The Creeks, Beaches, and Bay of the Jamaica Bay Estuary: The Importance of Place in Cultivating Relationships to Nature

by

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Abstract

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It is often assumed that people living in urban areas lack connections to the natural world and are the source of environmental problems. This assumption, however, is an oversimplification of urban life. Employing an eco-ethnography, with participant observations, qualitative interviews, and an environmental history, this study examines New York City's Jamaica Bay estuary and surrounding neighborhoods to understand how residents cultivate their relationships to nature in a dense urban setting. Many residents near Jamaica Bay have developed a strong connection to place that is rooted in their regular, embodied experiences living, working, playing, and praying on the Jamaica Bay estuary. Through the process of creating place, residents have come to view Jamaica Bay as alive and a regular participant in daily life. As a result, some residents have come to take environmental action to preserve and protect the Bay. However, not all residents living along Jamaica Bay have the same access to the environmental experiences of the estuary, and therefore do not have the same opportunities to cultivate their relationship with nature. Furthermore, some residents have used their connection to place and environmental protection as reasons to keep "others" from accessing the Bay, resulting in environmental privilege. Consequently, the Jamaica Bay situation suggests the need for urban environmental policy that foregrounds the natural environment and engenders a sense, among all urban residents, that nature is a regular part of daily life.

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Abbreviations

ACOE	Army Corps of Engineers
CSOs	Combined Sewer Overflows
DEC	New York State Department of Environmental Conservation
DEP	New York City Department of Environmental Protection
EPA	Environmental Protection Agency (U.S.)
GNRA	Gateway National Recreation Area
JBTF	Jamaica Bay Task Force
JFK	John F. Kennedy International Airport
NEPA	National Environmental Protection Act
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
RPA	Regional Planning Authority
WPA	Works Progress Administration
WPCP	Water Pollution Control Plant

Chapter One: Introduction

After motoring through the open water of Jamaica Bay, I stepped off the Baykeeper's boat into the mud of JoCo Marsh. About a foot away, a large Osprey nest perched atop a tall post. A loud rumble, seemingly out of place given my proximity to the nest, distracted me from the birds. Over my shoulder, a 747 jet departed John F. Kennedy (JFK) International Airport, flying so low I could read the writing on the plane's hull. Surprisingly, the Osprey seemed not to notice. Instead, the birds continued to scour the marsh for signs of food. Nature, the Baykeeper says in response to my surprise, is incredibly resilient to human advances. Moving off the water to the adjacent shore, one might be tempted to look past Jamaica Bay, for the other side is the oceanfront, or the mainland, depending on which direction you are going. Bulwarks, roadways, and residential development harden much of the Bay's shoreline, though there are several spots off the side of the road, tucked behind IHOPs and Home Depots, and between residential blocks, where water and earth meet. The tides of Jamaica Bay, brought together by the gravitational pull of the moon and sun, advance along the shoreline, then recede, stretching the Bay's reach well beyond its banks, about 1.5 meters (or 5 feet), twice each day. Wind blowing off the Bay carries the putrid smell of decaying marsh through the air. Some days the sulfurous smell is stronger than others, depending on conditions. Nonetheless, when you are there, the marsh smell is familiar, almost welcoming – the smell of life at work. The hypnotic sound of water lapping against the shore is punctuated by birdcalls, a train rumbling past, jet planes roaring overhead, or cars whizzing past. The Belt Parkway and Shore Parkway, legacies of Robert Moses' era, ring the Bay on the mainland, while Rockaway Boulevard and Beach Channel Drive line the Bay's peninsular side – a ribbon of concrete, shuttling people around and across, slowing only when traffic requires. Residential blocks either cover the Bay's natural tributaries entirely, or dead-end into the water, replacing the tributaries' once meandering shape with a rigid rectangular one, and casting the Bay into its hardened crescent form. Marsh grasses struggle to exist against these barriers, built to keep the Bay's brackish water from inundating the mainland. Overlooking a footbridge in a nearby neighborhood, plastic water bottles flattened by cars and then washed into the water during a heavy rain, an old sink rusting at the bottom of the Bay, beer cans, fishing twine, a ragged piece of cloth, and a waterlogged shoe sit knotted in a sandy, watery mess. Then, a snowy egret, with its graceful white wings, swoops down along the water's edge – waiting, watching. The realities of an urban estuary are not solely those of the hardened shoreline or the flattened water bottle, but the enmeshing of people and nature in everyday life. With a beauty all its own, the urban estuary is a place of subtle, intricate connection.

As one of the last remaining natural spaces in New York City and home to roughly one million people, Jamaica Bay provides an unique opportunity for examining what environmental scholars, particularly environmental sociologists and eco-feminist theorists, have described as the nature/culture split or the nature-culture binary (Latour 1993; Harroway; Smith 2006 in Heynen et al; Gaard). Early decisions about the Jamaica Bay landscape, e.g., the dumping of dead horses and untreated sewage into the Bay, provide weight to scholarly arguments that, generally

speaking, Western society operates as if "nature does not matter" (Murphy 2001), with negative environmental and social consequences (Bullard 1990; Cronon 1995; Schnaiberg and Gould 1994; Smith 1984). However, as environmental problems, such as climate change, become part of regular public discourse, it is no longer adequate to assume that "nature does not matter." Rather, it is more telling to investigate the intricacies, contingencies, and contradictions of the human relationship to nature so as to understand where we are in addressing environmental problems and what needs to be done to move forward. Therefore, this study examines the process whereby residents in the neighborhoods along Jamaica Bay's shores give meaning to a natural space that has been manipulated for the political and economic development of the Jamaica Bay area, and New York City more generally.

Residents near Jamaica Bay have developed a strong connection to place that is rooted in their regular, embodied experiences living, working, and playing on the Jamaica Bay estuary. Through the process of creating place, residents have come to view Jamaica Bay as alive and a regular participant in daily life. As a result, some residents have come to take environmental action to preserve and protect the Bay. However, not all residents living along Jamaica Bay have the same access to the environmental experiences of the estuary, and therefore do not have the same opportunities to cultivate their relationship with nature. Furthermore, some residents have used their connection to place and environmental protection as reasons to keep "others" from accessing the Bay, resulting in environmental privilege. Consequently, the Jamaica Bay situation suggests the need for urban environmental policy that engenders a sense, among urban residents, that nature is a regular part of daily life. Viewing people as *part* of the ecosystem, as opposed to *outside* of the ecosystem would be a step forward in overcoming the nature-culture split characteristic of modern societies (Merchant 1980; Salleh 1997).

The Jamaica Bay Estuary

The Jamaica Bay estuary sits on Southwestern Long Island, along the edge of the New York City boroughs of Brooklyn and Queens, extending back into Nassau County on Long Island. Jamaica Bay's "bar-built" estuary formed as the littoral current deposited sand along its westward trajectory, forming the barrier island of Rockaway, leaving only the Rockaway Inlet to link the Bay with the lower New York harbor and the Atlantic Ocean. Jamaica Bay refers to the body of water that extends from the Marine Parkway (or Gil Hodges) Memorial Bridge on the West to the "Head of Bay" area behind JFK Airport on the East, to the Belt Parkway to the North, and the Rockaway Peninsula to the South (See Figure 1.1 Map of Jamaica Bay Estuary). The Jamaica Bay estuarine ecosystem refers to the series of fresh water creeks and marshes that extend back into mainland Brooklyn, Queens, and Long Island, and empty into the Bay. Most of the Bay's creeks and marshes, however, have been filled in or paved over, with consequences for ecosystem functioning (See Figure 1.2, Jamaica Bay Estuary 1911, prior to extensive filling).

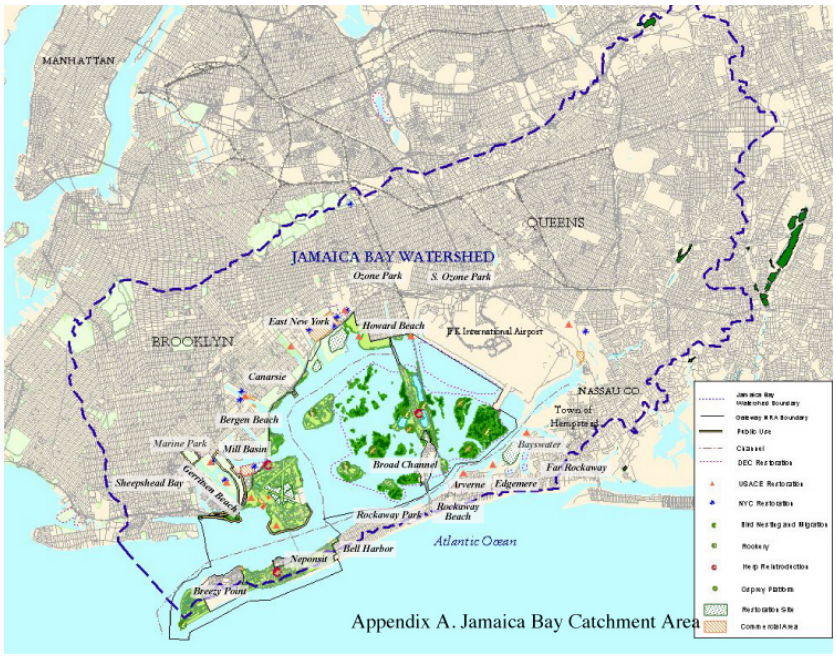

Figure 1.1Jamaica Bay Estuary. Source Gateway National Recreation Area

Figure 1.2 Jamaica Bay Estuary 1911. Source: New York Public Library

Despite profound human alterations of the Bay, the Jamaica Bay estuary contains over 15,480 acres of diverse wetland ecosystems and 330 different wildlife species.

Estuaries are semi-contained bodies of water where fresh and salt water mix. Estuarine salinity can change dramatically from full seawater to fresh water during the ebb and flow of the tide, requiring plants, animals, and fish to adapt to the requirements of estuarine living. For those that have, a delicate system of balance has developed and a disruption to one area of the estuarine ecosystem has widespread consequences for the whole[1].

While conditions for estuarine living are harsh, estuaries are ecologically rich and highly productive sites that contain a great deal of biological diversity (Siry 1984). Key to the estuary's

[1] The delicate system of balance, however, does not imply that estuaries are in, or are seeking to attain, some sort of static equilibrium. Rather, balance refers to the functional relationship between ecosystem members, which are always moving, ever in process.

biodiversity is the presence of the marsh grass *Spartina alterniflora,* which serves as the basis of the estuarine food chain, as a nursery site, a habitat spot, and a stop-over for migrating species. In the marshes, bacteria work constantly to produce detritus (a mix of bacteria and dead plant remains), which, in addition to phytoplankton, feeds a large cross-section of marine species, e.g., crabs, snails, mussels, clams, and oysters (Carson 1955). Tides break up decaying plant material and flush detritus and waste out of the marsh. By bringing detritus further out into the estuary, the tide makes the detritus more readily available to the different fish and wildlife that live in, or travel through, the estuary. The United States Environmental Protection Agency (EPA) estimates that more than one-third of the country's threatened and endangered species live permanently in wetlands while nearly half of those listed as threatened or endangered migrate through the wetlands at some point in their lives. Jamaica Bay because of its location along the Atlantic flyway and its two fresh water ponds attracts nearly half the bird species of the Northeast, including glossy ibis, herons, terns, and oyster-catchers. (http://www.nycaudubon.org/queens-birding/jamaica-bay-wildlife-refuge). Besides bird species, wetlands serve as a major breeding site for commercial and game fish, such as menhaden, flounder, sea trout, and striped bass, which use estuaries for spawning and raising juvenile fish. Crustaceans, such as shrimp, oysters, clams, and blue crabs rely on healthy marshlands for food, shelter, and reproduction. Finally, healthy marshes provide food for small mammals such as mink, muskrat, and beavers. In total, the National Oceanic and Atmospheric Association's (NOAA) Fisheries Office of Habitat Conservation estimates the economic value of the country's coastal habitats at hundreds of billions of dollars, if not more (http://www.habitat.noaa.gov/protection/wetlands/index.html).

Marshlands also serve important functions for humans, beyond maintaining biodiversity, such as storing carbon, filtering chemical contaminants, and protecting mainland areas from

storm surges and floods. Marshlands are more effective than trees, (amount of carbon per unit area) in sequestering carbon from the atmosphere (Trulio et al. 2007). However, with marshland loss, as is the case in Jamaica Bay, increased aerobic decomposition of marshland soil releases stored carbon back into the atmosphere. Therefore, not only does marshland degradation reduce estuarine ecosystem productivity, it also contributes to the greenhouse effect. Besides absorbing carbon dioxide, saltwater marshes also filter sediment and chemicals from surface water associated with agricultural and urban runoff, and are thus an effective means of reducing overall estuarine pollution. The EPA estimates that without the Congaree Bottomland Hardwood Swamp in South Carolina the state would need to build a $5 million wastewater treatment plant (http://water.epa.gov/type/wetlands/wqhydrology.cfm). Finally, marshlands buffer mainland areas from storm surges and floods. Just as the tide helps to create marsh islands by forcing moving water to deposit sand and sediment at the marsh base, well-established marsh islands absorb wave energy associated with strong storm surges as well as absorbing excess water, thereby reducing flooding. For example, the loss of vast marshlands along the Gulf Coast exacerbated the consequences of Hurricane Katrina by eliminating natural buffers needed to protect the mainland from wind and water. Typically, marshlands would have slowed or stopped the flow of water into New Orleans, but centuries of alterations to the Gulf Coast disrupted sediment flow, impacting the ability of local marshlands to replenish and leaving Gulf residents exposed to the ravages of the hurricane (Barry 1997; Colten 2005; Dean and Revkin 2005).

Oysters, or *Crassostrea virginica,* serve as keystone estuarine species because they help maintain good water quality and their reefs concentrate food sources and decrease wave intensity. Oysters use their gills to filter in tiny food particles while filtering out impurities. Consequently, oysters are particularly adept at improving water quality, filtering between forty

and fifty gallons of water per day per oyster (Lee 2009). Oysters also improve water quality by consuming phytoplankton, which in abundance can decrease levels of dissolved oxygen in the water causing eutrophication, or excessive plant growth that "starves" organisms of necessary oxygen. Additionally, oysters can filter bacteria and other contaminants from the water as part of their feeding process. The oyster's filter feeding mechanism, however, makes oysters susceptible to pollution. Although oysters can avoid less than ideal environmental conditions for some time by tightly closing its shell, the muscle will eventually tire, and the shell must open to take in water. As Jamaica Bay became increasingly polluted in the early 1900s, the oyster's filter feeding mechanism eventually led to its demise. However, 80 years later, local organizations are replanting oysters because their filtering mechanism provides hope for improving the Bay's water quality.

Oysters are reef dwellers. Oysters prefer to form reefs on other oysters, but they will attach to a number of other surfaces, if necessary, including boats, turtles, bottles, or crabs. Many marine organisms use reefs for food and spawning. These small marine organisms then attract other small crustaceans and fish, creating a concentrated food source for larger, and thus more recreationally and commercially valuable, fish. Because oyster reefs concentrate so many different species in one place, they increase and diversify the faunal habitat of estuaries. Oyster reefs can also be quite large. In the early 19th century, some oyster reefs were so large that they were included on topographic maps and were hazardous to navigation (www.tpwd.state.tx.us). Consequently, oyster reefs can help diffuse wave intensity and thus help protect the shoreline.

Estuaries are extremely important for overall marine ecosystem functioning. Estuaries serve as a habitat site, food source, and breeding site, and are thus a hotbed of biodiversity. Marshes absorb carbon dioxide and filter pollutants from the water, as do oysters. Marshes and

oyster reefs are also important for protecting the mainland from storm surges and flooding. Beyond their ecological importance, estuaries are dynamic and changes in tide, seasonal species migration, water clarity and temperature are easily observable aspects of environmental change. Consequently, estuaries provide the opportunity to observe nature at work, and can provide a more immediate sense of how humans contribute to environmental change, both negative and positive. As such, estuaries provide a good ecosystem for investigating how urban residents come to see nature as a regular participant in daily life.

From Wetland to Wasteland and Back Again: Jamaica Bay, NY

The physical landscape of the Jamaica Bay estuary reflects the long and varied history of social meaning and environmental decision-making regarding the Bay.[2] Archaeological evidence indicates a once thriving and productive ecosystem utilized by indigenous populations and then early European settlers for subsistence fishing and light agricultural production throughout the 17th and 18th centuries (Black 1981; NPS 1976). By the middle of the 19th century industrial development was underway near the Bay (Black 1981; NPS 1976). Despite development, descriptions from the early 1900s note expansive marshlands nearly covering the Bay and residents continued to visit the Bay and surrounding estuary as a means of "escaping the city" and "connecting with nature" (Black 1981; NPS 1976).

However, a number of development projects during the 20th century extensively altered the physical landscape of the Bay, to its detriment. For example, dredging of the Bay's bottom was carried out for a variety of infrastructure projects. In the early 1900s, the city, in conjunction with private developers, undertook extensive dredging in an effort to convert Jamaica Bay's shallow waters into a world-renowned port. As support for this project waned,

[2] For an overview of how scientific knowledge and popular values about marshes worked to shape wetlands policy in the United States, see Joseph Siry's (1984) *Marshes of the Ocean Shore: Development of an Ecological Ethic*.

Robert Moses pushed for Jamaica Bay to become the site of the city's first municipal airport, filling Barren Island to create Floyd Bennett Field in 1931. Later in the mid-to-late 1930s, Robert Moses orchestrated the filling of creeks and marshes to build the Marine Parkway Bridge and the Belt Parkway[3]. Again in the early 1940s, the Bay underwent significant transformation as 4500 acres of marshland were filled for the construction of Idlewild Airport, later renamed John F. Kennedy International Airport, and an associated runway extension project (Black 1981; NPS 1976). Dredging projects and the filling of marshlands has significant consequences for the circulation of the Bay's water, a feature that is crucial to the overall functioning of an estuarine ecosystem. As a result of alterations to the Bay's landscape, it now takes three times as long to flush pollutants from the Bay than it did 100 years ago, a factor that proves all the more important as the city utilized the Bay as an active dumping ground until 1985 (Black 1981; NPS 1976; 2003).

Early transformation of the Bay and deteriorating water quality did not go unnoticed. Despite his plans to develop the automobile and air infrastructure of Jamaica Bay, Moses also saw Jamaica Bay as an environmental resource. He opposed the move, in 1938, to build the Edgemere Landfill in Far Rockaway Queens. In a letter to *The New York Times* Moses said, "I have no desire to get into an extended argument on the subject, but it must be made clear as crystal that the old scheme to make Jamaica Bay entirely an industrial section is just plain bunk… I am even hopeful that the waters will be sufficiently purified to encourage swimming, fishing, and boating on a large scale" (NY Times 1938). To actualize this vision, Moses

[3] The Marine Parkway Bridge officially opened in 1937 and the Belt Parkway opened in 1940, though construction on the Belt Parkway continued until 1941.

incorporated Jamaica Bay as part of New York City's Parks Department in 1938[4]. In 1952, Robert Moses again made his mark on Jamaica Bay by appointing Herbert Johnson, an employee of the Parks Department, as the first manager of what later became the Jamaica Bay Wildlife Refuge.

In 1968, a number of activists, including scientist Rene DuBos, the National Audubon Society, the Sierra Club, and local environmental groups, worked to stop a proposed JFK runway extension that would have paved over large parts of Jamaica Bay. The Sierra Club spoke out against the runway expansion, stating that the plan should be considered "ecological insanity" and offering their services to stop the project "with every means at [its] disposal" (Bryant 1968). Similarly, the President Emeritus of the National Audubon Society said "Jamaica Bay can and must be saved. For what good will all the enlargements of our airport and city be, if we destroy all this great area of natural beauty and the life it sustains?" (Buchheister 1969). The eventual defeat of the runway extension in 1971 and the restoration of various bird populations throughout Jamaica Bay were symbolic victories for national and local environmental organizations. Jamaica Bay represented the resiliency of the natural environment in the face of human destruction and the environmental movement's ability to stop powerful entities from perpetrating environmental harm.

The passage of federal environmental legislation (e.g., National Environmental Policy Act of 1969 and the Clean Water Act of 1970), coupled with the nationwide movement to bring the National Park experience to the people, led to the incorporation, in 1972, of Jamaica Bay and the Wildlife Refuge as part of the Gateway National Recreation Area of the National Park Service (NPS). The purpose of bringing the parks to the city, as stated in the enabling legislation,

[4] For more on Robert Moses' impact on Jamaica Bay, see Kornblum and Van Hooreweghe 2012; Robert Caro's (1975) *The Power Broker: Robert Moses and the Fall of New York;* Benjamin Miller's (2000) *Fat of the Land: Garbage in New York*.

is to "preserve and protect for the use and enjoyment of present and future generations an area possessing outstanding natural and recreational features" (US Congress 1972). While the establishment of the Gateway National Recreation Area (GNRA) was vital for protecting the natural resources of the Bay, a number of environmental problems continue to persist, primary among them are marshland loss and poor water quality.

Development has resulted in the loss of nearly 90% of the marshes along the periphery of Jamaica Bay as well as several marsh islands in the middle of the Bay. Despite significant environmental legislation to protect marshlands from dredging and filling (e.g., National Estuarine Protection Act of 1968, Tidal Wetlands Act of 1973), marshes continue to disappear in Jamaica Bay and along the eastern seaboard and Gulf Coast. The NY State Department of Environmental Conservation (DEC), through GIS analysis, estimates that Jamaica Bay, between 1857 and 1924, varied in size, but without trend (i.e., no steady increase or decline), averaging around 10 acres change (+/-) per year. Between 1924 and 1974, however, the rate of marsh loss accelerated significantly. During this 50-year time span, a total of 1290 acres were lost, mostly due to dredging and filling, averaging a rate of loss at 25 acres per year. Between 1974 and 1994, 526 acres of marsh were lost at an average rate of 26.3 acres per year. Between 1994 and 1999, 220 acres of marsh were lost at an average rate of 44 acres per year. Without significant ameliorative action, the NPS expects complete marsh loss by 2020. NPS and DEC scientists do not have a singular explanation for these losses, but point to several contributing factors, including sediment budget disruption, sea level rise, continued dredging of the shipping channels, Inlet stabilization, and eutrophication.

Because the natural filtration capacity of the estuary is significantly diminished with extensive marsh loss, the consequences of Combined Sewer Overflows (CSOs) and the four

Wastewater Treatment Plants that discharge into the Bay are amplified (See Figure 1.3). Similar to other older cities, New York City's sewer system combines street runoff and sewage in over 60% of the network (Waldman 1999; Bloomberg 2007). Problems occur during periods of heavy rain when rainwater and sewage overwhelm the holding capacity of the sewer system, resulting in an overflow of untreated wastewater into the surrounding waterways or combined sewer overflows. While treatment plants can handle nearly double their dry-weather capacity, as little as one-tenth of an inch of heavy rain can lead to CSOs (Bloomberg 2007; Murphy 2008). As a result of CSOs, 27 billion gallons of untreated wastewater enter the city's waterways each year (Murphy 2008). CSOs result in increased nutrient levels and bacteria in the water, e.g., nitrogen and fecal coliform, causing algae blooms and oxygen loss, which could cause aquatic life to die off and prohibits active recreation after heavy rain events. Nitrogen discharge also comes from the four wastewater treatment plants abutting Jamaica Bay, which release about 40,000 pounds of nitrogen per day into the Bay as of 2012 (http://www.dec.ny.gov/environmentdec/75764.html). Besides nitrogen, the wastewater treatment plants are also the largest source of chlorine discharged into the Bay (NYC DEP 2007).

Figure 1.3 CSO and Wastewater Treatment Plants along Jamaica Bay. Source NYC DEP (2007).

A number of local environmental groups have developed in response to these environmental problems and to ensure citizen participation in the environmental decision-making process. In 1984, citizen stakeholders organized the Jamaica Bay Task Force (JBTF), which meets quarterly to provide their input to the NPS on the current status of the Bay and options for improving the Bay's quality. In addition to the Task Force, in 1995, the Jamaica Bay Eco-watchers formed to address increased rates of marsh loss in the Bay. The group researches and identifies issues affecting water quality and marsh loss, ensures compliance of environmental laws, and conducts public education and outreach (NPS 2003). In addition to these two groups, there are a number of environmental groups active around different issues in the Bay, e.g., Rockaway Waterfront Alliance, the Edgemere Stewardship Group, and the Floyd Bennett Field Gardeners' Association.

The Jamaica Bay environmental groups and their constituents have varied perspectives about the causes of the Bay's degradation and about their vision for the Bay's future. Nonetheless, they share an awareness of the Bay's ecological problems, an attachment to this natural place, and an appreciation for how the Bay contributes to the quality of their everyday life. Furthermore, the individuals involved in these groups have made considerable efforts to

improve the Bay, either by picking up trash and replanting vegetation or by meeting with public officials to demand they address water quality concerns. However, not all residents of Jamaica Bay have cultivated their relationship to nature and even for those who have, contingencies and contradictions persist that continue to reflect the ideological and organizational structure of a society and largely views itself as separate from nature.

The Environment in (Environmental) Sociology

Generally within the discipline of sociology, to give significant weight to environmental influences on social life is to eliminate human agency and doom people to an existence determined by nature or god, a notion antithetical to the idea of modern society (Merchant 1980). Sociologists committed this "sin of omission" in an effort to establish a disciplinary niche, to avoid environmental and biological determinism, and to avoid naturalizing inequalities (Murphy 1997). Early sociologists argued that social life warranted its own area of study, distinguishing their research from the natural sciences and other social sciences, such as psychology. Emile Durkheim went so far as to argue that social facts should only be explained by other social facts (Durkheim 1982; Freudenburg, Frickel, and Gramling 1995; Murphy 1997; Woodgate and Redclift 1998). Along these lines, sociologists sought to avoid environmental or biological determinants of human behavior, instead emphasizing human agency – both individual and collective – in shaping the world. Accordingly, sociologists responded negatively to early socio-biological lines of argument that used evolutionary terms to claim that "natural" processes of competition would select out the least "fit" groups in society[5] (Murphy 1997). Similarly, sociologists, particularly feminist theorists and critical race theorists, have sought to overcome arguments that conflate social inequalities in power and privilege with natural features or

[5] This line of argument is known as Social Darwinism and is usually associated with the work of Herbert Spencer, who coined the phrase "survival of the fittest."

processes. For example, early feminists, such as Simone de Beauvoir (1949), sought to undermine perspectives that reduced women to their bodies, devaluing them either as sexual objects or as reproductive machines. Consequently, efforts to establish a disciplinary niche that avoided biological determinism and naturalizing inequalities resulted in a disciplinary focus that elevated the social at the expense of the environment.

In the mid-to-late 1970s, U.S. sociologists began responding to the absence of the environment in sociological analysis as well as the emergence of the contemporary environmental movement. Sociologists Riley Dunlap and William Catton (1979) wrote a seminal article critiquing sociology's Human Exceptionalism Paradigm – its emphasis on the social and social exemptions from nature – in analyzing society. Dunlap and Catton called for a paradigmatic shift within sociology to a New Ecological Paradigm, one that recognized the environment as a viable area of sociological analysis, but that did not result in the determinism so feared by earlier sociologists. Rather, Catton and Dunlap (1978; 1980) called for analysis of ecosystem and social system interactions to better understand the social world.

In many ways, the subfield of environmental sociology reflects larger disciplinary trends by focusing analysis on the production of nature, the construction of nature, and environmental inequality (Goldman and Schurman 2000; Kroll-Smith, Gunter and Laska 2000; Murphy1995; Plumwood 2001). Generally, productionist[6] approaches focus on the human labor process in transforming nature and the consequences of political economic processes for the environment (e.g., Eco-Marxists, Treadmill of Production, Materialist Feminists). In contrast, constructionist approaches focus on the way people perceive their environment, imbuing landscapes with social meaning (e.g., Bell 1994; Grieder and Garkovich 1994). It is this social meaning, and not some

[6] Some sociologists refer to a 'realist' approach within environmental sociology that recognizes the need to include the environment as "direct information" (Gross 2001) in sociological analysis. Productionist explanations of the environment make up one of the largest areas of research in the realist category.

objective natural feature, that makes nature important (Hannigan 1995). Research in environmental inequality focuses on how different social groups experience the inequitable distribution of environmental ills and benefits, with social and environmental consequences (Agyeman 2005; Bullard 1990; Cole and Foster 2001).

Yet when reading studies in environmental sociology, rarely does one find the inspired environmental descriptions or analyses found in the works of nature writers such as Rachel Carson, Aldo Leopold, John Muir, and John and Mildred Teal. For example, Rachel Carson (1955) beautifully captures the essence of estuarine functioning.

> When we go down to the low-tide line, we enter a world that is as old as the earth itself – the primeval meeting place of…earth and water, a place of compromise and conflict and eternal change. For us as living creatures it has special meaning as an area in or near which some entity that could be distinguished as Life first drifted into shallow waters – reproducing, evolving…We come to perceive life as a force…strong and purposeful, as incapable of being crushed or diverted from its end as the rising tide.

Often times, the environment seems to be missing from studies in environmental sociology; it is briefly mentioned or described, but not highlighted or present throughout (Capek 2006; Trentelman 2009). The three approaches, productionist, constructionist, and environmental inequality, while significant for understanding the human role in shaping the environment, do not move the environment beyond its passive role as analytic object, thereby overlooking the natural world's role in shaping the social landscape (Capek 2006). Here, I attempt to address this imbalance by analytically foregrounding the ways the Jamaica Bay estuary contributes to the production of place. This analysis attempts to meet Dunlap and Catton's call for a paradigmatic shift to do sociological research as if nature does matter by integrating an environmental history and by stressing the agency of nature in shaping ecosystem-social system interaction. This study also draws on the major tenets from each of the different sociological approaches to the

environment – productionist, constructionist, and environmental inequality - for a more holistic analysis of socio-environmental issues.

A Note on Language and Concepts

Language, at least the English language, reflects the dichotomous way of thinking about nature and culture, implying a separation between humans and nature (e.g., interaction with, bringing together of, relationship between or with, embedding of). Empirical studies in the social sciences have not provided much direction in developing a concept that captures the essence of the human-nature relation. In operationalizing an idea as complex as the "human-nature relation" into a single variable, such as environmental concern, much of the meatiness of the human-nature relationship is lost, stripped away in favor of a more easily testable concept.

Consequently, throughout this study the term *relationship with nature* will be used to capture the texture – the depth – of the human-nature relation. The term "relationship" implies the presence of two or more actors, as in a family relationship, thereby acknowledging nature as a participant in the dynamic. As opposed to concepts such as "environmental concern" or "environmental consciousness," which imply linear development away from environmental degradation toward some fixed state of environmental enlightenment, "relationship to nature" does not necessarily imply a wholly positive orientation towards the environment. Rather, the concept "relationship with nature" allows for inconsistencies and contradictions that continue to shape the way people engage the environment (Capek 2006). Just as members of a family might have flawed relationships, it is necessary to assume that this is equally the case with the human relationship to nature. As a result, the phrase "relationship with nature" attempts to capture and highlight the *process* whereby people come to view nature as if it mattered. The emphasis on process provides a realistic assessment of our environmental situation by recognizing the ways

society may simultaneously advance and regress when it comes to addressing environmental issues.

People cultivate their relationship to nature[7], in the largest sense of the word, in part via *place*. At its most basic, place, often the purview of geographers, is defined as the coming together of the physical properties of location with social meaning about that location (Cresswell 2004). In place, nature is no longer abstract workings of the physical environment that can often seem largely irrelevant for day-to-day life. Rather, nature is actualized through place; place becomes a sort of "individualized Nature." It is through place that embodied environmental experiences come to have meaning. Residents along Jamaica Bay have developed a strong connection to place that is rooted in their physical and social experiences living, working, and playing on Jamaica Bay.

However, not all residents in the area have the same connection to place. The Bay's physical properties, its tributaries that run back into the neighborhoods, coupled with the development of urban waste and transit infrastructure, patterns of residential segregation, and the exclusionary propensity of place, have come together to create *environmental privilege* for some while denying the opportunity to others. Environmental privilege is the special right or advantage of access to environmental amenities that is only granted to particular groups of people. The concept of environmental privilege captures the flip side of environmental injustice. Often, environmental justice concerns are focused on proximity to environmental ills, and do not focus on differential access to environmental amenities[8].

[7] Even the word nature is contested and evokes red flags. What is nature? Are nature and the city antithetical? Cronon (1995) and other political ecologists have dealt with the issue of what constitutes nature and its relationship to the city quite eloquently (Harvey 1996; Heynan et al. 2006). Here, the Jamaica Bay estuary is a stand in for the Nature of philosophical discussions. Of course, other aspects of nature can stand in for Nature, such as cattle egrets (Capek 2006) or mushrooms (Fine 1998).

[8] For exceptions to this, see Barnett 2001; Pulido 2000, and Gould and Lewis 2009.

Environmental privilege is important not only because access to environmental amenities adds to the overall quality of life (Hurley 1995), but also because it is through regular and sustained contact with the Jamaica Bay estuary that residents have cultivated their relationship to nature. Jamaica Bay residents have come to see the Bay as alive, a regular and important part of their daily life, and this has been a key step in recognizing the connections between humans and the ecosystem. To recognize *nature's agency* is to recognize the impact that nature's workings can have on one's life, and provides a chance to rethink humans as one member among many in local ecosystems. For those without access or whose experience of place is undermined by poor socio-environmental conditions, opportunities to make these connections are limited.

As people come to see the environment as an actor with an impact on their daily life, people begin to incorporate the environment into their *eco-self*, to see themselves as intricately connected, bound up with the environment. The environment, like race, ethnicity, gender, class, or religion, begins to play a part in how we understand ourselves and others (Capek 2006; Weigert 1997)[9]. This process of negotiating the eco-self is at the heart of the *social reproduction of nature*[10]. Social reproduction is the "process (including biological reproduction and socialization) by which societies reproduce their social institutions and social structure. It is

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[9] Andrew Weigert, drawing on Mead's Generalized Other, develops the concept of Generalized Environmental Other (GEO) to describe how people "role take" environmental others and internalizes environmental responses to develop a sense of self that considers how the larger environment might respond to our actions (1991). Stella Capek uses the concept "surface-boundary tension" and the analogy of a membrane to describe the way humans connect to nature and maintain their separateness as they construct identities (2006). I am drawing on Capek's discussion of the eco-self because her concept allows for greater recognition of nature's movement and agency than the concept of GEO. Further, Capek's concept also allows for the conflicted process of identity formation (2006).

[10] Pierre Bourdieu (1984) first argued for the way culture and education reproduce class relations through the inequitable distribution of cultural capital. Feminist theorists have taken on the concept of social reproduction in response to Marxist arguments emphasizing productive labor as the primary unit of analysis. In response, Marxist feminist theorists argued for the need to include the social reproduction of the household to understand capitalist relations (Mies 1986). The emphasis, however, was often placed on the reproduction of labor power (food, clothes, shelter, education, etc.). While this is an important argument, the purpose here is to borrow the idea of social reproduction and extend it beyond the household to the human relationship to nature, which is equally as fundamental to the reproduction of capitalist social relations (see Katz 2001; Salleh 2005).

usually assumed, especially of modern societies, that this process is accompanied by elements of social transformation as well as social reproduction" (Jary and Jary 1991). Rather than emphasizing how societies reproduce their social institutions and structure, the emphasis here is on how we reproduce our day-to-day interactions with the environment. In this sense then, social reproduction is not used as a macro-level theoretical concept, but rather as a micro-level process. The social reproduction of nature does not result in a complete replica of the past way of relating to the environment, nor an entirely new one. Social reproduction of nature is the process of negotiating between an older form of human-nature relations and a newer one. It is a process characterized by both possibility and concern. For example, many residents with a strong connection to place have taken positive environmental action to protect Jamaica Bay. However, many of these same residents can be inconsistent in their beliefs and actions toward Jamaica Bay or in their beliefs and actions about larger environmental issues, thereby demonstrating that the process of eco-self formation is not without conflict and contradiction.

Methods

This study employs an eco-ethnography to understand how people give meaning to the environment as part of daily life in Jamaica Bay's estuarine ecosystem (Capek 2010). According to Capek, an eco-ethnography requires "learning about the land itself as well as the people on it – its social and natural history and how these came together to produce various landscapes. Nature, or environment, could not be an afterthought or an absence" (Capek 2010: 211). This study highlights the give and take between humans and the environment and recognizes their interconnection in producing social and natural landscapes by grounding fieldwork and analysis in the boundaries of the Jamaica Bay estuary – its creeks, beaches, and Bay. Furthermore, the study incorporates environmental history to highlight nature's agency in shaping the contemporary landscape of Jamaica Bay.

The environmental history of Chapter Two involves a content analysis of archival material from government agencies (e.g., NPS, NYC DEP); historical societies (e.g., Broad Channel Historical Society); and media sources (e.g., *NY Times* and *Brooklyn Eagle)* to understand socio-environmental change in Jamaica Bay, particularly as it relates to the capitalist development of New York City. The analysis emphasizes the way the physical workings of the estuary, particularly those of marshes and oysters, influence social responses to nature, and then how these social responses, in turn, impact the marshes and oysters. For example, the "public trust doctrine" is a legal standard from Roman times that developed in response to conflicts over common or shared natural resources, such as air and water. The oyster's location in the tidal waters, an aspect covered under the public trust doctrine, made interpretation of this legal standard difficult once natural oyster supplies were exhausted and oyster cultivation began. Who should have access to an oyster planted in an area legally considered to be part of "the commons?" Further, historical analysis provides insight into the way natural and social processes work together to shape the contemporary issues of place, environmental privilege, and relationships to nature discussed throughout the rest of the dissertation.

To address concerns of environmental determinism, so rightly feared by early sociologists and environmental sociologists (Murphy 1994), the study employs ethnographic methods to understand how people give meaning to and shape their lives on the Bay. Because of their location abutting the Bay's tributaries and shoreline, this study focuses on the Brooklyn neighborhoods of Gerritsen Beach, Mill Basin, Bergen Beach, Canarsie, East New York and the Queens neighborhoods of Howard Beach, Broad Channel, Ozone Park, and the Rockaways.

Participant observations provide an understanding of what it is like to live, work, and play in the Jamaica Bay estuary by observing participants doing things they would normally do

as part of daily life. Participant observations were conducted and fieldnotes taken, over the course of about four years (2007-2011), at community board meetings that abbuted Jamaica Bay (BK 5, 18, and Qns, 10, 14), at activist (e.g., Jamaica Bay Task Force) and community events (e.g., Gerritsen Beach boat race), during recreational use of the Bay (e.g., fishing at Canarsie Pier or North Channel Bridge), at National Park Service Meetings and sponsored events (e.g., Jacob Riis Open House) and at participants' homes.

In addition to participant observation, key informant interviews covered five broad areas 1) demographics, 2) current access to, and involvement with, Jamaica Bay, 3) relationship to the city, 4) nature experiences, and 5) environmental behaviors. Interviews were designed to last roughly one hour, but conversations with participants usually ranged between two to four hours. Interviews were often, but not always, taped and transcribed. Beyond formal interviews, the research consisted of countless, more informal conversations, with local community members and individuals recreating on Jamaica Bay.

Finally, the study involved the review of print and digital media focused on the Jamaica Bay estuary and its abutting neighborhoods. While the review included information from main stream news sources, e.g, *The New York Times*, and local newspapers, e.g., *The Brooklyn Paper,* the bulk of this data is from neighborhood blogs and forums that were written and maintained by local residents (e.g., *GerritsenBeach.net, Stripersandanglers.com*). This material represents the opinions of those willing to post on an online site, and therefore does not capture the voice of all neighborhood residents. However, neighborhood blogs are helpful in documenting the activities and concerns of daily life (Hookway 2008) as well as providing insight into local residents' perspectives on their neighborhood. Some researchers argue that the anonymity afforded by blogs allows those posting to be more unselfconscious about what they write, and thus speak

more honestly and candidly about their neighborhood (Hookway 2008). Besides neighborhood blogs, I have also been a member of the Jamaica Bay listserv for several years. On the listserv, local residents and frequent visitors post upcoming events, news, concerns and observations about the Bay, or pose questions about the Bay and other environmental issues. Analysis of neighborhood blogs and listserv postings provide insight into the feel of life along Jamaica Bay.

