
INTRODUCTION

WATER, INFRASTRUCTURE, AND WASTESCAPES

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New Year's Day 1898 birthed Greater New York. The cities of New York and Brooklyn, respectively the first- and fourth-most-populated cities in the United States, joined with what are today the boroughs of the Bronx, Staten Island, and Queens to form a supercity, more than twice as populated as Chicago and second only in the world to London, with 3,437,202 enumerated in the 1900 census. The city's coastline expanded from the 32 miles of Manhattan Island to 520 miles including Long Island and Staten Island's shorelines of ocean, as well as rivers, bays, and inlets. The geographic borders and world status of the modern city were in place. During the 1920s New York surpassed London as the world's largest city, and in the 1930s the New York metropolitan region became the first in history to reach ten million people. During the late 1940s the noted writer E. B. White declared, "New York is the concentrate of art and commerce and sport and religion and entertainment and finance, bringing together the gladiator, the evangelist, the promoter, the actor, the trader, and the merchant."¹

The vibrations of great times and tall deeds that White described endured and grew, and the conglomeration of settlements surrounding Manhattan Island galvanized that activity. Two decades into the twenty-first century, the

◀ **FIGURE I.1.** August R. Ohman & Co., *View of the City of New York and Vicinity* (New York: August R. Ohman & Co., 1907). Source: Library of Congress Geography and Map Division.

city's borders now contain more than 8.6 million residents. Manhattan's central status, though, has been upset; the two most populous boroughs are Brooklyn and Queens, each housing more than two million, with Brooklyn's population about a million more than Manhattan's.² The concentration of cultural activity White described in 1949 radiated outward; the Harlem Renaissance represented the center of African American culture in the 1920s, but hip-hop traces its origins to the Bronx in the 1970s, with the emergence of iconic artists such as Grand Master Flash and the Furious Five, in Queens (Run-DMC, Salt-N-Pepa), Brooklyn (Notorious B.I.G., Jay-Z), and Staten Island (Wu-Tang Clan) in the 1980s and 1990s.³ The skyscrapers associated with midtown and downtown Manhattan are rising in Flushing, Long Island City, and downtown Brooklyn as the center of global capitalism continues to develop. Beyond the city borders, the Metropolitan Statistical Area comprising New York City, Long Island, the mid- and lower Hudson Valley (as well as nearby communities in Connecticut and New Jersey) houses over twenty-two million people as of 2018, a scale closer to Beijing, Shanghai, or São Paulo than to other cities in the United States. New York was a global city by the standards of 1898 and retains that status in 2020.⁴

