. What brought you to Rockaway?
15. What are the peninsula’s assets?
16. What are the peninsula’s challenges or weaknesses?
17. What three words would you use to describe the community here?
18. What surrounding neighborhoods or regions do you patronize for services or products you can’t get on Rockaway?
19. What is Rockaway’s relationship to the rest of NYC? How would you describe the peninsula’s importance within the larger city?

20. How important is the beach to the peninsula? How so? How does it strengthen or harm the peninsula, if at all?

   Any closing remarks on issues/topics I missed? Any questions I should be asking? Anyone in particular I should be speaking with?

Additional demographic data
   1. Gender
   2. Age
   3. Ethnicity/Race
   4. Salary range:
      a. Less than $25,000
      b. Less than $50,000
      c. Less than $100,000
      d. Over $100,000 annually
Appendix C. Letter of Permission to use data from Keith Tidball

Department of Natural Resources
118 Fennow Hall
Ithaca, New York 14853
(607) 254-5479
kgtidball@cornell.edu

11 DEC 2014

To Whom It May Concern:

Bryce DuBois has my permission to use all data (including interview transcripts and audio, photographs, secondary print material, and fieldnotes) that were collected and produced as part of the “Post-Sandy Civic Ecology Research Program” (funded by: USDA Federal Formula Funds CUAES/TKF Foundation, OSP # 147-7815). This research program was previously approved by the Cornell University Institutional Review Board (ID#1305003870) and included wording that allowed for retention and use of the data in later projects by Bryce DuBois.

Sincerely,

Keith G. Tidball, PhD.
Senior Extension Associate
Associate Director Civic Ecology Lab
NY State Program Leader Extension Disaster Education Network (NY EDEN)

Department of Natural Resources
Cornell University
Ithaca, NY 14853
Appendix D. Letter of permission to use data from Leigh Graham

December 10, 2014

The Graduate Center, CUNY
365 5th Avenue
New York, NY

Dear Ms. Kay Powell,

I was the PI on the research project titled, “Rebuilding the Rockaways after Hurricane Sandy,” funded by a PSC-CUNY grant and emergency funds from John Jay College’s Office for the Advancement of Research. Doctoral candidate Bryce DuBois was my Research Assistant on the project. This research was previously approved by the John Jay College of Criminal Justice Human Research Protections Program (ID# 480081-1) and included wording that allowed for the retention and use of the data in later projects by Bryce DuBois.

This letter confirms that Bryce DuBois has my permission to use in his research all data (including interview transcripts and audio, photographs, secondary print material, and fieldnotes) that were collected and produced as part of project ID# 480081-1.

Please let me know if you need any additional information.

Sincerely,

Leigh Graham
References


Al-Sheri et al., (2012). Community Health Assessment of New York City Housing Authority Residents of the Rockaway Peninsula (Queens, NY). New York Medical College School Of Health Sciences & Practice Capstone Project.


Low, S. (2013). Public Space and Diversity: Distributive, Procedural and Interactional Justice for


http://www.sageandcoombe.com/parkandrecreationalfacilities/rockaway-beach-open-up.