The data, including fieldnotes, transcribed interviews, maps, and media (digital and print) were then interpreted to identify themes that were specifically about residents' environmental interactions or beliefs, as well as about daily life in and around Jamaica Bay. For example, observations about the lack of adequate mail service in Far Rockaway and the development of the Aqueduct Race Track, while at first seemingly irrelevant for a study on the human-nature relation, when put in context, become part of a bigger picture about the lack of services to the Far Rockaway area, and the shortsightedness of residents in connecting environmental degradation in the Bay with political economic decisions in the larger estuarine ecosystem. The emphasis on place and environmental privilege were a result of this analysis. These concepts are useful for understanding the way different groups relate to nature via place as well as the contingencies and contradictions of their relationship with nature. Taken together, these methods help capture the "web of meaning" (Geertz 2001) and web of physical connection that makes Jamaica Bay a unique place.

Reflexivity: The Environment, Gender, and Race

Reflexivity involves recognizing that participants' descriptions are just that, descriptions of their reality. Furthermore, the researcher herself adds another layer of interpretation to the practice of describing. Consequently, reflexivity involves thinking critically about how the researcher's background and position impacts the research and writing of ethnography (Emerson 2001). While there are likely endless ways my personal background and presence in the field

impacted the collection and interpretation of the data, I focus here on the three most prevalent aspects impacting data collection and analysis: my own relationship to nature and my views of the environment, my gender, and my race.

I grew up in the Midwest, in a small, post-agricultural town along the Mississippi River. As a child, I lived in houses located on dead-end streets, usually with a sizable yard, bordered by ravines. My parents encouraged outdoor activities, in part because they enjoyed gardening, going for walks, and working outside, and probably more so, because there were four kids in a small house, and having us outside reduced the mess and noise inside. For most of my life, my nature experiences consisted primarily of exploring the ravines, rivers, and farmland of an Illinois town, and the periodic visits to Rocky Mountain National Park in Estes Park, Colorado where my aunt and uncle live. While a college student in Milwaukee, Wisconsin, I continued my visits to the Colorado Mountains, recreated along Lake Michigan's waterfront, and began exploring the kettles and moraines of Wisconsin on walks with my older sister, who lived an hour north. I came to cherish the walks with the women in my family, observing the vivid colors of spring blossoms, the sound of dry leaves crunching under your feet on a crisp fall afternoon, the smell of soil after a fresh rain, musing about life. It is here, on these walks, where I first came to contemplate the human relationship to nature, to notice the strong sense of connection, not only to the earth, but also to the ritual, and to the people I was with.

My own personal connection to nature and my political views on environmental issues (I am a self-proclaimed "champion for the environment") necessarily shapes data collection and analysis. First, my environmental views eased my entry into the field, as local residents could recognize that I was someone who shared similar beliefs about the beauty of Jamaica Bay, which is a valuable aspect of their lives. My own relationship with nature also impacted my choice to

bring nature to the forefront of analysis and thus to root my study in the estuarine boundaries. This choice limited my focus to certain groups living along Jamaica Bay and thus to certain issues. Most notably, I sought out meetings and discussions with people specifically about Jamaica Bay. This does not mean that attention was not given to other issues, but matters relating to Jamaica Bay took precedence in fieldnotes and in determining what events and activities to participate in. Finally, my environmental commitments also influence my data interpretation and write-up. I start from the assumption that the environment is one of, if not *the*, most pressing social issues facing society today and so my analysis then reflects this, especially in my critical assessment of development projects that threaten Jamaica Bay's environmental quality.

My female gender also influences the process of data collection and analysis. My gendered experiences are of particular note in Jamaica Bay given the "good ol' boys club" culture of anglers and boaters on the Bay. Fishing and boating are typically considered "male" activities and the Jamaica Bay landscape largely reflects this (http://www.fao.org/fishery/topic/13827/en). Most basically, as a young woman in New York City, often in the field alone, I was cautious about where or when I went somewhere and with whom I spoke. While I do not think this caution kept me from going most places or talking to most people, it nevertheless, to some degree, impacted the data collection. For example, I was cautious about being under bridges, such as the northwest corner under the North Channel Bridge, or in tall grasses off the Bay's shore, such as the relatively isolated Bayview State Park, near JFK Airport, when by myself. I was also cautious about approaching men fishing when there were not a lot of other people around.

Perhaps more so, my gender influenced who I came to work most closely with, thus influencing my experiences of the Jamaica Bay area and my analysis of the social environment. Two examples illustrate why this is so. One man, a white man in his mid-60s who had lived on the Bay for 38 years and served as a Yacht Club President questioned the integrity of my work by commenting on my physical appearance after saying I could switch to a more gender appropriate field "If this education thing doesn't work out for you..." On the other hand, another lifelong Jamaica Bay resident, a 73-year-old white man, and former fire chief, when asked about participating in the research told me it would be ok for me to come out to his Howard Beach house because he "had a wife." Although these are both minor incidents, they reflect the gendered nature of fieldwork and the lack of respect given to a female fieldworker. Incidents like these made me more comfortable approaching female participants.

By the end of my fieldwork, I worked closely with women on habitat restoration projects in three different neighborhoods, eventually coming to serve on the Board of Directors for one woman's newly organized neighborhood environmental group. Often my interaction with these women would consist of a day or half a day's worth of activity, doing habitat restoration, walking along the Bay, having lunch, and talking, not only about Jamaica Bay, but also our lives. While there was one main environmental group dominated by male leadership, and although I interviewed its leadership and spoke with them frequently, I did not have the same rapport with its members, nor was I asked to work more closely with the group. As such, I feel as though I have a much deeper understanding of my female key informants than I do of some of the other participants.

Finally, my race also played a role in the data collection process. As will be discussed more in depth in Chapter 4, the Jamaica Bay neighborhoods remain largely residentially

segregated, despite the presence of second and third generation white ethnic groups (Kornblum and Beshers 1988). My whiteness allowed me to "blend in" to the neighborhoods along Jamaica Bay that remain largely white (Gerritsen Beach, Mill Basin/Bergen Beach, Howard Beach, Broad Channel, and Western Rockaway). These Jamaica Bay neighborhoods have a history of racial incidents that loom large in the public consciousness (Kornblum and Beshers 1988) lending credence to the belief that a researcher of a different race or ethnicity might not have the same access to the neighborhoods that I did. For example, one summer, I combined my neighborhood observations with exercise. I would regularly bring running clothes to Jamaica Bay and would take long runs through the different neighborhoods. This "running as ethnographic method" allowed me to make regular street level observations without being "suspicious." I could be any neighborhood resident going for a jog. From this position, I was able to observe housing stock, waterfront access, people working or playing in their yards or in local parks. I was better able to detect the rhythm of the neighborhood, so to speak, because I was not a distanced observer, but could meander around going relatively unnoticed. This was less so the case in the predominately African-American and Hispanic neighborhoods of Canarsie, East New York, and Far Rockaway, where my presence seemed more "out of place." Although I worked closely with groups in Canarsie and Far Rockaway, I probably spent more general, unstructured time in the white neighborhoods along Jamaica Bay. While I tried to capture the way of life in the different neighborhoods, I do think that if someone did ethnographic research of Canarsie, East New York, or Rockaway that they might come away with a different point of emphasis than I.

I do not think it is possible to be completely objective, and I also believe that the social position of the researcher will impact data collection and analysis. In this instance, I think my

relationship to nature, my gender, and my race combine to shape my experiences of Jamaica Bay. Rather than viewing this as a methodological weakness, I think if the researcher's worldview and experiences are recognized, they contribute to the flavor and design of a study.

An Eco-feminist Take on Jamaica Bay

While ethnographic research does not set out to prove a theory or hypothesis as the end result of data collection, that does not mean that ethnographers go into the field intellectually empty handed (Geertz 2001). Whereas my relationship to the environment, gender, and race impact my data collection and analysis, as does as my methodological choice to focus on daily life and social meaning, so too does my general acceptance of some key theoretical tenets.

It was not until graduate school that I first heard of eco-feminism. Nor had I ever really considered myself an environmentalist or feminist until graduate school. While I certainly cared about the environment, and would not take a backseat to anyone just for being a girl, I did not have the political language or experience to label these beliefs as environmentalist or feminist, or more precisely eco-feminist. As might be expected in a small, relatively conservative Midwestern town, issues of power inequality – between classes, between genders, and between races – although perhaps not labeled as such, were readily apparent and shaped my experiences and my worldview. Consequently, I think I gravitated to eco-feminist arguments because I could identify with much of what these authors were writing about. It was in ecofeminist writing that I was most likely to find scholarly attempts at capturing the "pulse of nature" that I often sought out in my own life, and a critical analysis of inequality, particularly gendered, racial, and class based inequalities that I had, to varying degrees, experienced or witnessed.

Therefore, to think that researchers enter the field without some theoretical leanings is unreasonable and largely impossible. Bourdieu argues that reflexivity frees scholars from "their illusions, and first from the illusion that they do not have any, especially about themselves."

(Bourdieu 1992: 195 qtd fr Bourdieu and Wacquant 1992). As scholars, reflexivity about social position and the consequences for data collection and analysis are important, but equally as important are our theoretical leanings and the way these beliefs inform our worldview and interpretation of the data. As a student of ethnography, I went into the field looking to understand what life is like along Jamaica Bay. Nonetheless, there are some central tenets of eco-feminist theory that inform my work in the field, including the valuation of nature, the value of holistic thinking, attention to power inequalities, the importance of embodiment and daily environmental interactions.

Eco-feminist theorists claim that Enlightenment thought underlying Western culture produces and reproduces a series of false dichotomies that values culture over the natural world, and all things similarly associated, e.g., culture/nature; public/private; men/women; white/non-white; instrumental/emotional; production/reproduction; mind/body; rational/intuitive, etc. Rather, eco-feminists call for a more holistic way of thinking that recognizes and values the interconnectedness of all organisms, including the connection between people and their connection to the environment (Gaard 1993; Merchant 1980; Mellor 2000; Mies and Shiva 1993; Roach 1991; Seager 2003; Warren 1997; For a good review of the "genealogy" of eco-feminism, see Sturgeon 1997). While a critique of the devaluation of all things associated with nature and women is a generally agreed upon tenet of eco-feminism, the explicit way women are connected to nature is a point of contention. At the center of this debate is the relationship between women's bodies and nature. Some eco-feminists emphasize women's biological connection to nature through their reproductive capacities (Daly 1978; Griffin 1978, 1981; Spretnak 1982; Starhawk 1989). Others argue that this position is essentialist and reproduces biological

determinism, emphasizing instead the cultural construction of women's social position as key to understanding women's connection to nature (Dinnerstein 1999; Warren 1997).

Other theorists draw from both sides of the debate to analyze the ways women's bodies mediate nature for men through the socially constructed sexual/gendered division of labor (Mies and Shiva 1993; Mellor 1993, 2000; Salleh 1997). Ariel Salleh (1997) argues for an "embodied materialism" that recognizes and values how women's biology, specifically their reproductive capacities, and women's work in the domestic, or non-public sphere, protects all forms of life. Although taking slightly different approaches, Maria Mies and Vandana Shiva (1993) and Mary Mellor (1993 and 2000) emphasize the role of time, arguing that women's bodies and their labor are more in tune with ecological and biological time (Mellor 2000), or more in tune with the processes of regeneration (Mies and Shiva 1993).

Following the approach of Mies and Shiva (1993), Mellor (1993 and 2000) and Salleh (1997), and the phenomenologist emphasis on the experience of place (Relph 1976; Tuan 1974), this study emphasizes the embodied sensory experiences of place. By examining sensory experience, as opposed to women's reproductive capacity or women's labor process, as many eco-feminists do, this analysis extends beyond eco-feminist critiques, which often neglect the role of men's bodies and the role of non-reproducing women. Furthermore, much eco-feminist analysis focuses on women involved in rural subsistence projects, hence the emphasis on daily experiences of the environment. This study maintains the emphasis on daily environmental experiences, but alters this slightly to focus on urban residents' embodied experiences of the Jamaica Bay estuary.

Dissertation Map

Chapter Two provides a historical overview of the development of Jamaica Bay, highlighting how the estuary's physical processes influence the give and take, the action and

reaction, between Jamaica Bay and local residents in producing Jamaica Bay. Employing environmental history, this chapter explains how Jamaica Bay came to develop its current physical and social landscape. Chapter Three provides an ethnographic description of how local residents have developed strong connections to place through their embodied experiences of, and social meaning attached to, living, working, playing, and praying on Jamaica Bay. In connecting with place, residents have come to see Jamaica Bay as alive and a regular participant in their daily lives, and have cultivated their relationship with nature. However, as described in Chapter Four, not all residents along Jamaica Bay have the same opportunities for positive environmental experiences and therefore do not have the same opportunity to cultivate their relationships to nature. For those residents who have regular contact with Jamaica Bay, many have come to incorporate the Bay and its environs as part of how they understand themselves. Yet, as discussed in Chapter Five, this does not imply that residents have a coherent or complete sense of their eco-selves. Rather, the development of the eco-self is wraught with tension and constantly in flux, reflecting the influence of dominant and hierarchical social structures. It is through this process that people accomplish the social reproduction of nature.

Chapter 2: An Environmental History of Jamaica Bay

Canarsie was a favorite place of resort for thousands of excursionists yesterday. A delightful breeze was blowing, and the air was stimulating and refreshing. The ride on the cars was through a tract of country that looked like one vast lawn of green velvet, so smooth and regular were the lands of the farmers of the vicinity. When Canarsie was reached, after a brief trip of only 13 minutes, the excursionists dispersed in all directions. Some hired yachts, which could be obtained from $5 to $10 for the day, while others took smaller boats at smaller rates and cruised around Jamaica Bay. Others lingered on the hotel plaza and opened their lungs for the breeze, which was like the balm of Gilead to the tired and weary emigrant from the "land of bricks and mortar." 1882 *BK Eagle*

[A]s a whole, Jamaica Bay can be considered as one giant basin into which many millions of gallons of human sewage are constantly flowing, and doubtless myriads of typhoid organisms from this sewage. 1912 Dr. George Stiles, Chief Bacteriologist for Federal Bureau of Chemistry *(10.6.1912 NY Times)*

Jamaica Bay is without question one of the most bountiful wildlife habitats in the entire Northeast. It is important to the people who live in the area for its rich biodiversity, the recreation it offers, and the protection the marshlands provide from flooding. February 2010 Mayor Michael Bloomberg[11]

In a little over a century, Jamaica Bay has been transformed, both culturally and materially, from a stimulating and refreshing tonic for the ailments of urban living to a sewage basin fraught with typhoid causing bacteria, and now, an "urban oasis" in the National Park system. Explaining the Bay's dramatic transformation in a relatively short time requires attention to the reciprocal relations between humans and their local ecosystem. Specifically, socio-environmental change of the Jamaica Bay landscape can be directly traced to the interaction between the Bay's estuarine ecosystem functioning, represented here through the workings of marshes and oysters, and the political and economic decisions to advance the capitalist development of New York City through the development of waste and transit infrastructure. By highlighting nature's agency through an environmental history of Jamaica Bay, this chapter captures the give and take, the action and reaction, of human-ecosystem

[11]http://www.nyc.gov/portal/site/nycgov/menuitem.c0935b9a57bb4ef3daf2f1c701c789a0/index.jsp?pageID=mayor_press_release&catID=1194&doc_name=http%3A%2F%2Fwww.nyc.gov%2Fhtml%2Fom%2Fhtml%2F2010a%2Fpr085-10.html&cc=unused1978&rc=1194&ndi=1

relationships. It is this interactive relationship with nature, the coming together of unique natural and social processes, that constitutes place – the space of daily life – the areas where we live, work, and play.

By highlighting nature's agency, this chapter draws attention to the subtle and ordinary ways humans are dependent on, and embedded in, eco-system processes, showing that the social reproduction of the human-nature relationship depends on ecosystems that are alive and active (Capek 2006). In doing so, this approach dislodges the notion that humans are in total control of history without slipping into the environmental determinism feared by so many early sociologists (Cronon 1993; Pickering 1993). Rather, examining marshlands and oysters in their ecological context demonstrates the material and cultural fluidity of place – the give and take, the action and reaction, of human relationships within, and to, a specific ecosystem.

The Value of Environmental History

This chapter draws on the discipline of environmental history and the work of several environmental sociologists who take historical approaches to explaining urban development to emphasize the role of nature in shaping the political, economic, and cultural processes responsible for socio-environmental change over time (Hurley 1995; Molotch, Freudenburg, and Paulsen 2000; Pellow 2002; Taylor 2009; White 1990). Although environmental history is a discipline in its own right, it is used here in a methodological sense, to understand 1) estuarine characteristics that are important for overall ecosystem functioning, and 2) the way nature influences social action, with an eye toward "nature's surprises" or the unintended consequences of manipulating nature. William Cronon explains why environmental history is well suited for these aims.

> Our strategy has been to argue for a dialogue between humanity and nature in which cultural and environmental systems powerfully interact, shaping and influencing each other, without either side wholly determining the outcome. One

> can restate this prescriptively as follows: in studying environmental change, it is best to assume that most human activities have environmental consequences, and that change in natural systems (whether induced by humans or by nature itself) almost inevitably affects human beings. As a corollary, most environmental historians would add that human beings are not the only actors who make history. Other creatures do too, as do large natural processes, and any history that ignores their effects is likely to be woefully incomplete (Cronon 1993: 13).

Data from two of New York City's historical newspapers, *The New York Times* and the *Brooklyn Eagle,* provide a glimpse into daily life in the city. The archival newspaper data, generally, does not begin until the mid-1800s (1851 for the *Times*), but is supplemented by historical studies, scientific studies, magazine clippings, meeting minutes, etc. housed in the Jamaica Bay Research Institute's Library at Gateway National Recreation Area. After reviewing the material chronologically, the data was re-coded to reflect emerging themes that show how ecological functioning of the Jamaica Bay estuary influences political, economic, and cultural processes, as well as how these processes have influenced the rise, fall, and resurgence (or attempts there at) of the estuary. The result is an emphasis on issues of waste and transit infrastructure, the legal interpretation of the public trust doctrine, and the issue of public access to Jamaica Bay.

Spartina alterniflora

Spartina alterniflora, also known as Smooth Cordgrass, salt marsh, marshlands, or wetlands, is a tall, smooth grass, ranging from six inches to eight feet in height. Grasses are taller near the water, known as the "lower marsh," and shorter as it moves upland toward the "high marsh." Salt marsh leaves are long, flat blades, typically between 12 and 20 inches long.

Image 2.1 Spartina Plant Photo
http://s872.photobucket.com/albums/ab285/Susan_Trammell/Florida%20Native%20Plant%20Botanical%20Illustrations/Grasses/?action=view&current=76-Spartina-alterniflora.jpg&currenttag=Smooth%20Cordgrass

Spartina is indigenous to the Eastern seaboard of North America and Gulf of Mexico, but is considered invasive along the western shore of the United States. Grasses are found in the intertidal zone, or coastal areas that are submerged in water part or all of the time, depending on the height of the tide (NY DEC http://www.dec.ny.gov/). *Spartina* play a key role in overall estuarine functioning because of its importance as a habitat source, food source, and spawning site. However, much of what contributes to the ecological significance of the marsh is found underwater and in the internal workings of the plant, thus making invisible its importance for ecosystem functioning.

The marsh's root system and tissue structure play significant roles in sustaining tidal marshes. The ebb and flow of the tide shapes and sustains the marsh. Twice each day, tides rise and fall, flooding and exposing the mudflats along the shore's edge. *Spartina* grasses colonize

the mudflats through a system of rhizomes, or horizontal, underground tubular roots. The stems, or rhizomes, form a clump, slowing the incoming tidal current and forcing the moving water to drop nutrient-rich sediment at the base of the newly forming marsh. As the tide continues to deposit sediment, the marsh continues to grow in height and extent, and the *Spartina's* horizontal root structure spreads. A well-developed root structure is necessary for the survival and productivity of the developing marsh.

Although *Spartina* can survive in fresh water, the plant has adapted to estuarine living through mechanisms foreign to most upland plants. *Spartina alterniflora* is a halophyte; it tolerates saline conditions that would dry out tissue in most other plants. The roots of the *Spartina* plant extract fresh water from the surrounding sea by concentrating the salt in its cells and excreting the remainder through special glands. The special glands secrete a concentrated solution of salt through the leaves, and as the solution evaporates, tiny salt crystals form on the *Spartina* leaves, which wash away with the next high tide or rainfall.

Image 2.2 Salt secreted from the Spartina plant. Photo http://www.flickr.com/photos/9428166@N03/1332850266/sizes/z/in/photostream

Besides adapting to estuarine salinity, marsh grasses have also adapted to depleted oxygen levels. Water, bacteria, and other living organisms cover the marsh mud and the plant's root system, consuming large amounts of oxygen, and reducing the amount of available oxygen to the marsh plant. To compensate, marsh grasses have aerenchyma tissue, which run longitudinally throughout the root system, and is characterized by large holes, or disintegrating cells. This unique feature allows *Spartina* to obtain oxygen from the leaves of the plant even while its roots are submerged in water. Additionally, the stoma, or outer permeable layer (similar to skin), closes during high tide, when the *Spartina* leaves are often submerged, to protect the plant from drowning until the tide subsides again.

The marsh's root structure, ability to filter salt, and absorb oxygen despite being submerged in water, are all key features of what makes marshes ecologically significant, but are also features that are largely invisible without careful observation. Once early populations shifted away from subsistence living on marsh, close observation of the marshes went by the wayside, and populations began to view marshes as useless unless filled or dredged, facilitating the shift to more capitalist mode of production (Siry 1984).

Crassostrea Virginica – The Eastern Oyster

Crassostrea Virginica, also known as the *Eastern Oyster*, the *American Oyster*, the *Atlantic Oyster*, and the *Virginia Oyster*, can be found along the Eastern seaboard of North America, ranging from Canada to the Gulf of Mexico, and extending, although in varied form, to the Caribbean and northern Latin America. The *Eastern Oyster's* adaptability to various water temperatures, between 28 and 90 degrees Fahrenheit, and salinity ranges, 14 to 28 parts per thousand allow for its wide range. Oysters have an elongated shape, with two shells and a large adductor muscle that connects the shells like a natural hinge (hence the term bivalve). Oysters

can grow up to eight inches long and, if left alone in the correct environmental conditions, can live up to twenty years. The *Eastern Oyster* lives in intertidal and subtidal coastal areas[12], in shallow saltwater bays, lagoons and estuaries, and in water 8 to 25 feet deep. The biological and ecological features of the oyster - location in the tidewaters, reproductive patterns, and filter feeding - help explain the early character of Jamaica Bay as a fishing/shellfishing site, as well as the estuary's demise with the industrialization of the Bay.

Oyster settlement in the intertidal and subtidal zones is permanent. Unlike clams, whose foot allows for relocation, once oysters find a suitable surface for attaching, their foot is absorbed, and relocation is no longer possible. Oysters must attach to a hard bottom that still offers enough oxygen for survival, which is possible in the intertidal and subtidal zones. Furthermore, oysters are intolerant of prolonged fresh water or prolonged marine salinities and therefore need the brackish water of estuaries[13]. Generally, salinity increases in a seaward direction along the length of the estuary. Areas at the head of an estuary, or near fresh water creeks and rivers, are less saline, often containing sea life, such as mussels, that have adjusted to lower salinity levels and that can withstand extreme environments associated with tidal variation (exposure to dry, sun soaked, and varying temperatures of the land as well as inundation by sea water). Oysters are located farther out in the intertidal zone, where salinity increases above 5 to 10 parts per thousand, but has not reached levels associated with seawater (seawater is 35 parts per thousand). By concentrating in large, immovable numbers, oyster reefs, coupled with their relatively accessible location in tidal waters, makes oysters easily harvestable, and thus a common food source.

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[12] Intertidal areas are coastal areas that may be submerged in water all or part of the time, depending on the height of the tide, whereas subtidal areas are primarily under water, except during periods of extremely low tide (NY DEC http://www.dec.ny.gov/).

[13] Brackish water is water that is slightly salty, usually a result of the mixing of fresh water and seawater found in estuaries.

Oysters spawn from late spring to early fall. Water temperature plays an important role in triggering the spawning process. Once water temperatures reach 68 degrees Fahrenheit, scientists believe that a single male releases sperm into the water column, instigating others to do the same, as well as females to release eggs. Spawning is also influenced by salinity ranges (higher than 10 practical salinity units) and physiochemical interactions, and is thus seasonal throughout the mid-Atlantic waters (summer), but occurs in all but the coldest months in Southern, warmer ranges. When salinity and water temperatures persist, spawning can occur throughout the year.

Only one percent of the fertilized eggs reach the next stage of maturity. After fertilization, the larvae begin to form a shell within 24 to 48 hours. In the veliger stage, the larvae are planktotophic and eat small plants and animals. This stage can last up to two months, depending on temperature conditions. During the settlement phase, the now fully formed larvae seek out a suitable bottom for attaching. The settlement phase is a behavioral response to environmental and internal cues and thus can be repeated or reversed. Evidence suggests that salinity conditions and chemicals given off by other nearby live oysters and bio-films from other suitable substrates can trigger the metamorphosis stage. Once the larvae find a suitable settlement spot, the foot is reabsorbed into the oyster and the metamorphosis stage begins. The oyster attaches to the sea floor with its bottom valve cupped and its top valve flat. The cupped shell enables the oyster to live outside of water for long periods of time by keeping the natural liquors in its shell.

The oyster's cupped shell, which keeps oysters alive outside of water for long period of times, coupled with its quick maturity rate, lends the oyster to commercial cultivation. Water

Image 2.3 Oyster in its cupped shell Photo Source: http://www.joesquared.com/specials-are-back/oyster-021207-460x360/

temperature, salinity, and food supplies influence oyster growth and thus growth rates vary seasonally and with latitude, with maximum growth in the summer and fall. Scientific studies have shown that the minimum temperature for the growth of oyster larvae is 63.5 degrees Fahrenheit. Consequently, oyster growth in higher latitudinal ranges ceases during winter. The legal harvesting size is 3 inches, which can be reached in 12 to 36 months in cultivated beds, with sexual maturity reached at four months, guaranteeing the oyster's continued presence in the market.

The difference in fatness, flavor, and color between a spawning oyster and non-spawning oyster has to do with the rate of gonad development against the amount of glycogen in the oyster. Oysters can change sexes several times throughout its lifespan. While most are born male, the number of females increases with age. As the oyster's gonads begin to develop, the fleshy part of the oyster fills with mature eggs or sperm. Once conditions are appropriate, the oyster secretes the gametes through the outer layer of the gonad's cell wall. After spawning, any gonad

remnant is absorbed and the newly emptied sac or gland fills up with water instead of glycogen. Glycogen is a polysaccharide, or a store of carbohydrates, that forms glucose upon contact with water. Depending on the rate of glycogen fill-up, the glands, or sac, become white and thick, filling the oyster up to its gills. Glycogen fill-up does not begin until water temperatures drop below 20 degrees Celsius, 68 degrees Fahrenheit, sometime in early to mid fall. Consequently, the fine, fat flavor so prized by oyster lovers results from the oyster's reproductive process and water temperature, and not, as has long been believed, a sign of wholesomeness.

The oyster's settlement in the intertidal zone and its reproductive cycle made the oyster a particularly attractive food source. Over-harvesting led to the elimination of natural oysters and the introduction of oyster farming. Later, because of the oyster's filter feeding mechanism, poor water quality served to undermine commercial oyster production.

Food and Habitat in Jamaica Bay's Marshes: The Pre-Industrial and Early Industrial Era

In the late 1600s, early settlers described Jamaica Bay as an "open sound," a watery expanse. With the westward extension of the Rockaway Peninsula, however, the inlet connecting Jamaica Bay and the Atlantic Ocean increasingly shrank, sheltering the inner waters from the pounding ocean waves, creating a shallow bay.

> The history of plot 1 of the western division [of Rockaway] is the story of a wonderful creation from the sea…From the map it is learned that the old gut or inlet to Jamaica Bay, was more than a half mile east of the point of the inlet…and the ocean tides flowed into Jamaica Bay through a broad deep and unobstructed channel…The tides and currents and heavy seas first formed the long bar; then the heavy southeasterly storms and pounding seas, year after year, forced the sand into great ridges and hillocks, in some instances from 25 to 30 feet above the water (BK Eagle 06.07.1896:p13).

With protection from the Rockaway peninsula, *Spartina* marshes began colonizing the mudflats and islands of Jamaica Bay. By the 1800s, depictions of Jamaica Bay describe extensive marshlands dotting the Bay.

> In the middle of the bay is a small island known as Ruffle Bar – the northwest end of the bar is a marsh, half sunken at high water. This marsh is divided from the island proper by a small inlet and in the marsh are generally to be found plenty of snipe. Opposite Ruffle Bar about a mile and a half is Barren Island. Barren Island is also intersected by a small inlet, fringed by a marsh, and here also, snipe abound…On the west side of the Bay is Bergen's Island, which is covered with a dense forest, and in the marshes under the lea of the Island, are a favorite feeding place for duck. (BK Eagle 11.10.1877)

Jamaica Bay's marshlands concentrated several species of fish, shellfish, waterfowl, and small mammals near the shore, thereby serving as an important food source for indigenous populations and then early settlers. Though there is not much known about Jamaica Bay's indigenous population, it is known that the Canarsie and Rockaway Indians, who spoke Algonquian languages, lived near Jamaica Bay, with the Canarsie on the Western and Northern portion and the Rockaways on the Eastern portion (Black 1981). Similar to other indigenous populations on Long Island, the Canarsie and Rockaways were primarily fishing and hunting cultures, with some farming further inland. Early Canarsie Indian sites at Ryder's Pond (now known as Gerritsen Creek) contain archeological evidence that populations hunted beaver, raccoon, and woodchucks (Black 1981). Canarsie and Rockaway Indian populations also harvested oysters, either by hand or with a wooden rake and dugout canoes, a technique made possible because of the oyster's location in tidewaters and their clustering in reefs (Black 1981; Kurlansky 2007).

Shell middens, or shell heaps, are the primary evidence of indigenous oyster consumption. Middens have been found all over the world in coastal locations, but archaeological studies of the Lenape Indians of New York City found middens roughly fifteen to thirty feet in height (Kurlansky 2007). Black (1981) writes of "immense shell heaps" at the original town of Flatlands along Jamaica Bay, a primary location for Canarsie populations. Archaeologists have also found shell middens in other sites along Jamaica Bay, including Bergen

Beach, which was thought to be an important site for the Canarsie, and Gerritsen Creek (Black 1981). In Queens, despite early development of the Rockaways, middens were found on the peninsula up until the end of the 19th century. Here, middens have been found near the marshes of Woodmere Bay, Inwood, and Far Rockaway, with a particularly large midden found in the Bayswater section of Far Rockaway (Kurlansky 2007:p. 13). Despite evidence that Canarsie and Rockaway peoples used the Bay and consumed oysters as part of their diet[14], Black's historical study (1981) finds little evidence of ecologically significant impacts stemming from indigenous use of the Bay.

The Dutch established their first permanent settlement in New York in 1624. By June 6, 1636 the Dutch had acquired the deed to nearly the entire section of the Western portion of Jamaica Bay, establishing the Dutch town of Amersfoort[15](Black 1981). By 1664, the English took control of the settlement, and by 1667, all indigenous land in Kings and Queens County, including the shores of Jamaica Bay, had been deeded over to European settlers. As with their native counterparts, early European settlers worked the marshes and consumed oysters to fulfill part of their dietary needs (Black 1981). Black (1981) notes that early Dutch and British settlers engaged primarily in subsistence agriculture and dairy farming, selling left over goods at local markets. Early settlers also maintained other livestock, such as sheep, hogs, oxen, and horses. The prevalence of dairy farms and agricultural livestock near Jamaica Bay made local marshlands important grazing sites. Black (1981) cites evidence of the Dutch grazing horses on

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[14] Kurlansky (2007) claims that the indigenous populations of New York did not rely on oysters as a primary dietary component, but rather supplemented their diets with this tasty, but laborious, treat. Kurlansky (2007) argues that because 90 to 95 percent of an oyster's weight is in the inedible shell, there is little food for the amount of labor involved in harvesting, shucking, and consuming oysters. For this reason, he states, shell middens have not been found in distances greater than 160 feet from the shoreline. Moreover, he argues that an individual would need to eat 250 oysters per day to achieve an adequate caloric intake, thus concluding that indigenous populations and early settlers of New York consumed oysters simply because they tasted good (Kurlansky 2007: pg. 18).

[15] Amersfoort eventually became the English town of Flatlands, which is now part of the Canarsie neighborhood of Brooklyn

the marshes of Barren Island in the 1600s, as well as the mowing and selling of salt hay in Brooklyn markets in 1826, noting the over 200 year period of settler reliance on Jamaica Bay's marshes.

As part of their agricultural practices, indigenous populations and initial European settlers used oyster shells to improve the soil's mineral balance. Long Island soil is very acidic; adding lime to the soil raises the pH level to more suitable growing conditions[16]. Adding lime to acidic soils helps maximize the nutrient availability in the soil, as well as increasing microbial activity, improving soil structure, and accelerating soil decay, all of which improves the fertility and productivity of the soil. Additionally, lime acts as a natural irritant to some insects and reduces certain weeds, such as quackgrass and jimsome weeds, often found in acidic soil. Early European populations also used oyster shells for filling marshlands and for street construction because of lime's propensity to dry up mud.

Oysters must absorb calcium from seawater for growth. All seawater naturally contains calcium (seawater is approximately 440 parts per million calcium). If the presence of calcium from the seawater is diminished (e.g., over acidity from excessive carbon dioxide loading), then oysters cannot grow. Returning discarded oysters to the water, therefore, improves oyster growth rates by contributing additional calcium from oyster shells that have been broken down by the sea. Increased calcium in the water improves the rate and thickness of shell growth. Thick oyster shells make the oyster more resilient to disease and predators. Besides contributing to shell growth, oyster shells are also the preferred surface for larvae to form reefs (Kurlansky 2007). Although unintended, indigenous populations and early European settlers undermined the

[16] Soil acidity is ranked on a scale of 1 – 14, with 1 being the most acidic and 14 the most alkaline. Neutral soil (pH7) maximizes the availability of soil nutrients and therefore is ideal for most plant growth. Potatoes need more acidic conditions for best growth (roughly pH 5.3-6.5), which helps explain the development of Long Island potato farms.

reproductive processes of the Jamaica Bay oyster, by withholding resources (the discarded oyster shell), crucial for growth.

> Oyster consumption was widespread throughout colonial New York by the early 1700s. Nor ought our vast plenty of Oysters to pass without particular Observation. In their Quality they are exceeded by those of no Country whatsoever. People of all Ranks amongst us in general prefer them to any other Kind of Food…Their Beds are within view of the Town, and I am informed that an Oysterman industriously employed may clear Eight or Ten shillings a Day. Some Gentlemen, a few Years ago, were at the pains of computing the Value of the Shellfish to our Province in general. The Estimate was made with Judgment and Accuracy, and their Computation amounted to Ten Thousand Pounds per Annum. (Kalm qtd in Ingersoll 1880: 122).

As a result, local governments took action to prohibit the unfettered taking of oysters. In 1704, the town of Rockaway prohibited oyster taking by non-residents. In 1715, legislation made it unlawful for "Negros, Indians, or Mulatos" to sell oysters in New York City. Additionally, the colonial government, following an old adage not to eat oysters in months without the letter 'r' in them, passed laws prohibiting oyster taking from May 1st to September 1st to curb the over exploitation of natural beds. The adage was based o nthe belief that oysters were not wholesome during the summer months because of their thin, watery texture. However, as discussed above, this is actually a consequence of they oyster's reproductive processes and is not an indication of wholesomeness. The law was to last for five years, but the exploitation of the beds continued in earnest. "The common people, relieved from the restraining influence of the law, seem to have arrived at the conclusion that the supply of oysters was absolutely inexhaustible, and their rakes were used unsparingly at all seasons of the year" (*BK Eagle* 01.06.1884). In response, a new law prohibiting oyster taking during summer months went into effect in 1730. Despite these prohibitions, people continued to eat oysters in the summer, although it was commonly believed that only the poor did so. "Although the better classes eschew oysters during the Summer months, yet in the poorer neighborhoods, the trade does not

fall off during those months, and in some places the demand actually increases" (*BK Eagle* 08.30.1896). In 1737, the town of Jamaica prohibited non-residents from fishing in the Bay and by 1791 the town of Rockaway required those taking oysters to pay one shilling for every *thousand* oysters taken, imposing a fine of 40 shillings for violators. Despite "transgressions by the poor," laws prohibiting oyster consumption during summer months – even though they were based on an inaccurate understanding of oyster biology – helped reduce oyster consumption by large sectors of the population, thereby promoting more sustainable consumption.

Unlike early indigenous populations who likely viewed the Bay's oysters as part of nature's collective bounty (Cronon 1983), European settlers brought notions of private property and "rights to nature" to Jamaica Bay, thereby making the oyster's location in the tidewaters and its settlement on the sea floor a significant political issue. Control over common natural resources is governed by the public trust doctrine that dates back to Roman and English law. The law emerged in response to conflicts between those believing the earth's common resources, such as waterways and the fish therein, should be open to the public, and those who sought exclusive property rights to these resources. Roman law considered natural resources such as air, water, and shorelines to be common to all. The concept of public trust evolved under English law to mean that the sovereign monarchy owned the tide-washed littoral[17], tidal rivers, and their beds. The government did not hold rivers and shores as private property (*jus privatum*), but rather as public areas (*jus publicum*), open to common navigation and fishing rights held by English citizens (McCay 1998). After the American Revolution ended in 1783, the former colonists themselves became sovereign, and control of natural resources transferred from the monarch to individual states.

[17] The littoral zone is the area between the high water mark and the low water mark. The area of shore exposed with the ebb and flow of the daily tide.

The oyster's location in tidal waters and their permanent settlement on the sea floor made interpretation and enforcement of the public trust doctrine a tricky and politically charged matter, shaping the social and political environment of Jamaica Bay[18]. Although the public trust doctrine set out to protect public access to common resources, it has been misinterpreted, sidestepped, and irregularly invoked. Disputes over oyster bed rights raised questions about the existence of "naturally occurring oysters," access to oysters, private property, and political jurisdiction, resulting in oyster theft, violence to protect oyster beds, ever-changing regulations, and differential access to the Bay and its underwater land.

By the 1800s, New Yorkers began to exhaust the Harbor's natural oyster beds. To keep a pace with demand, locals began importing oyster seed, or spat, from other areas along the Eastern seaboard, particularly from Connecticut (Kurlansky 2007). Consequently, oystering transitioned from the simple harvesting of mollusks from their natural beds to planting and cultivating oysters in a fashion more similar to farming than fishing. But importing oyster spat raised questions about the public trust doctrine's guaranteed right to oysters. As opposed to naturally occurring beds made available through nature's province, individuals importing and planting oysters claimed the oysters as private property. Although the state could not sell underwater land to oyster planters, it could, in conjunction with the public trust doctrine, lease underwater lands to adjacent property owners so long as they did not interfere with navigation or with the public's right of access to the waterway. To ensure continued public access to natural oyster beds, New York State required oyster planters to file affidavits that no natural beds existed in an area prior to planting and to guarantee that planted oysters would not crowd out natural

[18] My research leads me to conclude that conflicts over oyster beds in Jamaica Bay did not reach the level of seriousness as they did in neighboring New Jersey and in the Chesapeake Bay. This is likely because of the scale of the oyster industry in New Jersey and Chesapeake Bay compared to Jamaica Bay. Bonnie McCay (1998) discusses oysters and the public trust in New Jersey in the book *Oyster Wars and the Public Trust*. John Wennersten (1981) writes about the Chesapeake Bay oyster conflicts in *The Oyster Wars of Chesapeake Bay*.

oyster beds. As a result, claims challenging the existence of natural oyster beds in Jamaica Bay began. The law prompted disagreements between property owners who wanted to cultivate oysters and argued that no natural oysters existed in the Bay, and baymen who continued to argue that natural beds existed. Interpretation of the law during the period of rapid industrialization and growth after the Civil War had significant consequences for access to Jamaica Bay's oysters and underwater land.

The Reconstruction Era Transforms Jamaica Bay: Post-Civil War to 1900

Jamaica Bay remained relatively undeveloped, "a watery expanse broken by small islands and a handful of mills" (Hendrick 2006) until after the Civil War ended in April of 1865 (Black 1981; Hendrick 2006; Tanacredi 1995, p. 16). Barren Island (later filled in to form Floyd Bennett Field) was an early site of industrial development in Jamaica Bay. In 1845, offal-rendering industries had taken up residence on the island (See below).