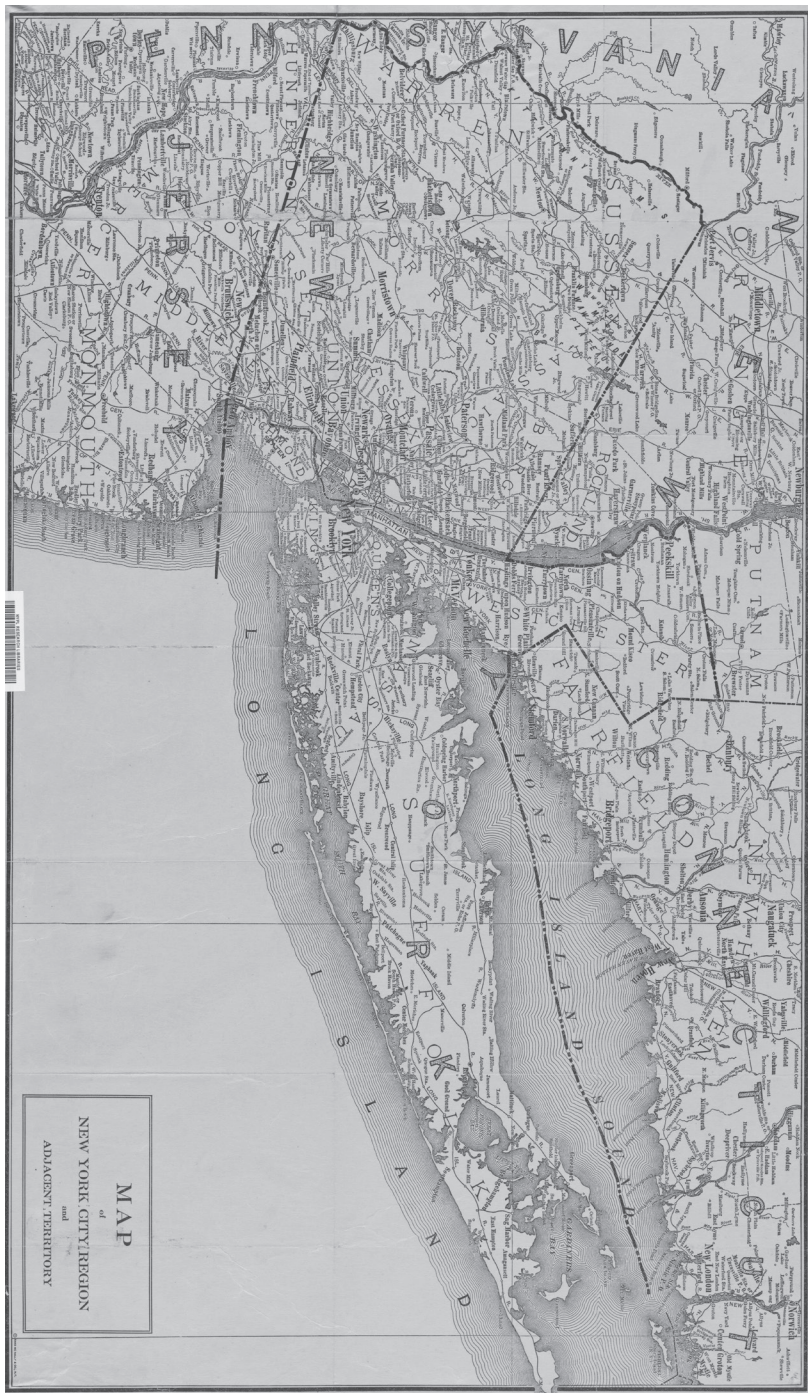
Place produced the conditions for this urban giant. Capital accumulates where land and sea come together. The contributors to this volume examine environmental history in modern New York City, a metropolis whose situation connected it to the Atlantic world and continental North America, presenting great opportunity. Its site atop an estuary brought both great riches and great risk.⁵ The island of Manhattan is land-poor but heavily in demand because of population growth and economic development. Islands removed from Manhattan and Brooklyn historically were used, in many cases, as spaces to marginalize people classified as ill, impoverished, or criminal. As the city grew in population and physical space with annexation of the outer boroughs, development of linking infrastructure, and a rapidly growing economy, it capitalized on its site in ways that exposed its residents to environmental hazards. May Joseph sums up the threats to New Yorkers in 2013's *Fluid New York*: "Living in density today has come to mean being prepared for climate-related emergencies, including heat waves, electric blackouts, the deprivation of water, heat, and social services, and the sudden threat of flooding."⁶

Joseph's alarm at the hazards of living in New York City relates to the systems of buildings and infrastructure that the modern city developed to take advantage of its site and situation. The New York City linked by bridges and joined by annexation became a metropolis that imposed technologies and practices to control nature and transform the region into the massive accumulation of capital and humanity it is today. The ways in which New Yorkers have interacted with

the land, air, water, and each other since 1898 reveal tensions particular to this setting and to urban environments worldwide. Economic opportunities from the land and sea informed the area's colonial days, and exploitation of the estuary accelerated with the rise of global capitalism in the twentieth century, including oyster harvesting and intensive shipping.⁷ New York City's expansion beyond the island of Manhattan through consolidation with Brooklyn, the Bronx, Staten Island, and Queens brought increased commerce and transportation across the area's waterways, multiplying economic and demographic growth in the metropolitan region.⁸