By 1875, local baymen and residents complained that pollution from Barren Island

Image 2.4 Barrelling [sic] the Oil, Half-tone, nd., Museum of the City of New York, Print Archives. Reproduced in Miller, Benjamin (2000).

factories was harming the Bay and had destroyed 100 acres of oysters and clams. "The presence of dead animals on the shores and in meadows was common so that the air thereabouts was sufficient at any time to create nausea" (*NY Times 07*.18.1876). Local residents identified the pollution source as the New York City garbage boats unloading into the Bay near Barren Island,

as well as the island's NY Offal Company, Brooklyn Offal Company, and E. Frank Cce Fertilization Company, which rendered the remains of New York City's animals into fertilizer.

> From each factory there flows into the bay, a refuse matter, consisting of acids and liquid substances of a greasy nature, which floats upon the surface of the water, clings to the sides of vessels, and kills the fish and also attaches itself to the clams and oysters, making them unfit for use, thereby destroying the livelihood of the residents of Canarsie, nearly all of whom earn their living in the pursuit of fish and the bivalves to be found in the Bay (02.02.1881 BK Eagle).

As a result, the area adjacent to Barren Island's shores became known as Dead Horse Bay[19]. In 1881, local anglers threatened to burn down factories if the Flatlands Health Board did not take ameliorative action, claiming they would "rather go to jail for that than to allow the Barren Island people to starve them to death by depriving them of their means of making a living" (02.06.1881 BK Eagle). The anglers did not make good on their threat; companies made some minor adjustments, but industrial activity continued on Barren Island (Black 1981).

In 1886, officials developed the first wastewater treatment plant at Coney Island, a system for catching floatable debris (Waldman 1999). In 1889, the town of Far Rockaway sought permission to run the town's sewage directly into Jamaica Bay, but a local statute to protect oyster beds from disruption prohibited the act. In 1891, discussions for the 26th Ward Sewers (currently the East New York section of Brooklyn) began, but actual construction would not begin until there was enough money to complete the project. Later in 1891, Far Rockaway residents opposed a plan to discharge sewage into Norton Creek, which connects to Jamaica Bay, arguing that the plan would spoil the beach for bathing, affect the cleanliness of the water, decrease the value of real estate, and destroy local seafood. Local baymen joined residents' protest, arguing that the system would destroy local oyster beds. Eventually, the Board of Health

[19] The Western portion of Floyd Bennett Field (formerly Barren Island) is still known today as Dead Horse Bay. Evidence of the island's past as a waste site continues to wash up along the shoreline; it is known in the city as a paradise for antique bottle collectors.

rejected the plan because Norton Creek's shallow waters were not capable of flushing sewage from the creek.

At the same time local populations struggled against sewage discharge into the Bay, public and scientific opinion about the usefulness and healthfulness of marshes shifted as coastal cities sought to expand (Siry 1984). Policy makers, scientists, and landowners sought to "improve" marshes by "reclaiming" them from the sea and extending the available land mass for residential and agricultural purposes. With increasingly crowded and unsanitary conditions in urban areas, public health officials looked to marsh miasma as the cause of yellow fever, typhoid, and other illnesses (Siry 1984).

> We have on several occasions urged upon the Legislature of our own and other States the propriety of reclaiming or procuring to be reclaimed the marshlands which generally surround or are contiguous to large cities. A part from the miasma which arises from such lands, and the pestiferous annoyances, which are bred here and wing their way into the home of every unhappy citizen, it is a fact that the land itself is needed for the production of certain necessities of life which it could readily supply, but which at present are almost unattainable in any degree of wholesomeness (10.8.1866 *NY Times*).

Early technological development of mills and dredges made marshland reclamation increasingly possible. Reclamation became a sign of progress and marshlands that were not filled represented a lack of human ingenuity and initiative (Siry 1984).

While Jamaica Bay had long served as a dumping site for local businesses, adjacent towns, and even Manhattan's discarded animals, it was not until the 1880s that major alterations to the marshes, via dredging and filling, produced significant topographical change in the Bay (Black 1981). In 1882, the Canarsie Railroad filled 500 acres of shoreline marshes as part of an improvement plan to develop Canarsie into a resort site. Between 1882 and 1884 significant dredging was undertaken to create a navigable channel from Canarsie Landing to the deeper areas of Jamaica Bay, a distance of nearly 3,600 feet. Over 17,000 cubic yards of material were

removed from the bottom of the Bay to create a channel 125 feet wide and six feet deep at mean low water, but locals soon realized the unintended consequences of altering the Bay.

"Congressman Felix Campbell's district is especially prolific in shallow waters that he wants to have run deep and he has been having more trouble with them than he would if they were great inland oceans requiring tons of gold to make them worth anything more than wading places for children in Summer and skating ponds in Winter" (02.23.1888 *BK Eagle*). Dredging formed shoals, or submerged piles of sand that altered the flow of the current, refilling the recently dredged channel with sand. The channel, originally estimated to cost $88,000, would not remain open without regular re-dredging or diking the channel to deflect the current. Locals were forced to confront the estuary's agency and the unintended consequences of altering ecosystem functioning. For Congressman Felix to maintain his vision of how the estuary *should* function would require the continual manipulation of nature. Without continued manipulation, and left to its own devices, the moving water of the Jamaica Bay estuary undermined technological approaches to develop the ecosystem.

The unintended consequences of manipulating nature also appeared in disputes over rights to plant and harvest oysters in public waters. In 1875, the *Brooklyn Eagle* wrote of oyster disputes in Jamaica Bay between "Jerseymen" with brass cannons mounted to their boats and locals armed with guns, prepared to defend their beds. In 1877, John Vreeland, a commercial oysterman with beds in New Jersey and Connecticut, charged a group of Canarsie baymen, described as "honest Germans," for disrupting his Jamaica Bay beds. In response, local baymen argued, "no one has a legal right to claim as their own, or to exclusively use, any portion of the waters of Jamaica Bay, and that there is no person who has the right to grant such permit" (BK Eagle 11.22.1877). The baymen did not claim exclusive rights for themselves either, but rather

would "go to any part of the Bay that they think will yield the most to their nets" (BK Eagle 11.22.1877). In March of 1878, a local judge sentenced Isaiah Doxce to 60 days in county jail, and another man, Edward Wrigglesworth, to three months in Kings County Penitentiary, for oyster theft. Doxce's jail sentence did little to deter him from taking oysters. In 1879, Joseph Foster and his sons, from Hempstead, found Isaiah Doxce tonging on their Jamaica Bay oyster beds. The Fosters chased Doxce ashore, beating him severely. Doxce claimed the Fosters had no right to plant oysters in the Bay without a proper lease. The *Brooklyn Eagle* remarked, "It is doubtful if any man has that exclusive right [to plant oysters], even under the lease" highlighting the contentiousness of assigning private rights to common resources.

In 1883, John Vreeland appeared in another oyster dispute, this time in a case against Hugh Thompson that came before a local judge, Justice Pratt. With a lease from the town of Flatlands, John Vreeland planted 3 acres of oysters in Jamaica Bay's Pumpkin Patch Channel, claiming exclusive rights to the beds. Officials arrested Hugh Thompson for disrupting Vreeland's oyster beds while digging for clams. Thompson invoked the public trust doctrine, arguing that because the oysters were on natural beds located in the public tidewaters of the Bay, disruption was a necessary consequence of fishing for clams. Any law restricting his rights to the Bay's oysters and clams, Thompson claimed, were unconstitutional (BK Eagle 1883). The headline announcing the verdict read: "Private Rights to Fish in Public Waters." Justice Pratt found Thompson guilty of disrupting Vreeland's oyster beds, citing the State's authority in chapter 734 of the law of 1869 to limit public access to navigable waters. Justice Pratt argued if the King of England had the right to grant underwater land and exclusive fishing rights therein, so too did the State.

In addition to government decisions regarding access to the Bay's underwater lands, government decisions about waste disposal impacted Jamaica Bay water quality. The town of Flatlands, in 1891, proposed to run a brick sewer main, 66 inches in diameter through Flatbush Avenue and then 1300 feet through a 4.5-foot wooden sewer outfall across the marshes to Mill Creek. Officials estimated that the newly constructed sewer would discharge a ton and a half of sewerage per day. Residents argued that the Creek, only four feet deep, did not have sufficient current to carry sewage away, and that the stagnant sewage would pollute the air and deplete the health of local residents (07.31.1891 BK Eagle). Despite local protests, the sewage outfall was built, extending along Flatbush Avenue, emptying into Jamaica Bay.

Development of the estuary continued apace. In 1895, Fredrick W. Dunton, a real estate developer, the town supervisor of Jamaica, and nephew to the President of the Long Island Railroad, hatched a plan to build the Bicycle Railroad, a monorail, across Jamaica Bay. As part of his improvement scheme, in 1896, he revealed plans to create a "Venice-by-the-Sea" along Jamaica Bay.

> From the barren marshes of Jamaica Bay there will probably arise, in the next few years, a Summer city that will rival Asbury Park or Arverne-by-the-Sea. If they do not miscarry, the hitherto worthless meadow lands, where clams and soft crabs have been in sole possession, will disappear beneath tons of soil, whereon hotels, cottages, and pavilions will be built. A few sportsmen and fishermen are familiar with its [Jamaica Bay's] advantages for their particular purposes, but to most people it is at high tide a broad inland lake, and at low tide a succession of exposed mud flats, traversed by sundry streams (03.15.1896 *NY Times*).

Many local capitalists invested in Supervisor Dunton's project, which was made possible with advances in dredge technology.

> This scheme has been made possible only by means of the modern dredge, the recent improvements of which the projectors of this enterprise were not slow to appreciate. The working of these wonderful machines is a sight worth going miles to see. The transporting in a short time of hundreds of tons of sand and gravel from the shallow channels, thus benefiting navigation, and depositing it

> from two to three thousand feet away, creating solid land of considerable value, seems like the work of some fabled genii, with mighty powers (04.26.1896 *BK Eagle*).

Benefits from the Bay's industrialization, however, were about to clash with ecological limits.

Industrialization of Jamaica Bay Takes its Toll: Environmental Change from 1900 to 1940

Descriptions from 1907 document marshes nearly covering the Bay (NPS 1976), even after significant topographical alterations. "The bay is sprinkled with many small islands [numbering at least 25], all of them low lying, some practically no more than salt marshes. A half dozen small creeks empty into the bay. Adjacent to it are 8,500 acres of salt marsh" (*NY Times* May 1910). Despite bucolic appearances, ecosystem changes were afoot.

The Metropolitan Sewerage Commission began monitoring water quality in 1909 in response to public outcry about the deteriorating quality of life near polluted waterways (NYC DEP 2006). Early reports of the New York Harbor documented sewage to water ratios of 1:20 (one part sewage to twenty parts water), water quality levels so low they barely sustained a fish population (Waldman 1999). A 1910 *New York Times* headline, "New York's Sewage Problem a Hard One to Handle," bluntly captures the challenges facing the growing city.

In 1910, the City, in a boosterish tone, much the same as developer Frederick Dunton's some twenty years earlier, announced their plans to develop Jamaica Bay's marshlands into a grand harbor. A growing population and a shortage of wharfage space along Manhattan required, the city argued, further waterfront development. Jamaica Bay was not the ideal place for a harbor, due to its relative shallowness and distance from Manhattan, but the foundation was there.

> Rockaway Beach, like a long lean arm, extends along its southern boundary and may be relied upon to stem the angriest buffetings of the Atlantic Ocean. The bay has a broad but shallow entrance known as Rockaway Inlet, which is also protected by Rockaway Beach…Except for the activities of a small fleet of oyster beds and the fishing excursions of holiday seeking New Yorkers, this great

> expanse of water and marsh land is now lying useless. Just scoop up the sand in the waterways and empty it upon the neighboring marshes and the double operation is performed of making a valuable harbor and valuable acreage (03.13.1910 *New York Times*).

An extensive dredging project, funded by the federal government, would deepen the entrance channel of Rockaway Inlet to eighteen feet deep and 500 wide along the northern marshlands of Jamaica Bay, at a cost of $4.7 million. Once again, dredging would deepen the channel, only to be counteracted by the tides and waves moving sand back into Rockaway Inlet. The Army Corps of Engineers proposed regular re-dredging of the inlet at an annual cost of $55,000 to keep the Inlet open. If re-dredging ultimately failed, the Army Corps could install ocean jetties at considerable additional cost. According to one of the chief engineers, the alterations necessary for Jamaica Bay to meet the city's grand vision "amounts to the construction of an artificial harbor" (03.13.1910 *NY Times*).

The original harbor plan proposed eliminating all of the marsh islands, creating two, large bulkheaded islands, West Island and East Island, in the middle of the Bay. Additionally, the plan called for the dredging and conversion of the estuary's creeks into basins, as well as 16-18 piers between Shellbank and Paerdegat Basins (near the Canarsie section of Brooklyn) and between Mill Basin and Barren Island. Finally, the city envisioned a municipal airport as well as additional railways to transport goods and people from Jamaica Bay to the rest of New York City. (See Image 2.5)

Image 2.5 Proposed plan for Jamaica Bay Harbor, *New York Times* March 13, 1910

The project did not come to full fruition, in large part because of the difficulties associated with manipulating the Bay's shallow bottom, but officials managed to make several alterations before finally abandoning the project. For example, between 1912-1913, the federal government dredged the Rockaway Inlet and created a main shipping channel that runs parallel to the shore and is 500 feet wide and 18 feet deep.

At the same time, oyster pollution continued to be a problem. Dr. George Soper, President of the Sewage Commission, undertook a systematic study of the city's sewage system,

eventually concluding that prevailing beliefs that the Harbor's tide would carry sewage out to sea proved incorrect. He estimated that 700 million gallons of waste were dumped in the New York Harbor per day. Soper found that after four days of being in the water, floats placed in the East and Hudson Rivers had only moved a half-mile from the initial site, demonstrating that the NY Harbor's flushing capacity, and thus its ability to assimilate sewage water, was dramatically over-estimated. Soper also began measuring bacteria counts in Jamaica Bay (See Table 2.1), leading him to suspect that Jamaica Bay pollution was the source of recent typhoid outbreaks.

> New York gets many of its oysters from Jamaica Bay – about 1,000,000 bushels a year. The water at this section is heavily polluted, and to this can no doubt be traced a great part of the typhoid that breaks out in the city. The Board of Health has found that 15% of all typhoid is due to the eating of polluted shellfish. Only recently there was an outbreak of typhoid at the Rockaway peninsula. The oysters came from Jamaica Bay, and the sewage from Arverne. In one case, we traced oysters to a dealer who was to have put them into pure water before selling them. We could not ascertain whether or not he kept his promise to the oyster fishermen (03.14.1911 *NY Times)*.

Table 2.1: Bacteria Concentrations throughout NY Harbor (1911)

Harbor Location	Bacteria/ cubic centimeter water
Upper Bay	14,500
East River	8,700
At Harlem	6,600
Jamaica Bay	5,800
The Narrows	4,900
Coney Island	4,500
The Sound	3,400
Hudson River, North of Spuyten Duyvil	3,300
Open Ocean	120

In 1912, another federal expert, Dr. George Stiles Jr., conclusively linked Jamaica Bay oysters to a typhoid outbreak following a party in nearby Goshen, NY. Consumption of the contaminated oysters, reportedly from Indian Creek in Canarsie, led to seventeen typhoid cases,

one death, and eighty-three cases of gastroenteritis. The outbreak in Goshen was not the only instance of illness from Jamaica Bay's contaminated oysters. (See Table 2.2.)

Table 2.2: Illnesses attributed to Jamaica Bay Oysters (reproduced from NY Times 10.6.1912)

Location	Number of Typhoid Cases
Minisink banquet (Goshen, NY)	17
Rochester, NY	5
Washington D.C.	2
Suffern, NY	1
Schoolmasters' banquet (Newburg, NY)	1
Brooklyn, NY	1
Total:	**27**

Location	Number of Gastroenteritis Cases (Diarrhea)
Minisink banquet (Goshen, NY)	83
Schoolmasters' banquet (Newburg, NY)	14
Washington D.C.	2
Total:	**99**

Total Cases of Typhoid and Diarrhea	**126**

The Hendrix sewage treatment plant, completed in 1893, was designed to handle three million gallons of sewage per day. By 1911, the plant treated at least 10 to 18 million gallons of sewage per day. As a result, the chemical and bacteriological analyses at the plant showed "practically no change resulting from treatment of the sewage at this disposal plant. In other words, the plant affords no sanitary protection to the city" (*NY Times* 10.6.1912). Dr. Stiles reported, "The bacteriological examination of water and shell fish collected from Jamaica Bay shows that this body of water is dangerously polluted. The laboratory data are substantiated by the sanitary

inspection, which shows that millions of gallons of sewage discharge daily into this bay, and, in many instances, in close proximity or directly over the oyster beds" (10.06.1912 *NY Times).* In 1912 the Health Board banned the "floating" or "drinking" of oysters in Jamaica Bay, which is the process of soaking oysters overnight in the brackish water of the Bay to increase the fatness and salty flavor of the oyster.

Despite the ban on "floating" and "drinking" oysters in Jamaica Bay, as well as conclusive evidence linking sewage pollution in Jamaica Bay with typhoid and gastroenteritis, people continued to eat oysters from the Bay based on their understanding of oyster ecology. "[T]he sewage which discharges into Jamaica Bay made the consumption of oysters from that region dangerous to health except during the period from Dec. 1 to April 15, when the oyster was quiescent and not supposed to take in any food" (NY Times 03.18.1916). Oysters living in water below 17.5 degrees Celsius (or 63.5 degrees Fahrenheit) do slow or stop growing. However, this does not mean it is safe to eat oysters living in contaminated water even during winter months. Prior to entering the hibernation period, oysters would have consumed contaminated water while feeding and, therefore, continue to harbor bacteria, despite their quiescent period. While local populations clearly understood how oysters consumed food and their periods of quiescence, it does not appear that they considered the oyster in its larger eco-system context – drawing connections between water pollution and the full extent of oyster contamination.

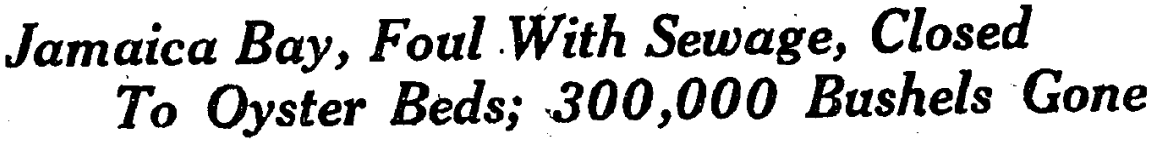
As Jamaica Bay became increasingly polluted, local oyster planters sued the city for fouling their beds with sewage. A 1915 court decision by Justice Blackmar interpreted the public trust doctrine in favor of the *city* and against the spirit of *jus publicum*, permitting "lawful pollution" (NY Times 06.19.1915). Judge Blackmar determined that unlike streams where riparian owners are entitled to *use* of the water, citizen rights to tidewaters were limited to the

right of *access*. "There is in this case no trespass by casting sewage on plaintiff's land, and there is no nuisance. The most that can be said is that the water has been rendered unfit for human consumption. No right of his [sic] is violated, unless a riparian owner on tidal waters has the right to have the salt water, as it is carried to and fro by the tide, kept fit for human consumption" (NY Times 06.19.1915). The judge continued, stating that if he were to have found in favor of the plaintiff that it would "render illegal every sewer in New York City" (ibid). The *Times* commented on the judge's decision and the city's pollution, "But why would it not be well for all to have the rights claimed, and to put the city upon prudent notice that its rights of pollution have been pressed to the point of wrongs by the public upon private citizens?" (ibid). The interpretation stripped the public trust doctrine of its essential function – protection against private gain at the public's expense.

Judge Blackmar's final interpretation of the public trust doctrine effectively eliminated citizen access to Jamaica Bay's oysters and underwater land by sanctioning pollution that eventually undermined the entire Jamaica Bay oyster industry. Attempts to interpret natural processes strictly in the social and political terms of ownership and control resulted in unequal access to the Bay and its underwater lands. While traditional baymen had long relied on natural oyster beds for their livelihood, with the onset of oyster cultivation, and the subsequent interpretation of the public trust doctrine, the baymen's role in the industry subsided as those with access to capital came to dominate oyster "production."

In a last ditch effort to save Jamaica Bay's oyster industry, the Board of Health revoked oyster growing permits in Jamaica Bay, and required that Jamaica Bay oysters be purified in chlorinated or sterilized water several days prior to going to market. Furthermore, the Board of Health required their seal of approval before any oysters could be grown in Jamaica Bay

(04.18.1920). The Board of Health's efforts were too little too late. In January of 1921, the *New York Times* announced the end of the Jamaica Bay oyster industry.


Jamaica Bay, Foul With Sewage, Closed To Oyster Beds; 300,000 Bushels Gone

The local Department of Health coordinated with the State Department of Health, the United States Health Service, and the Bureau of Chemistry of the Department of Agriculture to enforce the ban on Jamaica Bay's oysters and to ensure that Jamaica Bay oysters were not illegally shipped to other states. Dr. Copeland, the city Health Commissioner, identified the 40 trunk sewers dumping into the Bay, the growing nearby population, the Bay's narrow inlets with poor circulation, and the number of people living along the Bay with typhoid as reasons why Jamaica Bay's oysters were particularly virulent. "An additional menace to the waters of the bay was the fact that there are several known typhoid carriers near the confines of the bay. As illustrating this danger he pointed to the case of 'Typhoid' Mary, who is said to have been responsible for sixty cases of the disease and twenty deaths[20]" (*NY Times* 01.30.1921). Contaminated water was not limited to Jamaica Bay, and by 1927, health officials closed the last oyster beds in Raritan Bay (between New York and New Jersey), ending the city's oyster industry (Kurlansky 2007).

With the end of the oyster and by the 1930s, serious activity was underway to transform the Bay into a transit hub by developing New York City's first municipal airport. The 1,733,785

[20] Mary Mallon, aka 'Typhoid Mary,' was a single, working class Irish immigrant living in New York City in the early 1900s. Health officials identified her as a healthy carrier of typhoid; her mother had the disease while pregnant with Mary. Mary worked as a cook in New York City and infected several people with typhoid, after which health officials forcefully quarantined her on North Brother Island in the East River. At one point they released her as long as she refrained from cooking professionally. Later, after others became ill with typhoid, officials determined that Mary had returned to professional cooking under an alias, and again re-quarantined her. She eventually died in quarantine on North Brother Island in 1938. Although the *NY Times* article links Typhoid Mary to Jamaica Bay oysters, it is not conclusive if she lived in the area or if the article simply references her as an example of how infected people could transmit the disease to others. For further information on Typhoid Mary, see http://www.pbs.org/wgbh/nova/typhoid/.

cubic yards of material dredged from the Rockaway Inlet, to increase the depth to 30 feet and its width to 1000 feet, was used to fill marshland along the mainland, creating 700 feet of new land fronting Jamaica Bay, near Barren Island. Then, in 1931, 14 million cubic feet of fill was used to connect Barren Island to mainland Brooklyn where the city opened its first municipal airport, Floyd Bennett Field.

Budding Environmentalism Transforms Jamaica Bay: The WWII era-1972

The City began building Idlewild Airport (now John F. Kennedy International Airport) along the eastern edge of the Bay just as the U.S. entered the war in 1942. Officials selected the site because of the Bay's unobstructed landing sites and to meet the anticipated needs of increased air travel in the region. Initially, the plan was to convert 1,200 acres of land to create Idlewild. By the end, the airport totaled 4,574 acres, of which 500 acres from Jamaica Bay were filled. Additionally, 60x106 cubic yards were dredged from the Grassy Bay portion of the Bay, forming "borrow pits" 40 feet deep. The total amount dredged for the airport project, including Grassy Bay, was 75.8 x 106 cubic yards. After labor disputes and construction delays, Idlewild opened in 1948, under the jurisdiction of the Port of New York Authority. Besides filling and dredging, the addition of the airport to the ecosystem has meant an increase in non-point source water pollution, with oil, fuel, and de-icing fluid, among other chemicals, discharging into the Bay.

In 1949, the Brooklyn Borough President, John Cashmore, laid the foundation for the Twenty-Sixth Ward Sewage Treatment Works (in East New York), which had originally been proposed in 1891, optimistically stating that the plant could bring the return of the Jamaica Bay oyster. "I am now 54, and I can remember the planting of oysters in this area…Maybe we can get them back and see the oyster industry return to the bay" (08.26.1949 NY Times). During the

Post WWII era, widespread residential development occurred along Jamaica Bay in an effort to provide housing to returning veterans, giving the Bay its contemporary shape.

During the 1960s and 1970s, environmental legislation and the budding environmental movement brought material improvements to the Bay. National environmental legislation, particularly the Estuarine Protection Act (1968), the Clean Water Act (1972)[21], and the incorporation of the Bay as part of the National Park Service in 1972, improved water quality in Jamaica Bay by restricting commercial use of the Bay. To comply with new environmental legislation, the city built the Coney Island Water Pollution Control Plant (WPCP), the Jamaica Water Pollution Control Plant, and the Rockaway Water Pollution Control Plant to prevent raw sewage from dumping directly into the Bay.

The Post-Gateway Era: 1972-Present

With the establishment of Gateway National Recreation area in 1972, Jamaica Bay entered a new era of preservation, though the history of past alterations to the Bay and the extent of nearby development continue to present challenges to the Bay's environmental quality. Although marshlands are equipped to filter pollutants, the amount and regularity of pollutants dumped into Jamaica Bay exceeds the marshland's natural capacity to flush pollutants. Dredging has increased the volume of the Bay by 70% and increased the mean low water depth to 13.5 feet, and mean high water depth to 18.5 feet from an overall average of roughly 3 feet deep in 1901. Alteration to the Bay's bottom and hardening of the shoreline, via bulkheading and residential development, disrupts the natural counter-clockwise circulation of the Bay's waters, making it even more difficult to flush excess pollutants from the Bay. Now it takes three times longer for the Bay to flush pollutants than it did 100 years ago. Furthermore, hardening

[21] The federal government's first water pollution control act came about in 1948 and was known as the Federal Water Pollution Control Act. The Act was significantly reorganized and expanded in 1972. The Act became known as the "Clean Water Act" with all of its expanded amendments in 1977.

shorelines and poor circulation disrupts the processes necessary to replenish and develop the marsh root system. Changing the Bay's circulation and hardening adjacent shorelines impacts sediment deposition, which undermines salt marsh formation. As a result, several islands, e.g., Long Pol Bar, were lost while some islands, e.g., Canarsie Pol, that were once small marshes grew to sizable islands (Black 1981). Additionally, upland development in the surrounding neighborhoods and the filling and dredging of the fresh water creeks decreases the amount of fresh water available to marshes, an important means of transporting sediment to marshes, flushing pollutants, and balancing the salinity of the estuary. See Figure 2.1 Map of Jamaica Bay's Impervious Surfaces.

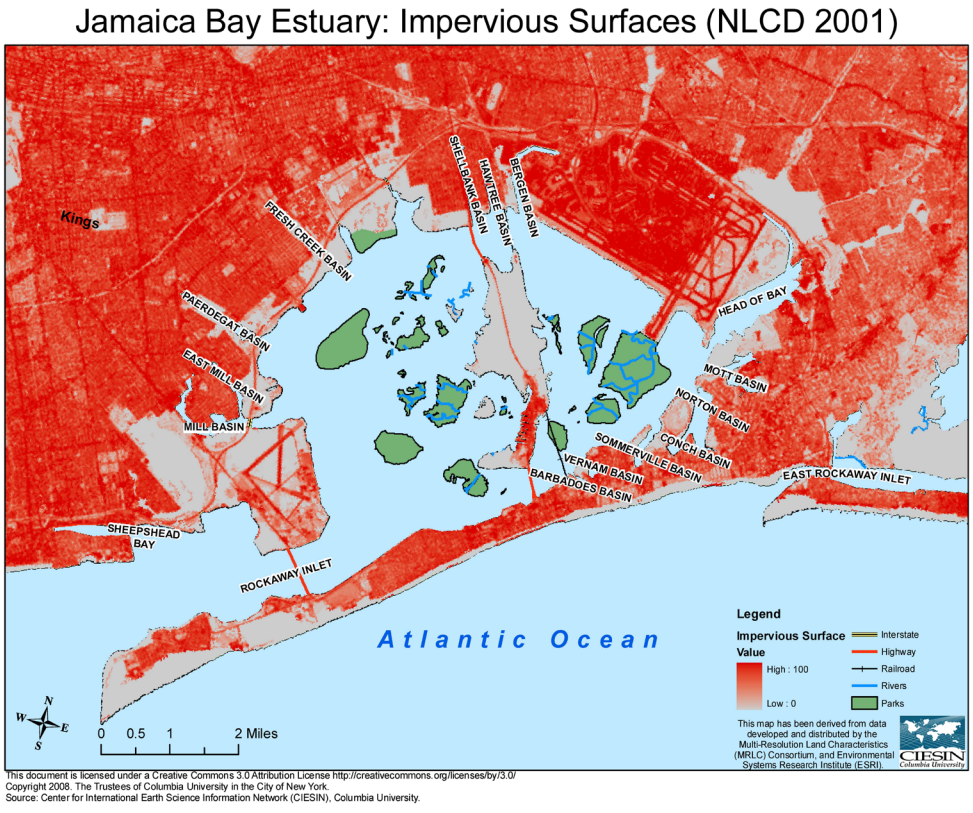


Figure 2.1 Jamaica Bay Estuary Impervious Surfaces. Source Jamaica Bay Research and Management Information Network nbl-nin.ciesin.columbia.edu/jamaicabay/

Local activists, such as Dan Mundy Sr. from Broad Channel Queens, believe that nitrogen loading from the four nearby wastewater treatment plants is to blame for marshland

loss. In the early 1990s, Mr. Mundy Sr., along with several anglers and boaters who frequent the Bay, began noticing marshland deterioration, documenting the loss with photographic evidence. At the same time, a 1993 federal mandate prohibited the City's practice of dumping treated sewage sludge 100 miles out in the ocean. After the mandate went into effect, the DEP changed wastewater processing protocol, which resulted in discharging roughly 250 million gallons of wastewater, containing 30,000-40,000 pounds of nitrogen into the Bay per day. The Mundys argue that the excessive nitrogen causes decreasing oxygen levels in the Bay, and, thus, increased marsh loss. Consequently, Mr. Mundy Sr. and his son started an environmental group, the "Eco-Watchers," to investigate the links between wastewater treatment plants and marshland loss. After contacting city and state environmental agencies, elected officials, the media, and the Park Service, the Eco-Watchers drew sufficient attention to the problem to warrant action.

Since the 1990s, the National Park Service has collaborated with state, city, and other federal agencies to restore marshlands to Jamaica Bay. In 2001, a DEC report confirmed marsh loss using aerial photography and GIS mapping, accelerating the response of the National Park Service, in conjunction with the Army Corps of Engineers. Since 2001, the Park Service has completed two marshland restoration projects and has two more projects in the planning and funding stages. The Park Service has a three-pronged approach – protection, restoration, and education – to restore and offset marsh loss while raising awareness of the critical need for marshland protection. Big Egg Marsh, just off Broad Channel, was the first to undergo marsh restoration. The Army Corps of Engineers contracted a private company to dredge creek sediments to form a 20-foot wide, 6 feet deep, and 300-yard long trench and then spray 6,800 cubic yards of the dredged sand onto two acres of marsh to raise it twenty inches, as well as planting 20,000 *Spartina* plugs. The project required 40% more fill than originally anticipated to

accommodate for sediment settlement.

Image 2.6 A backhoe moves sand for a Jamaica Bay restoration project. Photo Jamaica Bay Eco-Watchers

In 2006-2007, officials undertook a second project at Elders Point East to restore 48 acres of marsh as part of a mitigation project to offset the environmental impacts of NY/NJ Harbor deepening projects. An Elders Point West project has been fully funded at a cost of $11.6 million, with $7.5 from federal sources and $4.1 from non-federal sources. The Elders West project involves transferring 200,000 cubic yards of dredged material to restore 34 acres of marshland. At Yellow Bar Hassock, 60 acres of restored marshland are proposed using 250,000 cubic yards of dredged material. Besides inland marsh restoration, projects at Gerritsen Bay and Spring Creek have partially restored some of the Bay's peripheral marshlands.

In 2010, Mayor Bloomberg reached an agreement with local activists and the National Resource Defense Council to spend $100 million to upgrade the wastewater treatment plants and

reduce the amount of nitrogen entering the Bay 50% by 2020. As part of this agreement, the mayor also set aside $15 million for marshland restoration. Local officials and activists are

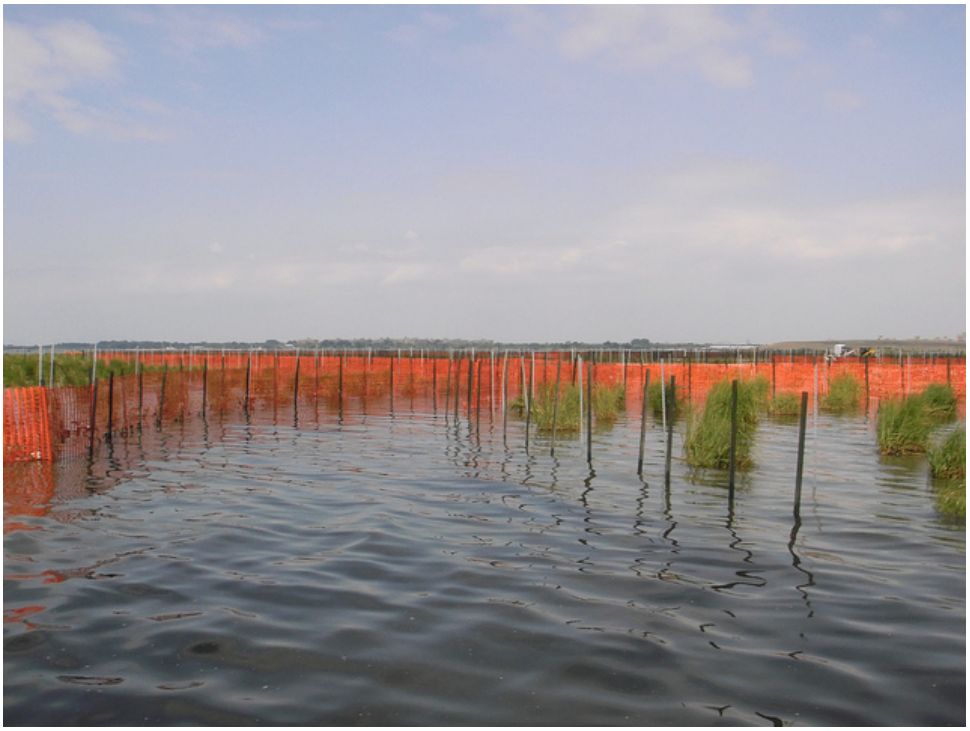


Image 2.7 Marsh Restoration at Elders Point West Photo Jamaica Bay Eco-Watchers

enthusiastic and hopeful about the marsh restoration projects, but are still concerned that the rate of marsh loss, coupled with rising sea levels, will outpace restoration(nyc.gov/portalsite/nycgov).

As water quality has improved, marine life has thrived, and local groups have looked to oyster reintroduction as a means for enhancing the estuary's ecological health. In 2001, local environmental groups, in conjunction with New York City's Department of Environmental Protection, the New York/New Jersey Baykeeper, and local universities, in particular Kingsborough Community College and Stony Brook University, began investigating the possibility of oyster reintroduction in Jamaica Bay to improve the Bay's water quality and biodiversity. In 2007, the city's Department of Environmental Protection (DEP), as part of their Jamaica Bay Watershed Protection Plan, suggested oyster reintroduction (along with mussels and

eel grass) to improve the health of Jamaica Bay. They estimated a cost of $600,000 to implement an oyster reintroduction pilot project in Fall 2008. Despite these initiatives, local groups, including the DEP, encountered resistance from the National Park Service on oyster reintroduction.

Initially, in an argument harkening back to the public trust disputes of the late 1800s and early 1900s, the National Park Service claimed uncertainty as to the natural presence of oysters in Jamaica Bay. Citing their mandate to restore, protect, and maintain Jamaica Bay's *natural* ecosystem, Park officials argued that the risk of introducing a non-native species into the Bay outweighed the possible ecological benefits of reintroduction. But in response to citizen pressure, in 2008, the National Park Service placed an ad in local newspapers seeking knowledge of any naturally occurring oyster beds. "In order to restore the oysters, the park must first find remnant populations of the original Jamaica Bay oyster. A few oysters have been found, but have been determined to be illegal or recent introductions. The staff needs the help of area residents who might have any ideas as to where to look. If anyone is aware of any naturally occurring *Eastern Oyster* beds in Jamaica Bay, they are asked to contact the park" (NPS ad in *The Rockaway Wave*, June 13, 2008). Additionally, the Park argued the oyster reef's location in the intertidal zone would pose an "attractive nuisance[22]" to local populations, and thus, a public health concern. The DEP, however, noted in the 2007 Jamaica Bay Watershed Protection Plan that oyster reintroduction would be possible if they complied with the State's Department of Health attractive nuisance control procedures.

[22] Attractive nuisance is a legal term originally meant to protect private property owners from being sued if unattended minors injured themselves on their property (e.g., children passing through backyards with unfenced pools).

Image 2.8 Local residents assist in oyster reintroduction projects. Dan Mundy Jr. is pictured in the wetsuit. Photo Eco-Watchers

Local groups, including the DEP and the Eco-Watchers working in conjunction with Professor Jeffrey Levington of Stony Brook University, sought a way around the National Park Service's prohibitions. Rather than reintroducing oysters into the Park's jurisdiction, local groups have re-introduced oysters in the areas of Jamaica Bay outside of Park boundaries. The Park's jurisdiction only covers the area from the middle of the Belt Parkway up to the shoreline of John F. Kennedy Airport. To avoid an attractive nuisance problem, the groups have not disclosed the exact locations of the reintroduced reefs, but they have seen some initial success with oyster survival in Jamaica Bay (www.ecowatchers.com; personal communication). As a result, the National Park Service has provided some funding and continues to issue the necessary permits for groups to work in close proximity to the Park's jurisdiction, but has yet to lead its own oyster reintroduction efforts in Jamaica Bay.

Image 2.9 Oyster reintroduction project in Jamaica Bay Photo Jamaica Bay Ecowatchers

As a species of ecological significance, the oyster serves as an indicator of overall estuarine health. Although initial oyster reintroduction efforts have seen some success, reintroduced oysters are subject to many of the same problems, albeit to a lesser degree, as those leading to their demise. Water quality problems persist because of discharge from wastewater treatment plants, CSOs, JFK pollution, and watershed development that contributes to stormwater runoff. While oyster and marshland restoration projects are important steps to estuary improvement, they cannot be taken in isolation. Rather, just as political economic and cultural factors led to the oyster's demise, so too must they be addressed for estuarine resurgence. Successful oyster re-introduction also depends on healthy marshes, since marshes are a key feature of overall estuarine functioning.

Marshland restoration is crucial for the continued ecosystem functioning of Jamaica Bay. Marshlands maintain biodiversity, serve as an important stopover and feeding site along the Atlantic flyway, as well as sequestering carbon and filtering pollution. However, increased development in the watershed, coupled with airport and wastewater treatment discharge, over

extends the capability of the marsh to filter pollutants and disrupts sediment dispersion, leading to marsh loss. Marsh loss decreases water quality, resulting in habitat loss and the release of stored carbon dioxide. While marshland restoration is an important step in bolstering the ecological health of the estuary, restored marshes are subject to many of the same forces that cause marsh loss to being with. Failing to address marsh loss at the ecosystem level results in continued degradation, which undermines the habitat of other ecologically beneficial species, such as the oyster, that clusters around the marsh's root base in the intertidal zone.

Conclusion

Jamaica Bay's open waters, marsh islands, and ocean connection via the Rockaway Inlet prompted development proposals for resorts, for grand harbors, for sewage processing, and for airports. As New York City grew, private and public boosters looked to "maximize" Jamaica Bay's natural resources, resulting in significant socio-environmental change. In some instances, as in the harbor proposal, Jamaica Bay's shallowness and water flow precluded the complete transformation of the Bay as had been proposed. Even with extensive dredging to counter the Bay's shallowness, the tides and currents created shoals and re-filled shipping channels, frustrating efforts to transform the Bay. Conversely, the Bay's open waters and "useless" marshlands prompted the siting of two airports, three landfills, and four wastewater treatment plants along its shores. Besides filling vast marshlands, airport construction altered the Bay's circulation, and thus its flushing patterns. Altered flushing patterns further exacerbated the consequences associated with sewage dumping and leaching landfills. As water quality declined, the same feature that makes the oyster such a useful ecological player – its filter feeding mechanism – led to its demise. Commercial fishing waned and Jamaica Bay transformed to a site for urban infrastructure and a spot for nearby recreational anglers.

After nearly a century of alterations, Jamaica Bay's open waters, marsh islands, and close proximity to the ocean again prompted proposals for development, this time of a recreational sort. Parks Commissioner Robert Moses saw in Jamaica Bay's natural features the possibility of creating a great recreational resource for the people of New York. Moses exercised his political clout to shape public attitudes about the Bay by incorporating most of Jamaica Bay into New York City's Park Department. Following, he made additional material changes that attracted migrating birds, making Jamaica Bay one of the most significant birding locations on the East coast. By establishing a Wildlife Refuge, Moses managed one of the most difficult transitions in the character of the Bay, transforming it culturally from a wasted, industrial site back again to an urban oasis.

Socio-environmental change in Jamaica Bay can be traced directly to the interactions between estuarine functioning and political and economic decisions to advance capitalist growth through the development of waste and transit infrastructure. The choice to dump waste and fill marshes coupled with the filter feeding mechanism of the oyster and the off-putting muck of decaying marshes led to the Bay's transformation and helped shape the contemporary physical and social landscape of Jamaica Bay. Acknowledging nature's agency challenges notions that nature is static, waiting for human labor to transform it into a valuable commodity or for human interpretation to make it meaningful. Rather, incorporating nature's agency highlights the way the political, economic, and cultural character of place is shaped by the give and take relationship between humans and their surroundings. The following chapter highlights how Jamaica Bay helps shape people's daily lives living, working, playing, and praying on Jamaica Bay.

Chapter 3: Live, Work, Play, and Pray in Jamaica Bay: The Importance of Place in Cultivating Relationships to Nature

Dan Mundy Sr. is a 72-year-old, lifelong resident of Broad Channel, Queens. Growing up, he marked milestones in his adolescent development by the distance he was allowed to travel the Bay alone in his boat. As a kid, he earned money trapping and selling eels to his largely Catholic community during Lent. During the 1980s, Mr. Mundy Sr. fought the city of New York to obtain title to the land on which their homes sat. He has been a leader in the local Broad Channel Civic Association and has, since his retirement from the fire department, established the Jamaica Bay Eco-Watchers, a neighborhood environmental group that has worked to protect the Bay, especially to restore Jamaica Bay's marshes.

> We've lived on this Bay our whole lives and so we notice changes, daily, 'cause we had to look out the window. Scientists come in once a year and do an aerial study and then come back two years later and say, "Look what we've found." Well, since those two years, it has gotten 10 times worse, and you don't even know it yet. So, we got our feet on the ground every day. We watch the dumpers; we see all the things that come by (Mundy Sr. 2009)

Regular contact with the Jamaica Bay estuary offers local residents opportunities to observe the estuarine ecosystem at work and thus notice environmental changes, natural or human induced, e.g., water temperature, marsh loss, or the seasonal nature of species migration. As residents become more familiar with the biophysical workings of the estuary, many come to attribute social meaning to these processes, and begin to draw connections between the estuarine ecosystem and their own lives. In fact, many local residents come to see Jamaica Bay and its environs as "alive," a regular participant in daily life. Dan Mundy Jr., a Broad Channel resident, says, "Regardless of how many PhDs you have [in reference to the NPS], there's no way you could have the sense of pulse of what's going on in the Bay, as you do for people who live like this who are in and out there everyday. What I can tell you is what I see out there and what's happening and get back to you on it" (Mundy Jr. 2010).

This "sense of pulse" associated with living, working, playing, and praying on the Bay contributes to the "feel" of the Jamaica Bay area, and imbues the Jamaica Bay area with a unique character, akin to personality (Bell 1997). It is this unique character that transforms the Jamaica

Bay area from a simple geographic location, a spot on the map, to a "place." Place, here, is being defined as a physical location that has been given special meaning (Cresswell 2004). Jamaica Bay residents often conveyed, though not always explicitly, a strong connection to place rooted in their physical and social experiences of the Jamaica Bay ecosystem. Place brings together embodied, sensory experiences of the physical environment with meaningful social experiences associated with living, working, playing, and praying on Jamaica Bay. Through the process of creating place, residents cultivate their relationship with nature. It is through "place" that we experience nature; we encounter it regularly and give it meaning.

By emphasizing residents' physical experiences of Jamaica Bay, I approach place from the angle of humanist geographers, such as Tuan (1974 and 1977) and Relph (1976), who, taking a phenomenological approach, stress the importance of lived experience in creating place.[23] The regular "intrusions" of Jamaica Bay into the lives of residents, with its creeks that cut back into neighborhoods, its waxing and waning tides, its smells and winds, foregrounds nature in people's everyday experiences, making it difficult for residents to ignore the natural workings of Jamaica Bay. For example, one Jamaica Bay resident notes:

> The water feels several degrees cooler than it did a few weeks ago and it looks pretty good for this time of year – fairly clear. The hermit crabs are also missing in action. I used to be able to feel them on the bottom – the shells they inhabit are covered with snail fur. Used to be able to find a couple of them every day. Haven't found a single one (Female resident email communication 8.17.08).

It is through these micro-interactions with the environment where we come to recognize the infinite ways the natural world is alive and dynamic, and that we negotiate the human-nature relation.

[23] Humanistic geographers study the role of social meaning in shaping place. The study of place, however, has extended beyond geography to sociology, psychology, natural resource management, anthropology, and philosophy. Across the disciplines, there has been resurgence in the study of place largely in response to the homogenizing forces of modernization and globalization that threaten the unique character of places. See for example (Harvey 1990; Relph 1976; Williams 2002).

By emphasizing residents' social experiences associated with Jamaica Bay, I am also drawing from sociological and psychological studies of place[24]; our family, our friends, our lives occur "in place." Barbara Toborg, a resident of Broad Channel, describes a neighborhood tradition,

> Because it was a summer community, residents used to celebrate the end of summer. Most people went home at the end of the summer to Brooklyn or Manhattan or the Bronx or wherever. But there was always a core of year round people living here. They'd celebrate the end of the season with a parade and they called it Mardi Gras, even though it had nothing to do with Lent. That tradition carries on now. We still have a Mardi Gras weekend around Labor Day… Speed boats go back and forth. So that's always a fun weekend in Broad Channel.

The end of the summer signals not simply a changing season, but a shift in residents' daily lives and the character of the neighborhood, a return to the core group of year-round folks.

Combining the work of humanistic geographers and sociological and psychological studies of place emphasizes the material qualities, the embodied experiences, of actual ecosystems, without losing sight of how the social shapes our micro, or day-to-day, interactions with the environment. The connection between the physical and social aspects of place follows what Nobel Laureate and Jamaica Bay defender, Rene DuBos, argues is the "persistence of place" (DuBos 1973). "The environment acquires the attributes of place through the fusion of

[24] Sociological research on place has largely focused on how groups give divergent meaning to the same physical place (e.g., a mountain or a river; see for example, Freudenburg and Gramling 1995; Greider and Garkovich 1994; For overviews of sociological literature on place, see Bell 1997; Gieryn 2000; Trentelman 2009). Community studies have focused on the social factors that make place important for people (e.g., family and friends, job opportunities, access to natural and recreational amenities) (Trentelman 2009). Natural resource sociologists have sought to temper the view in natural resource management of the environment as a simple, substitutable commodity, to one that accounted for the social meaning people give to natural resources and the impact on resource management (Brehm 2007; Eisenhauer, Krannich, and Blahna 2000; Smaldone, Harris, and Sanyal 2005). Sociologists Logan and Molotch (1988) wrote about the production of place in urban areas through the growth machine that involves several different actors, and is not simply a product of abstract market forces. In a similar vein, cultural geographers have examined the role of capitalist political economy in producing place and space (Harvey 1996; Lefebvre 1974; Smith 1984; Swyngedow 2006). Psychologists have also studied place at the individual level. Common terms used to understand place include place attachment (emotional connections to a place), place identity (place becomes part of who I am and how others identify me), or sense of place, (a more inclusive, general orientation that attempts to feelings about place with environmental meanings (Gosling and Williams 2010; Hummon 1992; Manzo 2003; Prochansky, Fabian, and Kaminoff 1983; Schultz 2000).

the natural and human order." Humans want to "experience the sensory, emotional, and spiritual satisfactions that can be obtained only from an intimate interplay – indeed from an identification – with the places in which we live. This interplay and identification generate the spirit of place" (DuBos 1980: 110).

Place, then, becomes a means for reinserting humans into their ecosystem context because it is through place that people see the connection between their physical and social worlds. It is this process, of drawing connections between the environment and their lives, that is at the heart of residents' relationship with nature. For example, Izaya, a twenty year-old resident of Canarsie, took up the effort to clean up her neighborhood creek when local school kids started a fire in the unkempt and overwrought nature preserve abutting the creek. Initially, she was only concerned with the cleanliness of the Fresh Creek area, but quickly, she learned that the creek did not exist in isolation, and that the health of the creek, the health of Jamaica Bay, and the health of her neighborhood were tied together. She began to see that what happened in her neighborhood and with "her creek" had larger impacts for the estuarine ecosystem. She later proposed an Avenue L Beautification Project that would involve working with Mayor Bloomberg's Million Trees Initiative to plant trees along Avenue L, thereby reducing storm water run-off into Jamaica Bay. Emphasizing residents' physical and social experiences of place provides insights into how residents use place as a lens to understand their environment, themselves, and others, as well as the connections between the three.

Jamaica Bay, a Special Place Among New York's Many Places

Part of what makes Jamaica Bay unique, and why you feel like you might have outsmarted everyone else in New York when you are there, is the Bay's proximity to New York City. The Manhattan skyline shimmering in the sunlight from the shores of the Jamaica Bay Wildlife Refuge, the planes taking off from JFK, the former landfills jutting out in the Bay, and

the sound of the Q53 bus rumbling down Cross Bay Boulevard remind residents and visitors of their proximity to the heart of the city center. A member of the Sebago Canoe Club in Paerdegat Basin, Brooklyn says of Jamaica Bay, "When you are out there [on Jamaica Bay], you can't believe how beautiful it is. You can't believe you are out there, and then in the distance, you see the Empire State Building" (Mary Esyter, Member Sebago Canoe Club qtd from New York City Parks Department 2007). Consequently, Jamaica Bay offers residents close proximity to the cultural offerings of the city – the restaurants, museums, shopping, theatre, employment - while still being able to enjoy open, undeveloped personal and natural space.

Maria Garrett, a lifelong Brooklyn resident and fifteen-year resident of Canarsie, when asked what she liked best about her neighborhood said, "[I am] Away from it all. When I come here, I'm upstate. It is quiet, it's comfy, I'm in a quiet environment. I don't hear anything but nature and it is so relaxing. I can't describe it – it is so relaxing." However, she also appreciates the neighborhood's proximity to the city and commutes to Manhattan daily for her job as an Administrative Assistant at a Japanese Finance company. "I can get to wherever I want to go in an hour or an hour and a half tops. I'm accessible to get to the city, to Queens, to any place I want to go. I like being in an urban area." She continues, "If you could have a body of water by your home and a nature preserve – that's what I call living. Especially to be in the city." Another resident, from Rockaway, said about his commute to and from his neighborhood, "I am not a high stress kinda guy, but when I cross over the [Cross Bay Boulevard] bridge and see the Bay, it's like, man, it's all gone." After seeing the Bay, his stress associated with daily life in the city – the noise, the smells, the crowding – wash away. Surely part of this "relief" is gained simply from returning to one's home at the end of a long day, but part of what makes this man's home special for him is its proximity to Jamaica Bay.

Image 3.1 View of Fresh Creek from the Garrett Porch, Canarsie, Brooklyn. Starett City, a middle-income housing development, sits on the other side of the Creek. Photo Van Hooreweghe

Moreover, much of the Jamaica Bay estuary sits within New York City borough lines and so local residents have the "right" to claim themselves as New Yorkers, to participate in the identity of being a "New Yorker" (Kasinitz, Mollenkopf, and Waters 2004). Former Mayor Ed Koch says about New Yorkers,

> I am proud of being a New Yorker. I am one of the few, or less than 50% that were born here. And then more than 50% came here. And I always make the point, you don't have to be born here to be a New Yorker. If you've lived here for 6 months and you walk faster, talk faster, and think faster, you're a New Yorker. But it [New York City] is special and I think its special because we have the sons and daughters of every state of the union and they have come here to make it. And of every independent country in the world and they have come here to make it. It is that, it is that energy, energy that distinguishes us from other places. (http://on.aol.com/video/ed-kochs-definition-of-a-new-yorker-294083347 Accessed 7.14.2012).

In "My Home Town" author Dorothy Parker (1928) writes of New York City:

> It occurs to me that there are other towns. It occurs to me so violently that I say, at intervals, 'Very well, if New York is going to be like this, I'm going to live somewhere else.' And I do — that's the funny part of it. But then one day there comes to me the sharp picture of New York at its best, on a shiny blue-and-white Autumn day with its buildings cut diagonally in halves of light and shadow, with its straight neat avenues colored with quick throngs, like confetti in a breeze. . . . So I go back. And it is always better than I thought it would be . . .

For many, living in New York is a point of pride. And those who live around Jamaica Bay share this pride and consider "being a New Yorker" as part of their identity.

This New Yorker pride is both reflected in, and a consequence of, the many city employees, e.g., fire fighters, cops, teachers, or sanitation workers, living around Jamaica Bay. For example, the Rockaway neighborhoods had one of the highest concentrations of residents killed on 9/11, with 70 lost. (http://www.nytimes.com/2011/09/11/us/sept-11-reckoning/queens.html?pagewanted=all). Rockaway residents share a common bond with their fellow New Yorkers who experienced this tragedy together. "If you live outside New York, it's a terrible, horrifying, and numbing event. In New York, in Rockaway, it's desperate. *This is about your family"* (Boyle: 92 emphasis in original). The residents of Jamaica Bay share in this sense that living in New York City is a special and unique experience.

Jamaica Bay and much of its development is characterized by its simultaneous proximity and distance from New York City. It is exciting to contrast the open waters of Jamaica Bay against the Manhattan skyline – to know that you can be in the heart of the city center in an hour, but also to know you can safely retreat to the welcoming waters of the Bay. Consequently, part of what makes living, working, playing, and praying on Jamaica Bay so special is its relationship to New York City. Place is shaped, in part, by its relationship to other places (Cronon 1992).

Live, Work, Play, and Pray on Jamaica Bay: Experiencing and Creating Place

On a sunny, but chilly November afternoon, I visited Meadowmere, a small neighborhood sandwiched between John F. Kennedy airport and the main thoroughfare constituting the Long Island border, to interview Larry Seaman Jr., one of the last remaining baymen on Jamaica Bay. We were supposed to meet "late morning," around 11 or so. I called Mr. Seaman earlier that morning to tell him I was coming, but his cell phone went straight to voicemail, which was full and not receiving messages. He says he does not know how to check it. So, I arrived in his neighborhood tentative, with an unconfirmed appointment. In Meadowmere, as in several other Jamaica Bay neighborhoods, the streets are narrow and uneven, the backs of houses, or garages, abutting the street's edge. Only one car at a time can fit down the tiny streets. If there's a car parked on the street or you have to turn around, things can get tricky, your side mirror barely

eking past a car, a mailbox, or a fence post. Several of the neighborhoods, especially those with older converted summer cabins for housing, follow the meandering shape of the creek, with the outermost layer of houses facing the Bay. When I pulled into the Seaman's neighborhood, I was surprised to find water from the Bay's high tide had filled the streets. I decided not to test my rusty, low-hanging Subaru in the salty water. I backed out and parked on Rockaway Boulevard and decided to walk in. Surely, I'd overestimated the water level. I tried to stay on the outermost edge of the street, where the water would be most shallow. Slowly, the cold water rose up my leg, my jeans sopping wet. I finally stopped when the water reached my knees. This is crazy I thought. I turned around; I would try calling him again. As I walked back toward the main road, a man dressed in shorts walks through the water, carrying a bundle high enough so that it did not drip into the water. He'd parked his car just beyond the reach of the tide and was bringing what appeared to be a change of clothes once he'd reached dry land. Clearly I was unprepared for the conditions. I tried calling Mr. Seaman again, still no answer. I milled around the nearby stripmall, waiting for Mr. Seaman to call about our appointment. After several more unanswered phone calls and about two hours of waiting, I finally headed back to my car. Before leaving I decided to walk into Meadowmere again. To my surprise, the water had receded from the streets, as if it were never there. The crunchy, salty line on my jeans and the traces of wet pavement were the only evidence of the water's presence. I came around the corner toward the Seaman household, timid, but hopeful. There, on his stool, sat Mr. Seaman focusing carefully on the task at hand. He greeted me with a warm smile and begins telling me about his morning out on the Bay. He makes no mention of the water-filled streets or the time. One of the first things I learn about Mr. Seaman: the water, not his watch, determines the pace of his day.

People primarily encounter Jamaica Bay through the daily tasks associated with living, working, playing, and praying on the Bay. These activities make-up the bread and butter of daily life and the physical features of the estuary are a regular part of these experiences. Additionally, the focus on living, working, playing, and praying on Jamaica Bay is consistent with how others have defined the environment in urban settings. Early urban reformers, e.g., Jane Addams, Alice Hamilton, and environmental justice activists were some of the first to argue for the need to include people as part of environmental analyses, thereby challenging traditional notions of nature as wilderness typically associated with early Conservation and Preservation movements (Cronon 1995; Gottleib 1993). Specifically, environmental justice activists have come to define the environment as "the areas where people live, work, and play." It is through the daily activities of living, working, playing, and praying on Jamaica Bay that residents come to 1)

observe and experience the physical qualities of the Jamaica Bay ecosystem, and 2) imbue these qualities with social meaning, often drawing connections between the two.

Living near Jamaica Bay

With such close proximity to the water, Jamaica Bay and its tributaries have become part of daily life for nearby residents. The rising tides are one of the most prominent features of life along the Jamaica Bay estuary. The Broad Channel Historical Society prints a yearly calendar with tidal and lunar information (See Image 3.2), demonstrating the importance of the Bay's movements for local residents. Daniel Mundy Sr. says, "The tides are marked on that [the BCHS] calendar. Every day – tells you when high tide occurs, so that you know you could have a problem with the tide. It could be in the street. It is a kind of way of life. We've incorporated it into our yearly calendar," he said as he points to a picture of a frozen canal near where he used to live. According to the Historical Society, the calendars have "sold like hotcakes" (Broad Channel Historical Society website).

Barbara Toborg, director of the Historical Society and resident of Broad Channel, when asked how the Bay influences daily life says, "Well, the Bay comes to us. The backyard floods on the new moon and full moon in certain months, during spring tides, or if there is a storm…During the Nor'easter of 1992 there was water up to our deck. People lost Christmas presents and decorations." She continues, "the streets flood and rusts out the bottom of cars, so many people park their cars on their front lawns. Some people want to bulkhead the water and think the city should be doing more to keep the water out of the streets and yards," but she and her husband recognize the water's intrusion as a normal part of living near the Bay and appreciate the beautiful heather, a salt-water tolerant plant, one of the few, that grows in their yard.

= Full Moon

OBER 2011

WED	THURS	FRI	SAT
			1
5	6	7	8
12	13	14	15
19	20	21	22
26	27	28	29

November 2011

DECEM

SUN	MON	TUE	WE
4	5	6	7
11	12	13	1
18	19	20	2
25	26	27	2

Monday	Tuesday	Wednesday	Thursday	Friday
	1 1:18 AM 1:40 PM	2 2:17 AM 2:36 PM	3 3:14 AM 3:31 PM	4 4:09 AM 4:25 PM
7 5:42 AM 5:59 PM	8 6:24 AM 6:42 PM Election Day	9 7:02 AM 7:23 PM	10 ○ 7:37 AM 8:02 PM	11 8:11 AM 8:40 PM Veteran's Day
14 9:52 AM 10:41 PM	15 10:34 AM 11:31 PM	16 11:26 AM	17 12:25 AM 12:23 PM	18 1:19 AM 1:22 PM
21 4:11 AM 4:27 PM	22 5:10 AM 5:30 PM	23 6:05 AM 6:28 PM	24 6:58 AM 7:22 PM Thanksgiving Day	25 ● 7:48 AM 8:14 PM
28 10:23 AM 10:58 PM	29 11:17 AM 11:54 PM	30 12:11 PM		

Image 3.2 Broad Channel Historical Society Calendar, with tidal and lunar information. (Broach Channel Historical Society)

Housing design also reflects the impact of Jamaica Bay in shaping daily life. Many residents have built their homes on stilts to accommodate the Bay's rising tide (See Images 3.3 and 3.4).

Image 3.3 Hamilton Beach, Photo From: http://www.flickr.com/photos/mercurialn/4360677740/sizes/z/in/photostream/ Accessed 5.29.2012).

Image 3.4 Stilt houses in Ramblersville, Queens (Photo from: http://nycedges.blogspot.com/2011/04/ramblersville-little-venice-on-jamaica.html Accessed 5.29.2012).

The Toborg's rebuilt after the 1992 Nor'easter to elevate their house; it now sits on eight cinder blocks. Others have oriented the layout of their homes to accommodate the Bay. "A lot of those houses on the [Cross Bay] Boulevard – the front looks like nothing, but the back will have picture windows. Everything is oriented to the water," says Barbara Toborg. She says the neighborhood has a much nicer appearance from the water because of the large windows and decks facing out back. For many, she says, the added bonus of orienting to the water is that the tax collector sees the small, non-descript house fronts and so assesses for less.

In addition to the tides and adapted housing design, residents near Jamaica Bay have incorporated the Bay as a regular part of their neighborhood activities. For example, one man, an employee of the Bayhouse Bar and Grille in Meadowmere Park, Long Island, spoke about how boating and other Bay activities played an important part in neighborhood relationships. Emphasizing people's preference to be on the water, he says that rather than driving or walking to visit a neighbor, people jump in their boats and motor down to a neighbor's house, to sit and

visit on the porch and have a beer. He also spoke about fishing, clamming, and barbequing as important neighborhood staples, while debating with a patron about the safety of eating fish or crabs taken from Jamaica Bay. A Howard Beach resident spoke fondly of taking his family out on their boat on the weekends, meeting up with other neighborhood friends, and creating a "makeshift flotilla" so their kids could play together, swimming off the back of the boats, and the adults could picnic. Mr. Dan Mundy Sr. described a similar scene of tying boats together into "one big lump…with kids on one boat and adults on another" as a means of recreating and creating a sense of "family oriented togetherness."

Besides engaging with the water of Jamaica Bay, local residents also engage with the marshlands as part of life near the Bay. Mr. Mundy Sr. describes the community's use of the marsh islands. "It is almost a religious thing that everybody has to go out there [to Little Egg Marsh and Ruffle Bar] during the summer and stop by the island and take a walk along the edge, or if it's the weekend, to meet other people and bring a picnic lunch, sit on a blanket for the afternoon and let the kids run around and swim, and spend an afternoon out there."

It was the community's regular engagement with the marshes that led to the recognition of marsh die off in the Bay. According to residents, it took several years to get the attention of local officials. Now, marsh loss is one of the top environmental priorities of Jamaica Bay, receiving significant scientific attention and considerable funding. Mr. Dan Mundy Sr. said,

> We were the first ones. 1995 and 1996 - I was the first one to discover. That's when I formed this [Eco-Watchers] group. To get together to discuss what we thought might be happening. But I wanted more information so I put together a group to verify what I was thinking and a couple of others were having the same thoughts. And was it true and it took a couple of years of pictures to document it. And bring it to the forefront. And the Park Service denied it because they were stewards of it. The very marsh they were standing on saying everything was all right - they didn't realize that in back of them - it had died. Stupid.

At the same time, Dan Mundy Jr. explains how a 1993 federal mandate prohibited the City's practice of dumping treated sewage sludge out in the ocean. After the mandate went into effect, the DEP changed protocol for processing wastewater, which resulted in the release of high levels of nitrogen to the Bay, causing declining oxygen levels and increased marsh loss. "How do I know?" Mr. Mundy Jr. asks rhetorically, "well before when you were out in a boat, say, it took seven turns to go through the marsh, and then you realize that the whole front end of it is gone, and you're like, 'Didn't I make a sharp turn here before?' And then you notice [the marsh] it's breaking through over here. So you are acutely aware of the marshes disappearing" (Mundy Jr. 2010). As kids, he continues, "there was a big stone out there that was half way to the end of the marsh. Now it is entirely exposed. How can you deny the spike in marsh loss with the nitrogen jump?" (Mundy Jr. 2010).

Residents living near Jamaica Bay have accommodated or oriented aspects of their daily life around the Bay. In doing so, they have observed and engaged with the physical properties of the estuary, e.g., the rising tides, the dying marshes, and changing water quality. Beyond simple observation of these estuarine properties, residents have attached social meaning to them. The Bay comes to life when it inundates the homes of local residents. Marsh die-off has altered childhood landscapes for many and led others to change their boating routines. Changing water quality could disrupt opportunities for neighborhood gatherings oriented to the Bay as well as local food sources. Residents have not only observed the physical properties of their local ecosystem, but have drawn connections between these properties and aspects of their lives that are important for making where they live unique, for making it a place.

Working on Jamaica Bay

Tucked away around a corner, on a dock jutting out into Hook Creek (in Meadowmere, Queens), a windswept man in a blue plaid shirt, jeans, and work boots sits on a stump carefully mending

mesh wire eel traps. "I have to make all new traps," he says, "since the water quality has improved, shipworms have returned, burrowing into, and rotting out, all of my wooden traps. Look, you can see, it's like a honeycomb," he says, as he snaps a piece of wood over his knee. He demonstrates how the mesh traps, roughly two milk crates in size, work with a little trap door where the eel slides in. "Do you want to see the eels I caught today?" he says. As we lean on hands and knees over the edge of the dock, he turns the wooden handles of what look like a trap door. As he opens the door, hundreds of small, greenish eels writhe around in a heap. Then, displaying the "catch of the day," he dumps a knapsack on the bed of his old truck. An eel, probably 20 to 24 inches long and 3 to 4 inches thick plops out of the knapsack on the truck bed. "What are you going to do with it, " I ask. "Skin it and eat it," he says with a grin. (Conversation with Larry Seaman, Jr. November 2010).

The Seaman family of Meadowmere Queens (See Images 3.5 and 3.6) is one of the last remaining families who continue this traditional way of earning a livelihood from Jamaica Bay. Working on the Bay, especially for those who are frequently on the water, marshes, and islands, provides people with opportunities to develop an intimate knowledge of Jamaica Bay that is important for creating place. The persistence of local baymen and their in-depth knowledge of the ecosystem is part of what makes the Jamaica Bay area unique. Their continued presence takes on an almost folklore persona, floating around in the aura of place, and contributes to the essence of Jamaica Bay (See Lang 1995; LeDuff 1997). An article from the *Brooklyn Eagle* describes a turn of the century Jamaica Bay clammer that captures this sentiment.

> The true clammer is a hale, hearty fellow. He is a good friend and bad enemy…He knows little of what is going on in the outside world and cares less…[But] He knows all about his fellow workmen on the Bay, what their catches average, how disposed of and the price obtained. He knows also the depth of water in every part of the Bay, the currents, the moment the tides turn, and what is most important of all to him, where the largest and best clams grow. *Brooklyn Eagle*, October 14, 1900.

Image 3.5 Meadowmere Park with bridge to Meadowmere Queens. Photo Van Hooreweghe


Image 3.6 Larry Seaman, Jr. Pictured on Gibberd 2007 *New York's Water: Profiles from the Edge*

The Seaman's continue this tradition of life on the water, despite restrictions. Commercial fishing, including eeling, became illegal with the creation of Gateway National Recreation Area. However, according to the Seamans, and several other key informants, the Park grandfathered in working baymen, stipulating that the families could continue their livelihood on the Bay until the last generation of working baymen died off. The Park Service has contested this point and the Seamans argue that they have been "treated like second class citizens" by Park Police who are unaware or ignore their agreement.

Despite their difficulties with authorities, Larry Seaman, Jr. describes eeling as his "first love," and his son, Larry Seaman III, says "I love being out on the Bay; its in my blood." Mr. Seaman Jr. says they are "stewards of the Bay and know what is going on." For example, Mr. Seaman Jr. has noticed a consistent change in water temperature. The eeling season used to begin in September when the kids would go back to school, but now, he says, "because of global warming, eeling starts in mid-October." His son, Larry Seaman III, works as a duck-hunting guide along part of the Bay in Long Island and knows the migration patterns of black ducks and Canada geese and how their numbers have changed. As the numbers of Canada geese have increased in recent years, they have eaten entire sections of marsh near Hassock Creek and Straight Creek, he says. Because of his observations of the estuary, Mr. Seaman, Jr. disagrees with the Park's policy prohibiting the taking of horseshoe crabs for bait. He denies that taking crabs for bait significantly impacts their numbers or the larger Jamaica Bay ecosystem. "You go down to Barren Island or back behind the Statue of Liberty on a full moon and look along them beaches there, and there's more [horseshoe] crabs than you can imagine. Twenty thousand or more piled on top of each other. It's unbelievable. But we don't have no voice. We don't have a college education, we didn't study marine biology, so what do we know?" (Seaman Jr. qtd in

Gibberd 2007:4).

In addition to their knowledge of the Bay, part of the Seaman's relationship as a family is oriented around their lives on the Bay. According to the elder Seaman, there have been three generations of Seamans who have worked the Bay and they take great pride in this generational attachment to the Bay. "I wouldn't give it up for anything. I love it, and I love working with him, you know? There's not too many people who get to work with their fathers" (Larry Seaman III, qtd in Gibberd, 2007:1). Despite the younger Seaman's determination to continue working on the water, his father, Larry Seaman Jr. would rather his son found work elsewhere given the difficulty of making a living off the water and the prohibitive rules of the National Park Service. He is concerned that eeling is "all he [his son] knows," and is concerned that if the Park Police arrest his son for eeling, it could jeopardize his chances for getting other work. His son does not see it that way. Instead, Larry Seaman III describes his friends who go to work every day hating their jobs. Smiling he says, unlike them he "love[s] my life, wakin' up and doing what I do," adding, "I don't want some bureaucrat (in reference to the NPS) telling me what I can do and making me do a job I hate" (Seaman III 2010). It is not just Larry Seaman Jr. and his son whose work is associated with the Bay. Larry Seaman Jr.'s brother, Bob, aged 62, a Vietnam veteran returned to the water after the war when he could not find other work. He now runs the small bait shed adjacent to his house that was once run by Larry Seaman Jr.'s wife before she died. He estimates that he sells only about 50 pieces of bait per day. Despite the meager business, the bait shop offers the opportunity to be on the water daily and near his family.

Working on Jamaica Bay offers opportunities to develop intimate knowledge of the Bay's physical properties, a necessity for successfully plying one's trade on the Bay. Not surprisingly then, observing the natural ecosystem of Jamaica Bay has long been a regular part of daily life

for the Seamans. It is through their work on the Bay that the Seamans have drawn connections between changes in the Bay's ecology and their own lives. Improved water quality has meant better prospects for eeling, but has brought the return of the dreaded shipworms, which means a costly, time consuming alteration of their technology. A change in water temperature has meant later eel migration, and thus a later start to the eeling season, which means the Seamans rely more heavily on green crabbing off Long Island for their income. Moreover, the Seamans take great pride in their generational attachments to the Bay. "I'm a part of this Bay as much as the ducks, geese, and plovers," says Seaman Jr. about his relationship to the Bay. Consequently, the Seamans' connection to place is rooted in their work and their identity as one of the last working families on Jamaica Bay, and their continued presence adds to the unique character of this place.

Playing on Jamaica Bay

Playing on the Bay is an important opportunity for both local residents and visitors to Gateway National Recreation Area to connect ecosystem processes with social meaning. Recreation affords people the opportunity to observe the way the estuary works while engaging in activities that they find enjoyable, e.g., kayaking, fishing, wind-surfing, speed boating, or birding, often times with friends or family.

Boating in various forms continues to be one of the most common and enjoyed forms of water recreation on the Bay, and it enables participants to gain firsthand experience of the open waters of Jamaica Bay. Mr. Joe Cordes of Nassau County is a member of the Anabus Boat Club in Broad Channel, where he houses his sailboat. The boat clubs[25], Mr. Cordes explains, "give people access to [the interior of] the Bay that otherwise wouldn't have it" by providing a space for people to keep their boats. Every day, Mr. Cordes says, people are at the Anabus, either

[25] Besides the Anabus, there are several other boat clubs around the Bay that are well over 100 years old, including the North Channel Yacht Club, the Iroquois Yacht Club, and the Shad Creek Association.

Image 3. 7 Sebago Canoe Club Out for a Ride on Jamaica Bay

coming after work to fish, or for those who are retired, fishing and socializing throughout the day.

Besides the yacht clubs, the Sebago Canoe Club of Paerdegat Basin in Brooklyn is a group of local kayakers, sailors, rowers, canoeists, and flat-bottom racers who consider Jamaica Bay home. One member says, "The motion of the water, the birds, the up and down, it's just an unbelievable feeling and it just relaxes me" (Tony Pignatello, member Sebago Canoe Club, from New York City Parks Department 2007). In addition to regular memberships, the Sebago Canoe Club offers public paddling sessions. "It's a great way to get them (the visiting public) connected to nature; connected to the Bay. Most paddlers are stewards of the environment. If you are paddling in it, you are gonna care about the condition of the water; you're going to care about the condition of the area" (Phill Giller, Commodore, Sebago Canoe Club, from New York City Parks Department 2007).

Local residents also boat from their homes or other boat launches along the Bay. Mr. Mundy Jr. describes his neighbor who goes out on his boat several times per week. "My neighbor over here goes out 3 or 4 times per week. He has a little boat, only goes 5mph; he likes

it that way…A lot of times he goes out there [to the islands] and looks at things that have washed up after the storms, different wrecks and stuff. People definitely enjoy walking around the perimeter of the islands" (Mundy Jr. 2010).

Fishing is another popular recreational activity that draws both local residents and visitors, and offers the opportunity for anglers to observe the ecological processes of the Bay. For example, one woman, a Queens' resident, reports in Fall 2008,

> The blues and stripers have not shown up in the Bay en mass yet, and we're talking about the middle of October. Bunker die-off, a usual summer occurrence in many parts, has never happened in the Eastern part of Jamaica Bay (between North Woodmere and Rosedale) since I've been fishing in those waters from the age of 12. This year it happened. It's not that the Bay lacks life in it, but the timeframe is off terribly.

Another angler posts, "This week, Jamaica Bay and the NY side of the Bight got a fresh influx of bluefish, bass, and bunker....right around Wed and Thur, which is when the NJ action slowed down a bit.....and the N/NW winds built up...To me, being able to track those fish, and the whys and the subtle nuances of what happens during the migrations, is as exciting as the fishing itself....and it's something a few close friends and I have obsessive conversations about" (Stripersandanglersforum.com, Accessed 6.24.12).

Catching killi fish, which are small baitfish, has long been a social activity enjoyed by kids living around the Bay. A community member posted a message on a Howard Beach website saying, "I was born in the Beach in 1946…I love to hear about how it was back then when we all used to go 'killying in the creek' with a milk bottle filled with bread and tied on a heavy string. We then used the killis for bait to catch blue-clawed crabs. Those were the days!" The practice continues today in Broad Channel, according to Ms. Barbara Toborg, who says that on days of extremely high tides or storm events, local children wade in the streets to catch the tiny baitfish.

Image 3.8 Fishing at North Channel Bridge, Jamaica Bay, NY Photos: Van Hooreweghe

Image 3.9 Fishing at North Channel Bridge, Jamaica Bay Photo: Van Hooreweghe

Birding is one of the better-known activities along Jamaica Bay, the sole purpose of which is to observe nature (See Image 3.10, Birders on West Pond, Jamaica Bay Wildlife Refuge). Mr. Jim Ash, formerly of Howard Beach, says, "Most birders can tell you a story of their 'hook bird,' the bird that really got them into birding." He recalls seeing "hook bird" at the Jamaica Bay Wildlife Refuge, a glossy ibis, noting that it had been "only three years after the ibis began appearing in New York City." Mr. Ash adds that birding "offered me everything that hunting and trapping on the Bay had provided, but without the killing[26]…Birding allowed me to engage with nature in an in-depth fashion" (Ash 2010). After seeing his "hook bird," Mr. Ash went to the Refuge almost

Image 3.10 Birders on West Pond, Jamaica Bay Wildlife Refuge, Queens NY. Looking at camera: Doris (Photo from: http://birdingdude.blogspot.com, Accessed 6.2.2012

[26] Mr. Ash grew up trapping muskrats on Jamaica Bay with his father. He remembers the article that prompted his trapping endeavors. A *Brooklyn Eagle* headline read "Yikes, Tallyho, There are Muskrats. Both Mr. Ash and Mr. Seaman recall the times when Sears & Roebucks would come to the different neighborhoods along the Bay to buy pelts from the "farm boys." Mr. Ash, personally opposed to selling his pelts to the companies, took them directly to the fur district in Manhattan. Despite eliminating the middleman, Mr. Ash barely broke even selling pelts, but continued to trap because he loved being on the marshes.

Image 3.11 Mr. Ash's "hook bird." The Glossy Ibis at Jamaica Bay Wildlife Refuge. Photo from: http://birdingdude.blogspot.com, Accessed 6.2.12

daily before moving to Long Island in the early 1990s. Mr. Toborg of Broad Channel enjoys birding because it affords him the opportunity to be outdoors. "I don't consider myself a bird watcher. More of a bird looker-ater. We don't take it so seriously that we have to keep lists and check off…I think we're more generalists – just being out in nature, all the stuff. We do know of birders that we hang out with and it is fun to see them enthusiastic about sightings. [We] appreciate it as part of a larger being outside. Want to enjoy all of the outdoors, not just the birds. But, we are in a unique place to see a lot of birds."

Boating, fishing, and birding are all recreational activities that afford people access to the interior of the Bay and its inner workings, as well as opportunities to develop social meaning about the ecosystem. Recreaters experience species migration, changes in water temperature, wind direction, and water quality. Furthermore, these ecological processes mean something to residents. These ecological processes constitute the basis of numerous conversations and friendships; they mean a good day of fishing or birding; they signal a changing environment;

they evoke childhood memories; they are a ritualistic part of life. As such, recreating on Jamaica Bay is an important part of creating place – fusing the natural and human order.

Praying on the Bay

Religious and spiritual uses of Jamaica Bay are a regular part of the Bay's landscape, but those participating in these activities may have a more tenuous connection to Jamaica Bay as a *particular* place given the "substitutability" of the Bay as part of their ritual practices. Over the past twenty to thirty years, Indo-Caribbean Hindus, largely from Guyana, Trinidad and Tobego, and Suriname, have come to Jamaica Bay to make regular religious offerings, known as pujas, in honor of gods and goddesses, and to engage with the spiritual qualities of water, which Hindus believe is a primordial spiritual symbol (For an overview of the Hindu faith, including the significance of water, see Flood 1996; Fowler 1997. For more information on Indo-Caribbean Hindus in New York, see Verma 2008 and Kornblum and Van Hooreweghe 2012).

In India, some of the most sacred geographical features are rivers, and the Ganges River is considered the most sacred. Dr. DhanPaul Narine, President of the Shri Trimurti Bhavan temple in Ozone Park, Queens says their members go to Jamaica Bay because the Indian Diaspora seeks out water wherever they go, incorporating local water sources as part of their religious beliefs, as a symbol of the sacred Ganges River. Dr. DhanPaul Narine says, "[T]he children of India take a piece of India, and the Ganges, with them wherever they go, and thus there are pieces of India and the Ganges all over the world." Consequently, many Indo-Caribbean, especially those living in Richmond Hill, have imbued Jamaica Bay with spiritual significance; Jamaica Bay has come to embody Mother Ganga.