Such activity required supporting infrastructure; in the popular imagination New York City's modernity is associated with its transportation infrastructure, especially the buses, commuter trains, subways, piers, bridges, and tunnels of the Port Authority of New York and New Jersey and the Metropolitan Transportation Authority. (Residents beyond Manhattan are derisively described as the "bridge and tunnel" crowd, underscoring both the importance of the connections and some social unease at the permeability of Manhattan.⁹) Engineers and planners such as Washington Roebling and Robert Moses are alternately championed and reviled for remaking the landscape of the New York estuary. Moses's effects on the local environment are examined in this volume; Roebling is chiefly celebrated for the Brooklyn Bridge, a testament to human engineering conquering the challenges of an aquatic environment. The series of bridges, tunnels, and ambitious urban planning that followed its construction inform how area residents live, commute, and deliver vital services.¹⁰ On the bridge's centennial in 1983, architecture critic Paul Goldberger called it a symbol of man's triumph over nature and "a convenient symbol of the city's new power as a world capital."¹¹

Bridges represent only one aspect of the urban infrastructure involving water. Aqueducts, sewers, and wastewater treatment facilities were also necessary for the growth and maintenance of the modern metropolis into a world capital.¹² The logistics of handling wastes in a large city meant that islands in the estuary region were used for disposal, as were local waterways. Equally important, the natural contours of adjacent waterways, swamps, and other low-lying areas produced opportunities to sink, transport, and transform the wastes of industrial society through the construction of transfer and reclamation stations, incinerators, and dumps, sanitary or otherwise. Those infrastructure choices proved attractive to a large population that prioritized the transition of coastline and "marginal" wetlands into valuable terra firma for commerce, residential, and recreational activities. Not all discards served as fill: as the city grew, an ever-burgeoning volume of waste ended up in streams, rivers, bays, and ultimately the Atlantic.



For these reasons, this volume on the modern city's environmental history pays particular attention to the ways water and waste shape life in the estuary. The history of how the city classified and handled discarded materials represents infrastructures that inform contemporary urban life. It involves sensory repulsion to unwanted materials, fears of epidemic disease, and questions about the use value of discarded materials. The resulting infrastructures of waste management—or wastescapes—do not enjoy the iconic status of the Brooklyn Bridge, but they are every bit as crucial to the lives of the millions of people who call modern New York City home. Creative attempts to reduce the burdens of waste are a continual theme in the history of modern New York City, and the variety of waste management approaches and their varying consequences for the people, land, water, and ecosystems of this estuary are featured in several chapters of this book.¹³

Popular conceptions of “the city” as Manhattan reveal core-periphery relations that have led outer borough residents to different levels of exposure to the hazards of water and waste, including the perils Joseph articulates in *Fluid New York*. The spatial relations in this volume bring readers out from the core to Brooklyn's shore, the Rockaways in Queens, and to other neighborhoods in the Bronx and Staten Island that enjoy what are often concealed relationships to aquatic environs. The ways the new boundaries of the modern city have influenced the politics and environmental experiences of the people living outside of Manhattan raise questions about social, economic, and environmental inequalities past and present within the city. The scope of the chapters also extends beyond municipal limits to consider how the urban metabolic functions of the modern city affect surrounding land and water throughout the New York Bight. These include waste management strategies' effects down the New Jersey coastline of the Atlantic Seaboard and demands for energy having effects up the Hudson River to Storm King Mountain. The power dynamics that shaped these systems include consideration of City Hall and interests pursuing capital accumulation, themes consistent with earlier studies of New York City's history as well as assessment of present-day land use decisions.¹⁴