Image 3. 12 Hindu offerings at North Channel Bridge, Photo Avi Lewis Flickr

Image 3.13 Hindu puja offering along the North Channel Bridge Photo Avi Lewis Flickr

The Hindu puja is an important part of regular religious practice for Indo-Caribbean migrants in New York. It provides an opportunity not only to fulfill their religious duties, but also to celebrate important milestones in one's life, known as *samskaras,* such as births, weddings, and deaths. The puja is rarely an isolated activity; instead it is a special time with family, friends, and spiritual leaders. Mr. Naidoo Veerapan explains community leaders, himself included, usually have invitations to attend pujas every Saturday during the summer, indicating the importance of including the larger community in the celebratory events. Mr. John Zuzworsky, formerly a biologist at the National Park Service, estimates that at one time roughly 150 to 200 people could be seen performing pujas along the North Channel Bridge.

Remnants from Hindu pujas left in the water and along the shores of Jamaica Bay have raised the ire of local community members. Puja offerings consist of items that will be pleasing to the gods, including: expensive saris, *pushpam* (flowers), *phalam* (fruit, particularly coconuts), *gandham* (sandal paste), *dhupam* (incense), nalvedyam (foods, e.g., rice), and *jalam* (water) (*Hinduism Today* 2007; Melwani 1995). The puja ends with an offering of aarati or the sacred flame, which is burned in a kund, or small vessel (Melwani 1995). Because of the decreased flushing capabilities of the Bay (see chapter 2), remnants from the offerings wash ashore and become caught on beaches and in plants (See Images 3. 12 a, b, c). The Howard Beach and Broad Channel communities, given their proximity to the North Channel Bridge, have been particularly vocal about the Hindu remnants and the National Park Service has stepped up enforcement of its "Leave No Trace" policy, leading to tense relations among the different groups.

Image 3.14 a, b, c Remnants from Hindu offerings at North Channel Bridge, Photos Van Hooreweghe

Although the Indo-Caribbean population interprets Jamaica Bay as the embodiment of the Ganges River, thereby allowing for its substitutability, their practices are still important for creating Jamaica Bay as a unique place. Devotees give spiritual and social meaning to the Bay and incorporate the Bay as part of regular religious rituals that bring family and friends together. Therefore, devotees are engaging in the practice of creating place by fusing the natural and human order. Moreover, the presence of diverse groups using the Bay, perhaps to the chagrin of local residents, infuses the Bay, in part, with its urban character. What sets the Hindu case apart from other instances of place making along Jamaica Bay is the very visible way their actions impact the Bay and its marshes, and the very vocal opposition to these practices. Consequently, their experiences of the Bay, coupled with its substitutability in religious interpretation, might make for a more tenuous connection to place.

Part of the essence of Jamaica Bay is the small stuff of daily life, the tides, housing design, work hours, and neighborhood traditions that are all rooted in the Jamaica Bay

ecosystem. The Bay, then, becomes an important part of daily life for residents and is on par with other social factors, such as the presence of family networks, job opportunities, or affordable housing that go into making place important for people. It is through place that residents cultivate their relationships with nature because it is through place that they begin to see the connection between humans and ecosystems, and the realization that humans are part of a larger ecosystem blossoms.

Citizen-led Environmental Remediation in Jamaica Bay

Many residents have initiated environmental remediation projects in direct response to their regular observations of Jamaica Bay and its environs. Local residents often serve as self-appointed "watchdogs" of the Bay. For example, residents keep careful note of DEP sludge boats coming in and out of the Bay, dumping or dredging activity, as well as looking for any sort of inappropriate behaviors along the Bay. For example, Dan Mundy Sr. says of Eco-watchers members, "I've got fisherman who are out on the Bay every single day. And while they are fishing they see abandoned boats, they see illegal activity, they see water clarity change, they see marshes dying, they discover new objects and they report back to me. And we are a resource of constant flowing information that nobody else has. Nobody else has this."

Another resident, a Brooklyn woman, reports on the regularity of the DEP's sludge boats in the Bay despite an agreement between the city, local environmental groups, and the state's DEC to reduce nitrogen loading into the Bay. "I have no idea what is being dewatered [referring to sewage sludge] in the Bay, what the agreement was, or whatever. But I can tell you that I see a sludge boat coming from the direction of Breezy and heading west every afternoon…all summer even on weekends, both Saturday and Sunday…I figured that since it's kind of hard to disguise a sludge boat, everyone knew they were out there."

In addition to serving as "watchdogs," many local residents have undertaken citizen-initiated restoration projects. Maria Garrett, a woman in her 50s who lives in Canarsie, Brooklyn, and her daughters initiated efforts to restore the area adjacent to Fresh Creek after the city cut down trees and left them rotting in the creek, eventually leading to a termite infestation. Besides the dead trees, the Fresh Creek preserve, part of NYC's Forever Wild Program, is filled with invasive species, such as mugwort, phragmities and Japanese knotweed. She once told me when asked how she came to be involved with the Fresh Creek issue, "When I look over at the unkempt Preserve – I wanted to know 'What are they preserving?' and I didn't see it. When I look at the Botanical Gardens, if I go up to Central Park, and I see their gardens, I see everything is manicured and they have everything so nice and it is green – mine don't look like that. In my neighborhood, it don't look like that. And I want to know why. What's the difference?" When asked what she thought the difference was, Maria answered, "The difference is nobody paid attention. Nobody paid attention to what's going on over here and the people in the neighborhood thought this is the way it is supposed to be. I thought this is the way it's supposed to be!"

Maria decided to bring attention to the issue and called the New York City Parks Department to address the problem, but they were unresponsive. After local school kids started a fire in the preserve along the Creek, Maria and her family took their concerns to the local Community Board (#18). Maria pleads to the Board:

> It's supposed to be a preserve. But it's not preserved. We spoke to Fred [CB 18 Parks Department representative] and he said we can't do anything about it. The National Park said we had to contact the DEC and they could get rid of all these weeds. We contacted the DEC and they said the DEP is the department that's supposed to be taking care of it. This is by my house. This is what we have to look at…It's not supposed to be like that. I shouldn't have to live like that. I pay too much money in taxes. June 18, 2008 CB 18 meeting

In response, the Chairperson of Community Board 18, Mr. Saul Needle, says, "You know what's going on? The state is telling you it's the city. The city is telling you it's the state. Both will say it's the Federal government. And you are talking to the wrong body (of governance). We have nothing to do with it." The District Manager, Dottie Turano, encouraged Maria and her daughters to contact their local officials.

Unsatisfied with the response from their community representatives and Park officials, Maria, her family, and a few neighbors organized the first cleanup of the Fresh Creek Nature Preserve, which Maria argues put Fresh Creek on the map for further, official, restoration projects.

Images 3.15 a, b Fresh Creek Nature Preserve Clean up. Photos: Izaya Garrett.

Maria has held two additional Fresh Creek cleanups since the initial cleanup in 2009. She recruits family members, neighborhood residents, and volunteers participating in alternative sentencing programs with the Kings County District Attorney's office, netting about 100 people to participate. The media covered the Fresh Creek cleanups, and the Community Board acknowledged her work and persistence. In 2011, local Senator John Sampson presented Maria the "Environmental Advocate" award during his 4th Annual Women of Valor Awards Ceremony.

As a result of Maria Garrett's efforts and the increased attention to the area, the Natural Resources Group of the NYC Parks Department initiated a Reforestation Program that involves

removing the invasive mugwort, Japanese knotweed and phragmities from the area and replanting with "appropriate" trees and shrubs. The project should be completed some time during Summer or Fall of 2012, though it is unclear how much input the community will have in the restoration project or what their role will be once restoration is complete.

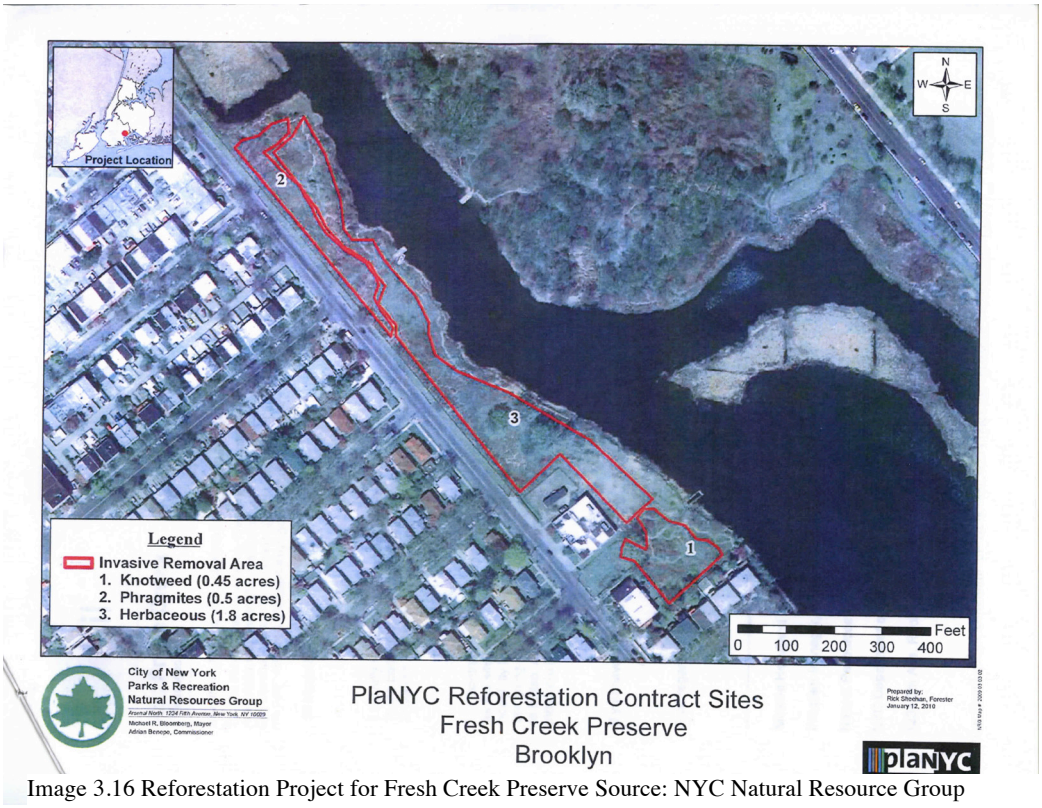


Image 3.16 Reforestation Project for Fresh Creek Preserve Source: NYC Natural Resource Group

Once the Parks Department agreed to address the Fresh Creek area, Maria Garrett and her family established a 501 c-3 non-profit group, The Fresh Creek Nature Association, to "improve the livability and sustainability of Canarsie, Brooklyn, New York through local, community-oriented projects to enhance the natural and social resources of the neighborhood." One project the group would like to undertake is a stewardship program for neighborhood kids.

> Yeah, we got to get people more involved in appreciating where they live and try to reach out to the youth. We have to let the youth know that this is your area. This is your preserve… I would like to start a volunteer program so when they finish it, we can clean it every once in awhile. Because once they know that they

have a hand in something. They will appreciate it more. And they'll be like – this is my tree. And everybody, when they start planting the trees, you say, put your name on this tree. And you're going to adopt that tree. And this way, you can see, as long as you're here – when you come out here and we do a clean up. You know you have to work around that tree. Or that bush. So you could relate to something. You have something that you can say is yours.

Image 3.17 Maria Garrett next to the Fresh Creek Nature Preserve after several citizen-led cleanups. Photo: Van Hooreweghe

Like Maria Garrett, Marlen Waaijer is working in Rockaway on her own citizen-initiated habitat restoration project. Marlen is a Dutch woman, likely in her early to mid 60s, who was born on, and lived in, a houseboat in the Netherlands until she was 12 years old, after which she moved to Amsterdam. She moved to Manhattan in the 1960s only to find herself gentrified out in the late 1970s or early 1980s, moving to Park Slope in Brooklyn. Again, after living costs began to rise in Park Slope, she moved to the Edgemere section of Far Rockaway, Queens, on the Norton Basin of Jamaica Bay in 2002. Edgemere is a former New York City landfill site that closed in 1985 and neighborhood residents often complain of the lack of services on the

Rockaways, in general, and in Far Rockaway in particular. When asked what it is like to live in her neighborhood, Marlen says,

> Living here is difficult; as a person who was gentrified out of Park Slope South, I find that the lack of food resources is beyond belief. As a person who does not want to drive/own a car, the stores are practically non-existent. At the end of the "A" train, trips to the city take almost a 4 hour bite out of one's day….The focus of the Community Board is solely concentrated on traffic and parking issues for cars. No attention is paid to safe bike paths…There is very little management for this section of the wetland…This part of Jamaica Bay falls outside the National Parks area and is therefore neglected and under constant attack.

To compensate for the lack of oversight and to address the degraded and debris-filled marshes adjacent to her house, Marlen started her own "guerilla wetland project" in 2003, an informal, unsupervised adoption of the nearby marshes. She initially wanted to keep her project quiet because she feared City Park officials would prohibit her work in the area.

Image 3. 18 Debris that has been dumped or washed up on the marshes of Edgemere Queens. Photo: http://www.nbesg.org/sanctuary/page/3/

Marlen works closely with her friend Doris, a German woman who is a former resident of Rockaway, but has since moved to New Jersey to help raise her grandchildren. Doris will often

ride her bike to the train station in New Jersey, take the Path train into Manhattan, and then transfer to the A train out to Jamaica Bay, well over an hour-and-a-half commute, to do cleanups and attend Jamaica Bay meetings and events because she enjoys the area so much. Marlen and Doris' policy is not to do any plantings in the habitat area, but only to remove trash, debris, and invasives so as to allow the natural habitat to thrive. In doing so, they have established a new bird sanctuary, but they work hard to keep the encroaching weeds and trash from taking over.

Marlen believes the biggest threat to the Bay is people, of all kinds. She cites the "floatable debris, driving through marshland with off-road vehicles, dumping car oil into storm

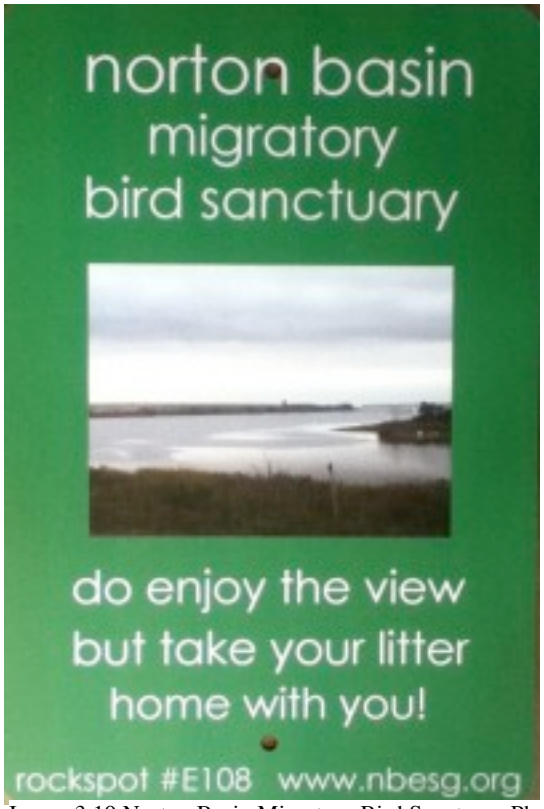


Image 3.19 Norton Basin Migratory Bird Sanctuary Photo
Norton Basin Stewardship Group

sewers – fisherman, crabbers, trampling Spartina Alterniflora" as the biggest concern for the Bay's future. It is not only neighborhood residents or people visiting the Bay that neglect it, but Agency officials as well.

> Dumping/car washing with run off into the Bay via storm drains is only handled by DEP police, who come 4 to 24 hours after the fact. While city police happily drive by…NYC Recreation and Parks works with bulldozers only. They actually mow the spartina patens in part of the Michaelis Bayswater Park! Cleanups are only done by Norton Basin Stewardship Group. Park Personnel does not do this at all. No policing observed ever.

To help combat this neglect, Marlen applied for, and received, a small grant from the National Fish and Wildlife Service to continue her work on the marsh and for assistance in developing the bird sanctuary. She maintains a blog titled "Today is" where she documents "life on an urban estuary." One day, she writes: "Today Is the day Doris worked out cutting phragmites heads in the rain, while I did a track through the back to Beach 38 Street to gather a bag of garbage, retrieve a huge industrial floor-mat – which I dragged to the dumpster of the housing project. A neighbor left a cardboard box with their dead dog for me to find. How inconsiderate. I was able to put it in a plastic bag and at night the sanitation people picked it up."

Image 3.20 Marlen (back left smiling at camera) cleaning up the marsh with local schoolchildren, part of a Rockaway Waterfront Alliance project. Photo: http://www.nbesg.org/sanctuary/wp-content/uploads/2012/01/cropped-TreeSwallowBoxPlantingBox2.jpg

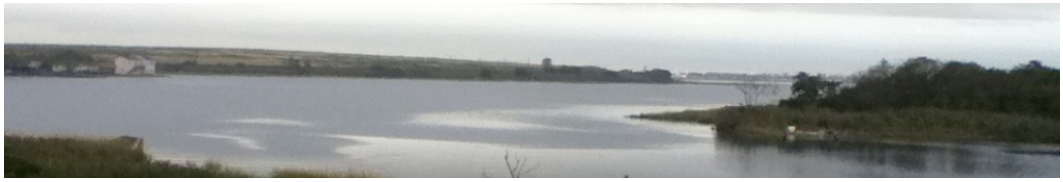


Image 3.21 View of Jamaica Bay from the shoreline adjacent to Marlen's house. Photo: http://www.nbesg.org/sanctuary/category/lessons-learned/

Despite Marlen's frustration with the neighborhood, she also acknowledges the positive aspects, most of which are offered by the Bay's natural attributes. "It was a glorious day, sunny and not much wind. Birds are plentiful around Norton Basin: the usual suspects – laughing gulls,

black back gulls, a yellow crowned night heron and even a few brant geese are still feeding. The redwinged black bird, the robin and the mockingbirds are trying to outdo each other. At 7 pm the water is a straight as a mirror – all wind disappearing at sundown as sometimes is the case."

Besides those in Canarsie and Far Rockaway, several members in the Indo-Caribbean community have been working to cleanup the Jamaica Bay area and raise awareness about the issue of puja remnants. For example, Dr. DhanPaul Narine has organized several beach cleanups, bringing members of his temple to cleanup the North Chanel Bridge area and raise awareness of the environmental consequences of puja offerings as well as National Park Service prohibitions against leaving items in the Bay. (See Images 3. 22-3.24 Hindu Cleanup of Jamaica Bay.)

Images 3.22 (above) and 3.23 (below) Indo-Caribbean Hindu organized cleanup Photos: Van Hooreweghe

Image 3.24 Hindu clean up at North Channel Bridge. Dr. DhanPaul Narine pictured above in red. Photo Van Hooreweghe

A youth leader, Kamini Doobay, has worked to raise awareness of environmental issues associated with the puja offerings through a short documentary film titled “Paani[27]: Conservation from the Ganges to Jamaica Bay" made available online. Additionally, Kamini has spoken at her local temple to educate members of her congregation about the National Park Service’s rules

[27] Paani is the Hindi word for water.

against placing items in Jamaica Bay and has been working to find a solution that would be both environmentally friendly and spiritually appropriate.

Besides habitat restoration, several of these environmental groups have also taken on advocacy work to push for improved legislation and funding to restore the Bay. Local residents attend seemingly endless meetings, relentlessly contact public officials, and carefully peruse government documents and websites for information on the Bay, to navigate the jurisdictional and bureaucratic obstacles blanketing the environmental decision-making process. In 1984, local citizen stakeholders started the Jamaica Bay Task Force to ensure public input into the decision-making process (NPS 2003). The chairs of the Task Force, Dan Mundy Sr. of Broad Channel and Don Riepe, Bay Keeper with the American Littoral Society, overlap with the Eco-Watchers leadership. Consequently, the Task Force and the Eco-Watchers undertake much of the same advocacy work. Most recently, the Eco-Watchers and the American Littoral Society worked with the Natural Resource Defense Council to sue the city for neglecting to adopt an adequate sewage treatment abatement plan. As part of a Clean Water Act lawsuit brought by the groups, the city pledged $100 million in technology upgrades to reduce nitrogen loading in the Bay by half by 2020 as well as $15 million in marsh restoration projects.

In response to a recent Regional Planning Authority (RPA) proposal to extend JFK Airport further into Jamaica Bay, local residents, working with environmental groups, have taken on an advocacy role in opposition to the expansion. One woman, a resident of Queens argues for the need to use legal means to stop the JFK expansion.

> The RPA's report will be the basis of testimony in front of a Congressional hearing. You can mark my words on that. At every juncture we must act. They have their documents and reports, we will too. We must focus on the improvements in the Bay, challenges that were met and the amount of time and money poured into the Bay to save it…I've learned in business and dealing with regulations on many levels, that you have to "smack them back with their own

> words"…We don't have the powerful players like those who attended the conference (to design the plan), but we have federal and state laws, studies and agreements that must be dusted off and used to refute their plans.

Besides bringing formal lawsuits or attending formal meetings, local residents also undertake more informal activities, such as writing local elected officials, submitting public comments, and writing opinion pieces for local newspapers. Recently, residents have worked to oppose a new plan to reduce bird strikes at JFK Airport. One Brooklyn woman writes in an email to the Jamaica Bay Listserv:

> Well, well, birding in Jamaica Bay is touted as a great tourist attraction on the "official guide to NYC" at the same time that the FAA is proposing killing off many species. And...The USDA[28] is shooting bunnies at JFK to "decrease the prey base". REMEMBER, COMMENTS ARE DUE THIS WEDNESDAY, 6/13 on the USDA plan to decrease the number of birds at JFK. If you haven't done so already, please submit comments! A link to the documents is below.

Many residents invest time, energy, and money into environmental remediation projects to preserve the natural character of the Bay because it is a part of what makes where they live such a special place. The Bay is a space for spending time with family and friends. It is a quiet respite after a long day's work. While for others, it is a source of work. It is such an important part of daily life that some residents have taken the initiative, even in the face of bureaucratic obstacles and discouragement, to restore the Bay and its surrounding environs.

Arguing for the Role of Nature in Place:

Observation of a place's physical dynamics (what Isenhour 2011 calls environmental feedback loops) in combination with social meaning about these dynamics is important for cultivating relationships to nature. In the process of "creating place," local residents come to recognize the influence of Jamaica Bay in daily life and its contribution to making where they live, work, play, and pray a unique place. Consequently, it is through place that people come to

[28] USDA stands for the United States Department of Agriculture.

see the environment as an active participant in daily life, and thus an important actor in the process of cultivating one's eco-self (Capek 2006; Weigert 1991).

The ubiquitousness of the concept of place throughout the varied studies of environmental issues indicates that it is an important facet of the human-nature relation. Yet most studies continue to neglect the way ecosystem functioning impacts the process of creating place, focusing instead on the importance of social meaning in natural resource management, or emotional attachments to place or the link between place attachment and duration in place (Brehm 2007; Gosling and Williams 2010; Schultz 2000; Stedman 2003; Uzzell, Pol, and Badenas 2002). Here, I focus on the way the physical environment participates in the give and take, the back and forth with social actors to create place.

The difference is simply a degree of emphasis – moving away from an anlysis where the environment is a passive object contributing, generally, to one's quality of life, as any other commodity might, towards a view of the environment as essential to one's life, one's community (Leopold 1949). As environmental philosopher Val Plumwood argues, "The communicative and intentionality of more-than-human others is often the key to the power of place….Through subtle and exacting sensory rhythms the land itself can speak to us and place-anchor our lives…Space becomes place, not only via human inhabitants, but also non-human inhabitants (Plumwood 2002).

It is through embodied sensory experiences of place that we open ourselves up to feeling the pulse of nature. Rachel Carson argues, "Exploring nature…is largely a matter of becoming receptive to what lies all around you. It is learning again to use your eyes, ears, nostrils and fingertips, opening up the disused channels of sensory impression" (1965: 46-47). However, sensory experience alone is not enough to draw connections (Escobar 2001; Gould 1993).

Rather, people need to combine sensory experiences with social meaning to bring importance to the experience of nature and prompt recognition of the social system-ecosystem connection.

Plumwood (2002) calls for a "spirituality of place," but recognizes the difficulty of creating such a spirituality because "mobility and way of modern living and for most – especially in urban contexts – both place and more-than-human sphere are disempowered as major constituents of identity and meaning" Plumwood (2002). The case of Jamaica Bay challenges this conclusion and hints at the possibility of recognizing the more-than-human-sphere in an urban setting because local residents have the opportunity to experience an ecosystem's natural functioning and not a simulacra of nature. Consequently, the Jamaica Bay example suggests the need of urban environmental policy that seeks to restore natural features of the urban landscape as an important part of place making.

Conclusion

Place provides a physical connection – a location and our sensory experience of these locations – as well as social connections, families, friends, work, communities, to observe, to respond, and to form relationships with nature. Place then becomes a part of local residents' understanding of who they are, as part of their identities, and part of their understanding of the natural world. Studies of place generally do not attempt to capture the importance of sensory rhythms and the communicative capabilities of the natural world in making a place come alive. Efforts to capture this essence often result in spiritual or innate connections to nature, and in doing so fail to capture the importance of social life in shaping these experiences. Part of what makes place, as developed here, an intellectually, and sociologically, satisfying concept is that it brings together both the physical (location) and social (meaning) without slipping into ideational, mystical, or reductionist arguments. That is, place, as defined here, is a concept – a practice – that is firmly rooted in social life and can be mimicked in other settings. Consequently, place

becomes a means for facilitating the development of an eco-self, one that recognizes nature as an essential part of one's life and community. However, place is not without its shortcomings, and the issues of access and environmental privilege discussed in Chapter 4 problematizes the concept of place and its role in cultivating people's relationship to nature.

Chapter 4: Jamaica Bay: Boundaries, Real and Imagined

" A neighborhood is more than a physical space: it is a social, cultural, and emotional home, an arena of civic engagement, a place people organize around – that they work to preserve and improve. New York City has more than 400 neighborhoods, each with its own individuality and character. Ask a New Yorker "Where are you from?" and the answer is as likely to be "Flatbush" as "New York." So before you can understand the city, you must first come to know its neighborhoods."

Osborn Elliot and Michael E. Clark Founding Chairman and President of Citizens for NYC. (Jackson and Manbeck 1998).

New York is famous for its diverse neighborhoods. Ethnic neighborhoods, such as Chinatown, Little Italy, or Spanish Harlem, artsy, hip neighborhoods, such as the Lower East Side or Chelsea, or wealthy uptown neighborhoods on either side of Central Park help give New York City its flavor and flair, while also serving as an important means of organizing social life for urban residents. Like New York's other neighborhoods, Jamaica Bay's neighborhoods have a distinct character, and as discussed in Chapter 3, many residents have strong connections to the neighborhoods where they live, work, play, and pray. However as part of this strong connection, many in the Jamaica Bay area have worked to protect "their place" from others (Kornblum and Beshers 1988). The enclave nature of nearby neighborhoods exacerbates this territorial defense of turf.

Jamaica Bay's crescent shaped shore forms the outer edge of adjacent neighborhoods. The remaining creeks, those that have not been filled in or entirely paved over, slice back into the mainland, ending abruptly at the major thoroughfares that hem in local neighborhoods on the mainland side, creating enclave neighborhoods that often serve to separate residents (See Figure 4.1). Social differences, in race, ethnicity, and class, also serve to create distinct neighborhood boundaries. Taken together then, this chapter examines how Jamaica Bay's creeks and shores combine with residential segregation, infrastructure development, meager environmental maintenance in poorer, minority neighborhoods, and the exclusionary propensity of place to

create environmental privilege in the Jamaica Bay area, thereby reproducing class and race-based relationships to nature.

Neighborhoods and Major Landmarks Near Jamaica Bay

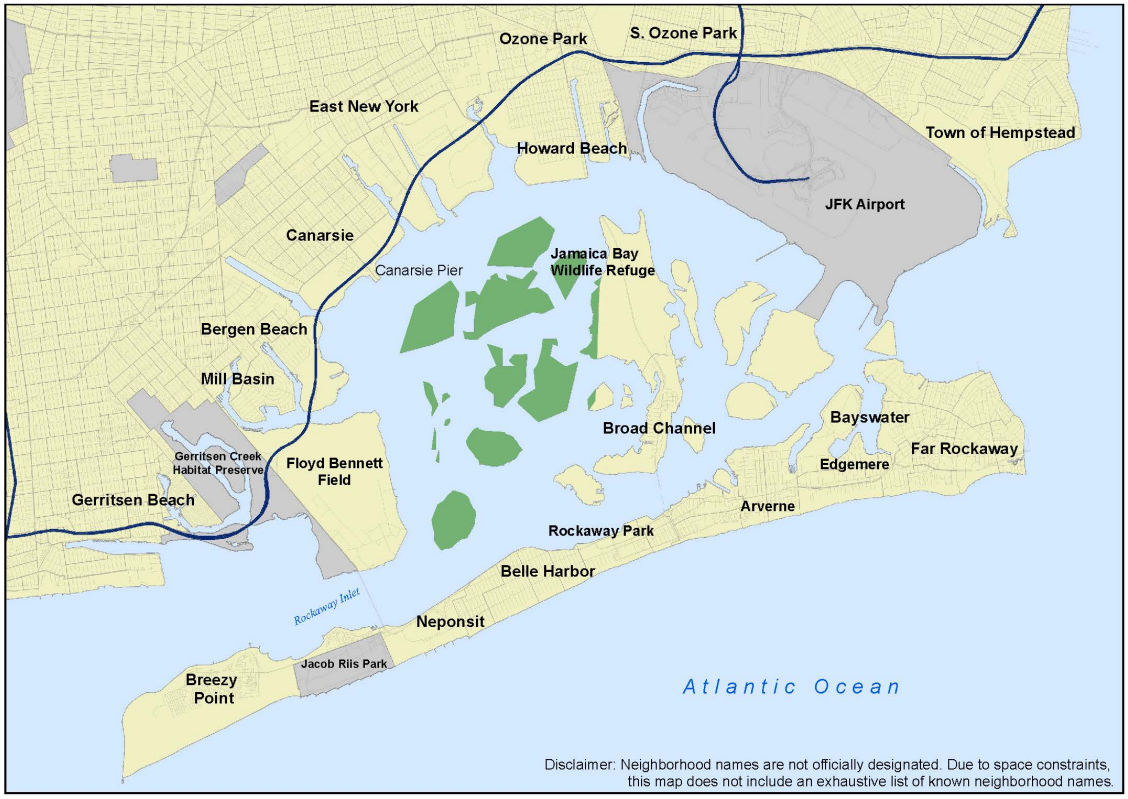


Figure 4.1 Neighborhoods and Landmarks near Jamaica Bay. Map by Thor Ritz.

Intersecting Creeks, Streets, and Socio-demographics: Accessing Jamaica Bay

The intersection of the Bay's tributaries with patterns of residential and industrial development and demographic change has resulted in a distinct racial and class-based ecology in the Jamaica Bay area (Kornblum and Beshers 1988). Access to Jamaica Bay has been structured by the political and economic decisions, presented in Chapter 2, to maximize the number of people and amount of goods passing into and out of the Jamaica Bay area, while also serving as a recipient of the city's waste. Moses' emphasis on automobile culture with the development of the Belt Parkway in combination with the development of Floyd Bennett Field, Idlewild Airport,

and the development of the Pennsylvania, Fountain Avenue, and Edgemere landfills cut significant portions of the population off from the shores of Jamaica Bay. These transformations, while perhaps advantageous for the capitalist development of the greater New York City region, resulted in significant socio-environmental consequences for the Jamaica Bay area, including access to Jamaica Bay's creeks and shores.

Today, in the neighborhoods along Jamaica Bay, those living in the middle and upper income white neighborhoods of Geritsen Beach, Mill Basin, Bergen Beach, Howard Beach, Broad Channel, and Western Rockaway have better access to Jamaica Bay and its tributaries than those living in less wealthy minority neighborhoods of Canarsie, East New York, Ozone and South Ozone Park, and Far Rockaway, resulting in environmental privilege. The concept of environmental privilege draws on Laura Pulido's (2000) Los Angeles study of white privilege in land use decision-making, wherein Pulido argues that focusing on privilege "enables a more structural, less conscious, and more deeply historicized understanding of racism" (Pg. 13). The focus on privilege emphasizes the point that environmental benefits are the cumulative effect of a history of inequitable environmental decisions, not a single instance of racist behavior or a whim of the market. Unlike traditional environmental justice issues associated with proximity to toxic and harmful facilities, in Jamaica Bay, the issue is more the long-term consequence of opportunity. Consequences of opportunity are normalized in U.S. society and therefore privilege, of most sorts, including environmental privilege, often goes unrecognized, or unnamed as such (Pulido 2000). Those living in less wealthy, minority areas of Jamaica Bay do not have equitable access to Jamaica Bay, and thus have reduced opportunities to incorporate Jamaica Bay as an important part of the experience of place.

Following are a series of demographic maps[29] drawn from the U.S. Census' American Community Survey 2006-2010 of the Jamaica Bay area that illustrate the racial and class-based ecology of Jamaica Bay. Discussion of the neighborhoods will follow a northeasterly direction around the Bay, beginning with Gerritsen Beach in Brooklyn and ending with the Rockaway Peninsula.

Race and Ethnicity

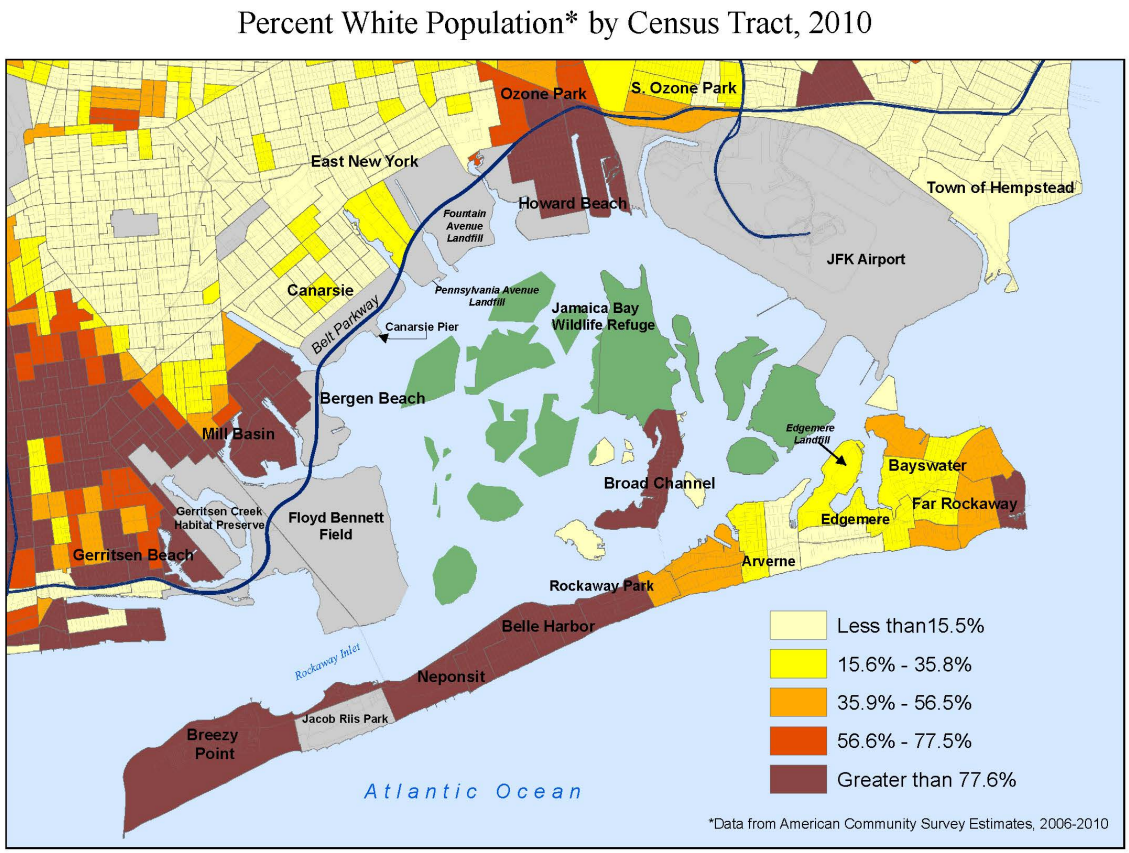


Figure 4.2 Percent White Population near Jamaica Bay

[29] All of the maps were produced by Thor Ritz, a PhD student in Geography at Syracuse University, Syracuse NY. Many thanks to Thor for his help.