The liminal nature of littoral New York has multiple causes. Humans transformed the land, the water, and the shoreline where land and water meet to expand settlement and develop commercial shipping. Landfill filled in the lower tip of Manhattan, and huge swathes of coastline and inner crevasses of the other four boroughs. The environmental dynamics also demonstrate how shifts in

◀ **FIGURE I.2.** Map of New York City Region and Adjacent Territory. Source: Lionel Pincus and Princess Firyal Map Division, The New York Public Library.

land and water transform human settlements in the city. The displacements of Superstorm Sandy in 2012 inform this volume; such vulnerabilities have established histories in the city and its environs that reproduce unequal hazards in the coastal metropolis.¹⁵

Our study begins with an updated version of Joel Tarr's overview of the estuary region's environmental and demographic history since 1700, now extended into the twenty-first century. The next two chapters begin our efforts to, as Kara Murphy Schlichting puts it, recenter New York history to the outer boroughs and vicinity. Chapter 2, by William Solecki, John Waldman, and M. Joy Cytryn, is a study of environmental change in Jamaica Bay at the turn of the twentieth century. In chapter 3, Schlichting then continues our examination of local waterways analyzing the health of New York Harbor.

Although all five boroughs were part of New York City in the twentieth century, New Yorkers did not all have equal access to transportation. Chapter 4, David Soll's study of transit problems in the Far Rockaways, reveals conflicts between City Hall and outer borough residents as the latter struggled for greater transit access in the years after World War II. Infrastructure demands had effects beyond the city limits. New York City's demands for electricity at midcentury led Consolidated Edison to seek sites for power plants up the Hudson River in the 1960s. In chapter 5, Robert D. Lifset discusses how these plans generated resistance by locals that would shape the modern environment movement.

We return to the city in chapter 6, by Adam Charboneau. A decade after the struggles Lifset discusses, environmental activism around pollution in the Bronx River led to a set of actions that informed the transformation of that waterway into an amenity—and set the stage for gentrification in the Bronx at century's end.

Our focus then turns explicitly to various ways in which the classification, management, and consequences of discards have shaped New York City's environment. In chapter 7, Martin V. Melosi considers the complexities of waste management in an island city situated on an estuary. One of those dimensions is the use of discards as commodity, and in chapter 8 Tina Peabody presents a case study of landfill as the foundation for the 1939 world's fair site in Queens. Both Melosi and Peabody discuss sinking wastes in the city. In chapter 9, Steven H. Corey discusses the ways New Yorkers used the air, land, and water as sinks for municipal solid waste (MSW), and how these processes all proved sufficiently unacceptable that today New York exports its MSW. Evolving concerns about wastes in the age of ecology also feature in chapter 10, with David Stradling's study of dredging persistent organic pollutants in the New York Bight. Chapter 11 extends our analysis of wastes as commodity, as Samantha MacBride provides

a history of composting as a method to manage MSW, in twentieth-century New York City.

In the concluding chapters of the volume, we move to narratives informing land use in the twenty-first century. In chapter 12, Carl A. Zimring considers how three competing narratives about the history of waste in Newtown Creek inform the present and future of that waterway and its surrounding neighborhoods in Brooklyn and Queens. In chapter 13, Ted Steinberg examines the rhetoric of resilience in Mayor Michael Bloomberg's administration's planning strategies in the years leading up to Superstorm Sandy, and the implications of this rhetoric for the city's future.

We make no claim for an exhaustive environmental history of the region. You may note themes of water and waste intertwine in several ways, including intended use of waterways as sinks for wastes, construction of technological systems to mitigate hazards of wastewater, and development of new buildings that increase vulnerability to flooding. Readers searching for the ways precolonial peoples interacted with the environment; the struggles over agriculture, industry, and public health in antebellum Manhattan; or the creation and maintenance of public green space in the city should consult existing histories on those important subjects in New York City's environmental history. The environmental histories of *Coastal Metropolis* raise questions of what constitutes sustainable development in an estuary amid larger piles of rubbish and rising seas.¹⁶