Percent Black Population* by Census Tract, 2010

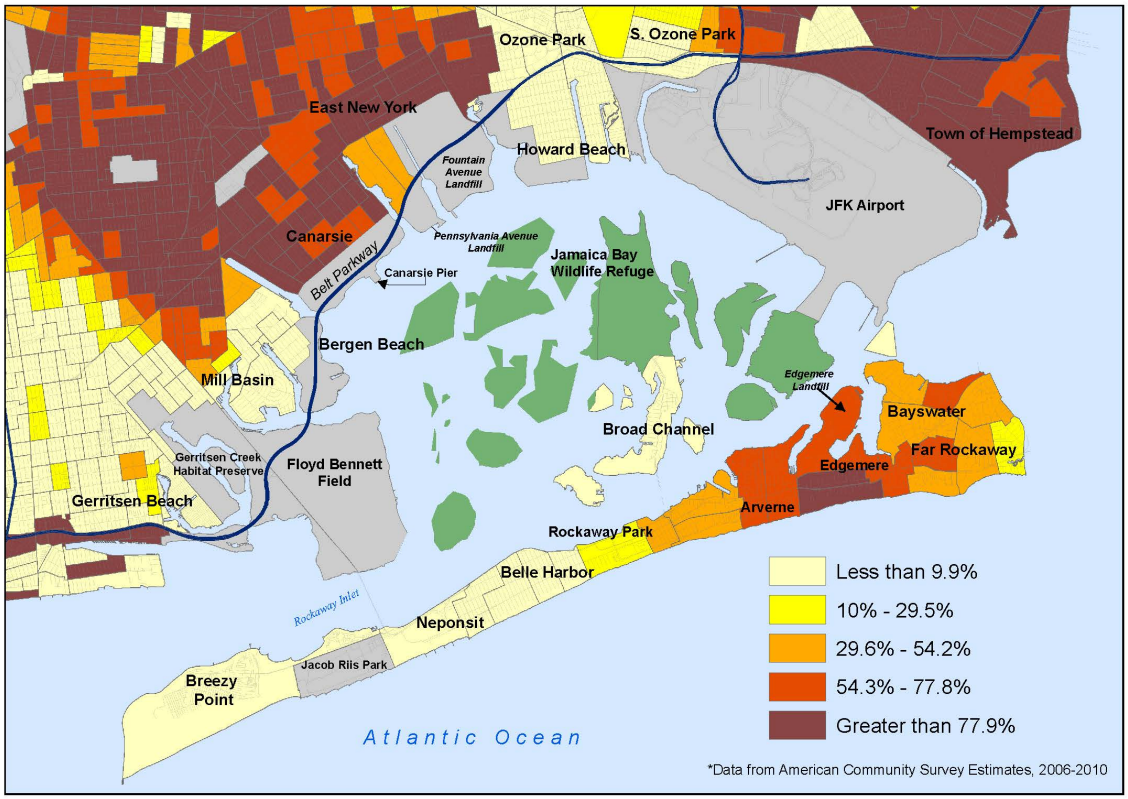


Figure 4.3 Percent Black Population by Census Tract, 2010

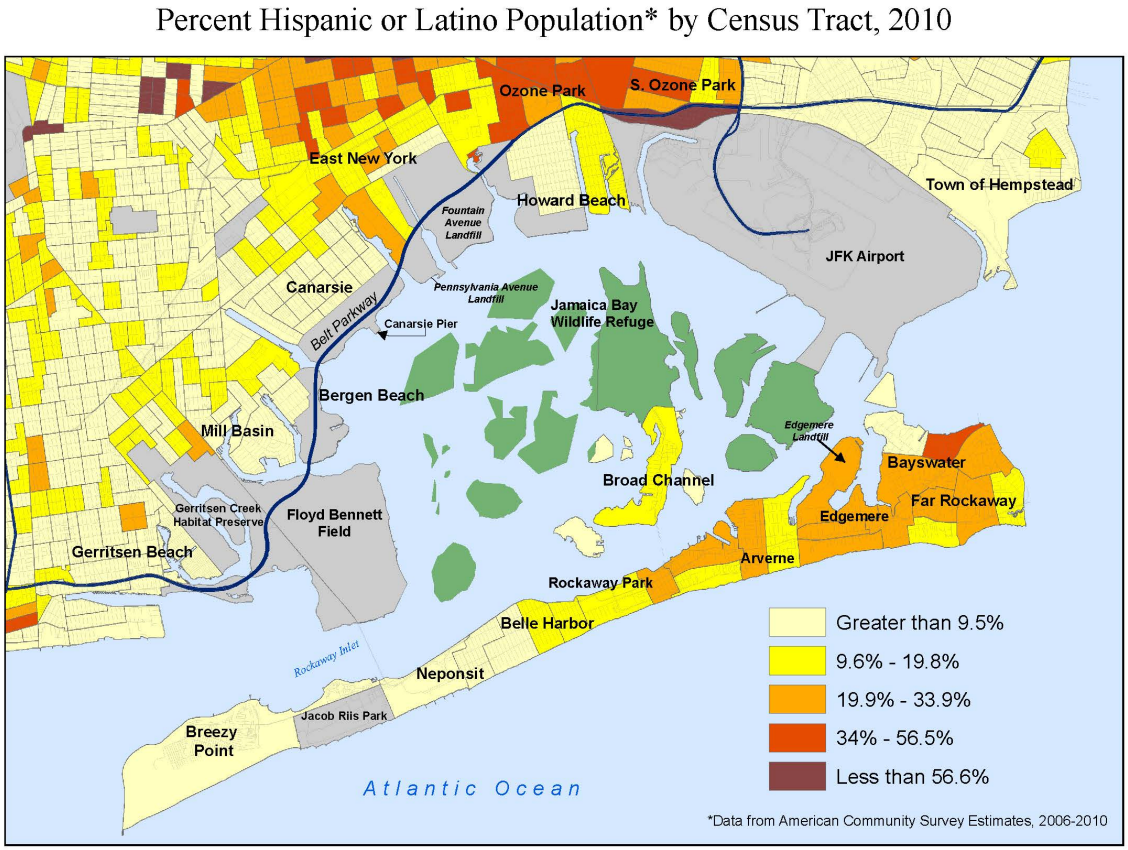


Figure 4.4 Percent Hispanic or Latino Population by Census Tract, 2010

Percent Asian Population* by Census Tract, 2010

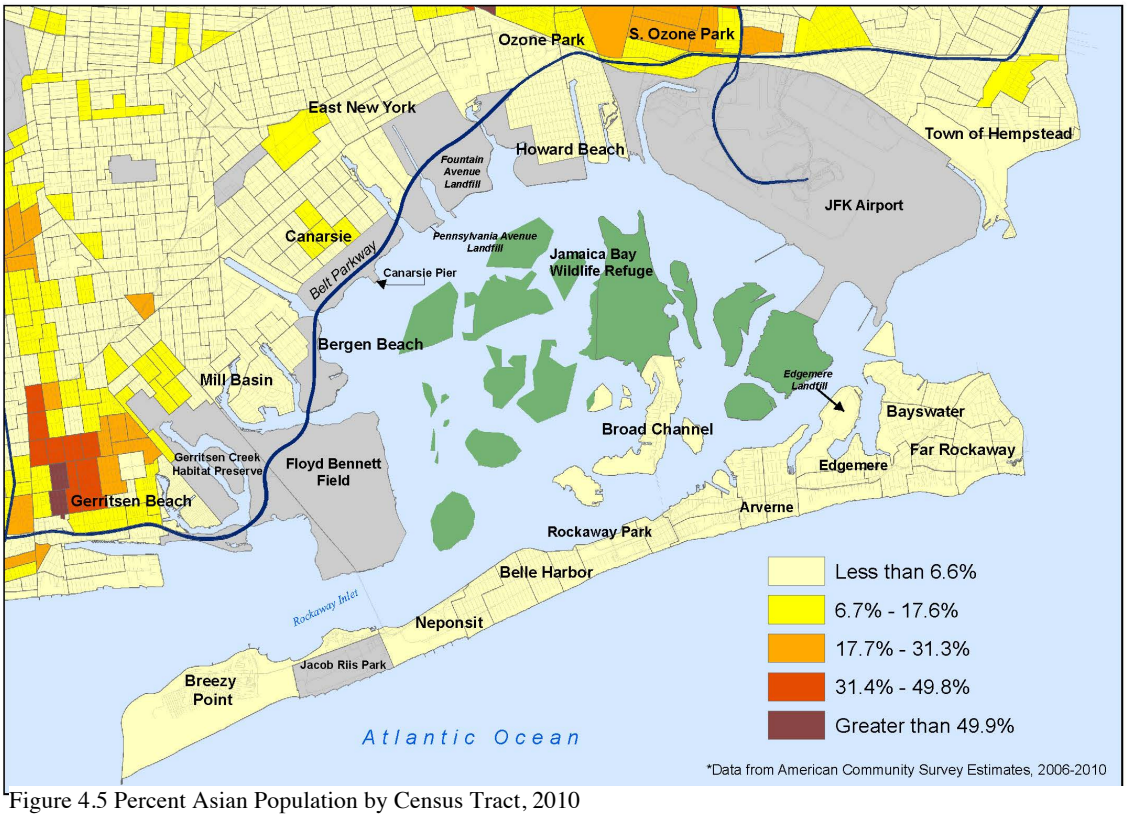


Figure 4.5 Percent Asian Population by Census Tract, 2010

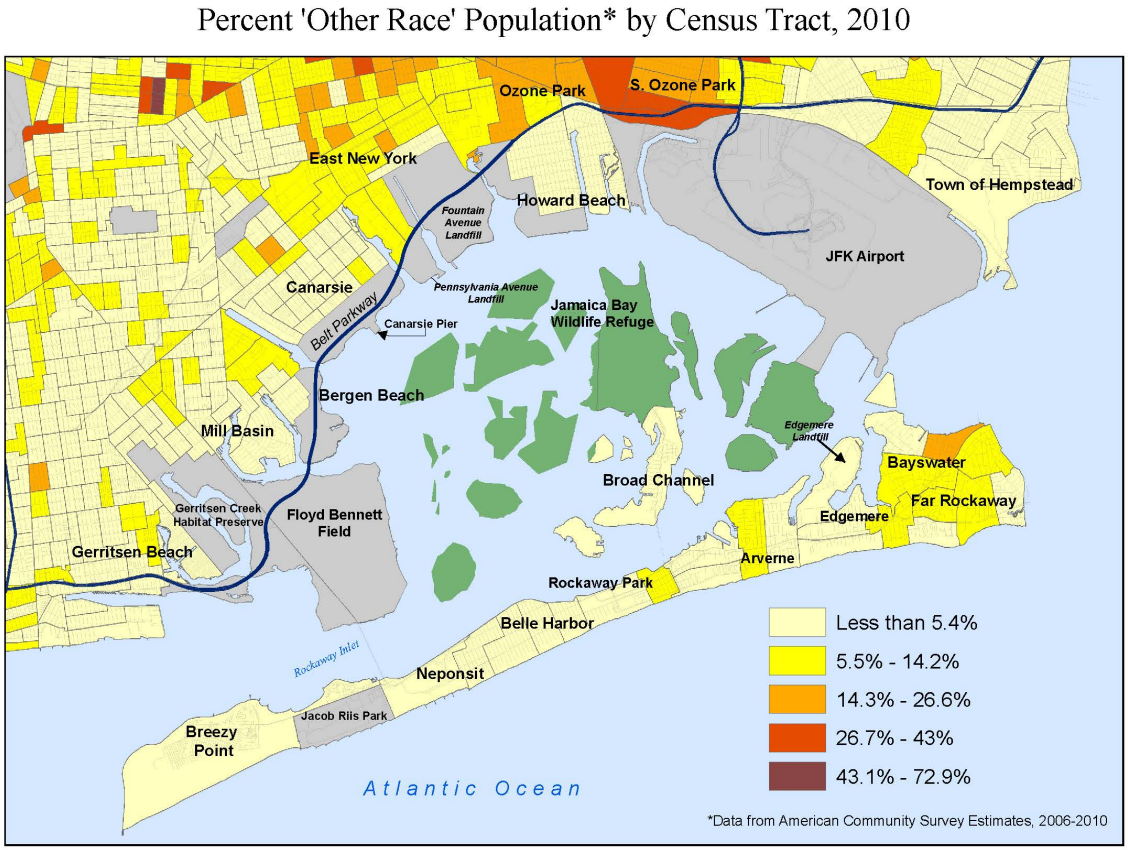


Figure 4.6 Percent "Other Race" Population by Census Tract, 2010

Native and Foreign Born

Percent Native Born Population* by Census Tract, 2010

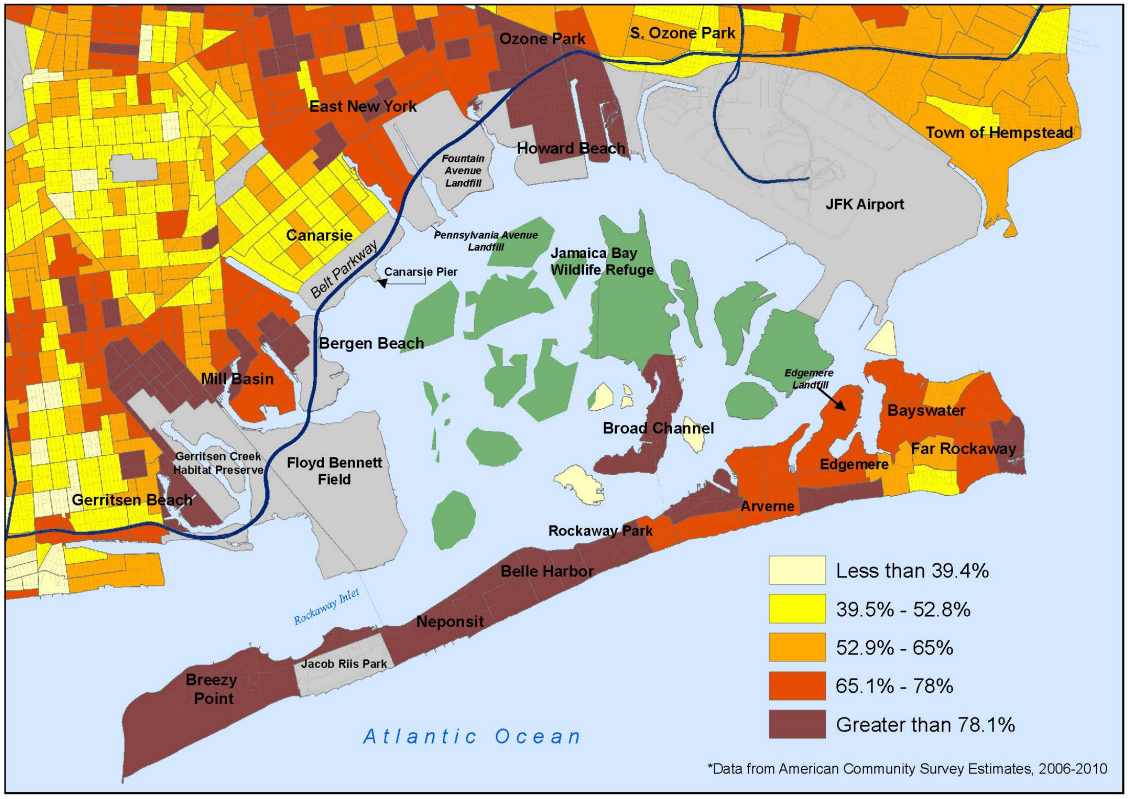


Figure 4.7 Percent Native Born Population by Census Tract, 2010

Percent Foreign Born Population* by Census Tract, 2010

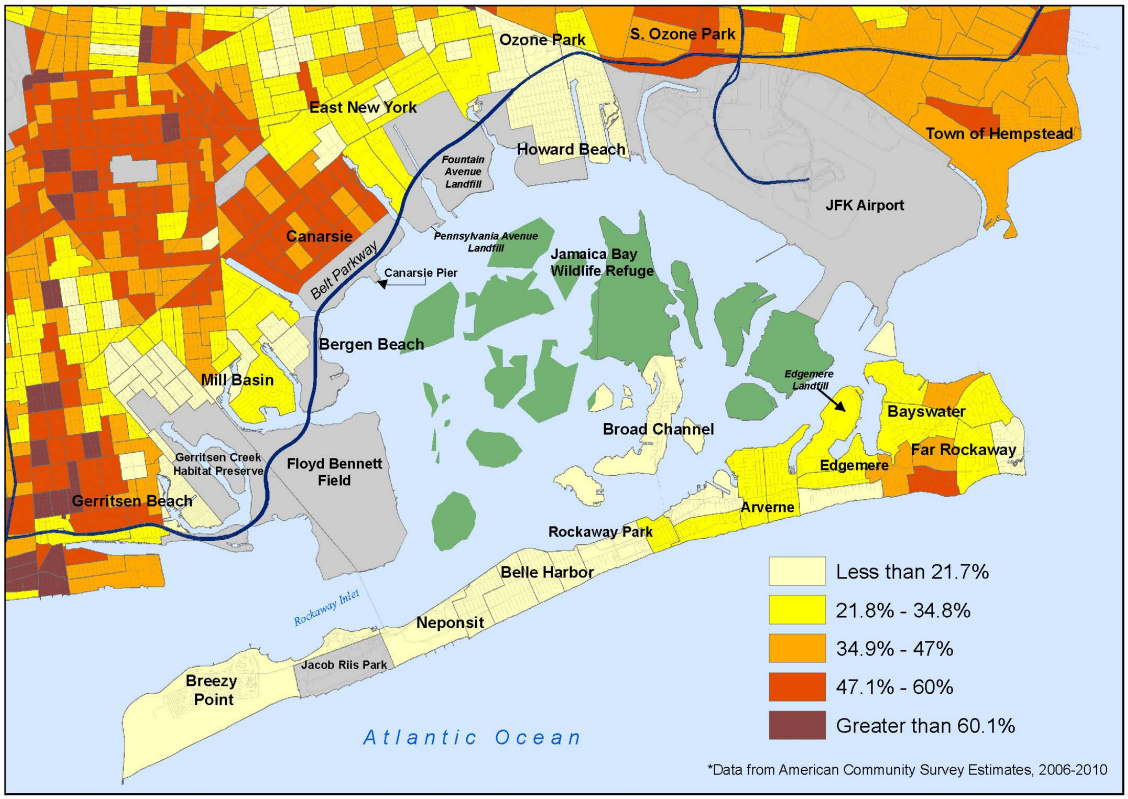


Figure 4.8 Percent Foreign Born Population by Census Tract, 2010

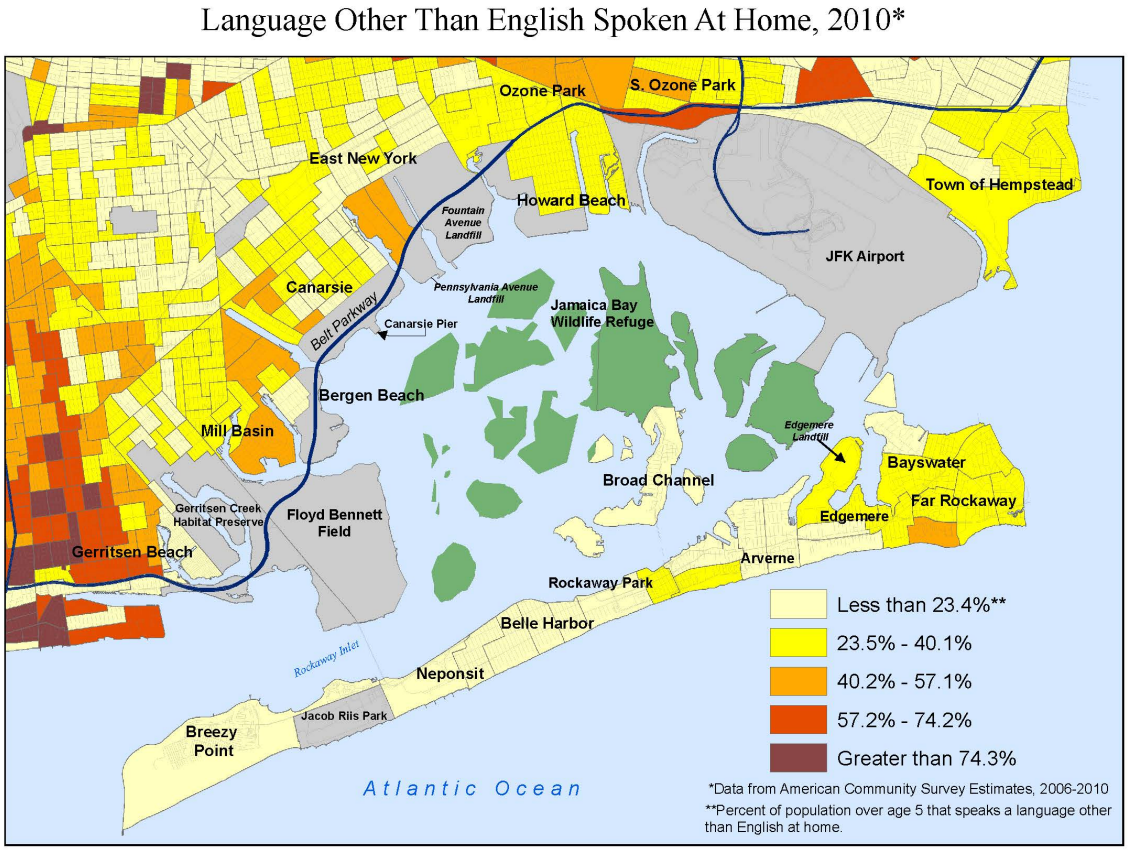


Figure 4.9 Language Other than English Spoken at Home 2010

Socio-economic Status

Median Household Income in U.S. Dollars* by Census Tract, 2010

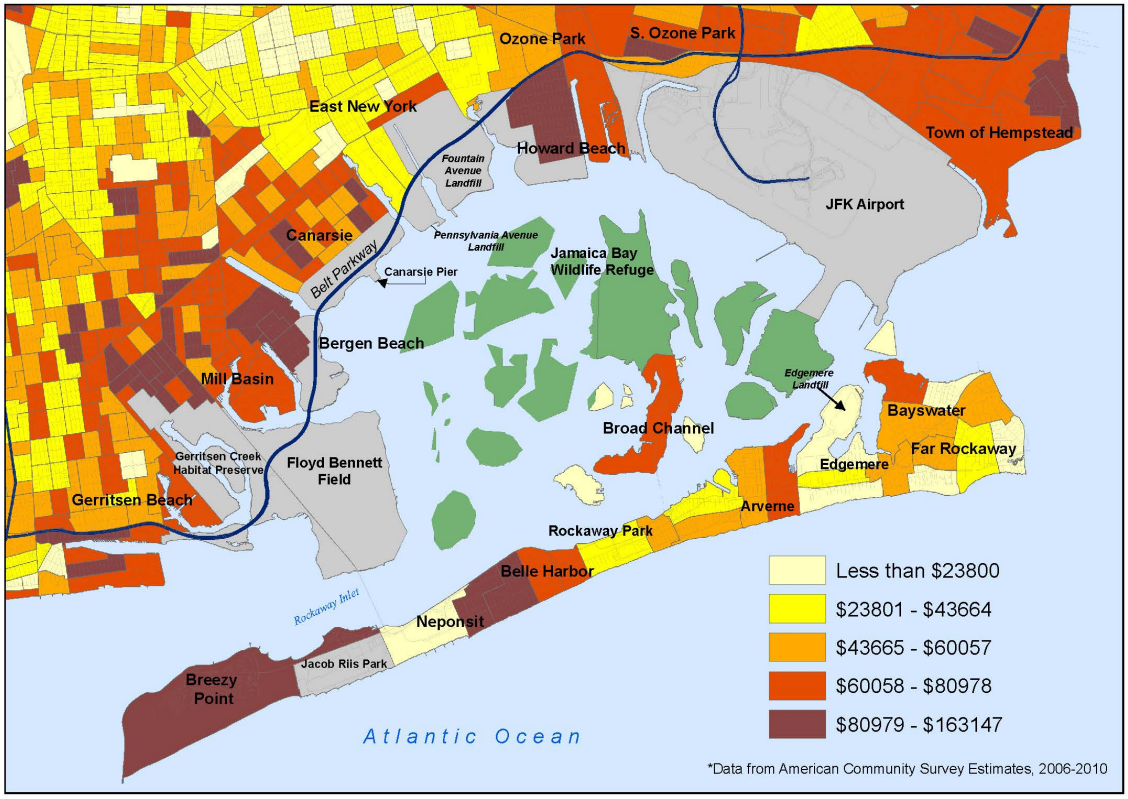


Figure 4.10 Median Household Income in US Dollars by Census Tract, 2010

Median Value of Owner Occupied Units in U.S. Dollars* by Census Tract, 2010

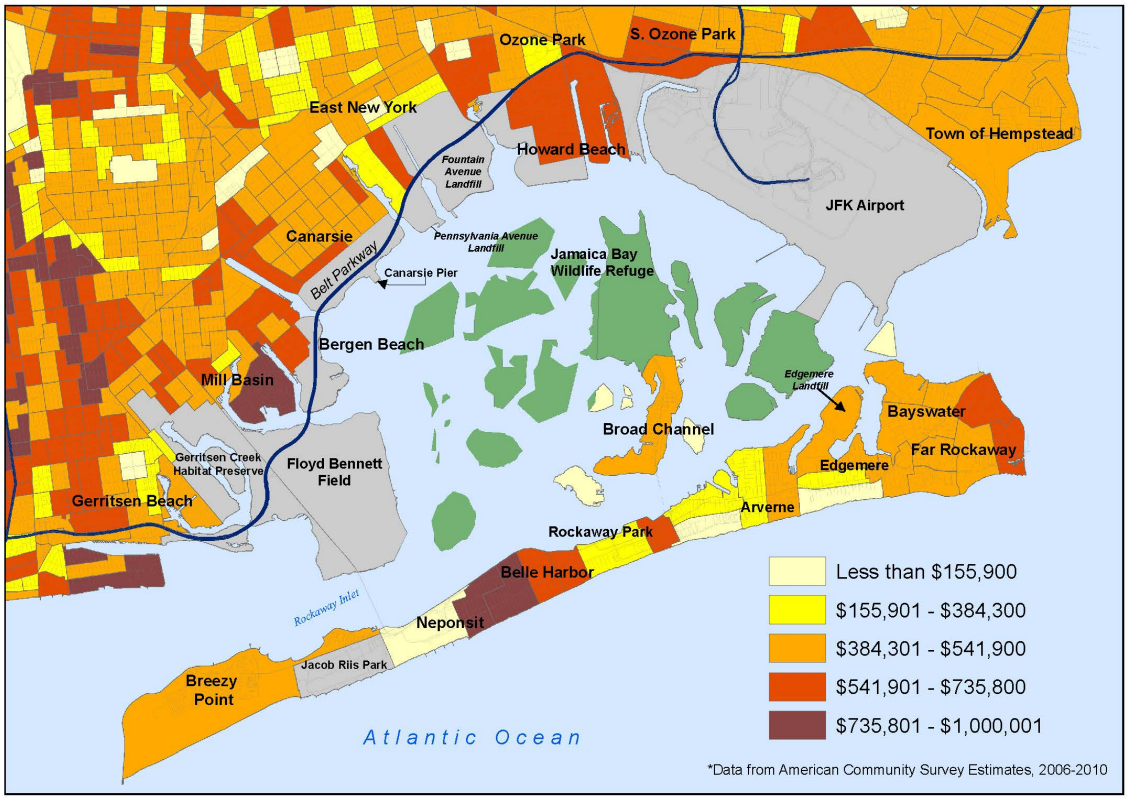


Figure 4.11 Median Value of Owner Occupied Units in US Dollars by Census Tract, 2010

Owner Occupied Units as Percent of Total Occupied Units,* 2010

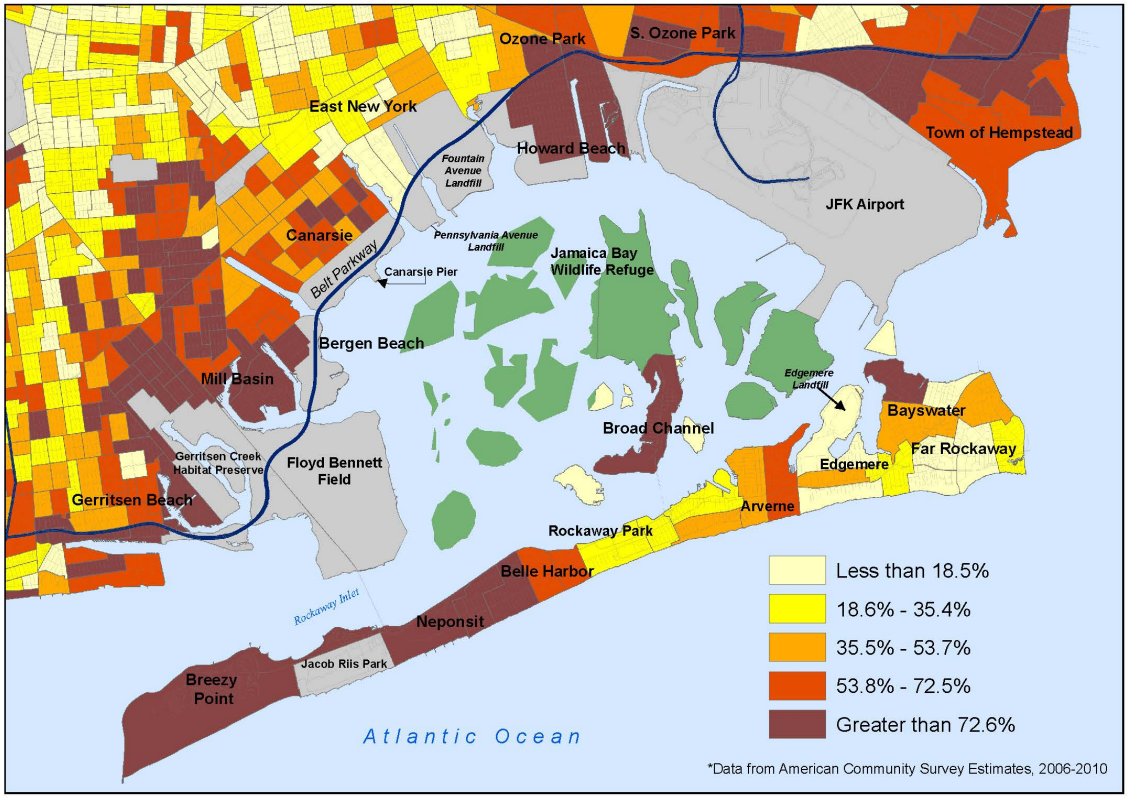


Figure 4.12 Percent Owner Occupied 2010

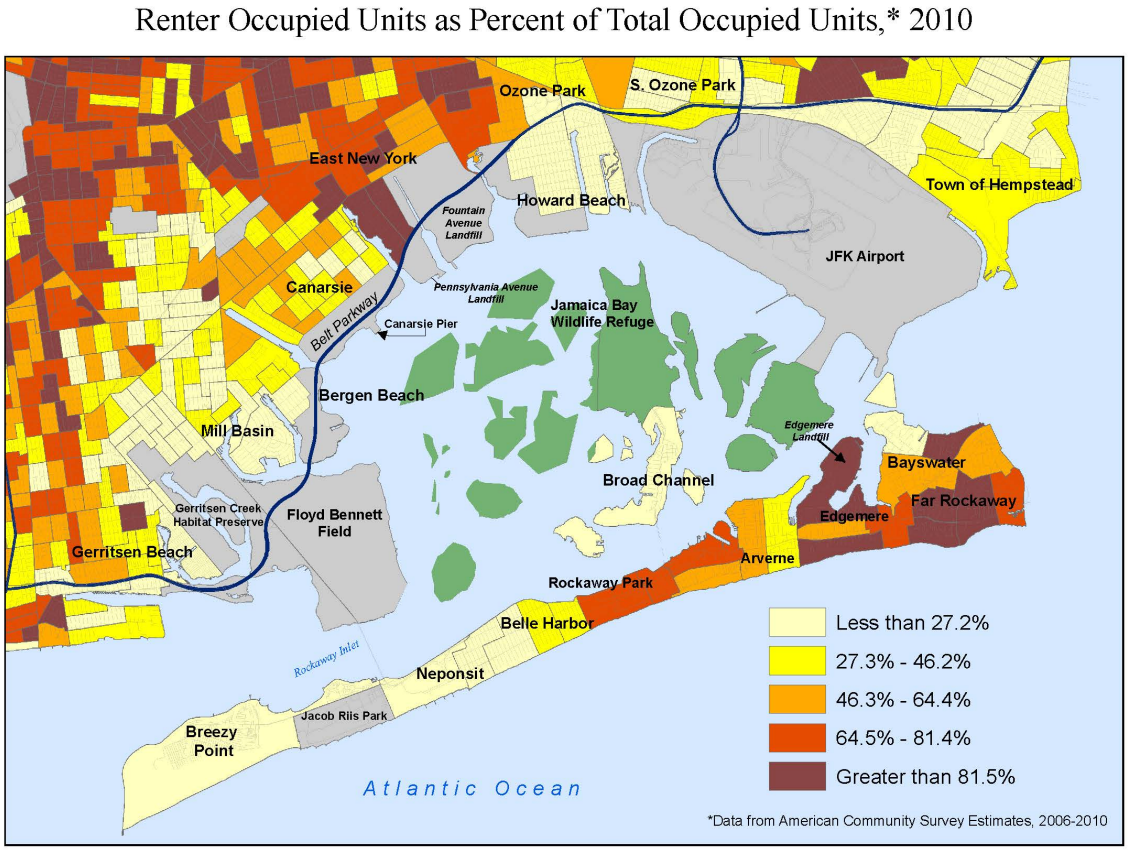


Figure 4.13 Percent Renter Occupied 2010

Gerritsen Beach:

Gerritsen Beach is a relatively isolated community surrounded by Shell Bank Creek and Gerritsen Creek on the sides and Plumb Beach to the South (on the other side of the Belt Parkway), while Knapp Avenue on the West, and Avenue U on the North hem in the neighborhood. *The New York Times* likens Gerritsen Beach to a New England fishing village, with its tiny streets and tightly packed homes (Cohen 2002). The neighborhood was originally part of Gravesend and had early tidewater mills, though it remained largely rural until the early 1900s. Private realty companies developed the area in the early 1920s as a summer resort spot, which was settled largely by Irish Americans (Jackson and Manbeck 1998; NPS 1979). Irish, Germans, and Italians came to dominate the neighborhood's population throughout the early to mid 1900s. Similar to other nearby neighborhoods, Gerritsen Beach underwent a development

boon in the post-WWII era, with roughly 47% of its current housing stock built between 1940 and 1960 (Census 2000).

In the 1970s, Gerritsen Beach remained a predominately White, Irish, middle-income residential community (NPS 1979: 70). According to the 1970 Census, Gerritsen Beach was 99.5% White, .1% Black, and .3% Other, non-White (NPS 1979: 69). Little changed by 1990, when Gerritsen Beach had a White population of 97.6%, with no notable Black population, a growing Asian population (1.8%), and an increasing Hispanic population (3.6%). In 2010, the census tracts closest to Jamaica Bay continue to be predominately white (nearly 78%), with blacks making up less than 10% of the population, Hispanics less than 9.5%, and a growing Asian population. In 2010, over 78% of the population in the census tracts nearest Jamaica Bay were native born, with many claiming Irish, German, or Italian ancestry. A local resident described her neighbors, ‘‘you are either Roman Catholic or Lutheran out here, and Norwegian, German, Irish or Italian." She continues, ‘‘we are firefighters, nurses, police officers, teachers, construction workers, electricians and plumbers" (Cohen 2002). For the census tracts nearest Jamaica Bay, the median household income in 2010 was between $60,058 and $80,978.

The streets of Gerritsen Beach follow alphabetical order and the housing stock consists primarily of single family converted summer bungalows that sit on small lots, roughly 40 by 45 feet in size, and two family brick housing, although there is a “New Section” that contains larger lots and bigger homes (See Images 4.2 and 4.3 Gerritsen Beach Housing). Many homes have waterfront access, particularly the older homes built along the outside perimeter of the neighborhood and along the tributaries that extend back into the neighborhood (See Image 4.4 Gerritsen Beach Waterfront Homes). In 2002, *The New York Times* reported that a boat slip added an additional $25,000 to $100,000 onto the asking price of a home. In 2012, the median

selling price for homes in Gerritsen Beach was over $430,000 (http://www.trulia.com/real_estate/Gerritsen_Beach-Brooklyn/5118/). One local real estate agent noted the slow turnover rate in housing, saying "Children take over their parents' house when the parents retire to Florida" (Cohen 2002).

Image 4.1 Housing off of Gerritsen Avenue in Gerritsen Beach Brooklyn. Photo Van Hooreweghe

Image 4.2 Two-family brick housing in Gerritsen Beach. Photo Van Hooreweghe

Image 4.3 Gerritsen Beach Waterfront Homes (http://runsbrooklyn.blogspot.com/2006/10/equine-surprises-in-gerritsen-beach.html, Accessed 7.25.2012).

For those without back door access to the water, residents can access Gerritsen Creek at the end of Gerritsen Avenue and in the area known as "The Weeds." "The Weeds" ring the edge of Gerritsen Beach Park and abut the shoreline (See Images 4.4 and 4.5).

Image 4.4 "The Weeds" at Gerritsen Beach. Beach space shrinks with high tide, as seen here. Photo Van Hooreweghe

Image 4.5 A Sunset view of "The Weeds" from the water. Photo Van Hooreweghe

"The Weeds" are a well used, albeit contested space in the neighborhood. Model airplane enthusiasts drive their cars, often large trucks, back into the area and local teens drive ATVs and

motorcycles to the chagrin of other residents (See Image 4.6). People also fish, boat, and swim from this area. At the center of Gerritsen Creek sits White Island, a former landfill site that received remediation funds as part of a tradeoff to develop the Gateway Shopping Mall along the

Image 4.6 Painted Rock in front of Gerritsen Beach Park Photo Van Hooreweghe

Belt Parkway.

Gerritsen Beach is home to Kiddie Beach, a private beach for members of the Property Owners Association. All Gerritsen Beach homeowners are welcome to join the Gerritsen Beach Property Owners' Association, founded in 1922. In 2002, a family pass to Kiddie Beach cost $250 for the summer. "The kids who grow up here are very fortunate because they learn to swim, to boat and to fish at an early age," said the group's president, Anne M. Dietrich. "They really have year-round vacations" (Cohen 2002).

Mill Basin and Bergen Beach:

On the other side of Gerritsen Creek, the neighborhoods of Mill Basin and Bergen Beach are bound to the South by Jamaica Bay, to the North by Avenue U, to the East by Paerdegat

Basin, and the West by Flatbush Avenue. Early in the 20th century, Mill Basin served as an industrial center and Bergen Beach remained tidal marshes. The tidal waves of Mill Basin were used to grind grain and operate mills. A lack of transportation to connect Mill Basin with the rest of Brooklyn led to its demise as an industrial center. Instead, after World War II, large companies, among them Atlantic, Gulf, and Pacific, sold their property and the area became primarily residential. Bergen Beach was not developed until the 1960s once more advanced dredging and filling technologies became available. Housing stock for the two neighborhoods is almost entirely single family and two family structures (84% in 2000), most of which (65%) was built between 1940 and 1970 (Census 2000).

In the 1970s, Mill Basin and Bergen Beach were white, Eastern European, Irish, and Italian, middle-income residential neighborhoods, with a significant portion of the population owning their own boats and docks (NPS 1979: 70). In 1970, the racial demographics for both Mill Basin and Bergen Beach were 99.3% White, .3% Black and .3% "Other non-White" (NPS 1979: 69).

In 1990, the census tracts immediately adjacent to Jamaica Bay continued to be predominately White (97%), with only .2% Black, 2.2% Asian, and 2.7% Hispanic. From 1990 to 2000, the adjacent census tracts in Mill Basin and Bergen Beach experienced population growth of 8.6% (the fourth highest rate of growth in the Jamaica Bay area). According to Census 2000, residents in the adjacent Mill Basin and Bergen Beach census tracts remained 91% White, with a growing Black population (4.6%), and Hispanic population (6.8%), likely a result of the expansion of the nearby Flatbush neighborhood. In 2010 in Mill Basin and Bergen Beach, over 78% of the population in the census tracts adjacent to Jamaica Bay were white. The two

neighborhoods have large Italian-American and Jewish populations as well as a smaller Irish population in Mill Basin.

Currently, Mill Basin is known as an upper-class neighborhood with large homes and waterfront properties. In 2010, in the census tracts adjacent to Jamaica Bay in Mill Basin, the median household income ranged between $60,058 and $80, 978, and in Bergen Beach the median household income was between $80,979 and $163,000. The *New York Times* describes the housing stock as "Arthurian castles" and "bulging ersatz Greek temples with wide stone staircases and portico-topped entries" (Hughes 2009). In 2010, the median value of owner-occupied housing in Mill Basin's census tracts adjacent to Jamaica Bay ranged between $735,801 and $1, 000, 001. Many of the homes back onto Mill Creek and are equipped with large boats and docks, and the Bergen Beach Yacht Club, and the Mill Basin Marina serve those

Image 4.7 Waterfront housing in Mill Basin. Photo Van Hooreweghe

who own boats, but do not have backyard access to the Bay. (See Images 4.7 and 4.8).

Image 4.8 Mill Basin Waterfront Housing Photo Van Hooreweghe

Public access to the waterfront in Mill Basin and Bergen Beach is limited to nearby Floyd Bennett Field, part of Gateway National Recreation Area. Additionally, as seen in the photos below, some people access the water behind the neighborhood's industrial and commercial development along Avenue U (See Image 4.9).

Image 4.9 A man from New Jersey fishes behind the Home Depot on Avenue U in Mill Basin. Note the different housing stock. Photo Van Hooreweghe

The District Manager for Community Board 18 indicated that the community generally, and the Community Board specifically, feel that more should be done to maintain the buildings and environs of Floyd Bennett Field. Specifically, the District Manager stated, "ruinous hangars, derelict buildings, and dilapidated roads abound. A cemetery of destroyed boats and debris mark the field's coast, and the legendary runway is now a barren pothole-ridden road (See Images 4.10 and 4.11). The park's surrounding waters are still polluted, visitor services are limited, and the loss of native species is widespread…Promoting commercialization (of the hangers) and excessive delegating of public responsibility to private concessionaires jeopardizes this natural feature" (Personal communication May 2008). Additionally, the Manager expressed concern

Image 4.10 Historic Hanger Floyd Bennett Field Photo
http://www.flickr.com/photos/jag9889/4227995733/lightbox/, Accessed July 2012)

about increased local traffic as a result of visitor use. The Board recommended that the "Department of the Interior restore Floyd Bennett Field and its water access to its original prominence."

Image 4.11 Abandoned Boat in Dead Horse Bay, Floyd Bennett Field Photo Van Hooreweghe

Canarsie:

Canarsie is sandwiched between Paerdegat Basin and Fresh Creek, bound on the North by Flatlands Avenue, on the South by the Belt Parkway, the other side of which is Jamaica Bay. Canarsie, originally part of the Dutch town of Flatlands, was named for the indigenous populations who originally inhabited the area. German immigrants arrived in the 1870s, and railroads led to a period of growth known for its beach resorts, hotels, and beer gardens. Jews and Italians moved into the area to buy summer homes in the early 1920s and began converting summer bungalows to year round living. The Depression was particularly difficult for Canarsie, and by the 1930s the area began to deteriorate (Jackson and Manbeck 1998). The Federal Writers' Project Guide to New York City wrote despairingly of 1930s Canarsie.

> Canarsie, from Foster Avenue to Jamaica Bay between Paedergat and Fresh Creek basins, is a sparsely settled community laid out on dispiriting flatlands, smoked over by the perpetual reek of fires in the vast refuse dump at its western end. Its residential section of one-and two-family houses and shacks (most of which resemble those in Charles Burchfield's paintings) is broken by weedy lots and small truck farms cultivated by Italians. Along the uninviting waters of the bay is

> a forlorn beach resort – an amusement park called Golden City, a fishing boat center, a beach backed by a dump, and beery dance halls – with an outlandish quality that made Canarsie the butt of many vaudeville jokes (Federal Writers' Project 1939).

Like other neighborhoods in the area, Canarsie underwent significant development in the post WWII era, with over 70% of its housing stock built between 1940 and 1970. During the 1960s, the neighborhood changed from its blue-collar orientation to a generation of more affluent Jewish and Italian residents, many who fled from nearby Brownsville and East New York as the neighborhoods became increasingly black[30] (Jackson and Manbeck 1998). However, similar tensions plagued Canarsie by the early 1970s, when a busing conflict raised serious racial tensions in the neighborhood[31]. Simultaneously, during the late 1950s and 1960s, the Canarsie waterfront suffered from economic disinvestment and the blight associated with pollution and garbage from nearby Pennsylvania and Fountain Avenue landfills, which opened in 1956 and 1961, respectively.

Since the 1970s, Canarsie has witnessed significant social and demographic transition. Rieder (1985: Pg. 19) describes the influence of Jamaica Bay in shaping the issue of residential integration:

> Most blocks were entirely white. Nonetheless, Canarsians felt vulnerable to encroachment from the black communities that form an arc stretching from E Flatbush to the northwest, through Brownsville due north, to East New York in the North east. Barriers of nature – Jamaica Bay to the south, Paerdegat Basin on western flank, and Fresh Creek on the eastern flank – protect Canarsie, but those same boundaries limit the residents' options of flight and expansion.

According to Census 1990, the census tracts immediately adjacent to Jamaica Bay were 84% White, with a significant Jewish population, 8.1% Black, 5% Asian, and 8.0% Hispanic.

[30] For a history of racial change in Brownsville, see Wendell Pritchett's (2002) *Brownsville Brooklyn: Blacks, Jews, and the Changing Face of the Ghetto*.
[31] For an excellent account of racial transition and tension in Canarsie, see Jonathan Reider's *Canarsie: The Jews and Italians of Brooklyn Against Liberalism* (1985).

During the ten year period between 1990 and 2000, the total population of the neighborhood increased by 23%, the fourth highest rate of growth in the Jamaica Bay area. Canarsie again underwent significant racial transition between 1990 and 2000, and again there was conflict. In 1991, *The New York Times* wrote about Wilfred and Agnes Phillips, a Grenadian-born couple who moved into Canarsie in 1990, only to have their house burned down the week before they were to move in (Rimer 1991). By 2000, the White population adjacent to Jamaica Bay declined to 22%, with the Black population rising to 65%, the Asian population remaining steady at 5.4%, and the Hispanic population rising to 9.7%. In 2010, the census tracts adjacent to Jamaica Bay in the Canarsie neighborhood were more than 78% black, with a significant foreign-born population (between 47%-60%), with many hailing from the Caribbean.

Canarsie has generally maintained its status as a lower-middle income community, but Canarsie has also seen some of the highest foreclosure rates in the city. In 2008, the Federal Reserve Bank of New York reported that the Canarsie zip code had the highest number of subprime mortgages in the city, at a foreclosure rate of 12% (Mooney 2008). In 2010, the median household income for the Canarsie census tracts adjacent Jamaica Bay was between $60, 058 to $80,978, with a median owner occupied housing value between $541,000 - $735,000. Roughly 70% of the housing stock consists of 2 unit or 3-4 unit brick buildings, the rest are largely single-family homes (24%) (See Images 4.12 and 4.13).

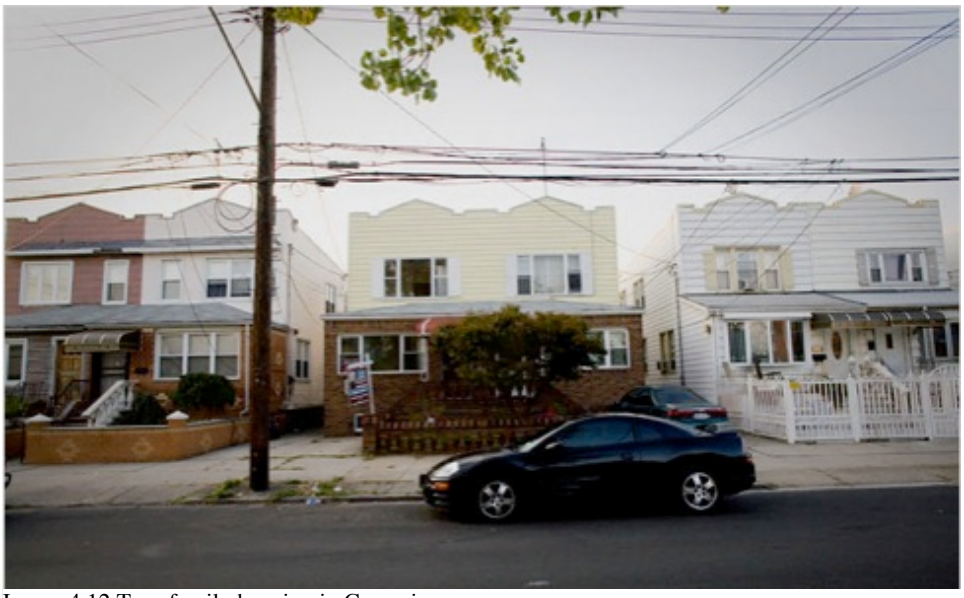


Image 4.12 Two-family housing in Canarsie

Image 4.13 Single Family Attached Home in Canarsie Photo
http://www.propertyshark.com/img/mkt_email/Neighborhood/Canarsie-House.jpg,
Accessed 7.2012

While some Canarsie streets dead-end into the creek, the homes are not built abutting the water, and a fence restricts on the ground access (See Image 4.14). On the eastern side of Fresh Creek is Starrett City, which is largely a Russian and Jewish middle-income housing development. Fresh Creek Park abuts the water on the Starrett City side (See Image 4.15).

Image 4.14 Waterfront Housing in Canarsie. The streets Flatlands 7 through Flatlands 9th have the same appearance. Maria Garrett (See Chapter 2) lives on one of these streets. Photo Google Street View

Image 4.15 Fresh Creek Park in front of Starrett City Brooklyn. Photo Google Street View

Canarsie Pier, part of Gateway National Recreation Area, provides the only means of direct access to the water. However, accessing Canarsie Pier is made difficult because the Belt Parkway severs the Canarsie neighborhood from the waterfront (See Image 4.15 and 4.16).

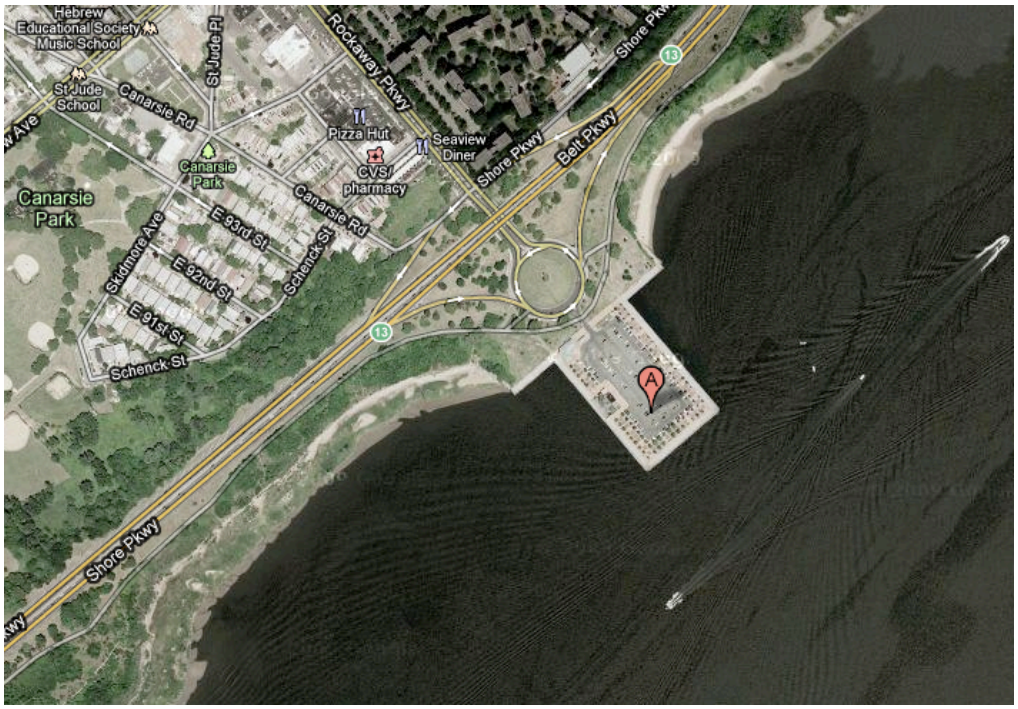


Image 4.16 Waterfront access to Canarsie Pier. The Pier is more easily accessible by automobile via the Belt Parkway than from the Canarsie neighborhood. Google Maps.

Image 4.17 Canarsie Pier Entrance, Photo Van Hooreweghe

Although there is no public boat launch, the National Park Service has recently introduced a summer kayak program at the Pier. Local residents and guests largely use the Pier for fishing and picnicking.

Image 4.18 Picnicking at Canarsie Pier Photo Van Hooreweghe

Image 4.19 Fishing at Canarsie Pier. In the distance, the green "hump" is the former Pennsylvania Landfill. Photo Van Hooreweghe

While the National Park Service prohibits swimming and wading, local residents are willing to test the waters, though there was less swimming observed at Canarsie Pier than at Gerritsen Beach or the neighborhoods of Broad Channel and Howard Beach in Queens.

Image 4.20 Prohibitions at Canarsie Pier Photo Van Hooreweghe

Image 4.21 Wading in waters near Canarsie Pier. The former Pennsylvania Avenue landfill is pictured in the back, Photo Van Hooreweghe

Image 4.22 Littered Shoreline of Canarsie Pier Photo Van Hooreweghe

The NYC DEP closed the nearby Pennsylvania and Flatland Avenue landfills and transferred them to the NPS in the early-mid 1980s. Currently, the landfills are undergoing transition to parkland. As discussed in Chapter 3, the Fresh Creek area of Canarsie is poorly maintained. According to Maria Garrett, prior to their efforts to cleanup the Fresh Creek area, the weeds were so bad that some Canarsie residents did not know that Fresh Creek was part of their neighborhood and did not know about Spring Creek on the other side. When asked if others on her block had a similar appreciation for Fresh Creek and Canarsie, Maria Garrett answered:

> No, not very many. Because they're not that close to the water and the preserve. They didn't know that it is supposed to be a preserve and that's there supposed to be plenty of beautiful flowers and trees. They thought it was supposed to be weeds and the jungle that is out there. So once they see that it is supposed to be a preserve with green and they are not supposed to be (weeds) 6 ft. or 8 ft. tall. Some say, "I didn't know Starrett City was right across." Some people walking down 108th that don't live by the water didn't even know that there was a creek on that side because the bushes were so high.

Although the Garrett's have done important work to improve the Fresh Creek Preserve, it is not clear what citizens' roles will be when restoration is complete

East New York:

At one time, the neighborhood of East New York extended to the shoreline of Jamaica Bay, before the city cut off direct access to the Bay by building the Belt Parkway and the Pennsylvania and Fountain Avenue landfills. Originally part of the area called Ostwout (east woods), the early Dutch settled and farmed the area, which remained primarily rural until the mid-to-late 1800s. East New York expanded during the 1920s when railroads reached the neighborhood. By 1940, the neighborhood was densely populated by Italian, Jewish, German, and Russian immigrants (Federal Writers' Project 1939). Similar to other urban centers during the 1950s and 1960s, East New York suffered from economic disinvestment, racist real estate practices, and rapid White flight from the neighborhood as increasing numbers of blacks and

Latinos moved in. As a result of disinvestment and rapid transition, the neighborhood experienced overcrowding, high crime rates, high unemployment, and widespread social unrest and instability (Jackson and Manbeck 1998).

The collective efforts of local churches, community groups, homeowner associations, and activist groups during the late 1970s and 1980s brought improvements to the neighborhood, most notably the construction and rehabilitation of its housing stock. Local congregations facilitated the development of over a thousand Nehemiah Houses, a set of pre-fabricated two-story row houses. Despite the housing improvements, overcrowding continued to be a problem and drugs and violence permeated neighborhood streets (Jackson and Manbeck 1998).

Image 4.23 Nemiah Houses in East New York Brooklyn. Photo http://www.startsandfits.com/images/east_new_york_nehemiah_2.jpg, Accessed July 2012

In 1990, the East New York census tracts closest to Jamaica Bay were 35.2% White, 53.0% Black, 4.4% Asian, 7.2% "Other," and 15% Hispanic. In 2000, the neighborhood had 34% of the population living below the poverty level. According to Census 2000, the census tracts were 25% White, 62% Black, 2.6% Asian, 7.1% "Other," and 16.7% Hispanic. East New York is the only neighborhood in the Jamaica Bay catchment area to experience population

decline from 1990 to 2000, losing 4.5% of the population. In 2010, the East New York census tracts closest to Jamaica Bay were more than 78% black, with a foreign-born population ranging between 22% and 25%, with a large population from the Caribbean and Latin American countries. In 2010, the census tracts adjacent to Jamaica Bay had a median household income between $23,801 and $43,664. Between 46% and 65% of the population in the adjacent census tracts rent and the median value of owner-occupied units range between $155,901 and $384,3000.

Since the 1990s, local activists and community organizations have built extensive community gardens, bringing fresh produce to a traditionally underserved population. Additionally, community-policing programs have reduced crime and drug-use in the neighborhood. Despite efforts to reduce crime, in 2011, the East New York precinct had the highest number of murders and robberies in the city (Robbins 2012).

Although an early fishing community, much of the neighborhood's waterfront was reclaimed for residential development, to create the Belt Parkway, for landfill, and to build the Gateway Shopping Center (See Images 4.23). One resident commented on a recent news story about access to the Bay from East New York:

> It never ceases to amaze me that stories regarding Jamaica Bay almost invariably focus on Broad Channel and the Rockaways. Although the Bay borders on Brooklyn that borough gets a single word mention in this most recent article. The economic and racial biases are telling. New Lots, Brooklyn once had a thriving economy based on its proximity to Jamaica Bay. Tagged as an inner city community, its historic sites have become unworthy of mention. Having the NYC DEP address the environmental issues is akin to the proverbial "giving the fox the key to the hen house." Apart from its illegal facility on the Bay, it and the NYC Department of Sanitation have together destroyed this section of the Brooklyn waterfront. They have never been called into account (08.05.08).

Currently, the Pennsylvania and Fountain Avenue landfills are being redeveloped as parkland, and are set to open in the next few years.

Image 4.24 Closest point to Jamaica Bay for East New York residents. Jamaica Bay is on the other side of the Belt Parkway and the Fountain Avenue landfill, pictured above. Photo Google Street View

Howard Beach (Hamilton Beach, Ramblersville, Old Howard Beach), Queens

Over the Kings County border and Old Mill Creek sits the Queens' neighborhood of Howard Beach and its micro-neighborhoods of Hamilton Beach and Ramblersville. Developer William Howard built the area's first hotel in 1899 on the shores of Grassy Bay, part of Jamaica Bay. The area was dubbed "Little Venice" because of all the meandering creeks. The resort burnt down in 1907 and William Howard began building what is today known as Ramblersville, a stilt community overlooking the water.

Like much of the other Jamaica Bay neighborhoods, the Howard Beach area developed rapidly in the post-WWII era, with 70% of its housing stock built between 1940 and 1970 (Census 2000). The Federal Writers' Project described the area in 1939, "As in much of

Brooklyn and Queens, the architectural monotony of block upon block of boxlike frame and brick houses, some fronted by a patch of lawn, lends to these communities a prosaic suburban air" (pg. 587). Much is the same today, where the neighborhood of Howard Beach contains one and two family homes, and those along the outer streets contain docks and boats (See Image 4.24 and 4.25). For those without backyard access to the water, there are several yacht clubs and nearby marinas that service the area.

Image 4.25 Howard Beach Housing Photo Van Hooreweghe

Image 4.26 Close-up view of Howard Beach housing with water in background. Photo Google Street View

Sandwiched between Shellbank Basin and Hawtree Creek is the neighborhood of Hamilton Beach, often referred to as old Howard Beach, which contains primarily single family and two-family housing, much of it with docks and boats. Hawtree Creek separates the neighborhood of Hamilton Beach and Ramblersville, or old Hamilton Beach. The homes in Ramblersville are less

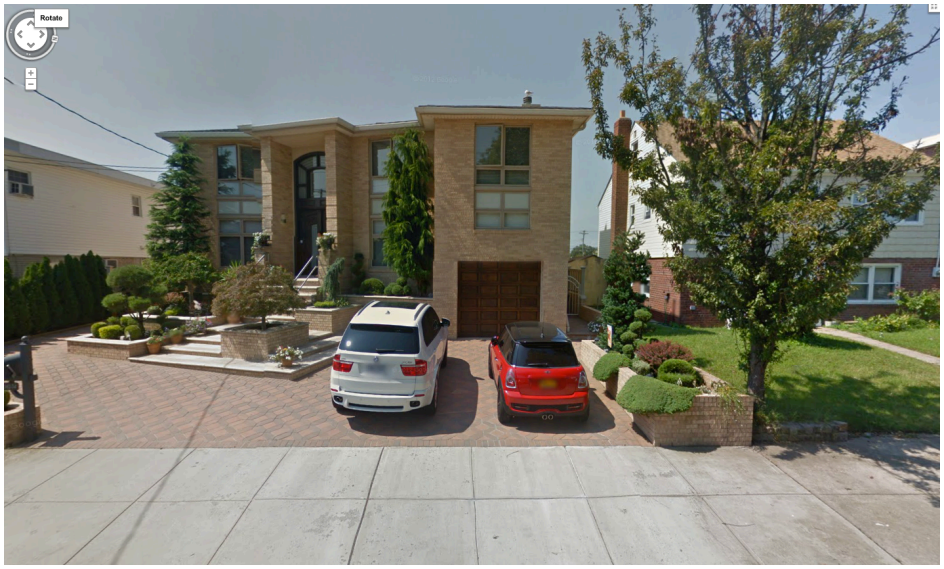


Image 4.27 Housing Stock in Old Howard Beach or Hamilton Beach. Although not apparent from this picture, the back of this house overlooks the water. Photo Google Street View

Image 4.28 Hamilton Beach Sign. This sign sits on the only vehicular entry into Old Hamilton Beach or Ramblersville. The neighborhood is also accessible via a footbridge from Hamilton Beach. Photo Van Hooreweghe

extravagant than those in Howard and Hamilton Beach and sit on small, tightly cramped streets. Much of the housing is converted summer bungalows that sit on stilts overlooking Hawtree Creek and the other small creeks that cut back about a half mile into the neighborhood. Often wooden boardwalks connect the houses, as opposed to sidewalks, and there are at least 2 yacht clubs and marinas that service the area.

Image 4.29 View of a house in Ramblersville from across Hawatree Creek in Hamilton Beach. Photo Van Hooreweghe

Image 4.30 Image of Ramblersville Street. Photo Van Hooreweghe

In the 1970s, Howard Beach and surrounding neighborhoods were predominantly White, with a large Italian, Irish, and Jewish population. In 1990, 95.3% of the population was White, with 1.1% Black, 2.1% Asian, and 5.9% Hispanic. The total population of the census tracts nearest Jamaica Bay grew 2.5% between 1990 and 2000, the lowest growth rate of any community in the Jamaica Bay area. In 2000, Howard Beach continued to be a predominately White (92.5%), largely Italian (46%) residential community, with a small, but growing minority population. In 2000, 1.0% of the population was Black, but 2.8% of the population was Asian and the Hispanic population had increased 70% to 9.8% of the population. In 2010, more than 78% of the population in the census tracts adjacent to Jamaica Bay was native-born whites. In these same tracts, the median household income ranged between $80,979 and $163,143, with a median household value between $541,901 and $735,800.

For those without private access to the water, there is access to the water at Frank Charles Memorial Park, Hamilton Beach Park, and the North Channel Bridge, all of which are part of the Gateway National Recreation Area.

Image 4.31 North Channel Bridge Area, part of Gateway National Recreation Area. Photo Van Hooreweghe

The Chair of the local Community Board 10 stated that the community feels there is a "lack of maintenance, lack of information, lack of improvements, and lack of security" around the neighborhood's Park resources (Personal communication March 2010). Particularly, the community believes the "undeveloped areas" on the Western side of Cross Bay Boulevard pose a fire hazard because of unmaintained wetlands. Additionally, local residents believe that the site serves as a homeless encampment and a site for illegal activities. The community actively uses the Frank Charles Memorial Park and the Hamilton Beach Park for little league games and local festivals, but laments the lack of maintenance, such as lack of garbage pails and adequate bathrooms.

Ozone Park and South Ozone Park:

Along the shores of Jamaica Bay, a music publisher and developer established the Ozone Park and South Ozone Park neighborhoods in the late 1880s (Copquin 2007). By the early 1900s, the area was an Italian, Irish, and German working-class neighborhood. Before 1940, there were two racetracks, the Aqueduct Racetrack, which remains today, and the Jamaica Racetrack, and many of the Ozone and South Ozone Park residents worked at the facilities (Federal Writers' Project 1939). Most of the neighborhoods' housing was built before 1960 (37.5% before 1939 and 36.5% from 1940-1959, US Census 2000). In 1990, the census tracts nearest Jamaica Bay were 89.9% White, 1.5% Black, 3.9% Asian, and 12.6% Hispanic. From 1990 to 2000, the census tracts nearest Jamaica Bay experienced population growth of 28%, the second highest rate of growth in the Jamaica Bay area. In 2000, the census tracts nearest Jamaica Bay had changed to 60% White, 3.0% Black, 11.3% Asian, and 28.7% Hispanic (an increase of 191%). In the adjacent census tracts, 40% of the population was foreign-born, with a substantial Guyanese and Dominican population. A significant Italian presence remains in

Ozone Park and there are a number of Italian-American businesses along 101st Avenue, a main commercial thoroughfare.

In the area of South Ozone the 1990 census tracts nearest Jamaica Bay were 57% White, 26.1% Black, 7.5% Asian, 8.5% "Other," and 22.1% Hispanic. From 1990 to 2000, the total population in the census tracts adjacent to Jamaica Bay grew by 27%, the third highest growth rate in the Jamaica Bay area, and the adjacent census tracts changed significantly, with a White population of 28.2%, a Black population of 24%, an Asian population of 14.6%, an 'Other' population of 17.7%, and a Hispanic population of 25.6%. South Ozone Park is also home to a large foreign-born population, with large numbers of Guyanese, Jamaica, and Dominican population. In 2010, in the census tracts closest to Jamaica Bay in Ozone and South Ozone Park, between 35%-60% of the population was foreign-born and between 40% and 74% of the population speak a language other than English at home.

Although once developed for its proximity to Jamaica Bay and its fresh air, the Ozone Park and South Ozone Park neighborhoods were blocked from the Bay with the construction, in 1943 of Idlewild Airport.

Image 4.32 Remnants of Ozone Park Waterfront on JFK Airport property. Photo: Google Street View

Broad Channel

Broad Channel is the only inhabited island in Jamaica Bay and is an isolated, boating and fishing community. In 1880 the railroad crossed Jamaica Bay and in 1881, Broad Channel became a stop on the railroad. During Prohibition, Broad Channel was known as "Little Cuba" because rumrunners frequently sought refuge on the island (Federal Writers' Project 1939).

Broad Channel has long been a summer time stopover. The Federal Writers' Project describes the neighborhood's character in the late 1930s.

> At present a great many people stop at Broad Channel in the summer, and fish, mostly with improvised lines, from the two bridges at either end of the island…In other sections long rows of ramshackle buildings lean over the water on their uncertain stilts. Poverty and decay marks the dirt streets and battered houses whose gardens are decorated with mounds of bleached shells. Men in sailor caps and dungarees tinker with boats, and housewives may be seen working over kerosene stoves. The sea has played many pranks with Broad Channel. Hard northeasters have bashed in fisherman's huts and sent roofs spinning into the Bay. (Pg. 590).

Broad Channel has long been a predominantly Irish, middle-class neighborhood and is home to a significant number of New York City firefighters, police offers, and civil service employees. Channelites, as they are commonly known, have long-term relationships with the Bay and have been a vocal constituency in shaping Park policies.

Creation of Gateway National Recreation Area and subsequent negotiations with the City of New York allowed homeowners in Broad Channel, who formerly paid ground rent to the City, to gain deeds to the property on which their homes are built. This change has permitted the growth of a more active real estate market on the island than existed before the creation of the GNRA. In consequence, the population of Broad Channel may be experiencing demographic changes that promise to alter the traditional culture of the island neighborhood. In 1990, Broad Channel was 99% White, .08% Black, and 1.6% Hispanic. From 1990 to 2000, Broad Channel's population grew 5.9%. According to Census 2000, Broad Channel was 97.3% White and 4.9%

Hispanic. In 2010, the Broach Channel census tracts were more than 78% white, with a median household income ranging between $60,058 and $80,978.

Housing in Broad Channel is modest, however, as newcomers are able to purchase land in the neighborhood, more lavish homes have been built on the neighborhood's narrow streets. In 2010, median household value for owner-occupied housing in Broad Channel ranged between $384,000 and $541,900. While the water's presence is felt throughout the island, houses on the Western side of the neighborhood have direct access to the open waters of Jamaica Bay and experience the intrusion of the Bay's tributaries. Across Cross Bay Boulevard, the Eastern side of the neighborhood has fewer streets and the A-Train station limits the number of people with

Figure 4.33 View of Broad Channel side street, looking at Cross Bay Boulevard Photo Van Hooreweghe

waterfront access from their homes. There are also several marinas and yacht clubs that service the area.

Image 4.34 Broad Channel Subway Station. The Bay is on the other side of the subway tracts. Photo Van Hooreweghe


Image 4.35 View of Broad Channel from the nearby Wildlife Refuge. Photo Van Hooreweghe

Rockaway Peninsula (Edgemere, Far Rockaway, Arverne, Hammels, Rockaway Park, Neponsit, Belle Harbor, Breezy Point)

Jamaica Bay separates the Rockaway Peninsula from mainland Queens. The Cross Bay Veterans Memorial Bridge connects the middle portion of Rockaway peninsula to mainland Queens and the Marine Parkway - Gil Hodges Memorial Bridge connects the western portion to mainland Brooklyn. Rockaway residents, both East and West, believe there is a different culture and way of life on the peninsula than on "the mainland" and feel that city officials and other policy-makers frequently overlook Rockaway.

Initially, the Rockaway peninsula was developed as a summer resort serving a wealthy population in its hotels and mansions and later a middle-income population with small summer bungalows (NPS 1979: 69). After World War II, the Rockaway Peninsula became less attractive as a summer resort and local housing began to deteriorate. White residents fled the area in large numbers when the city began developing several public housing projects. During the 1950s and 1960s, large areas were bulldozed for urban-renewal projects, many of which went undeveloped for years, leaving a blighted landscape.

The Eastern portion of the peninsula, comprised of Edgemere, Far Rockaway, Arverne, and the Hammels, most vividly reflects the area's recent struggles with urban renewal and development. The area is home to at least 5 public housing projects, including Hammels Houses, Redfern Houses, Beach 41st Houses, Carlton Manor, and the Ocean Bay Apartments, previously known as the Edgemere Houses and the Arverne Houses. The Edgemere Houses are notorious for having one of the highest homicide rates in the city's housing projects (Copquin 2007).

Over the past ten years, a flurry of development has occurred on the Eastern edge of the peninsula. The city and private companies have built or started construction on thousands of multi-family condominiums and high-rise apartment complexes. Nonetheless, Rockaway

development continues to stall and a local official deemed Rockaway the "ground zero" of the recent foreclosure crisis. A number of unsold housing units are increasingly being used to house the formerly homeless so developers can recover part of their lost investment.

In 1990, the census tracts nearest Jamaica Bay in Eastern Rockaway were 37.8% White, 51% Black, 1.9% Asian, 8.9% "Other," and 17.9% Hispanic. From 1990 to 2000, the population of the census tracts adjacent to Jamaica Bay in Eastern Rockaway grew by 40%, the highest of any community in the Jamaica Bay area. According to 2000 Census, tracts nearest Jamaica Bay in Eastern Rockaway were 57% Black, 19% Hispanic, 2.0% Asian, 9.0% "Other," and 26.0% White. The Far Rockaway and Edgemere communities have a large and diverse foreign-born population (between 22% and 47%), with a substantial Jamaican, Guyanese, and Central American population. In Far Rockaway, near the towns of Lawrence and Inwood, is a large Haredi Jewish population.

The Western Rockaway Peninsula is made up of the neighborhoods of Belle Harbor, Neponsit, Rockaway Park, and Breezy Point. The NPS 1979 GMP described Belle Harbor and Neponsit as upper-middle class, largely Jewish settlements, with some of the most desirable housing in Queens and a large, elderly, institutionalized population living in well-maintained homes for the aged (pg. 69). Nearby Breezy Point is an enclave community consisting of a gated year-round cooperative. The area is popularly referred to as the "Irish Riviera," with over 60% of the population claiming Irish ancestry. However, Italian and German families are moving into the area (Copquin 2007).

In 1990, the Western Rockaways were 95% White, 3.0% Black, 1.3% Asian, and 3.3% Hispanic. From 1990 to 2000, the Western Rockaway population grew 4.6%, the third lowest in the catchment area. In 2000, the area was 92% White, 2.7% Black, 2.0% Asian, and 5.8%

Hispanic. Roughly 12% of the Western Rockaways were foreign-born, of which 18.5% were Irish, 9.3% were Polish, 7.5% were Israeli, 7.0% were Filipino, 4.5% were Russian, and 3.8% were Italian. In 2010, the Western Rockaways were more than 78% white, with a median household income between $80,979 and $163,147. In the neighborhoods of Neponsit and Belle Harbor, the median value of owner-occupied housing was between $735,881 and $1,000,001 while in the gated cooperative of Breezy Point median household value was between $384,301 and $541,900.

Waterfront access on the Rockaway Peninsula is oriented primarily to the ocean side of the peninsula. At some point before the 1960s, a seawall was built on the Bay side of the peninsula that extends from the Cross Bay Boulevard Bridge in Queens down Beach Channel Drive to the Gil Hodges Memorial Bridge blocking direct access to the water between these two bridges.

Image 4.36 View of the Seawall along Beach Channel Drive and Beach 132nd St. Photo Google Street View

However, several people continue to fish, either from the other side of the seawall or by crossing the seawall to the Bay's shores. On the Eastern end of the peninsula, past the Cross Bay Boulevard Bridge, industrial development and the former Edgemere landfill line the Bay's shore. DuBos Point is a "wildlife sanctuary" in Eastern Rockaway that has not received adequate environmental maintenance.

Image 4.37 DeCosta Avenue and Beach 63rd Street, the nearest intersection to DuBos Point. Photo http://queenscrap.blogspot.com/2009/05/this-is-wildlife-sanctuary.html

An article titled, "*This* is a wildlife sanctuary?" on a local blog "Queens Crap" prompted an email correspondence that warrants quoting at length to illustrate how this experience of the Bay contrasts with those discussed in Chapter 3.

BK woman 1: Bernie Blum was always troubled by the conditions at DuBos Point. Plumb Beach has been getting some well-deserved cleanups in recent years, so how about doing something about DuBos? And where, oh where is the NPS?

Don Riepe (Baykeeper): Cleanups are done here at least twice annually and the place actually looks a lot better than when it was first dedicated as a NYC Wetlands Preserve…In the 1980s it was the first "Buffer-the-Bay" land to be transferred to NYC Parks and much effort went in to remove a bunch of derelict cars on the site and a guard rail was installed around it to keep out more abandoned vehicles. Yes, it's still an unsightly mess, but better than a condominium or industrial site and it acts as a functional wetland and upland buffer. In May, I see a good number of horseshoe crabs on the shoreline and have found Fowler's toad here (they have disappeared elsewhere in the Rockaways and Breezy Point). The site also has a nice little area of high marsh and is a good migratory stopover for birds during fall migration. The shoreline does collect a lot of floatable debris and is difficult to walk through. We (ALS) plan to have another cleanup there during coast weeks in September. At least it's a protected site…

Qns woman 1: It's been quite a few years since I've been out there, but what I remember was a very rich biodiversity and the biggest blood sucking mosquitos in the Rockaways. I think the spot is really important to the Bay, even if it is an eyesore.

Image 4.38 Garbage at DuBos Point Photo http://queenscrap.blogspot.com/2009/05/this-is-wildlife-sanctuary.html

Qns woman 2: I agree it needs a clean up but make sure you do it in the winter. Five minutes in there after mosquitos are out, your legs will be covered in blood!!

BK woman 1: That's another thing Bernie always complained about, mosquitoes as big as houses!! He always said that it had to do with the Sanitation Department's policy of bulldozing empty lots…It sounds like this is STILL a problem. So where do you think they are coming from? Is water ponding in debris? Are channels blocked?

Qns woman 2: There is a lot of debris down there. I think a lot of sick dogs and other animals go there to die because it is so isolated. I'm sure that attracts lots of mosquitoes. The garbage dumping used to be awful, don't know about now. Isn't there some sort of fence there now?

My field visit to the Rockaway Community Park across the street from the

Ocean Bay Apartments (previously the Arverne and Edgemere Housing Developments)

confirmed these descriptions; waterfront access was blocked by excessive garbage and the

mosquitos covered my legs within minutes of being along the water. Poor environmental

Image 4.39 Waterfront in Rockaway Community Park on Beach 51st Street. Photo Google Street View

maintenance of the public access points along the Bay deters local populations from spending

time along the Bay's shores.

Image 4.40 Ocean Bay Apartments across from Rockaway Community Park. Additional public housing developments can be seen in the distance. Photo Google Street View

On the Western edge of the Rockaway Peninsula, past the Gil Hodges Memorial Bridge, the area fronting the Bay is part of the National Park Service and contains private beach clubs. At the tip of the Rockaway Peninsula, beyond the gated community of Breezy Point, is a popular fishing spot at the Breezy Point tip.

Image 4.41 Breezy Point Cooperative Sign Photo: flickriver.com/places/United+States/New+York/Breezy+Point.search/

Access to the Breezy Point tip is difficult to reach given the sandy terrain and anglers need to obtain a yearly parking permit, at the cost of $50, to park at the Breezy Point tip.

There are two private beach clubs on the Western edge of the Rockaway Peninsula, the Breezy Point Surf Club and the Silver Gull beach club. In 2010, the beach clubs were forced to open their doors to public visitors who can purchase a day-pass, for $60-$150 for adults. Residents have expressed strong sentiments about the natural resources of Breezy Point and western Rockaway, as well as the Park Service's management of these areas. During a recent NPS GMP Open House, residents of Breezy Point and beach club members described the sense of community here and their personal attachment to these spaces. Many feared that the Park Service's new GMP would require closing the two beach clubs, stating that it would be "a sin" and an "emotional loss" if the clubs were closed. A few of those in attendance expressed concern that the beach clubs are the last remaining piece of "Americana" and should be saved as a bastion of "truly" American culture.

Image 4.42 Breezy Point Surf Club

Image 4.43 Silver Gull Beach Club

The Neponsit Property Owner's Association works hard to maintain the tight-knit feel of the community, in part by securing a ban on street parking in the neighborhood from May through October, as well as a chain-link fence separating the oceanfront beach from the public Jacob Riis beach, part of the Gateway National Recreation Area. While these two examples are on the ocean side of the peninsula, they serve to demonstrate the way access to nature is limited on the Rockaway peninsula. Additionally, it shows the contrast between a park that was established to provide the National Park experience to urban residents and its separation by a chain link fence to private nature.

Image 4.44 Parking Restrictions in the Neponsit neighborhood in Western Rockaway

Image 4.45 Chain-link fence separating Gateway's Jacob Riis Park from the semi-private beaches of Neponsit.

The Exclusionary Potential of Place

While place is an important component in cultivating people's relationships to nature, the downside to place is that it often rests on excluding others, whether intentionally or unintentionally. The defense of place or one's "territory" is strong in the neighborhoods along Jamaica Bay (See Image 4.45). Researchers Kornblum and Beshers (1988) describe the intensity of defending one's turf along Jamaica Bay. "In no other region of New York City do local residents direct as much violence against racial minorities…Racial hatred is never far from the surface in these shore communities; expressions of it can easily be brought forth in casual conversation" (219). Racial tension in the area developed over decades, but has come to a head over the last 30 to 40 years in a fierce attempt to defend neighborhood space.

Image 4.46 A sign in Ramblersville reads "Slow Down. Children at Play, Fathers with Guns" Photo Van Hooreweghe

The establishment of Gateway National Recreation Area in 1972 raised local residents fears about the encroachment of others on "their" beaches and shores. Sociologist Bill Kornblum working as a Gateway planner recalls resistance to the establishment of the Park during the early planning process.

> We held public meetings about the plan all over the city, but the most surprising one occurred in Jamaica Bay itself, at a large meeting room on Floyd Bennett Field. About two hundred irate fishermen, mostly Broad Channel residents, showed up to tell us what idiots we were and to boo us off the platform. They threatened riot and mayhem, and the air in the packed meeting room smelled of alcohol. Our stupidity had been immediately visible to them. The zoning map seemed to bar them from their beloved picnicking spots and the shorelines where they dug bait and set eel pots. As Cables tried to settle the crowd and explain our intentions, I heard only angry shouts and some bitterly racist remarks from the crowd (Kornblum 2002: 93-94.)

Part of the Gateway proposal was to add 17,500 units of low and middle-income housing to the area adjacent to Flatbush Avenue on Floyd Bennett Field. Opponents to the housing proposal cited concerns about increased traffic along Flatbush Avenue as the cause of their resistance (See Image 4.45). However, the threat of bringing inner-city residents to the Jamaica Bay shore also seemed to prompt opposition to the plan.

> The regional elites who saw Gateway as their victory made no secret of the fact that they hoped to see a major recreational development on the scale of Jones beach located at the vacant navy airfield, Floyd Bennett Field. They similarly took every opportunity to remind people at planning meetings that Congress intended additional thousands of inner-city people to share the beaches of Breezy Point, the wetlands of Jamaica Bay, and the planned facilities of Floyd Bennett Field. This argument did not sit at all well either in exclusive Breezy Point and Neponsit or in Broad Channel, Canarsie, and Howard Beach (Kornblum and Beshers 1988: 218).

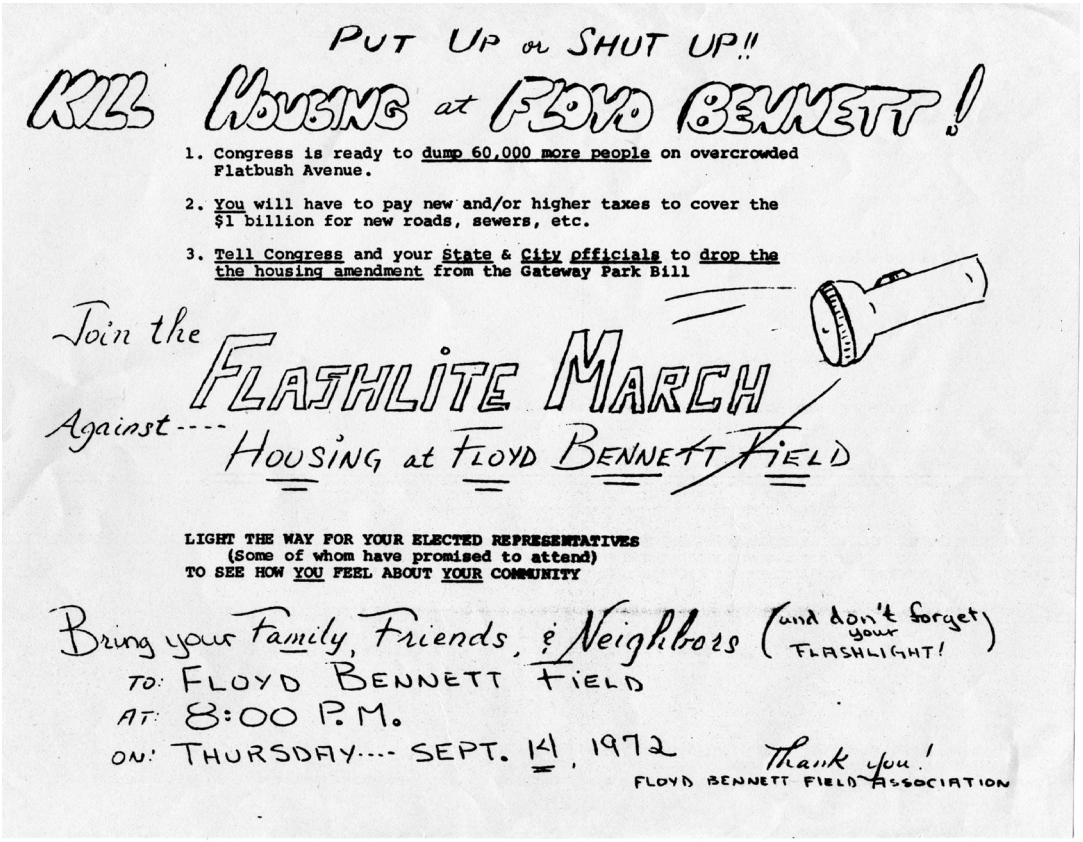


Image 4.47 Hand-made flyer announcing protest against housing at Floyd Bennett Field.

Perhaps in one of the most notorious incidents of exclusion and racial tension occurred in 1986, when a group of young White men in Howard Beach chased down and beat four Black men while shouting "Nigger, you don't belong here" (Kornblum 2002: 91). One of the men was killed after being hit by a car on the nearby Belt Parkway while trying to escape the beatings. The incident, a highly publicized event, stirred racial tensions throughout the city, and Howard Beach became associated with racism in the public imagination. However, many local residents contend that the media portrayed an unfair and inaccurate image of the neighborhood. Another incident of white-on-black racial violence occurred in 2005 when a group of white men attacked three black men with a metal baseball bat, fracturing one man's skull. The 2005 incident further exacerbated the public's association of Howard Beach with racism. In Gerritsen Beach in 2006, a group of four black teenagers got lost biking when they were chased by a group of white teens

yelling racial epithets. While three of the black teenagers escaped, one was thrown from his bike and beaten (Buckley 2006).

In addition to overt acts of violence, there have been more subtle incidents of racial intimidation that when taken together create an air of exclusion and deters members of minority groups from living, working, playing, and praying along Jamaica Bay. Again in Gerritsen Beach, comments on a local blog, GerritsenBeach.net, reveal the racial tension sitting below the surface. In response to a story about maintaining "The Weeds," a resident initiated discussion about the use of the DA's Alternative Sentencing Program:

> GB Cares [a local environmental group] wanted free labor and used black criminals during the clean ups. Criminals that probably would have never stepped foot in the beach without the clean ups. They had to do community service as part of their sentence, but GB Cares did not have to use them. They thought it was great to get free labor. Now those same people, or their friends and relatives, may be returning. Maybe they are bitter they had to clean. You could see the bitterness in their faces. Maybe they saw soft targets and easy marks. I don't think GB Cares realized that the people that commit the kind of crimes that get community service also commit the big crimes later on (GerritsenBeach.net 06.22.2010).

Another resident replied:

> You know something; it's our own asshole kids who are bringing black kids in the neighborhoods. It's disgusting, I see the neighborhood kiddies walking down here with their homies, some of them hooking up. The black kids look at us like WTF. Guess what, don't bring them. When you see them walking around, look at them like they don't belong. This is the problem, there are too many of them and they are getting comfortable down here. You reap what you sow. (GerritsenBeach.net 06.22.2010).

On the same website, a local resident who rented an apartment in the area asked for the addition of public BBQs and picnicking space along Gerritsen Avenue. The response indicates not only the unwillingness to allow outsiders, but also the degree to which recreational opportunities in the neighborhood are structured around private property. "Why not listen to the communities [sic] suggestions on how to spend their tax dollars as

appose [sic] to coming up with new ways to waste money and bring in more ppl from other communities [to a local skate park]. People in GB move their [sic] because its nice and quite area that we all know each other. No need for picnic tables and BBQ we all have them in Kiddie [the private beach] or in our yards." Another resident continues:

> I witnessed a group of about 6 black kids on bikes heading toward the skate park yesterday. I didn't know it is a bike park also. Point is, if there were to be trouble about it the people in this neighborhood would be crucified in the media for being racist pigs…but lets say a group of 6 white kids on bikes rode down to Brownville and got beaten up or knifed over there, the media would say that they shouldn't have been there. Either way, it's a no win situation for us. So yeah, you want more lowlife crap down here, go ahead and put picnic tables up there. (GerritsenBeach.net 08.05. 2009).

In Jamaica Bay's neighborhoods, racial tensions extend beyond blacks to other groups as well. The Indo-Caribbean Hindu population, largely from Ozone Park, frequents the Bay to make offerings to deities, particularly along the North Channel Bridge (See Chapter 3). As part of their pujas, local devotees leave offerings such as flowers, coconuts, statues, and flags that wash up along the shore. Local communities have responded negatively and exhibited their cultural ignorance by calling what Hindus consider to be sacred offerings "litter or trash," and accusing the Hindu population of making animal sacrifices, despite the fact that vegetarianism is a primary tenet of their faith. Former Congressman Anthony Weiner spoke in a chastising way about the issue in local newspapers. "There has to be some sense that this is a national park. We want people to enjoy it, but there has to be a balance," adding, "Is it legal to cut the head off a goat in a national park?" (qtd in Greene 2008). In a different paper, he is quoted as saying, "Even if the activity is permitted, leaving behind trash cannot be. We cannot have a situation where people are leaving behind ceremonial pines…leaving shrines of their garbage" (qtd in Landor 2008).

On a New York fishing website, Stripersandanglers.com, local anglers discussed fishing at the North Channel Bridge and the Hindu remnants. Here too, evidence of cultural insensitivity permeates the discussion. "Yeah a lot of sick/twisted people out there who do weird **** in the name of religion. You will find fruit offerings, pineapples and other funky stuff in the parking lot of the NCB [North Channel Bridge]." Another responded, "Haitian voodoo, santeria, means there are no fish there, and they want the voodoo god to bring some in," after which the person placed several laughing emoticons. In response to an angler's comments that he spoke to "one of them," someone wrote, "You better be careful Dark, he might come back with his buddies and sacrifice you up for their offering," again adding laughing emoticons (Stripersandanglers.com 05.11.2009).

Several local Hindus reported that they had stopped or reduced their trips to Jamaica Bay because they felt uncomfortable with how others responded to them. In the picture below, graffiti on the North Channel Bridge conveys the sentiment that the Hindu population is not welcome along the Bay.

Image 4.48 "Fuck You Fuck India" spray-painted on the North Channel Bridge. Again, this reveals cultural ignorance, as the Hindu population frequenting the shores of Jamaica Bay is Indo- Caribbean, not from India. Note the group of devotees huddled in the background carrying out a religious ritual. Photo Van Hooreweghe

Graffiti in the bathrooms at the North Channel Bridge also conveys racist sentiments, this time against Arab populations (See Images 4.48 – 4.50). It is not clear if the graffiti is aimed, albeit incorrectly, at Hindus practicing or if the graffiti is aimed at Arab populations in general.

Image 4.49 “Arabs Eat Shit” Graffiti in North Channel Bridge Bathroom Photo Van Hooreweghe

Image 4.50 “Fuck U Allah” Graffiti at North Channel Bridge Bathroom Photo Van Hooreweghe

Image 4.51 “No Arabs” Graffiti at North Channel Bridge Bathroom Photo Van Hooreweghe (2011)

Racial tensions and sentiments continue to surface in the Jamaica Bay area and it is largely rooted in the fear that "outsiders" might destroy the character and benefits of "their" place. Taken as a whole, the acts of racial violence, the blog-postings, and the graffiti do not create a sense that "others" are welcome in the neighborhoods along Jamaica Bay. The outcome of these practices and sentiments is the creation of environmental privilege for some, as local residents are able to maintain their access to the waters of Jamaica Bay by erecting and enforcing social distance. Even for those residents who might not actively engage in racist practices or stereotyping, they are still the beneficiaries of environmental privilege, as fewer people feel welcomed to exploring the "National Park experience" at Gateway, thus allowing for more open space per person.

Conclusion

Jamaica Bay's tributaries and shoreline intersect with residential segregation, infrastructure development, poor environmental maintenance in less wealthy, minority communities, and the exclusionary propensity of place to restrict access to the waters of Jamaica Bay for some, while enhancing access for others, thereby reproducing race and class based relationship to nature. Given the strong connection to place discussed in Chapter 3, it is perhaps not surprising that residents work vigorously to defend boundaries, both real and imagined, separating their place from others. Moreover, the history of white settlement along the Bay's shores and fears of minority encroachment into the neighborhoods has given the exclusionary propensity of place a particularly racial bent in Jamaica Bay.

Class-based differences rooted in private property ownership also play a role in creating environmental privilege. The Canarsie neighborhood provides a good example. Blacks in Canarsie have roughly the same socio-economic status as their counterparts in the white neighborhoods of Gerritsen Beach and Broad Channel, but do not have the same access to the

water. Blacks in Far Rockaway and East New York have a much lower socio-economic status than most blacks in Canarsie, and they have fewer opportunities to access the Bay's waters and poorer environmental maintenance than in Canarsie. As such, the concept of environmental privilege captures the experience of environmental benefits and ills as well accounting for the role of both race and class in shaping the Jamaica Bay landscape.

The focus on privilege, as opposed to the emphasis on environmental injustice, highlights the structural, unconscious, and historicized experiences of environmental decision-making. For example, the development of roads, airports, and landfills from the mid-1930s to the late 1980s cut off access to the water for a significant portion of the population, particularly for those living in Canarsie, East New York, Ozone and South Ozone Park, and Far Rockaway. Furthermore, these populations endured grievances typically associated with urban environmental justice issues, such as exposure to toxic chemicals, horrible smells, and loud noises associated with cars and planes. At the time the roads, airports, and landfills were proposed, sited, and built, white populations lived in the adjacent neighborhoods, but they were generally poorer immigrant communities. Today, the landfills are closed and although still deafening, flight patterns have been altered to reduce noise, and there are no longer trucks of garbage constantly spewing exhaust into the neighborhoods. As such, people might not immediately recognize the consequences of environmental inequality, as they have become a "normal" part of the landscape. The outcome is especially pernicious because it reduces the likelihood that residents and policy makers address the inequities because they are perceived as "normal." Moreover, the consequences of environmental privilege alienate residents from nature by eliminating opportunities to experience their ecosystem as alive and active – a participant in daily life – a member of one's community (Paraskevopoulos, Korflatis, and Pantis 2003).

Consequently, environmental privilege highlights one of the major shortcomings of place attachments as a strategy for cultivating relationships to nature and overcoming the ideological view of the human-nature split underpinning modern society. Here, then, it is possible to see the social reproduction of nature unfold as residents struggle to actualize their eco-self in light of the organizational and ideological structures characteristic of modern society.

Chapter 5: Conclusion

> Do I [identify as an environmentalist]? I mean, from someone else, or in my own mind? In my mind, we're environmentalists. We're environmentalists with common sense. And I don't mean to be derogatory, because I do think of myself as an environmentalist, but, it's very easy to have…I don't want to say the enemy…the person on the other side that your trying to elicit change from, be it the Airport with the de-icing, be it the DEP, to lump you in the "crazy category." We get to meetings where, you know, people go "Oh the Airport's bad; we should shut the Airport down!" To me, they love that. They love that because they're saying "Oh, keep going on. You're the crazy one." And sometimes in my mind, I've seen environmental discussions go that way and it's not a good thing because while, ok, maybe you're more hard-core on your views of really wanting to go back, but its not realistic. And then you allow people to paint you as not being at least somewhat commonsense. – Dan Mundy Jr. on identifying as an environmentalist (2010).

This quote is a snapshot of the process of eco-self formation. Mr. Mundy Jr. is negotiating the appropriate balance between his understanding of himself, his beliefs about environmental protection, his beliefs about modern Western society, and his concerns about how others will perceive him. Residents come to negotiate and develop the eco-self through the process of place-making. As with all aspects of self-formation, the eco-self is an ongoing practice, subject to the same contingencies and contradictions found throughout all types of identity formation. That the eco-self is an ongoing process allows for residents to simultaneously have a strong sense of place, and aspects of an eco-self, while also making decisions and behaving in ways that do not necessarily enhance the long-term quality of the Bay. Residents' relationships to nature, then, are rooted in physical and social contexts that both facilitate and impede the cultivation of this relationship.

The Consequences of Place Making for Individuals: Formation of an Eco-Self.

Stella Capek developed the concept of "surface tension" to capture the "fluid, negotiated, and often contradictory quality of narratives about nature and the self" (2006:158). She argues that the concept "holds more of the tension of resistance as well as acceptance of the extension of

self, because resistance and acceptance can be practiced by one person or different people, all of whom are trying to work out their relationship to 'nature.'" (Capek 2006:177). The concept of eco-self incorporates nature into how we understand ourselves as people, as well as recognizing that the process of self-formation involves struggling against long established ways of thinking and behaving toward the environment, and thus will be fraught with inconsistencies.

In Jamaica Bay, even community and environmental leaders have tempered their perceptions of themselves as environmentalists. As seen above, Mr. Mundy Jr. is clearly self-conscious about the degree to which he is willing to suggest or push for radical environmental action. He argues that by having "commonsense" that others will be more willing to work with him than if they viewed him as a crazy environmentalist. He continues:

> This agreement we're going to reach [to reduce nitrogen loading], we could have went and went to court. And people said, "Oh man, you should've went to court, and maybe you could have…" And we said a couple times at the meetings, and I think it helped us at the negotiations, that look, we have common sense. We want this, this, and this. We're going to get you to do this, and if you're not this, then we will go to court. However, the things that we wanted, when they made the counter-offer, that that's maybe $50 million more, and the benefits is only going to be this much. Do you see that, and do you accept that? We still try to meet the middle ground, find the middle ground that's acceptable. And with that, you find you have more working relationships…It helps your cause, and helps find middle ground with the people your trying to effect change with.

Maria Garrett, another community environmental leader also qualified her environmentalism, also in part, because of how she thought others might perceive her. When asked if she was an environmentalist, she said, "Not really. No. I'm just a person that cares about nature. Environmentalist, I don't know. Because I don't know that much about it [the environment]. What I'm learning about it – I guess somewhere down the line, I could give myself that title. " When asked if the term environmentalist applied if the label meant those who are actively working to preserve the environment, she shifted. "Yes, absolutely." When asked

about her contrasting responses she replied, "I guess because it is such a big word [environmentalism] and you want to break it down. And people ask, you know, 'what do you know about the environment?' Because that's when I think I would shy away and say I'm not an environmentalist. If it is tied to knowledge about the environment, then no, but caring about the environment, then yes."

Both of these examples illustrate how the eco-self and human-nature relation reflect the ideological underpinnings of the nature/culture split in modern society. In Mr. Mundy's case, he struggles with what constitutes an acceptable middle ground between preservation and development, as well as the concern that his environmental proclivities might be viewed as "irrational." This example reflects the struggle to maintain separateness between rational and irrational, nature/culture, mind/body and the struggle between economic priorities (defined within the capitalist system) and environmental sustainability. It also reflects different gendered expectations about relating to the environment – men should be calculated and rational in their dealings with nature. Conversely, in Maria Garrett's case, she does not think that her own level of knowledge, based in her embodied experiences and observations of nature, warrants the label "environmentalist" even though she was given an "Environmental Valor" award. Here, again, there is a struggle to overcome these dualisms to a way of thinking and knowing that embraces the human connection to nature. Women are seen as coming to understand nature through their embodied, daily experiences of nature, but this way of thinking and knowing is devalued and considered "unscientific" (Merchant 1980; Salleh 2009).

The surface tension involved in negotiating the eco-self can be seen in different aspects of the wider Jamaica Bay community as well. The instances above illustrate the process of thinking of one's self as connected to the environment and acting in ways that improve the

environment. There are, however, instances where personal and community decisions do not draw connections between their own actions and ecosystem consequences, thereby reproducing modes of thinking and acting that continually dominate nature and prioritize economic development over sustainability.

Inconsistencies in the Eco-Self: Decision-making that Undermines the Long Term Health of Jamaica Bay

Proximity to the Bay and the process of creating place – the fusing of the natural and human order – do not necessarily guarantee that residents will engage in environmentally beneficial behaviors. Barbara Toborg of Broad Channel says in contrast to those residents described in Chapter 3 who seem to embrace the Bay and orient themselves to it, there are others who work to block out the Bay's elements. She describes other neighborhood residents who have tiny windows throughout their homes and a different mentality of "bordering yourself in from Mother Nature." She continues, "Some people cement yards, build fences, don't want weeds or vegetation. Fear ticks, raccoons, muskrats and keep everything at bay." When asked why she thought people worked so hard to avoid the elements of nature, she says,

> I think it is a compulsion to manage – to keep things under your control. It is hard to grow grass when the tide comes in. Some people put sod in their front yard, which didn't last too long and then put cement in. Some people value neatness over disorder or a more laissez-faire approach [to landscaping]. I always complain to the people that there's so much cement. They look at me like I'm crazy. But it's drainage. If you'd planted lawn, the rain could have gone into the ground…Some want to isolate themselves from the wild while others want to let it come in.

Image 5.1 Broad Channel home with cement yard. Photo from: http://www.trulia.com/homes/New_York/Broad_Channel/sold/1000184154-101-E-7th-Rd-Broad-Channel-NY-11693

Here again, someone who acts, or suggests that one act, in an environmentally beneficial way is perceived as "being crazy."

Furthermore, few participants mentioned (nor did I observe) taking steps to reduce their ecological footprints at home, whether through food choices, driving less, producing less waste, or having smaller homes. For example, in every neighborhood along Jamaica Bay, the percent of people commuting via car, either alone or by carpool, is higher than the rest of the borough. This is both a consequence of public infrastructure decisions, there are fewer trains and buses are more common near Jamaica Bay, but also reflects people's preference for more suburban lifestyles in and around the Bay (See Table 5.1).

Table 5.1 Population Commuting to Work by Car in Jamaica Bay neighborhoods (Data from US Census 2000)

Geographic Area	% of population commuting to work via car	Geographic Area	% of population commuting to work via car
Borough of Brooklyn	**30%**	**Borough of Queens**	**44%**
Gerritsen Beach	53%	Howard Beach, Broad Channel	70%
Mill Basin Bergen Beach	66.2%	Ozone Park	55%
Canarsie	52%	South Ozone Park	57%
East New York	39%	Eastern Rockaway	50.4%
		Western Rockaway	69.3%

However, this suburban way of life requires decisions that can undermine the same ecosystem drawing people to the area in the first place through the loss of permeable surfaces, increasing air pollution, and wastewater run-off.

In addition to personal lifestyle choices, decisions about local economic development reflect inconsistencies in residents' relationships to nature. While residents view the Bay as an important part of what makes their neighborhood special, they often prioritize economic development over long-term preservation of Jamaica Bay. For example, much of the Community Board 10 meetings in Queens, which represents the neighborhoods of Howard Beach, Ozone Park, South Ozone Park, Richmond Hill, Tudor Village, and Lindenwood, were spent discussing the redevelopment of the Aqueduct Race Track. Current proposals include a $4 billion, 3.8 million square foot convention center, hotel, and casino to be built adjacent to the newly developed Resorts World Casino. Despite discussions about the bidding process, the developer, the increase in potential jobs, and the involvement of community members in the decision-making process, there was never any discussion about the environmental implications

of such a large development so close to Jamaica Bay and its tributaries, e.g., the large amount of necessary resources to build the casino, the increase in the amount of traffic, via cars and buses, or the impact on air and water quality. This is the case despite there being special environmental and parks committees among the Board's leadership.

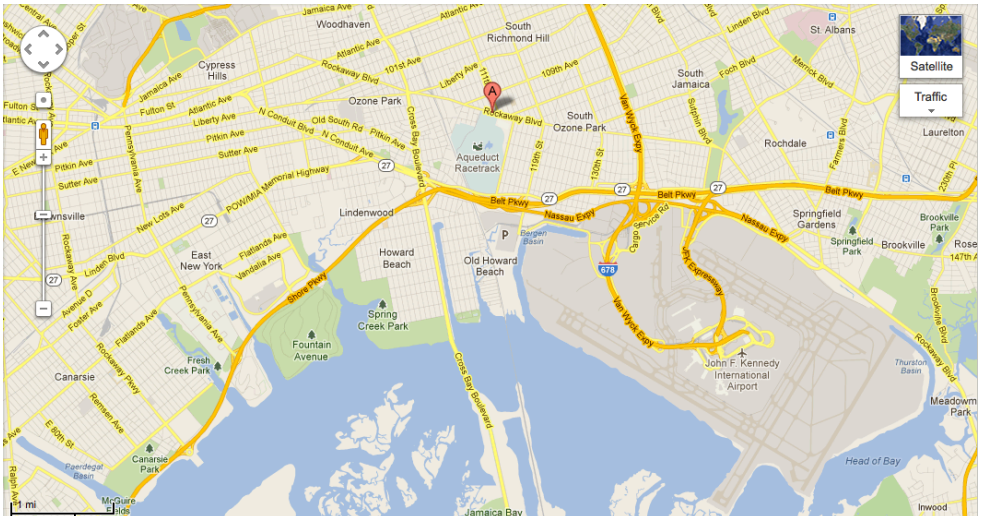


Image 5.2 Aqueduct Race Track in proximity to Jamaica Bay Photo Google Maps

Similarly, at a Community Board 18 meeting in Brooklyn, which represents the neighborhoods of Canarsie, Bergen Beach, Mill Basin, Flatlands, Marine Park, Georgetown, and Mill Island, a local elected official, Lew Fidler, announced his opposition to a plan to put a natural gas pipeline along Flatbush Avenue in Mill Basin because of its potential impacts on an area known as Four Sparrows Marsh. Those in attendance cheered his announcement and Mr. Fidler can point to his record as a protector of the neighborhood's environment. Immediately following this announcement, however, Mr. Fidler declared his support for the development of an automobile dealership in a lot off Flatbush Avenue adjacent to the same marshes he sought to protect from the natural gas pipeline. The Four Sparrows Marsh is supposed to be part of New York City's Forever Wild program, protecting the marsh from development projects, but the city declared the marsh open to development because it had never been officially mapped as Forever

Wild (Email communication). Again, none of the residents in attendance questioned the environmental implications of this decision that would put large swaths of cement adjacent to marsh grasses, thereby increasing wastewater runoff and decreasing any possibility of re-developing fringe marshes along the tributary. Members of the Eco-Watchers sent delegates to later meetings to discuss the future of the marsh. However, they did not question development *adjacent* to the marsh, but rather objected only to the use of the marsh itself, thereby failing to see the connections between development of the Four Sparrows Marsh and the larger ecosystem. In the end, the Community Board approved the project as long as deciduous trees and tall evergreens were planted so that the buildings would not be visible from the water (www.citylandnyc.org).

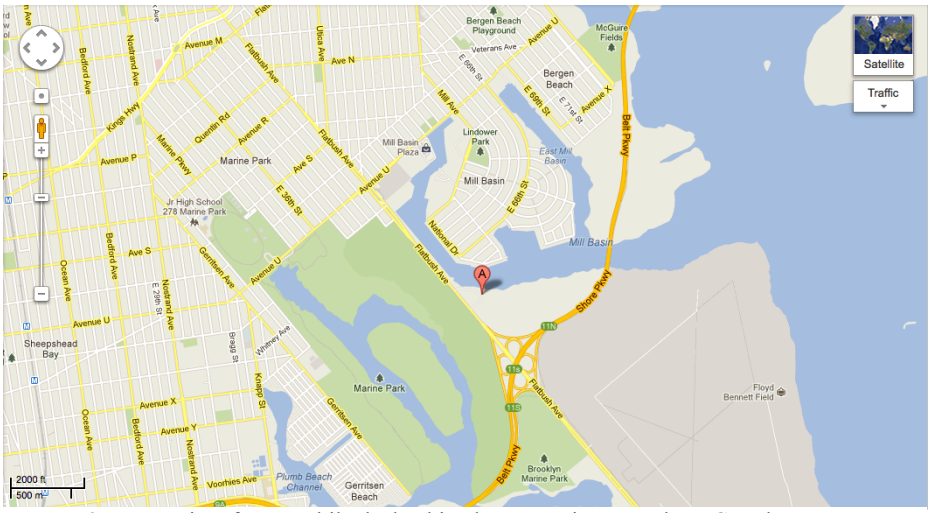


Image 5.3. Future site of automobile dealership along Jamaica Bay Photo Google Maps

These examples illustrate the limits of local residents' ability or willingness to make connections between local economic development and the long-term health of Jamaica Bay. Residents work to protect areas that they see and experience, but that does not necessarily mean they will link their work to an analysis of larger political and economic factors that influence the Bay. This critique is not meant to discredit their attachment to Jamaica Bay or to undermine the

connections they do make, but rather to realistically assess the material consequences of cultivating relationships to nature through place. Here, we see how in some ways, people's relationship to place reflects societal priorities of ecosystem dominance and management that devalue and exploit the environment (Eisenhauer, Krannich, and Blahna 2000; Gosling and Williams 2010; Merchant 1980; Mies and Shiva 1993; Uzzell et al. 2002; Salleh 2009), while in others see how connection to place has resulted in positive action to protect the Bay. Thus, the process of relating to Jamaica Bay as a particular place results in intricacies, contingencies, and contradictions in people's relationship with nature. A key aspect of developing the eco-self and cultivating one's relationship to nature in a way that does not continually reproduce the nature/culture split is by recognizing the liveliness of nature.

Bringing Nature Back In: Recognizing Nature's Agency in Jamaica Bay

Residents' eco-selves develop as a result of their activities living, working, playing, and praying in the Jamaica Bay ecosystem. It is through these regular activities that residents come to recognize the estuary as alive and agentic. There's an old hypothetical question: If a tree falls in a forest, and there is no one around to hear it, does it make a sound? For those calling for nature's reintroduction into sociology, the answer is emphatically "yes." Nature exists; it functions without, and at times, in spite of, humans. The question at issue is the degree to which scholars allow the environment to act. Does nature have agency? If so, does that mean nature has consciousness? The question unsettles sociologists because consciousness and agency have long been held as the distinguishing factor between humans and animals – our escape from biological determinism (Marx 1846 [1998]). To afford environmental agency would require society – and sociologists – to surrender their exaggerated belief in the human capacity to control the natural and social worlds (Pickering 1993; Plumwood 2001).

Sociologists tend to disagree on the issue of nature's agency – ranging from arguments that grant no agency or volition to arguments where nature's agency differs little from human agency, since both are temporally emergent (Bannon 2009). Freudenburg et al. (1995) in their analysis of Iron Mountain, Wisconsin do not grant natural agency, arguing instead that understanding society is their analytic focus. Consequently, they argue for "conjoint constitution" or awareness that what we take to be physical facts is likely shaped, in often unforeseen ways, by the social and vice versa. In explaining the physiology of Iron Mountain, Freudenburg et al. (1995) showed how natural resources could both resist and encourage social behavior, but they did not extend their analysis to the environmental consequences of such behavior. Woodgate and Redclift (1998) call for the recognition of the material foundation of society without compromising the reflexivity of human consciousness and the importance of human agency. Arguing that the environment is both the material conditions of existence and a set of cultural symbols, Woodgate and Redclift recognize both the social and natural factors shaping the character and dynamic of socio-environmental relations. Specifically, Woodgate and Redclift argue that understanding the human-nature relationship in terms of "co-construction" improves our comprehension of the way the environment conditions the structure and development of society over time (1998).

Along these lines, Raymond Murphy (1997) calls for a move toward understanding the *interaction* of social action and natural processes as a causal factor in shaping society. While Murphy does not grant nature intentionality, he is willing to recognize the movement of nature and nature as a "dynamic force" in shaping social action. Specifically, Murphy draws our attention to society's ecosystem dependence as the major similarity between humans and non-humans. Stella Capek (2006, 2010) also focuses on the role of ecosystems in social life, but

unlike Murphy, views ecosystems as alive and interactive, not just a background for human action, but itself an agent. Responding to the absence of nature from urban sociology, Capek argues that recognizing nature's agency will enliven the sociological imagination and provide a more realistic view of cities (2010). She describes nature's role as one of co-determination, where nature, along with humans, construct outcomes within communities. Capek argues for an understanding of nature's agency not only in extreme events, e.g., hurricanes and earthquakes, but also in the subtle, often ordinary, processes of daily life. To understand how these processes play out, Capek calls for a perspective that examines how nature and people interact in actual situations and places.

Val Plumwood (2002) also argues for the recognition of place in people's relationships to nature, calling for a "Spirituality of Place" that is possible, in large part by recognizing nature's agency, or nature's labor, in place creation. In line with Capek, Plumwood calls for a material agency that is not limited to extreme environmental events, but an agency where "communication from the world can be just as attractive and life-affirming when it aims at nothing more unfamiliar, sophisticated or devious than reproduction" (2002: 228). Plumwood attributes "mind-like properties" to nature and argues that hegemonic conceptions of agency deny the possibility of nature's agency as well as denying the human dependence on nature. Through the processes of hyperseparation and backgrounding, human rationality has deadened our experiences of nature, leading to the objectification of nature, and ignoring the unanticipated consequences of nature's labor. Plumwood argues that granting agency to nature does not necessarily mean denying nature's otherness or overshadowing human distinctiveness. Rather, Plumwood argues that humans are distinct species with their own relationship to nature and calls

for viewing non-human others in non-hierarchical ways, so as to shift to an alternative ethical framework for action.

Actor-Network-Theorists grant material agency a status equivalent to that of human agency in traditional sociology. Pickering (1993) argues that because nature's agency is temporally emergent, as is human agency, that material and human agencies are mutually and emergently productive of one another. There is no difference between human and non-human agency because they are both continuously transformed. Scientists cannot know in advance how nature will react. The "trajectories of emergence" are enmeshed in an ever-changing network of relations, resulting in the coproduction of social structure and material agency. Consequently, nature's agency ensures that humans do not have total control of history. Drawing on Actor-Network-Theory and Plumwood, Bannon (2009) calls for a relational ontology that does not recognize nature as a separate being with agency, instead conceptualizing nature as process that has no inherent properties or characteristics. Bannon argues that nature is a nexus of relations or an Event, defined by how it interacts with other bodies through the processes of spatialization and temporalization. By defining nature as a process, Bannon argues, he overcomes the oppositional definition of nature as non-human, coming to recognize the continuity between humans and nature without erasing human distinctiveness.

Here, I draw on the above perspectives to argue that the reproduction of the social and natural worlds occurs in ecosystems that are alive and active (Capek 2010). Nature's agency, its labor in ecosystem processes, impacts the structure and development of society over time (Woodgate and Redclift 1998). I use agency here to draw attention to the processes of nature – above and beyond human control – and the influence of nature in shaping social action (Capek 2006, 2010; Murphy 1997; Pickering 1993). That is, the way we respond to the environment,

what Mead and Weigert (1991) call "the world that is there," has social and natural consequences. The point here is not to argue for or against nature's consciousness. Discussions of nature's consciousness or intentionality reflects sociologists' need to liken nature to the human realm, further devaluing nature by only "counting" or "valuing" it if it has human characteristics.

The analysis here recognizes nature's agency in the subtle and ordinary ways people live, work, play, and pray on Jamaica Bay, thereby drawing attention to human's dependence on ecosystem processes (Capek 2010; Murphy 1997; Plumwood 2002). Recognition of nature's agency also draws our attention to the unintended consequences of nature's labor and forces us to acknowledge that humans are not in total control of history (Pickering 1993; Plumwood 2002). For example, the Bay's original shallowness and movement of the Bay's sea floor undermined attempts at transforming Jamaica Bay into an industrial harbor. Consequently, recognizing nature's agency provides a better understanding of the production of place.

Place: Bringing Together Macro and Micro Ways of Understanding the Human-Nature Relation

Place mediates between access to nature and the formation of an eco-identity. It is through place that people experience the subtle, but cumulative consequences of environmental decision-making and urban development in Jamaica Bay (Pulido 2000). But place is not simply a backdrop on which political and economic processes play out. Place is also a source for generating social meaning, connection, and self-actualization. Place is rooted in people's experiences of specific ecosystems and it is through the enmeshing of selves and ecosystems that the pulse of nature in the give and take of daily life becomes apparent. Place, as described here, brings together macro and micro understandings of the human-nature relationship. On the one hand, place incorporates political economic influences on people's access to environmental

resources (Bullard 1990; Logan and Molotch 1988; Smith 1984). On the other hand, place incorporates aspects of social constructionist perspectives that look at social meaning of the environment (e.g., Capek 2006; Tuan 1974; Weigert 1991) and arguments about the role of place in identity formation (Proshansky et al 1983). Furthermore, to various degrees, place is an aspect of life that all people experience, both positively and negatively. As such, connection to place offers possibilities for cultivating relationships to nature in various settings and is something that can be shaped, in part, through urban environmental policy.

Environmental Privilege: The Shortcomings of Place in Cultivating Relationships to Nature

Although place is important for fusing the natural and human order, place is shaped, in part, by the cumulative effects of environmental decision-making and urban development around Jamaica Bay, resulting in environmental privilege for some while denying access to the Bay's waters for others. While examination of environmental injustices in the United States did not become widespread in communities or the academy until the late 1970s and early 1980s, there is a substantial body of evidence that documents the face of environmental inequity. However, there has been less talk, research, or ideas about what environmental justice, or environmental equality, might look like. Given the inequitable distribution of environmental privilege along Jamaica Bay, this case does not provide a model for environmental justice, but it does illustrate some positive benefits associated with access to nature and place making, e.g., citizen initiated restoration projects and feelings of relaxation and peacefulness in a busy urban center. The positive environmental and social benefits of regular interactions with Jamaica Bay suggests that access to nature should be a large part of the discussion about environmental equity, and pushes the conversation of environmental (in)justice in a direction that moves beyond the mere absence of environmental ills, to generating environmental benefits for all.

Moving Forward: Concerns and Possibilities in Jamaica Bay

The Jamaica Bay situation suggests the need for urban environmental policy that seeks to develop urban areas around, and in conjunction with, natural ecosystems. The goal in doing so would be to provide opportunities for residents to experience the subtleties of nature, that while manipulated, are not complete simulacra. For example, Martin Drenthen (2009) examines a Dutch case wherein the goal is not simply to "greenwash" urban environmental policy, but to engage in ecosystem restoration that also builds in a sense of belonging in the landscape, which differs dramatically from typical conservation models that seek to remove people from the natural landscape. As part of this new approach to environmental policy, the Dutch government moved away from attempts to dominate nature and force the area's rivers through a series of dikes. Rather, the plan was to remove the artificial dikes and allow the rivers to escape its banks during times of high water, transforming the diked areas into swamps and marshes, and restoring more natural water dynamics. Not only did "liberating nature" help restore local ecosystems, but also revitalized local communities. By attempting to reconstruct the landscape as it was before human exploitation, unleashing the forces of nature dealt with by early inhabitants, the Dutch government worked to deepen residents' sense of place by learning to incorporate and accommodate the dynamism of the rivers and establishing historical and material connections to the rivers.

"Emplacing" residents in local ecosystems could help garner widespread support for future restoration projects and encourage alterations in personal consumption practices. This historical interpretive framework has already been laid out in Jamaica Bay. Jamaica Bay has a rich history and several people and groups have worked to document life around the Bay. So, in that sense, there is already some recognition of their cultural and historical links to the ecosystem, and many local residents have already undertaken action to restore Jamaica Bay.

Several suggestions, both material and social, emerge from this eco-ethnography of the Jamaica Bay estuary. The Bay's ecology has been significantly altered, but as participants continually reiterated, nature is resilient, and Jamaica Bay is teaming with life. Despite this resiliency, there are significant threats to Jamaica Bay's overall health, such as marshland loss, that could have potentially disastrous consequences for local residents. Of recent concern are new proposals to extend JFK runways further into the Bay and to develop a natural gas pipeline through the open space of Floyd Bennett Field. As such, efforts to restore the natural estuarine ecosystem should be continued, albeit with an eye towards ensuring that restoration projects are not simply undermined by the same political and economic processes that produced environmental degradation to begin with. Accordingly, technological improvements to the four wastewater treatment plants lining the Bay should be a top priority. To maximize gains from improving wastewater treatment, efforts to reduce or deter development that adds to the impervious surface of the watershed should be encouraged. Moreover, while the restoration of marsh islands in the center of the Bay are important, the Bay's ecology would also benefit from redevelopment of its fringe marshes. Re-developing fringe marshes would not only be useful for protecting the shore from storm surges and flooding, but would also be a means for reconnecting greater numbers of people to estuarine ecosystem functioning. Perhaps if people became more familiar and accustomed to life along the marsh, they might come to support more drastic measures, such as uncovering buried creeks and tributaries that at one time cut back into the mainland, as was done in the Dutch example (Drenthen (2009).

Socially, the Jamaica Bay situation suggests the need to cultivate the type of place experiences described in Chapter 3 – the opportunity to fuse the natural and human order as a regular part of daily life. Creating opportunities for regular contact with ecosystem processes

should not only be done in the Jamaica Bay area, but should be a systematic aspect of the city's environmental policy. Cultivating opportunities to connect with nature throughout the city would not only be a more equitable approach, but would also alleviate some of the pressure, both ecological and social, of threats to Jamaica Bay, and other over-taxed remaining natural spaces. Recreational opportunities might prove one of the more effective ways for engaging larger swaths of the population in connecting with nature given that so few people in modern society perform labor in a way that requires intimate connections to the environment as the Seaman family now does. And, although local residents have a history of opposing plans to bring more people to Jamaica Bay, Gateway National Recreation Area should improve access to Canarsie Pier for local residents, provide transportation within the Park and between major transit hubs, and engage underserved populations in recreational opportunities, such as bringing their kayaking program to areas such as Far Rockaway. Finally, although raising racial and cultural awareness might not have been in Gateway's enabling legislation, the Park has a real opportunity to bring together diverse groups and to expose residents and visitors alike to different types of people, worldviews, and perspectives.

The analysis here has brought together macro and micro approaches to understanding environmental issues that are largely a consequence of the all-to-pervasive view that humans are somehow outside of, as opposed to a part of, ecosystem processes. Furthermore, the analysis highlights how relationships to place are rooted in physical and social contexts that both facilitate and impeded the cultivation of relationships to nature, which shapes the formation of one's eco-self. It is this process of negotiating one's eco-identity that is at the heart of the social reproduction of nature.

As one of the "last remaining natural spaces in New York City," Jamaica Bay calls attention to aspects of the human-nature relation that warrant concern, but also suggests possibilities for enmeshing people and nature in everyday life in a way that helps overcome the human-nature dualisms underpinning modern society. On the one hand, local residents continue to support development projects and hierarchical social relations that ultimately undermine the long-term sustainability of the watershed, thus prioritizing capitalist urban development over ecological and social sustainability. On the other hand, Jamaica Bay residents have initiated ecological restoration projects that have improved the Bay's environmental quality and ecosystem functioning, thus challenging conceptions that urban spaces cannot be part of the environmental solution. Finally, the Jamaica Bay case highlights the importance of examining the interactional dynamic between social systems and ecosystems to better understand the environment, others, and ourselves.

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www.gerritsenbeach.net

Howard Beach neighborhood website
www.howardbeach.com

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www.googlestreetview.com

Jamaica Bay Research Network
www.nbii-nin.ciesin.columbia.edu/jamaicabay/

National Oceanic and Atmospheric Association, Wetlands
http://www.habitat.noaa.gov/protection/wetlands/index/html

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http://www.nyc.gov

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http://www.nycaudubon.org/queens-birding/jamaica-bay-wildlife-refuge

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Starts and Fits

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Texas Parks and Wildlife
http://www.tpwd.state.tx.us/

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www.trulia.com

United States Environmental Protection Agency
www.epa.gov

***The Brooklyn Eagle* Archival Materials**

July 18, 1876
November 10, 1877
November 22, 1877
February 2, 1881
February 6, 1881
January 6, 1884
February 23, 1888
July 31, 1891
April 26, 1896
June 7, 1896
August 30, 1896
December 11, 1898
October 4, 1900

***The New York Times* Archival Materials**

October 8, 1866
July 18, 1876
September 1, 1893
March 15, 1896
April 2, 1898
May 15, 1900
March 13, 1910
May 1910
March 14, 1911
October 6, 1912
June 19, 1915
March 18, 1916
April 18, 1920
January 30, 1921
May 6, 1938
August 26, 1949